VBC〉

Model Certification

Prepared For:

c. myers

Velligan-Blaxall Consultants LLC| Haverford, PA | (610) 526-1869

www.VelliganBlaxall.com

Table of Contents

Introduction

Due to the complex nature of financial valuation and income simulation models, it is necessary for the application users and the service subscribers to be provided with reasonable assurance that the underlying methodology is conceptually sound, in-line with industry standards, and consistent with the vendor documentation, and that model calculations are accurate across a range of inputs and assumptions.

C. Myers Corporation has engaged Velligan-Blaxall Consultants, LLC, ("VBC") an independent firm with expertise in financial model evaluation, to independently certify the accuracy of certain components of its asset liability model (ALM). This certification should not be considered a risk assessment or validation of a particular installation or implementation of the model. Rather, it is designed to provide reasonable assurance that the Model's technical abilities, calculations, and formulas perform as expected and meet industry standards. This engagement only concerns itself with the business component of the Models and not how (or why) the outputs are used. In addition, it offers no review or independent assessment of whether its implementation follows applicable regulatory requirements.

Scope

VBC's Certification encompassed a review of the functionality required to perform interest rate risk ("IRR") measurement processes, which include statically and dynamically generated measures of net interest income ("NII") and net economic value ("NEV"). The Certification of the Model covered Static NII, Existing Commitments NII, and EVE.; new volume growth forecasting was deemed out of scope for purposes of the Certification and was therefore not reviewed.

The ALM model (collectively, the "Model") was also evaluated to provide assurance that it can fulfill its intended use consistent with regulatory requirements addressing interest rate risk measurement, as well as the typical client's internal risk measurement, monitoring, and reporting requirements.

The Certification of the Model entailed a review of the functionalities that are most likely to be used by clients to calculate interest income/expense and net worth for instruments. These include basic cash flow modeling capabilities necessary to generate estimates of net interest income and market values for financial instruments across a broad range of interest rate scenarios. As part of VBC's independent testing, a sample set of seven instruments mutually agreed upon with the Client were replicated outside of C. Myer's ALM platform and subsequently compared against the Model's outcome to ensure all calculations were correct and repeatable. The seven instruments were selected as a representative sampling of a typical financial institution balance sheet as it relates to cash flow profiles and various assumptions inputs. In addition, all seven instrument types were replicated and reviewed under seven different rate scenarios, also mutually agreed upon with the Client, to ensure the cashflows and underlying assumptions behaved as expected under varying rate environments.

The seven instrument types reviewed as part of the Certification are as follows:

1. Fixed-rate Bullet (Type 4)
2. Fixed-rate Amortizing (Type 3)
3. Adjustable-rate Bullet (Type 1)
4. Adjustable-rate Amortizing (Type 1)
5. Callable (Type 6)
6. Fixed-rate MBS (Type 10)
7. Interest-bearing Non-Maturity Deposits (Type 7)

Please note that the functionality for instrument #2 (Fixed-rate Amortizing) and instrument #6 (Fixed-rate MBS) were deemed to be the same and therefore only one subsequent replication and analysis was performed to represent both instrument types.

The focus while conducting this Certification was largely oriented around the replication and review of all mathematical calculations underlying the Model. In addition, the functionality of key ALM assumptions such as prepayment rates, withdrawal rates, and repricing methodologies were reviewed to ensure the Model aligns with industry best practices. The specific goals, tasks, and deliverables performed and/or developed during this engagement (collectively, the "Services") are as follows:

- **Services Objective**: Certification to demonstrate that the Model functions correctly (including with respect to mathematical computations), and that the Model's controls and documentation are at least commensurate with relevant industry standards and sufficient for use by C. Myer's clients for ALM and IRR purposes.

- **Computations**: Confirmation that calculations executed by the Model are performed as intended.

- **Controls**: Assessment of access credentials and permissions available to users of the Model.

- **Documentation**: Assessment of the Model's documentation from a model risk management perspective to ensure that it meets relevant industry standards for vendor model documentation.

- **Testing Report**: Testing commensurate with relevant industry standards including documentation of VBC's testing plan for the Model, and the results of such testing as well as any issues, limitations, or weaknesses identified.

- **Certification Report**: Certification results commensurate with relevant industry standards certifying that the Model is able to meet ALM and IRR modeling needs for a variety of balance sheet compositions, correctly calculates mathematical formulae, accurately and consistently applies custom assumptions to multiple sets of data, and adheres to category parameters and characteristics (i.e., the Certification must satisfy regulatory directives with respect to the Model's component piece of an institution's overall model validation and verification).

VBC Statement of Certification

The foundation of confidence for financial model users is an independent, external certification verifying that the model's underlying methodologies and mathematics are accurate, in-line with industry standards and consistent with the vendor documentation. C. Myers Corporation has engaged Velligan-Blaxall Consultants, LLC, an independent firm with expertise in financial model evaluation, to independently validate and certify various components of their ALM model (the "Model"). The Certification of the Model covered Static NII, Existing Commitments NII, and EVE.; new volume growth forecasting was deemed out of scope for purposes of the Certification and was therefore not reviewed. This certification should not be considered a risk assessment of specific client installations of this model, as each installation of a vendor model is a unique and customized situation that requires a separate validation. Rather, this certification serves to establish a baseline confidence that the components validated meet industry standards and are accurate.

VBC verified the model's theoretical capabilities and mathematical calculations for the following seven instrument types under seven interest rate scenarios:

1. Fixed-rate Bullet (Type 4)
2. Fixed-rate Amortizing (Type 3)
3. Adjustable-rate Bullet (Type 1)
4. Adjustable-rate Amortizing (Type 1)
5. Callable (Type 6)
6. Fixed-rate Investment (Type 10)
7. Interest-bearing Non-Maturity Deposits (Type 7)

VBC first reviewed the calculations underlying each instrument type via the client-provided Excel file that was intended to replicate the calculations within the software application. All calculations were rigorously tested, replicated, and analyzed under various interest rate scenarios to verify the efficacy of the Model's functionality.

Based on the outcome of the testing performed, VBC believes the C. Myers Model is a robust and well-developed software solution and **certifies that the Model possesses the necessary theoretical components and operational capabilities to satisfactorily assess the interest rate risk sensitivity of a depositor institution's earnings and market/economic value.**

Josh Salzberg –Partner
Velligan-Blaxall Consultants, LLC
10/15/2024
Signed: _____
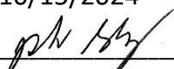
Validation Results

1. Certification Review Details

The C. Myers Model is a highly customizable modeling platform that allows users to efficiently quantify their exposures to various sources of interest rate risk through the simulation of cashflows under standard and customized interest rate scenarios. The Model provides users with the flexibility in specifying various assumptions for key inputs such as prepayment rates, withdrawal rates, repricing frequency, maturity schedules, and more. The Model encompasses all balance sheet and income statement line items typically utilized by financial institutions including various loans and leases, non-maturity deposits, certificates of deposits, investment securities, and more. For the purposes of the Certification, the NEV and interest income/expense cashflows were replicated and analyzed for seven different instrument types, as mutually agreed upon with the Client. In addition, all IRR cashflows for each instrument type were replicated under seven different rate scenarios, also mutually agreed upon with the Client, as further described in Section 2.8. The new volume growth forecasting functionalities available within the Model were deemed out of scope and not evaluated as part of the Certification.

Please note for purposes of the certification, specific examples were provided to VBC for replication. These examples were embedded with specific assumptions for inputs such as rate drivers, repricing schedules, prepayment rate assumptions, spreads, and more. These assumptions are described in further detail throughout the documentation, but VBC recognizes these assumptions are highly customizable and can take a range of values that best reflect the needs of their users. The assumptions utilized throughout this document are purely for representative sampling purposes and should not be considered the default and/or the recommended inputs.

2. Model Set-up & Methodology

2.1 Instrument #1: Fixed-rate Bullet (Type 4)

The first instrument type tested by VBC was the Fixed-rate Bullet instrument. Please note for this instrument type, VBC chose to replicate the cash flow for a fixed-rate bullet loan. However, it was noted the model can accommodate loans, investments, borrowings, non-maturity deposits, and term deposits for this instrument type. Prior to running the fixed-rate bullet loan cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Balance and unrecognized costs/fees
- Interest rate
- Maturity schedule
- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount spread for NEV calculations

The model is a highly customizable platform that can accommodate a wide range of assumptions for these values and is not limited in that regard. In addition, for all instrument types, most model inputs are automatically uploaded to the model in the form of core system data extracts, so no

manual intervention is required. For certification purposes, the cashflow simulation replicated by VBC assumed a starting loan balance of $75,200, beginning in January 2024, of which $70,200 was assumed to pay down in December 2024 and $5,000 was assumed to pay down in December 2025. No prepayment assumptions are utilized for this instrument type. As a result, IRR calculations for this instrument type did not change under varying interest rate scenarios. The NEV calculations for this instrument type utilized a discount factor that was a function of the government yield curve (3-month, 6-month, 1-Year, 2-Year, 3-Year, 5-Year, 7-Year, and 10-Year) and the market value discount spread. The market value discount spread was assumed to be zero in the calculation. To reiterate, these discount factor and spread assumptions were used for example purposes only. For all instrument types, the user can choose any index or spread value of their choice in practice. In addition, please note that for all instrument types, a 30/360 days basis methodology was used by VBC. However, VBC noted the model allows for an ACT/365 days basis methodology if desired.

The underlying discounting calculations, which are the same for all instrument types, are further described in Section 2.7. Please note, for all instrument types, the static NII and NEV calculations assume an instantaneous rate movement under each scenario whereas the existing commitments NII calculations provide a choice between instant, 12-month, or 24-month (i.e., ramp) rate movement. The default of a 12-month rate change for existing commitments is what VBC focused on for NII testing purposes. The Client noted this 12-month ramp feature of the model allows for a more realistic approach to interest income/expense modeling as in practice, rate changes do not happen instantaneously. Rather, as seen historically, rate changes tend to happen gradually which is why, the Client argues, the risk to earnings should be viewed differently from the NEV calculations. It was noted by VBC that while this approach is unusual, the reasoning behind this approach is supportable. For the Certification, VBC replicated all calculations using the instantaneous rate change assumption for NEV and the 12-month rate change assumption for interest income/expense as provided by the Client.

All fixed-rate bullet IRR calculations were successfully replicated and VBC confirmed the results aligned with the outputs seen within the Model platform. Details regarding these replication results, including the NEV and NII results under each of the seven different interest rate scenarios, can be found in Section 3.

2.2 Instrument #2: Fixed-rate Amortizing (Type 3 & Type 10)

The second instrument type tested by VBC was the Fixed-rate Amortizing instrument. As previously mentioned, the functionality for this instrument type was deemed equivalent to the functionality required for the Fixed-rate MBS instrument type, so only one replication and analysis was performed to represent both instruments. For certification purposes, the cashflow was replicated for a fixed-rate amortizing loan. However, the model can accommodate both loans and investments for this instrument type. Prior to running the fixed-rate amortizing loan cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Balance and unrecognized costs/fees
- Interest rate

- Maturity date
- Prepayment rate assumptions
- Refinancing driver for prepayment assumptions
- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount method, driver, and spread for NEV calculations

As previously mentioned, for all instrument types, these inputs are highly customizable and can accommodate a wide range of assumptions to best meet the needs of the user. The cashflow simulation replicated by VBC for this instrument type assumed a starting balance of $100,000 with no unrecognized loan fees or costs. The loan followed a standard 30-year amortization schedule with a fixed interest rate of 3.13%. The prepayment rate assumptions, as provided by the Client, are a function of the *Rate Advantage*, which is defined as:

$$Rate\ Advantage = (Interest\ Rate - Refinancing\ Rate)$$

Where:

$$Refinancing\ Rate = (Refinancing\ Driver\ Rate + Refinancing\ Spread)$$

With this, the *Rate Advantage* increases if the loan's current interest rate exceeds the *Refinancing Rate*, which is a function of the *Refinancing Driver Rate* as well as some predefined refinancing spread. Please note in this example, the *30-Year Mortgage Rate* index was chosen to be the *Refinancing Driver Rate*. Once the *Rate Advantage* is calculated, the annual prepayment speed is determined via the below table:

Rate Advantage	Annual Prepayment Speeds
Adv = 3% or more	10%
Adv = 2% to 2.99%	8%
Adv = 1% to 1.99%	7%
No Adv or Disadvantage	6%
Dis = -1.99% to -1%	5%
Dis = -2.99% to -2%	4%
Dis = -3% or less	4%

Please note these prepayment speed assumptions were provided by the Client for this example but can be modified to reflect any value. Once the prepayment speeds are determined, the interest income, scheduled maturities, and balance cashflow calculations are designed to take the prepayment speeds into account accordingly. The interest income calculation, which is simply the average of the *Beginning Balance* and *Ending Balance* for a given period multiplied by the interest rate for that period, is reduced accordingly via the *Ending Balance* field, defined as:

$$Ending\ Balance = (Beginning\ Balance - Early\ Payoffs - Scheduled\ Maturities)$$

This field is influenced by the prepayments via the *Early Payoffs* field, which is defined as the current balance multiplied by the prepayment speed indicated above (converted to a monthly prepayment percentage), and the *Scheduled Maturities* field, which is the calculated scheduled principal

payments that are subsequently lowered by the percentage of the original balances that are projected to have prepaid. With this, the interest income changes under varying interest rate scenarios to reflect the appropriate changes in interest rate risks accordingly. VBC believes this methodology is reasonable, accurate, and aligns with industry best practices.

The NEV calculation is the sum of the discounted *Runoff* (i.e., *Early Payoffs* & *Scheduled Maturities*) and discounted *Interest Income* up until the maturity date is reached. In this example, the cashflow is discounted via the *3-Year Treasury* index, which varies under each rate scenario as expected. Please note the use of an index, as opposed to a yield curve, is optional and up to the user. The user can choose to utilize the yield curve or any other index of their choosing for discount purposes instead. All fixed-rate amortizing IRR calculations were successfully replicated and VBC confirmed the results aligned with the outputs seen within the Model platform. Details regarding these replication results, including the NEV and NII results under each of the seven different interest rate scenarios, can be found in Section 3.

2.3 Instrument #3: Adjustable-rate Bullet (Type 1)

The third instrument type tested by VBC was the Adjustable-rate Bullet instrument. For certification purposes, the cashflow was replicated for an adjustable-rate amortizing bullet loan. However, it was noted the model can accommodate loans, investments, borrowings, non-maturity deposits, and term deposits for this instrument type. Prior to running the adjustable-rate bullet loan cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Balance and unrecognized costs/fees
- Interest rate
- Maturity schedule
- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount method, driver, and spread for NEV calculations
- Repricing schedule
- Repricing rate driver and spread
- Periodic Cap, Lifetime Cap, and Lifetime Floor for repricing

The cashflow simulation replicated by VBC assumed a starting loan balance of $105,000, beginning in January 2024, of which $80,000 was assumed to pay down in December 2025 and $25,000 was assumed to pay down in December 2026. No prepayment assumptions are utilized for this instrument type. Lastly, the loan was assumed to follow a repricing interval of 12 months, with the first repricing occurring in December 2024. Please note the Model allows the user to choose any desired repricing schedule and is not limited in that regard.

Because this instrument type does not utilize any prepayment assumptions, the interest income changes only when the loan is repriced. For this example, the *Repricing Rate Driver* is the 1-Year Treasury index, and the *Repricing Spread* is 2.5%. When a loan is repriced, it determines what the

new repricing rate will be by considering several factors. First, a preliminary *Repricing Rate* is calculated via the below formula:

$$Repricing\ Rate = (Repricing\ Rate\ Driver + Repricing\ Spread)$$

However, the Model contains guardrails in its repricing calculations to account for optionality such as periodic caps (i.e., maximum allowable increase from period to period), lifetime caps (i.e., maximum allowable rate), and lifetime floors (i.e., minimum allowable rate). For this analysis, the *Periodic Cap* was set at 2% with a *Lifetime Cap* of 9% and a *Lifetime Floor* of 1%. With this, the repricing rate calculation followed the below logic:

Repricing Rate =

- **Maximum** Value of:
    - **Minimum** Value of:
        - $(Current\ Rate + Periodic\ Cap)$
        - $Repricing\ Rate$
        - $Lifetime\ Cap\ Rate$
    - $Lifetime\ Floor\ Rate$
    - $(Current\ Rate - Periodic\ Cap)$

Using the above logic, the repricing calculations guarantee the rate change never increases or decreases by more than the *Periodic Cap* value while also ensuring the *Lifetime Cap* and *Lifetime Floor* values are not breached.

The NEV values are influenced by both the interest income changes (i.e., repricing changes) under each rate scenario as well as market rate changes used for discounting purposes. The NEV calculations for this instrument type utilized a discount factor that was a function of the government yield curve and the market value discount spread. The market value discount spread was assumed to be 2.5% in the calculation. All adjustable-rate bullet IRR calculations were successfully replicated and VBC confirmed the results aligned with the outputs seen within the Model platform. Details regarding these replication results, including the NEV and NII results under each of the seven different interest rate scenarios, can be found in Section 3.

2.4 Instrument #4: Adjustable-rate Amortizing (Type 1)

The fourth instrument type tested by VBC was the Adjustable-rate Amortizing instrument. For certification purposes, the cashflow was replicated for an adjustable-rate amortizing loan. However, the model can accommodate loans, investments, borrowings, non-maturity deposits, and term deposits for this instrument type. Prior to running the adjustable-rate amortizing loan cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Balance and unrecognized costs/fees
- Interest rate
- Maturity date

- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount method, driver, and spread for NEV calculations
- Repricing schedule
- Repricing rate driver and spread
- Periodic Cap, Lifetime Cap, and Lifetime Floor for repricing

The cashflow simulation replicated by VBC assumed a starting loan balance of $105,000 with $300 of unrecognized loan fees. All other inputs for this instrument type matched those of the Adjustable-rate Bullet ~~Loan~~ instrument type except for the maturity schedule – for this analysis, the instrument is assumed to mature in 30 years and follows a standard amortization schedule. Similar to the Fixed-rate Amortizing ~~Loan~~ instrument type, this instrument type utilizes prepayment rate assumptions via the *Rate Advantage* field. For this analysis, the *Refinancing Driver* is the 30-Year Mortgage Rate index, and the *Refinancing Spread* is -2.45%. Once the *Rate Advantage* has been calculated, the annual prepayment speed is determined via the below table:

Rate Advantage	Annual Prepayment Speeds
Adv = 3% or more	22%
Adv = 2% to 2.99%	21%
Adv = 1% to 1.99%	19%
No Adv or Disadvantage	18%
Dis = -1.99% to -1%	17%
Dis = -2.99% to -2%	15%
Dis = -3% or less	14%

Again, these prepayment speeds were provided to VBC by the Client for this example but can be modified to reflect any value. The prepayment speeds for this instrument type are applied in the same manner described for the Fixed-rate Amortizing ~~Loan~~ instrument type. As a result, the interest income calculations for this instrument type are influenced by both prepayment speed changes as well as repricing changes under each rate scenario.

The NEV calculations for this instrument type utilized a discount factor that was a function of the government yield curve and the market value discount spread. The market value discount spread was assumed to be 2.5% in the calculation. As expected, the NEV calculations were influenced by the prepayment speed changes, repricing changes, and discount factor changes under each rate scenario. All adjustable-rate amortizing NEV and NII calculations were successfully replicated and VBC confirmed the results aligned with the outputs seen within the Model platform.

2.5 Instrument #5: Callable (Type 6)

The fifth instrument type tested by VBC was the Callable instrument. For certification purposes, the cashflow was replicated for a callable bond. However, the model can accommodate various callable investment types. Prior to running the callable bond cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Balance

- Beginning interest rate
- Maturity date
- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount method, driver, and spread for NEV calculations
- Step-up option (Y/N)
- Callable yield curve and pricing spread
- Call begin date, call end date, call frequency

The cashflow replicated by VBC assumed a bond balance of $10,000 with an interest rate of 2.5% and a maturity date of January 2031. The bond in this analysis was not a step-up bond, and the entire period was callable (callable begin date of January 2024, callable end date of January 2031). The call frequency was defined to be every 3 months, with the callable yield curve aligning with the government yield curve and the pricing spread set at 0%. The interest rate on the bond was fixed, so the interest expense calculations remained static for each period in the calculation up until the call date. However, the call date varies depending on the rate scenario modeled which therefore drives IRR changes.

The call date on the bond is a function of imported or manual inputs (i.e., maturity date, call frequency) and interest rates. First, the *Yield Curve Difference*, or the difference between the market driver interest rate and the bond's current interest rate, is calculated:

$$Yield\ Curve\ Difference = (Yield\ Curve\ Alternative - Callable\ Bond\ Rate)$$

The *Yield Curve Alternative* value is a function of the government yield curve and pricing spread (set at 0% for this analysis) and represents the market rate alternative as of each period in the cashflow. If the *Yield Curve Alternative* exceeds the bond's current interest rate, the bond will be called. However, the model ensures that a call only occurs during a call month within the callable period.

It was noted by VBC that the Model's rate scenario set-up, which assumes an instantaneous rate change for NEV purposes and a 12-month rate change for interest expense purposes, can lead to differing call dates for the NEV and interest expense calculations despite the underlying rate scenario being the same. As previously mentioned, the Client confirmed institutions can choose to utilize an instantaneous rate change for IRR purposes if desired, but the 12-month rate change is the default that is utilized by most institutions. While VBC understands the reasoning for the interest rate change differences between the two calculations, for instrument types such as callable bonds, the underlying cashflows and assumptions (i.e., call date) for NEV and interest expense can vary.

The NEV calculations, which are also influenced by the call date, utilized a discount factor that was a function of the government yield curve and a market value discount spread of -1.4% (provided by the Client). As a result, the NEV calculation changes were driven by call date changes and discount factor changes under each rate scenario. All callable bond IRR calculations were successfully replicated and VBC confirmed the results aligned with the outputs seen within the Model platform.

2.6 Instrument #6: Interest-bearing Non-Maturity Deposits (Type 7)

The sixth and final instrument type evaluated by VBC was the Non-Maturity Deposit (NMD) instrument. Prior to running the NMD cashflow analysis, VBC noted the Model allows the user flexibility in specifying the below inputs:

- Beginning Balance
- Interest rate on deposit
- Truncation point for NEV calculations
- Days basis to use for NEV and NII calculations (i.e., 30/360 or ACT/365)
- Market value discount method, driver, and spread for NEV calculations
- Repricing driver rate & repricing spread
- Repricing interval
- Withdrawal driver rate
- Annual withdrawal assumptions (%)

The cashflow replicated by VBC assumed an NMD balance of $15,050 with a starting interest rate of 3.20%. The NMD was assumed to reprice every month and used the *Money Market 100K-250K* as the repricing driver rate. The *Balancing Certificate of Deposit (CD)* index was used as the withdrawal driver rate with a truncation point of December 2026 (3 years after the start of the cashflow). Please note this truncation point is a function of the instrument's assumed maturity date, which is customizable and up to the user, for NEV purposes. All interest expense calculations were replicated by VBC up until the truncation date, although it was noted the Model does not use a truncation date for interest expense calculations as expected for non-maturity instrument types.

The interest expense calculation for each period is defined as:

$$Interest\ Expense = \left(\frac{Average\ Balance * Average\ Rate}{Total\ Months\ in\ Year}\right) * (Runoff\ Factor)$$

The *Average Rate* field is defined as the average of the *Beginning Rate* and *Ending Rate* to account for any projected rate changes for the period in question. The *Average Balance* field is defined as the average of the *Beginning Balance* and *Ending Balance* to account for any projected rate-sensitive withdrawals (i.e., runoff) for the period. The rate-sensitive withdrawals are determined by first calculating an *Annual Withdrawal Rate*, which is a function of the *Advantage to Withdraw* field, defined as:

$$Advantage\ to\ Withdraw = (Withdrawal\ Driver\ Rate - Interest\ Rate)$$

Once the *Advantage to Withdraw* is calculated, the *Annual Withdrawal Rate* is determined via the below table:

Advantage	Withdrawal
0	0
1	5
2	10
3	15
4	20
5	25

Please note the above withdrawal rate assumptions were provided to VBC by the Client. However, the Client noted these withdrawal rate assumptions are up to the user and can hold any desired value. The Client confirmed this table is where the user can input any bank-specific decay assumptions. For instrument types that are not interest-rate driven (i.e., non-interest bearing NMD) or if the user determines a decay incentive is not required, the withdrawal rate assumptions can be static or zero for all *Advantage to Withdraw* values in the table. VBC noted the highly customizable nature of this table allows for flexibility in the decay assumptions utilized in the cashflow and did not see any limitations with this approach.

Earning Assets Runoff Factor

The Earning Asset *Runoff Factor* represents the average outstanding balances remaining for each period for the below instrument types in the Model:

- o Type 1 Loans (Amortizing Variable)
- o Type 3 Loans (Amortizing Fixed)
- o Type 4 Loans (Single Payment, Non-Rate Sensitive ~~Borrowings and Deposits~~ Fixed)
- o Type 1 Investments (Amortizing ~~Investments~~ Var)
- o Type 3 Investments (Amortizing ~~Investments~~ Fixed)
- o Type 5 Investments (Single Payment, Rate-Sensitive ~~Investments~~ Fixed)
- o Type 6 Investments (Callables)
- o Type 9 Investments (CMO Var)
- o Type 10 Investments (CMO Fixed)
- o Type 18 Investments (Multi Step-Up Callables)
- o Type 19 Investments (Derivatives)

The Client noted the above instrument types represent all contractual-style assets in the Model and were chosen specifically for that reason. The purpose of the Earning Assets *Runoff Factor* is to allocate non-contractual assets and liabilities. This allocation is part of the calculation to demonstrate the potential profitability of the existing commitments. For example, if 10% of total balances have run off for the above instrument types by Month 12, then 10% of the cash, non-earning assets, and NMD balances are allocated to support the new business and 90% supports the existing commitments. The client explained that this is designed to give different insights than a static balance sheet or forecast. The objective is to isolate the earnings risk and return of the existing commitments. To do this, the model separates the profit potential of the existing

commitments and then layers on the new business as a separate step. This process requires sharing the burden and benefit of non-contractual items such as cash or non-maturity deposits.

While this approach is unusual, the Client stated that because the interest expense cashflows for NMD do not utilize a maturity date or truncation point, the *Runoff Factor* allows for a profit-driven calculation in which the percentage of non-maturity deposits to total funding remains roughly the same (unless motivated to withdraw) for each time period in the cashflow analysis. In other words, this interest expense approach is meant to represent the average cost of funds over time to show the profitability of existing commitments. Without the *Runoff Factor*, the percentage of NMD to contractual commitments would increase over time in the cashflow analysis which would yield biased results and would not be representative of the current portfolio. With this, the IRR calculations are influenced by repricing rate changes, withdrawal rate changes, and runoff factor changes for each interest rate scenario.

For the NEV calculations, the *Runoff Factor* was not used; rather, a user defined maturity length (truncation point) was used to stop the cashflow projections. VBC noted a truncation point of December 2026 (i.e., 36 months) was used for this example. The Client noted this difference in methodology is due to the valuation-driven, as opposed to profit-driven, nature of the NEV calculation. In this example, the *3-Year Borrowing* index was used to discount the NEV calculations. As a result, the NEV calculation changes were driven by discount factor changes under each rate scenario as expected. All NEV and IRR calculations were successfully replicated by VBC.

2.7 Discounting Methodology & Formulas

To calculate the NEV, the underlying discounting methodology and calculations are the same for all instrument types. For each instrument type, the NEV is defined as the sum of the *Discounted Income* and *Discounted Runoff* for each month *t* in the cashflow:

$$NEV = \sum(Discounted\ Runoff_t + Discounted\ Income_t)$$

Both the *Discounted Runoff* and the *Discounted Income* fields are a function of the *Daily Discount Rate*, which is defined as:

$$Daily\ Discount\ Rate = \frac{Market\ Value\ Driver\ Rate}{Total\ Days\ in\ Year}$$

The *Market Value Driver Rate* represents the yield curve or specific rate index chosen by the user for the instrument in question. Please note the *Total Days in Year* value depends on the *Days Basis* methodology used (i.e., 30/360 vs. ACT/365). With this, the *Discounted Runoff* is defined as:

$$Discounted\ Runoff = \frac{Runoff}{(1 + Daily\ Discount\ Rate)^{(Cumulative\ Days + \frac{Days}{2})}}$$

Where the *Cumulative Days* field represents the number of days that have passed since the start of the cashflow and the *Days* field represents the number of days in each month. The *Cumulative Days* and *Days* fields also depend on the *Days Basis* methodology chosen but assume all 30-day months

under the standard 30/360 methodology. The exponent of $(Cumulative\ Days + \frac{Days}{2})$ ensures the timing of the cashflows are captured correctly for daily discounting purposes.

The *Discounted Income* calculation is performed by first calculating the *1ˢᵗ Half of the Month Daily Income* and the *2ⁿᵈ Half of the Month Daily Income* values, which are defined as:

$$1st\ Half\ of\ Month\ Daily\ Income = \frac{Beginning\ Rate * Beginning\ Balance}{Total\ Days\ in\ Year}$$

$$2nd\ Half\ of\ Month\ Daily\ Income = \frac{Ending\ Rate * Ending\ Balance}{Total\ Days\ in\ Year}$$

The monthly income is bifurcated via the above formulas to average out any rate changes that may have occurred during the month in question. Once calculated, both daily income values are then discounted via the below formulas:

$$1st\ Half\ Dis.Inc. = (1st\ Half\ Daily\ Income) * (Discount\ Factor^{Cumulative\ Days+1})$$

$$2nd\ Half\ Dis.Inc. = (2nd\ Half\ Daily\ Income) * (Discount\ Factor^{Cumulative\ Days+16})$$

Again, the exponents are slightly different to ensure the timing of the cashflows are captured correctly for daily discounting purposes. Lastly, the total (monthly) *Discounted Income* is calculated via the below formula:

$$Discounted\ Income = (1st\ Half\ Dis.Inc. + 2nd\ Half\ Dis.Inc.) * \left(\frac{1 - Discount\ Factor^{15}}{1 - Discount\ Factor}\right)$$

Please note the $\left(\frac{1 - Discount\ Factor^{15}}{1 - Discount\ Factor}\right)$ portion of the formula represents the number of days (~15) to multiple each discounted daily income value by.

VBC believes this methodology is reasonable, accurate, and aligns with industry best practices. All discounting formulas were successfully replicated, and no issues were identified.

2.8 Rate Scenarios Tested

Each instrument type was evaluated under seven different interest rate scenarios mutually agreed upon with the Client. These rate scenarios are identified via a scenario number in the Model and are defined below:

1. Scenario 0504: Current or Base scenario

2. Scenario 0807: Base + 300 bps

3. Scenario 0201: Base – 300 bps

4. Scenario 0000: Low-rate scenario; 0% for all in yield curve

5. Scenario 1614: High-rate scenario & inverted yield curve

6. Scenario 0004: 400 bps positive yield curve

7. Scenario 0404: 400 bps for all in yield curve

The yield curves seen under each scenario, as well as their respective graphs, are outlined below. Please note the below graphs and tables outline interest rate changes under a 12-month ramp cadence, but only the values seen in Month 1 and Month 12 are applicable for calculations (i.e., Static NII, NEV) that assume an instantaneous interest rate change. For all scenarios, the interest rate values seen in Month 12 are used for all periods exceeding Month 12, unless the rate change period is set to 24 months.

Scenario 0504: **Base scenario**

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5	5	5	5	5	5	5	5	5	5	5	5
6-Month Govt	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85
1-Year Govt	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
2-Year Govt	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
3-Year Govt	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5-Year Govt	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
7-Year Govt	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
10-Year Govt	4	4	4	4	4	4	4	4	4	4	4	4
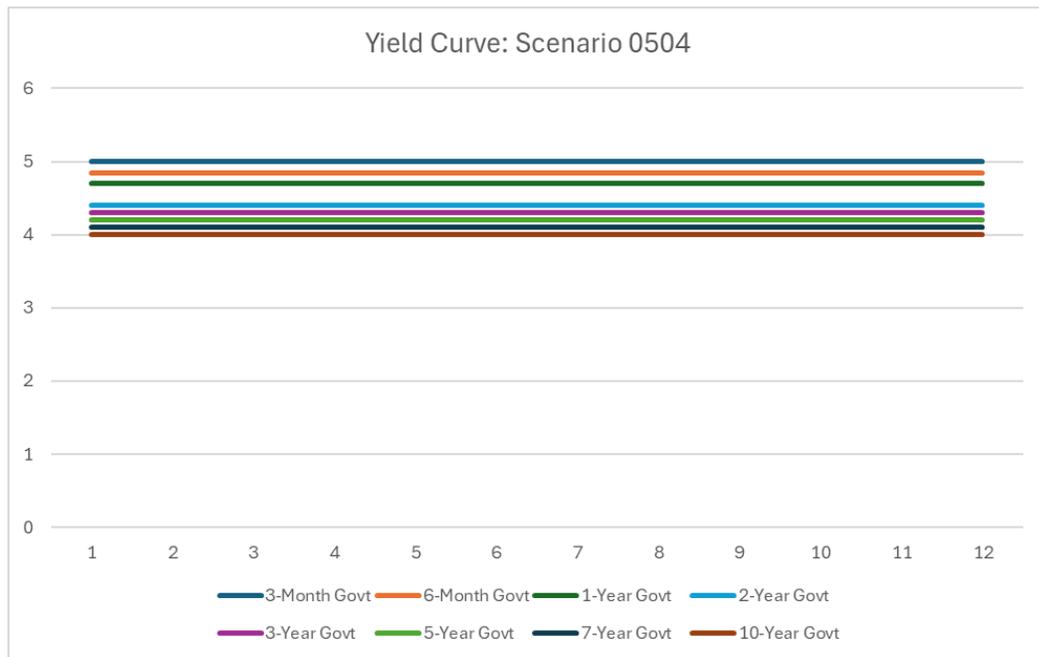
Scenario 0807: Base + 300 bps

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	5.27	5.55	5.82	6.09	6.36	6.64	6.91	7.18	7.45	7.73	8.00
6-Month Govt	4.85	5.12	5.40	5.67	5.94	6.21	6.49	6.76	7.03	7.30	7.58	7.85
1-Year Govt	4.70	4.97	5.25	5.52	5.79	6.06	6.34	6.61	6.88	7.15	7.43	7.70
2-Year Govt	4.40	4.67	4.95	5.22	5.49	5.76	6.04	6.31	6.58	6.85	7.13	7.40
3-Year Govt	4.30	4.57	4.85	5.12	5.39	5.66	5.94	6.21	6.48	6.75	7.03	7.30
5-Year Govt	4.20	4.47	4.75	5.02	5.29	5.56	5.84	6.11	6.38	6.65	6.93	7.20
7-Year Govt	4.10	4.37	4.65	4.92	5.19	5.46	5.74	6.01	6.28	6.55	6.83	7.10
10-Year Govt	4.00	4.27	4.55	4.82	5.09	5.36	5.64	5.91	6.18	6.45	6.73	7.00

Yield Curve: Scenario 0807
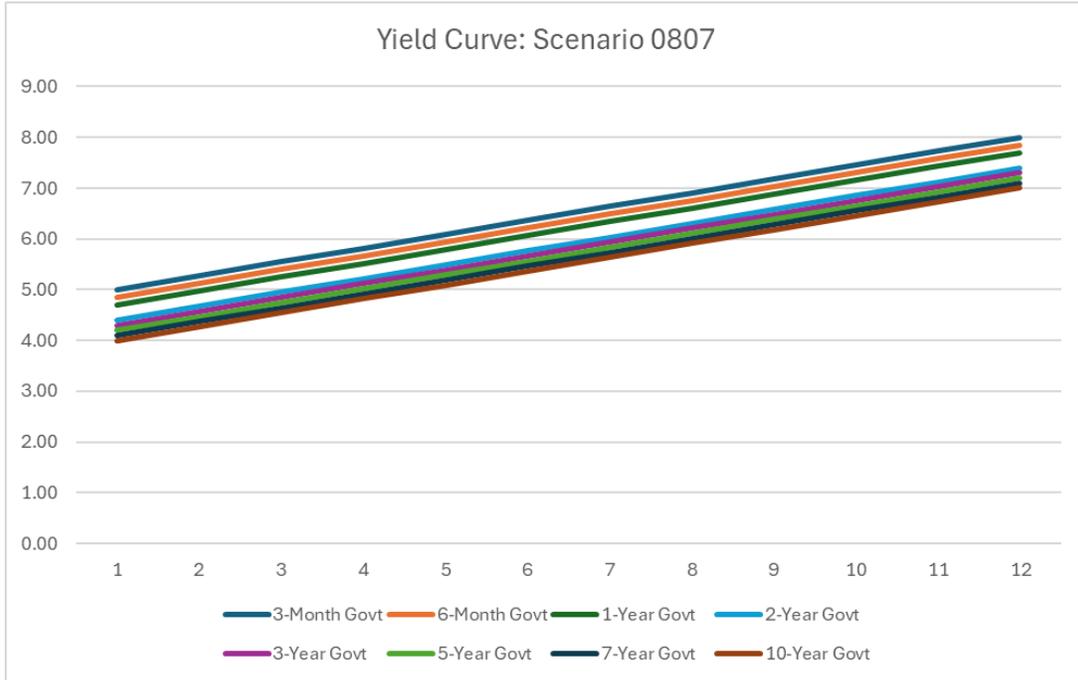
Scenario 0201: Base – 300 bps

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	4.73	4.45	4.18	3.91	3.64	3.36	3.09	2.82	2.55	2.27	2.00
6-Month Govt	4.85	4.58	4.30	4.03	3.76	3.49	3.21	2.94	2.67	2.40	2.12	1.85
1-Year Govt	4.70	4.43	4.15	3.88	3.61	3.34	3.06	2.79	2.52	2.25	1.97	1.70
2-Year Govt	4.40	4.13	3.85	3.58	3.31	3.04	2.76	2.49	2.22	1.95	1.67	1.40
3-Year Govt	4.30	4.03	3.75	3.48	3.21	2.94	2.66	2.39	2.12	1.85	1.57	1.30
5-Year Govt	4.20	3.93	3.65	3.38	3.11	2.84	2.56	2.29	2.02	1.75	1.47	1.20
7-Year Govt	4.10	3.83	3.55	3.28	3.01	2.74	2.46	2.19	1.92	1.65	1.37	1.10
10-Year Govt	4.00	3.73	3.45	3.18	2.91	2.64	2.36	2.09	1.82	1.55	1.27	1.00

Yield Curve: Scenario 0201
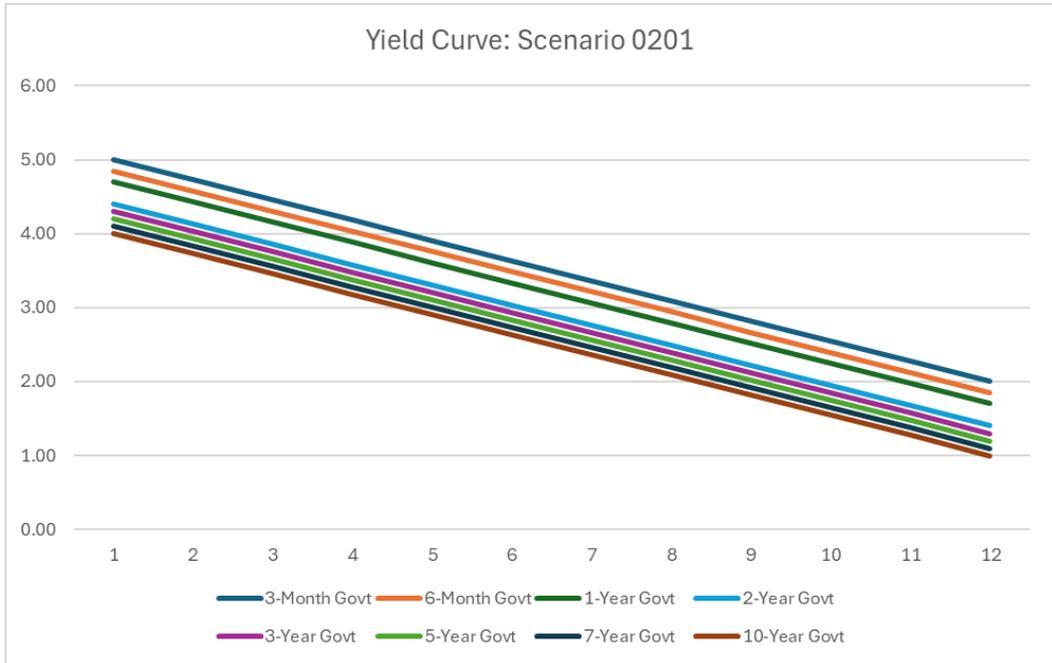
Scenario 0000: Low-rate scenario; 0% for all

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	4.55	4.09	3.64	3.18	2.73	2.27	1.82	1.36	0.91	0.45	0.00
6-Month Govt	4.85	4.41	3.97	3.53	3.09	2.65	2.20	1.76	1.32	0.88	0.44	0.00
1-Year Govt	4.70	4.27	3.85	3.42	2.99	2.56	2.14	1.71	1.28	0.85	0.43	0.00
2-Year Govt	4.40	4.00	3.60	3.20	2.80	2.40	2.00	1.60	1.20	0.80	0.40	0.00
3-Year Govt	4.30	3.91	3.52	3.13	2.74	2.35	1.95	1.56	1.17	0.78	0.39	0.00
5-Year Govt	4.20	3.82	3.44	3.05	2.67	2.29	1.91	1.53	1.15	0.76	0.38	0.00
7-Year Govt	4.10	3.73	3.35	2.98	2.61	2.24	1.86	1.49	1.12	0.75	0.37	0.00
10-Year Govt	4.00	3.64	3.27	2.91	2.55	2.18	1.82	1.45	1.09	0.73	0.36	0.00

Yield Curve: Scenario 0000
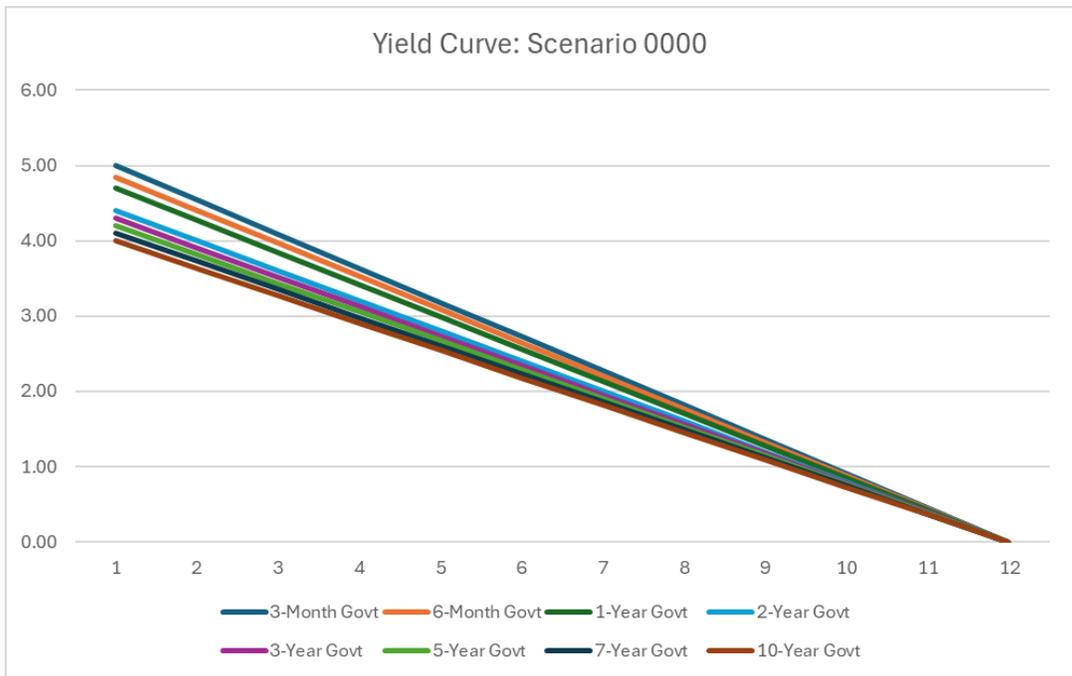
Scenario 1614: High-rate scenario & inverted yield curve

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00
6-Month Govt	4.85	5.84	6.82	7.81	8.80	9.78	10.77	11.75	12.74	13.73	14.71	15.70
1-Year Govt	4.70	5.67	6.65	7.62	8.59	9.56	10.54	11.51	12.48	13.45	14.43	15.40
2-Year Govt	4.40	5.35	6.29	7.24	8.18	9.13	10.07	11.02	11.96	12.91	13.85	14.80
3-Year Govt	4.30	5.24	6.17	7.11	8.05	8.98	9.92	10.85	11.79	12.73	13.66	14.60
5-Year Govt	4.20	5.13	6.05	6.98	7.91	8.84	9.76	10.69	11.62	12.55	13.47	14.40
7-Year Govt	4.10	5.02	5.94	6.85	7.77	8.69	9.61	10.53	11.45	12.36	13.28	14.20
10-Year Govt	4.00	4.91	5.82	6.73	7.64	8.55	9.45	10.36	11.27	12.18	13.09	14.00

Yield Curve: Scenario 1614
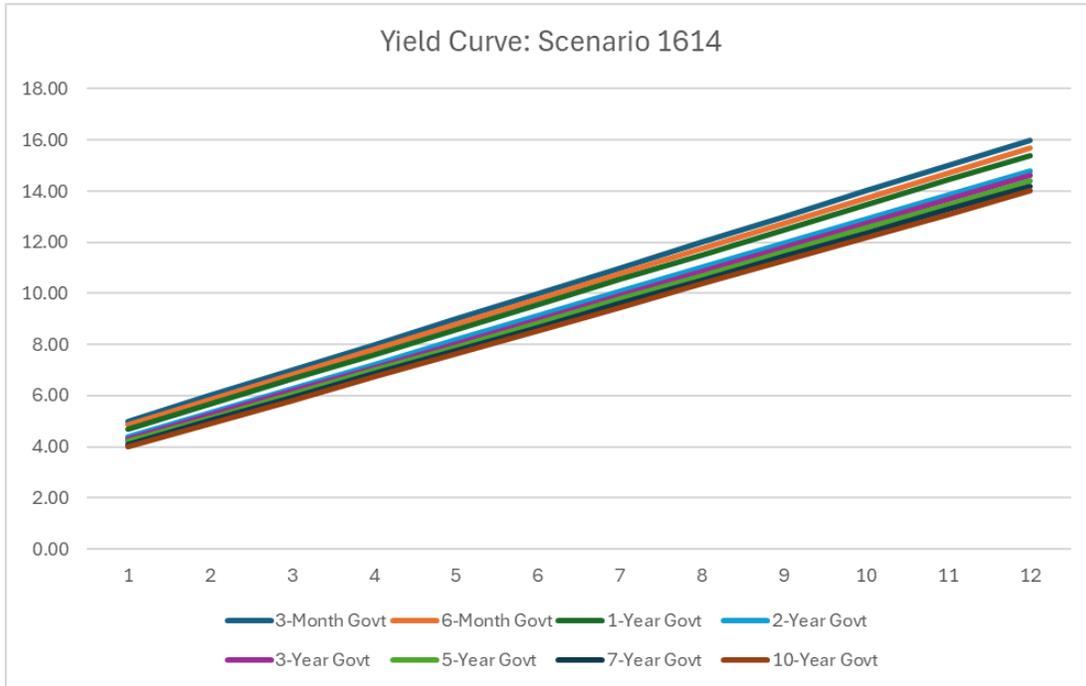
Scenario 0004: 400 bps positive yield curve

	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	4.55	4.09	3.64	3.18	2.73	2.27	1.82	1.36	0.91	0.45	0.00
6-Month Govt	4.85	4.46	4.08	3.69	3.30	2.92	2.53	2.15	1.76	1.37	0.99	0.60
1-Year Govt	4.70	4.38	4.06	3.75	3.43	3.11	2.79	2.47	2.15	1.84	1.52	1.20
2-Year Govt	4.40	4.22	4.04	3.85	3.67	3.49	3.31	3.13	2.95	2.76	2.58	2.40
3-Year Govt	4.30	4.16	4.03	3.89	3.75	3.62	3.48	3.35	3.21	3.07	2.94	2.80
5-Year Govt	4.20	4.11	4.02	3.93	3.84	3.75	3.65	3.56	3.47	3.38	3.29	3.20
7-Year Govt	4.10	4.05	4.01	3.96	3.92	3.87	3.83	3.78	3.74	3.69	3.65	3.60
10-Year Govt	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Yield Curve: Scenario 0004
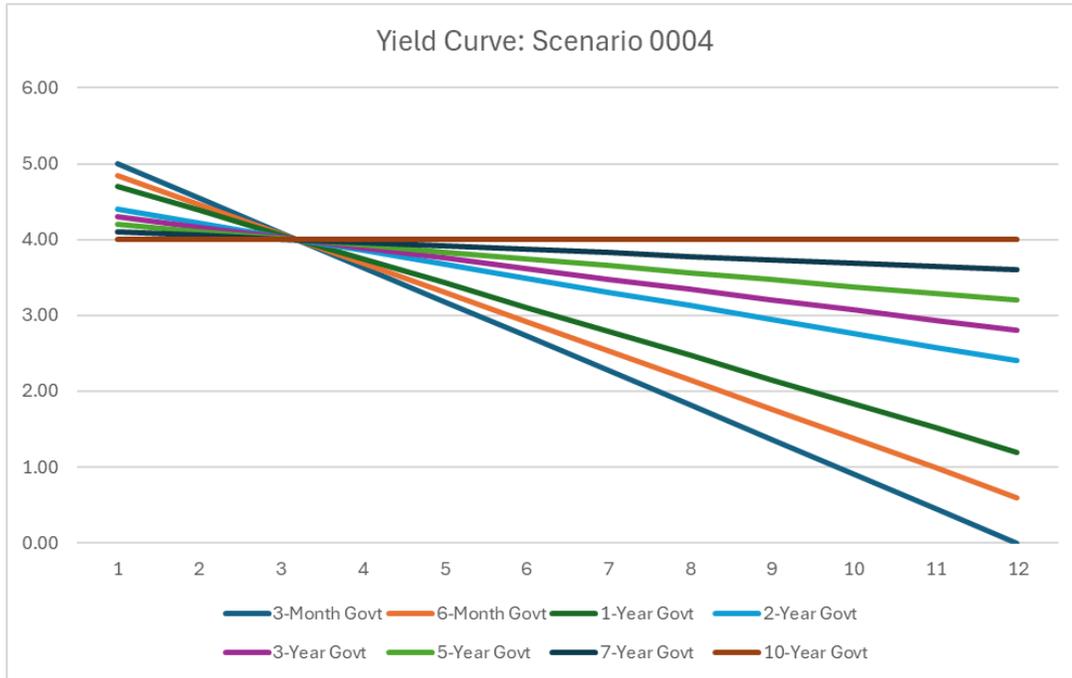
Scenario 0404: 400 bps for all in yield curve

|	1	2	3	4	5	6	7	8	9	10	11	12
3-Month Govt	5.00	4.91	4.82	4.73	4.64	4.55	4.45	4.36	4.27	4.18	4.09	4.00
6-Month Govt	4.85	4.77	4.70	4.62	4.54	4.46	4.39	4.31	4.23	4.15	4.08	4.00
1-Year Govt	4.70	4.64	4.57	4.51	4.45	4.38	4.32	4.25	4.19	4.13	4.06	4.00
2-Year Govt	4.40	4.36	4.33	4.29	4.25	4.22	4.18	4.15	4.11	4.07	4.04	4.00
3-Year Govt	4.30	4.27	4.25	4.22	4.19	4.16	4.14	4.11	4.08	4.05	4.03	4.00
5-Year Govt	4.20	4.18	4.16	4.15	4.13	4.11	4.09	4.07	4.05	4.04	4.02	4.00
7-Year Govt	4.10	4.09	4.08	4.07	4.06	4.05	4.05	4.04	4.03	4.02	4.01	4.00
10-Year Govt	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Yield Curve: Scenario 0404
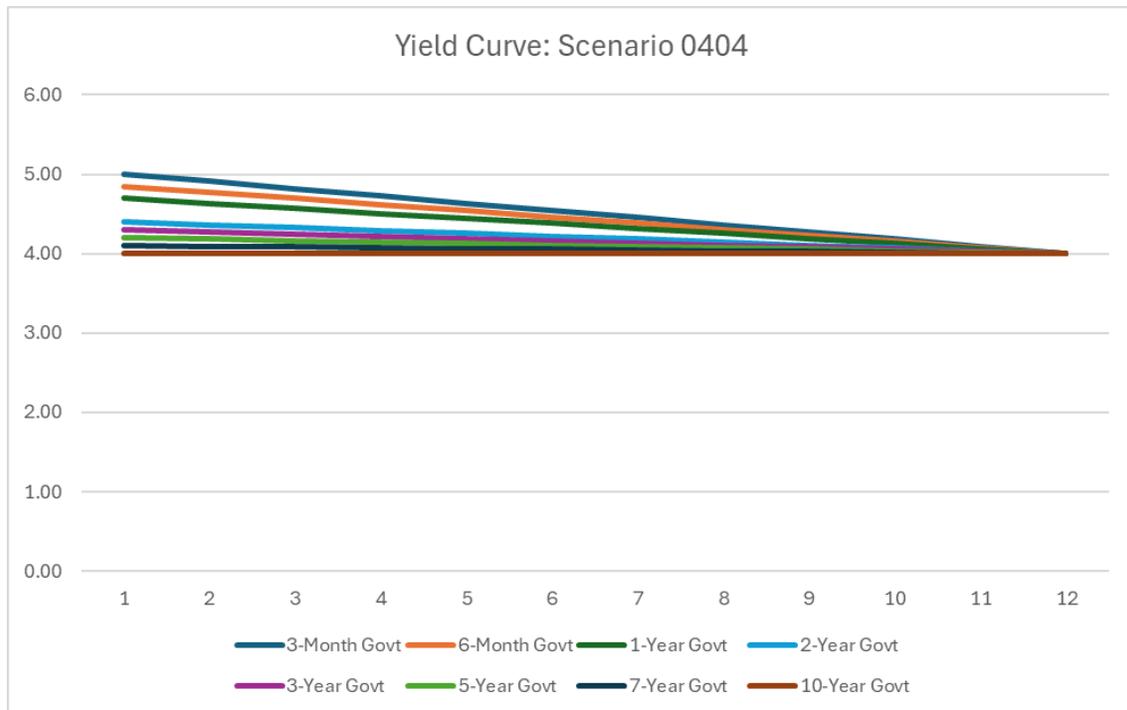
3. Output Review & Model Testing

VBC replicated and reviewed all NEV and net interest income/expense results for each instrument type under the seven interest rate scenarios outlined in Section 2.8. For each instrument type, the NEV cashflow was replicated for the life of the instrument (i.e., up until its maturity or truncation date). For NII, the cashflow was replicated for either the first four years of the instrument's life or up until the maturity or truncation date, depending on which scenario occurred first.

Please note the results outlined below are specific to the cashflows replicated by VBC for representative sampling purposes. VBC recognizes differing underlying assumptions may yield scenario results that do not exactly align with the results outlined below. However, the purpose of this analysis is to quantitatively assess if the cashflows are behaving as expected under different interest rate scenarios, which can be determined through this representative sample.
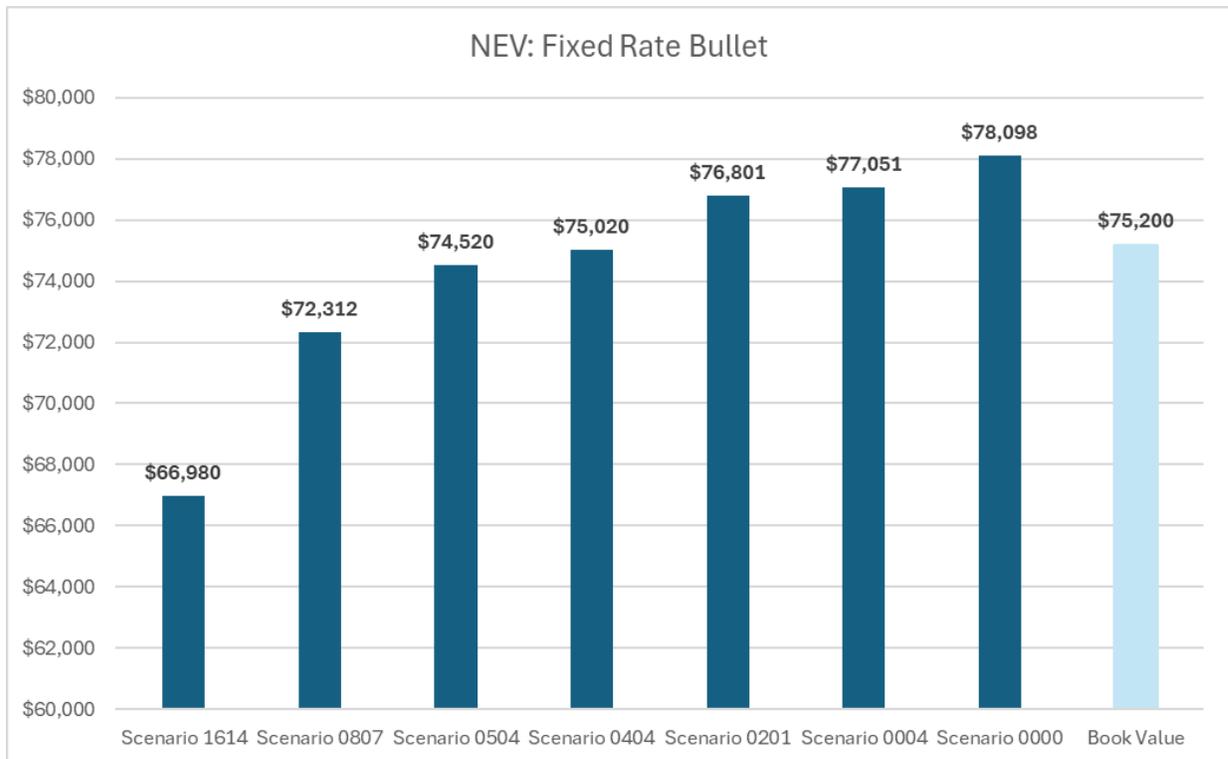
3.1 Fixed-rate Bullet Results

For the Fixed-rate Bullet instrument type, the NII cashflow was replicated up until December 2025, or the date in which the remaining balance was projected to pay down. The results of the NII under each scenario are seen graphically below:

Interest Income: Fixed Rate Bullet
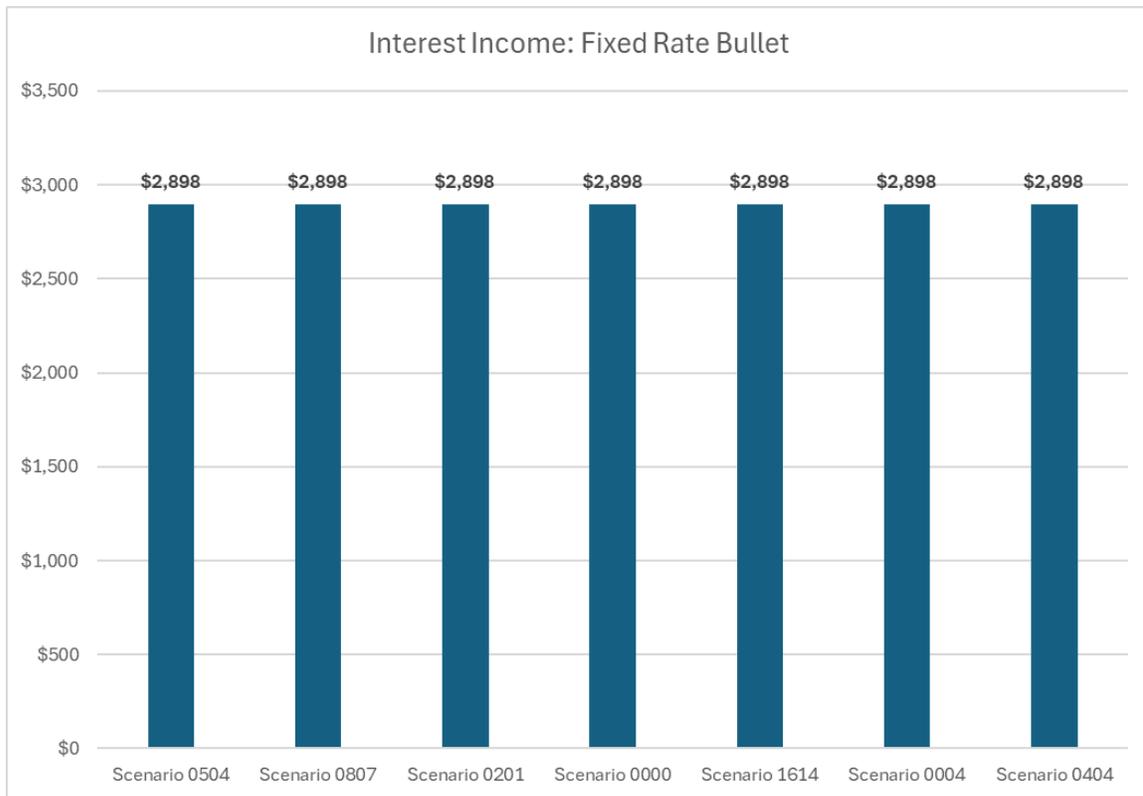
VBC noted that the interest income for this instrument type was the same under each scenario due to the cashflow having a fixed interest rate and no prepayment assumptions. As a result, interest income changes for this instrument type are only influenced by paydowns, as seen in January 2025 and December 2025. VBC noted the lack of NII sensitivity seen for this instrument type is expected and aligns with industry standards.

The NEV cashflow for this instrument type was also replicated up until December 2025. In this analysis, the government yield curve was used to discount the cashflow which varied under each interest rate scenario accordingly:
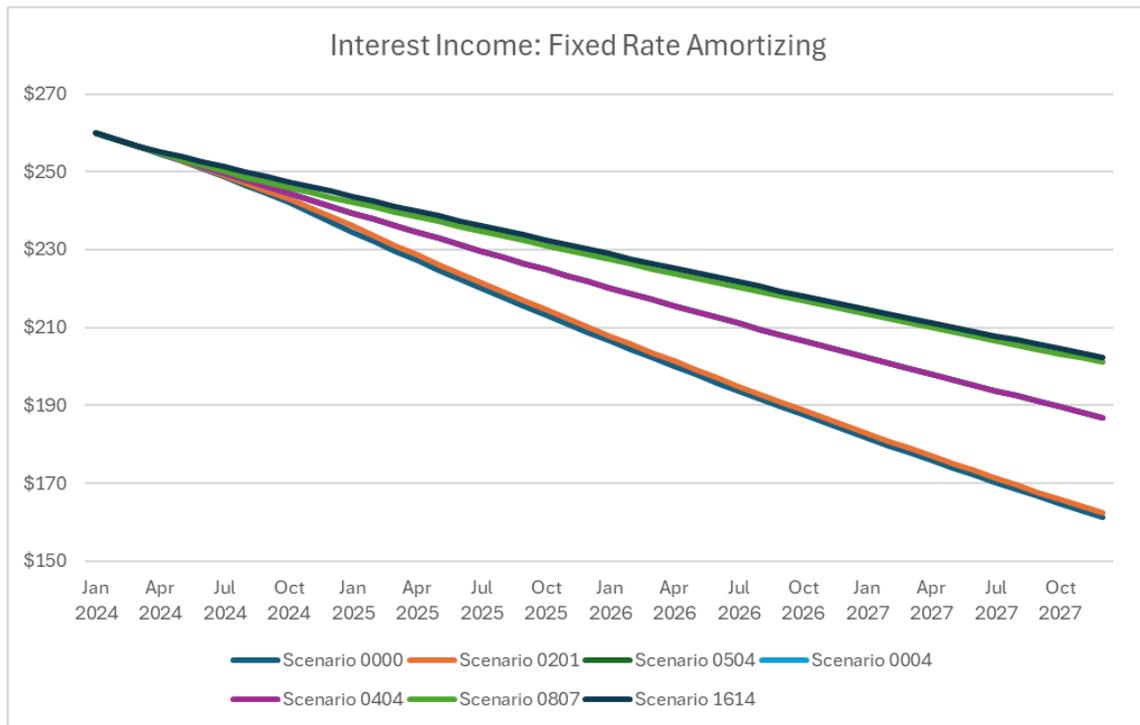
NEV: Fixed Rate Bullet

Scenario	NEV
Scenario 1614	$66,980
Scenario 0807	$72,312
Scenario 0504	$74,520
Scenario 0404	$75,020
Scenario 0201	$76,801
Scenario 0004	$77,051
Scenario 0000	$78,098
Book Value	$75,200

VBC noted the NEV, when compared against the instrument's book value of $75,200, was the lowest under Scenario 1614 and the highest under Scenario 0000. This is expected, as Scenario 1614 represents the high-rate scenario with an inverted yield curve. When market rates exceed a instrument's fixed interest rate, as seen in this example, the instrument becomes less valuable and therefore the NEV valuation falls below that of the current book value. Alternatively, under Scenario 0000, the market rates (0% for all in yield curve) are significantly below the fixed interest rate (3.76%) seen in this example, and therefore the NEV valuation exceeds that of the current book value.
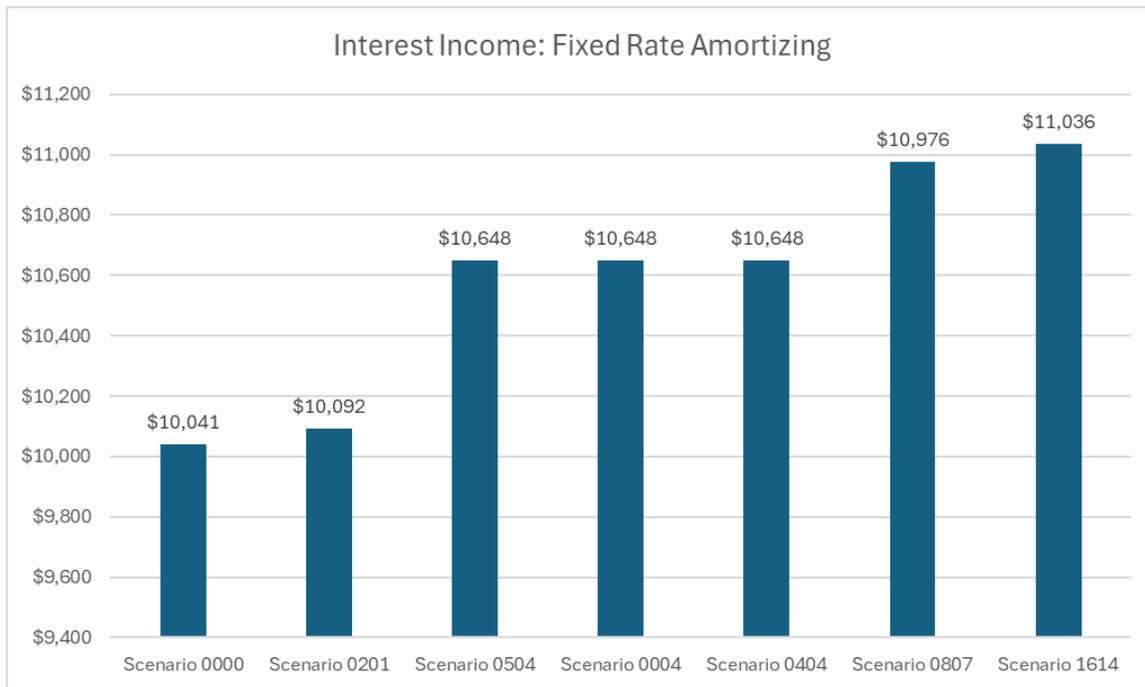
Scenario 0807 represents the only other high-rate scenario (+300 bps from current) in this analysis, and as a result, yields the second-lowest NEV valuation when compared against the instrument's book value. Scenario 0504, which represents the current market rate environment seen today, is marginally lower than the instrument's current book value as is expected under standard discounting methodologies coupled with the presence of an inverted yield curve. Scenario 0404 yields an NEV valuation that is only marginally higher than that of the base scenario for which all short-term rates decrease to reflect the rate currently seen for the 10-Year Treasury bond (400 bps) to reverse the effects of the inverted yield curve. Scenario 0201, which is 300 bps below the base scenario, yields short-term and long-term market rates that are below the fixed interest rate seen in the example to therefore generate an NEV valuation that is above the current book value. However, the market rates under Scenario 0201 (200 bps for 3-Month, 100 bps for 10-Year) exceed those seen in Scenario 0000 (0 bps for all) which justifies the slightly lower NEV valuation of $76,801. Lastly, Scenario 0004 represents a positive yield curve scenario in which 10-Year Treasury rates are 0 bps and 3-Month Treasury rates are 400 bps. As such, the NEV valuation of $77,051 falls between the valuations seen under Scenario 0201 and Scenario 0000. Overall, VBC noted the NEV results

increased or decreased as anticipated under each interest rate scenario and all results appeared to be reasonable and representative of expectations.

3.2 Fixed-rate Amortizing

For the Fixed-rate Amortizing instrument type, the NII cashflow was replicated up until December 2027, or four years after the start of the cashflow. The interest income results seen under each scenario are shown graphically below:

Interest Income: Fixed Rate Amortizing

Scenario	Value
Scenario 0000	$10,041
Scenario 0201	$10,092
Scenario 0504	$10,648
Scenario 0004	$10,648
Scenario 0404	$10,648
Scenario 0807	$10,976
Scenario 1614	$11,036

For this instrument type, the IRR varies under each rate scenario due to underlying changes in prepayment assumptions which are a function of the current rate environment. Prepayments are expected to decrease in increasing rate environments and increase in decreasing rate environments due to refinancing risks. As such, interest income projections should decrease under low-interest rate scenarios (when refinancing risks are heightened) compared to that of high-interest rate scenarios. In this example, the prepayment rate assumptions are a function of the *30-Year Mortgage Refinance* rate, which has the below values under each scenario:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	6.70	6.34	5.97	5.61	5.25	4.88	4.52	4.15	3.79	3.43	3.06	2.70
Scenario 0201	6.70	6.43	6.15	5.88	5.61	5.34	5.06	4.79	4.52	4.25	3.97	3.70
Scenario 0504	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0004	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0404	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0807	6.70	6.97	7.25	7.52	7.79	8.06	8.34	8.61	8.88	9.15	9.43	9.70
Scenario 1614	6.70	7.61	8.52	9.43	10.34	11.25	12.15	13.06	13.97	14.88	15.70	15.70

VBC noted that Scenario 0004 and Scenario 0404 both contain yield-curve specific short-term interest rate assumptions which do not apply to this index. As a result, the rate values used for these scenarios match those seen in Scenario 0504 (base scenario). All other scenarios directionally aligned (i.e., increased or decreased) as expected.

As previously mentioned, Scenario 0000 and Scenario 0201 are the two low-interest rate scenarios. For the *30-Year Mortgage Refinance* rate, Scenario 0000 has the lowest long-term rate of 270 bps and Scenario 0201 has a slightly higher long-term rate of 370 bps compared to the 670 bps assumption used in the base scenario. As a result, the prepayment rate assumptions increase under these two scenarios which in turns lowers the projected income in the cashflow analysis accordingly.

Similarly, Scenario 1614 and Scenario 0807 are the two high-interest rate scenarios for which Scenario 1614 has a long-term *30-Year Mortgage Refinance* rate of 1570 bps and Scenario 0807 has a lower long-term rate of 970 bps. As such, prepayment rate assumptions decrease under these two scenarios which in turn increases the projected income in the cashflow analysis accordingly. VBC noted the scenario-specific NII changes seen for this instrument type are behaving as expected and align with industry standards.

Static NII Results

For this instrument type only, VBC also replicated the NII results using a static balance sheet assumption. For the static NII calculation, all balances that run off due to either prepayments or scheduled maturities are assumed to be reinvested as new volume to yield a starting balance equal to the beginning balance (i.e., $100,000) for each time period in the cashflow analysis. The new volume yields, or the interest rates seen on the new volume only, are a function of three inputs: *New Volume (NV) Beta*, *NV Shift*, and *NV Beginning Yield*:

$$New\ Volume\ Yield = NV\ Beginning\ Yield + (NV\ Beta * Shift)$$

The *NV Beginning Yield* value is a static input defined by the user. For the purposes of this replication example, a static *NV Beginning Yield* value of 6% was assumed.

The *Shift* variable represents the change between the current and projected value of the *10-Year Treasury* index under each interest rate scenario. For example, if the *10-Year Treasury* is projected to increase 3%, the rate scenario will use a *Shift* value of 3. Alternatively, if the *10-Year Treasury* is projected to decrease 3%, the rate scenario will use a *Shift* value of -3. Lastly, the *NV Beta* represents the percentage of the *Shift* value that should be applied to the *NV Yield*. For example, a beta value of 100% will apply the full 3% increase to the *NV Yield* if the *Shift* value is 3. Alternatively, a beta value of 50% will apply only a 1.5% increase to the *NV Yield* if the *Shift* value is 3. For replication purposes, a *NV Beta* of 100% was assumed for all scenarios. The *Shift* values and subsequent *NV Yields* assumed under each scenario are outlined below:

	NV Beginning Yield	Shift (with 100% NV Beta)	NV Yield
Scenario 0000	6%	-4%	2%
Scenario 0201	6%	-3%	3%
Scenario 0504	6%	0%	6%
Scenario 0004	6%	0%	6%
Scenario 0404	6%	0%	6%
Scenario 0807	6%	3%	9%
Scenario 1614	6%	10%	16%

Static NII values were replicated for the first four years of the cashflow, or up until December 2027. The Static NII values seen under each rate scenario are outlined below:

Interest Income: Static NII
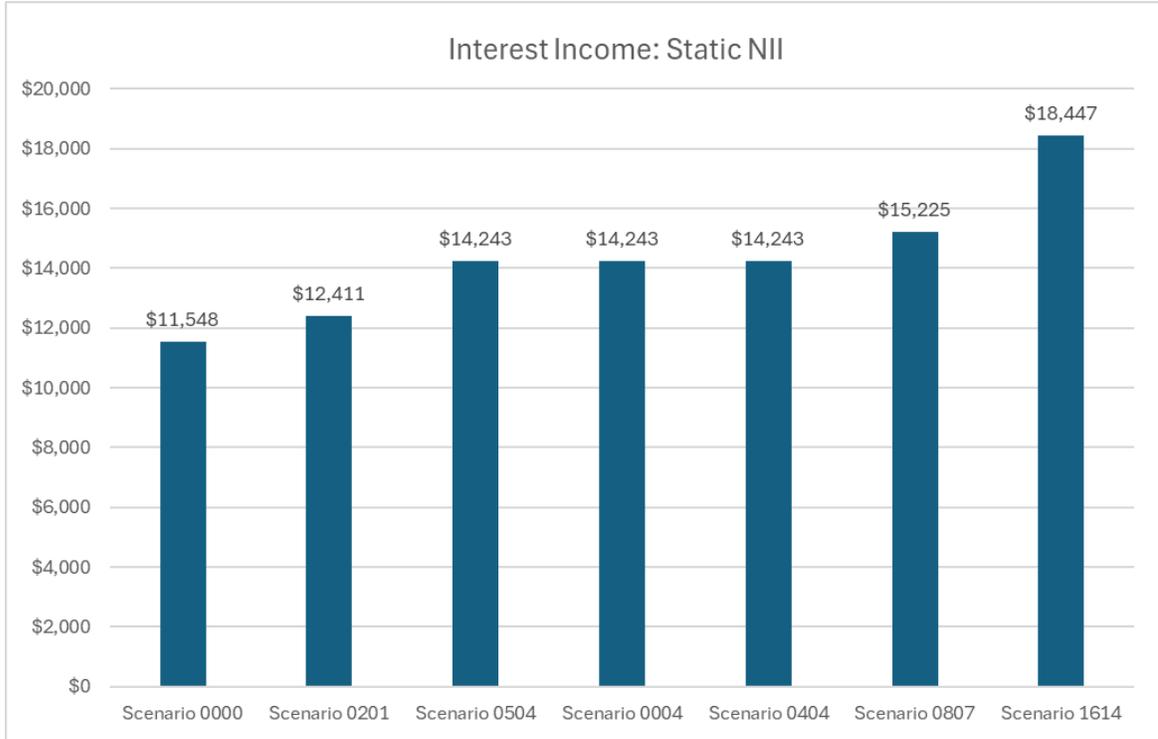
A comparison of the Static NII vs. the standard (i.e., "Runoff") NII values are shown graphically below:

Interest Income: Static vs. Runoff
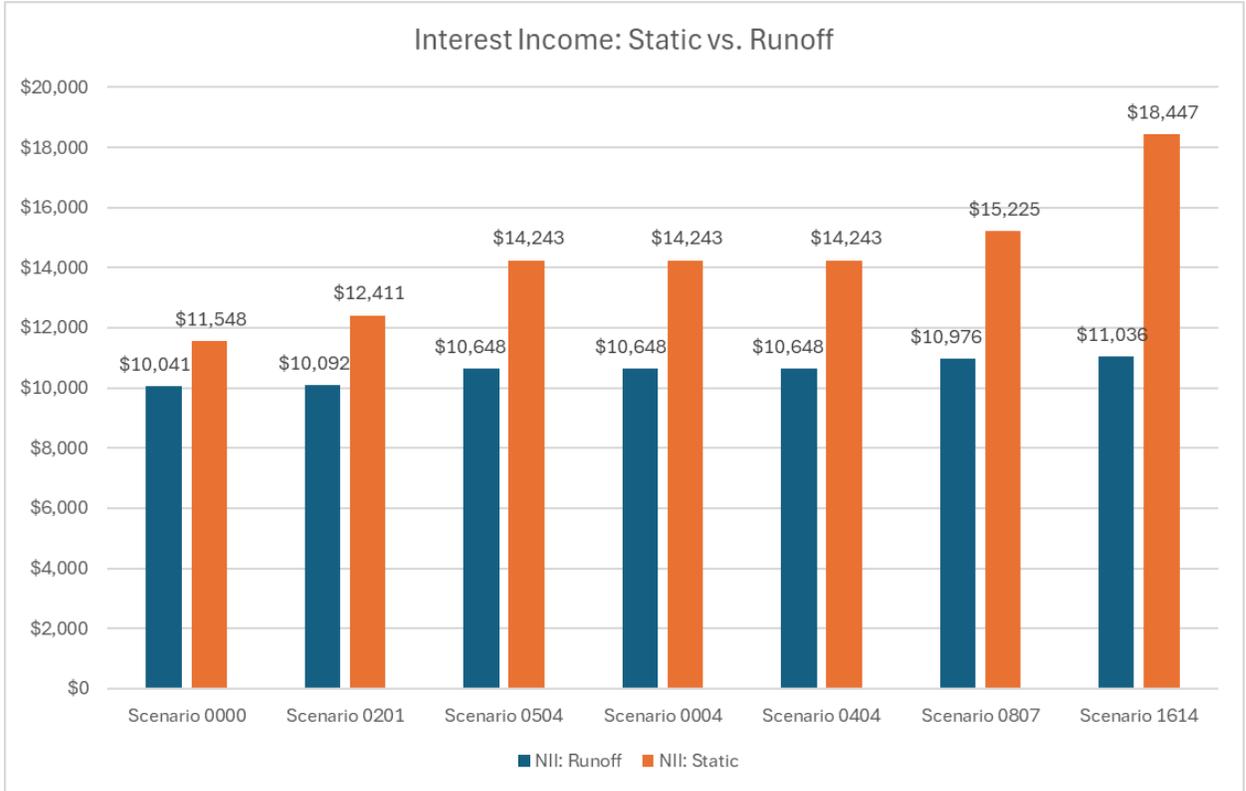
As expected, the NII differences seen under each scenario align with the patterns previously outlined. Scenarios 0000 and 0201, the low rate scenarios, yield the lowest Static NII results whereas the high rate scenarios, Scenarios 0807 and 1614, yield the highest Static NII results. Please note the *10-Year Treasury* index does not change (i.e., *Shift* of 0%) under Scenarios 0504, 0004, and 0404. As a result, the Static NII results are the same for all three scenarios.

The Static NII differences seen under each scenario are more pronounced compared to the Runoff NII differences. This is because the new volume yields exceed that of the loan's interest rate (3.13%) and the new volume balances consistently increase over time. As a result, the Static NII results are also consistently increasing over time compared to the decreasing yield trends typically seen under a standard Runoff NII cashflow analysis.

As previously mentioned, the static cashflow analyses assume an instantaneous rate change for the income calculations whereas the existing commitments assume a 12-month ramp assumption. According to the Client, all static cashflow analyses assume instantaneous rate assumptions in order to adhere to regulatory expectations. VBC noted the scenario-specific NII changes seen for this instrument type are behaving as expected and align with industry standards.

The NEV calculations for this instrument type were replicated up until December 2053, or the instrument's maturity date. In this analysis, the *3-Year Treasury* index was used to discount the cashflow which varied under each interest rate scenario accordingly:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenario 0201	4.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Scenario 0004	4.30	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Scenario 0404	4.30	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Scenario 0504	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Scenario 0807	4.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30
Scenario 1614	4.30	14.60	14.60	14.60	14.60	14.60	14.60	14.60	14.60	14.60	14.60	14.60

The NEV results under each scenario are as follows:

NEV: Fixed Rate Amortizing

NEV: Fixed Rate Amortizing
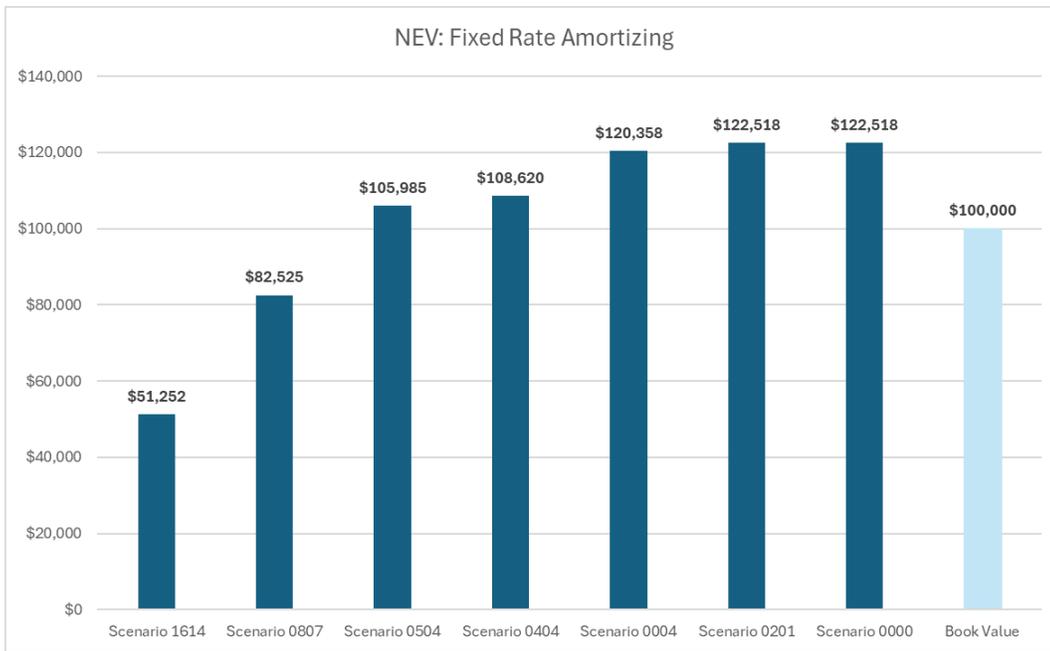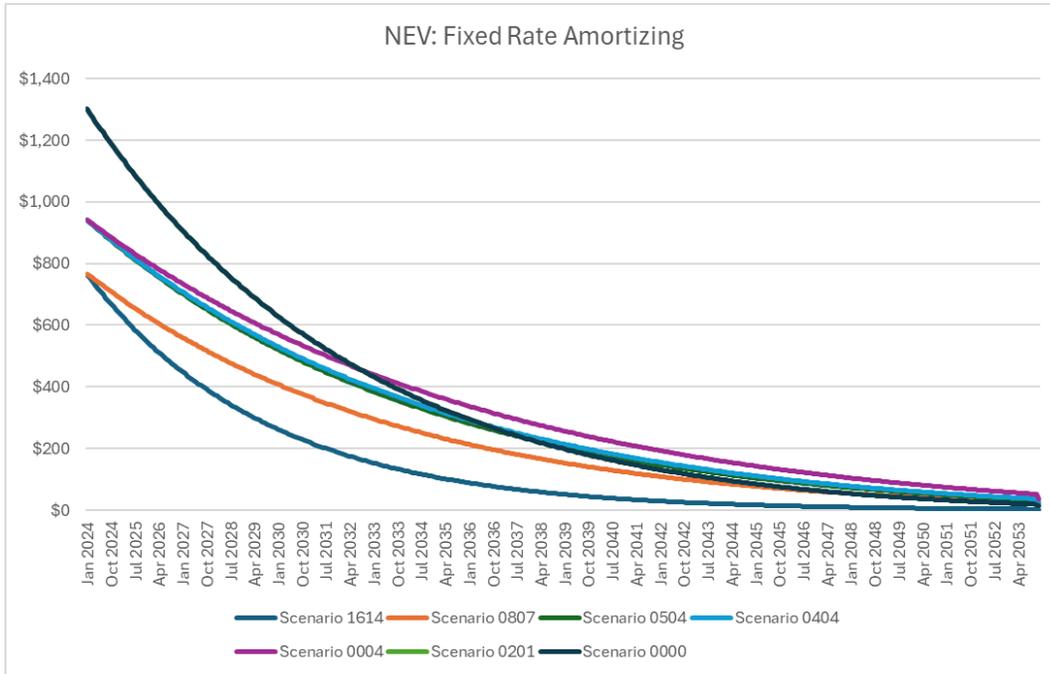
Directionally, all NEV results aligned with expectations. The highest rate scenario, Scenario 1614, yielded the smallest NEV valuation whereas the lowest rate scenario, Scenario 0000, yielded the largest NEV valuation. In addition, all other in-between scenario results linearly aligned as expected. VBC noted the NEV results for Scenario 0201 and Scenario 0000 were the same because each rate scenario, after taking into account a *Market Value Discount Spread* of -1.9%, yielded a discount rate that fell below zero. As a result, the discount rate was floored to 0% within the model for both scenarios and therefore the NEV cashflows were identical. Overall, VBC noted the NEV results increased or decreased as anticipated under each interest rate scenario and all results appeared to be reasonable and representative of expectations.

3.3 Adjustable-rate Bullet Results

For the Adjustable-rate Bullet instrument type, the interest income cashflow was replicated up until December 2026, or the date in which the remaining balance was projected to pay down. The interest income results seen under each scenario are shown graphically below:
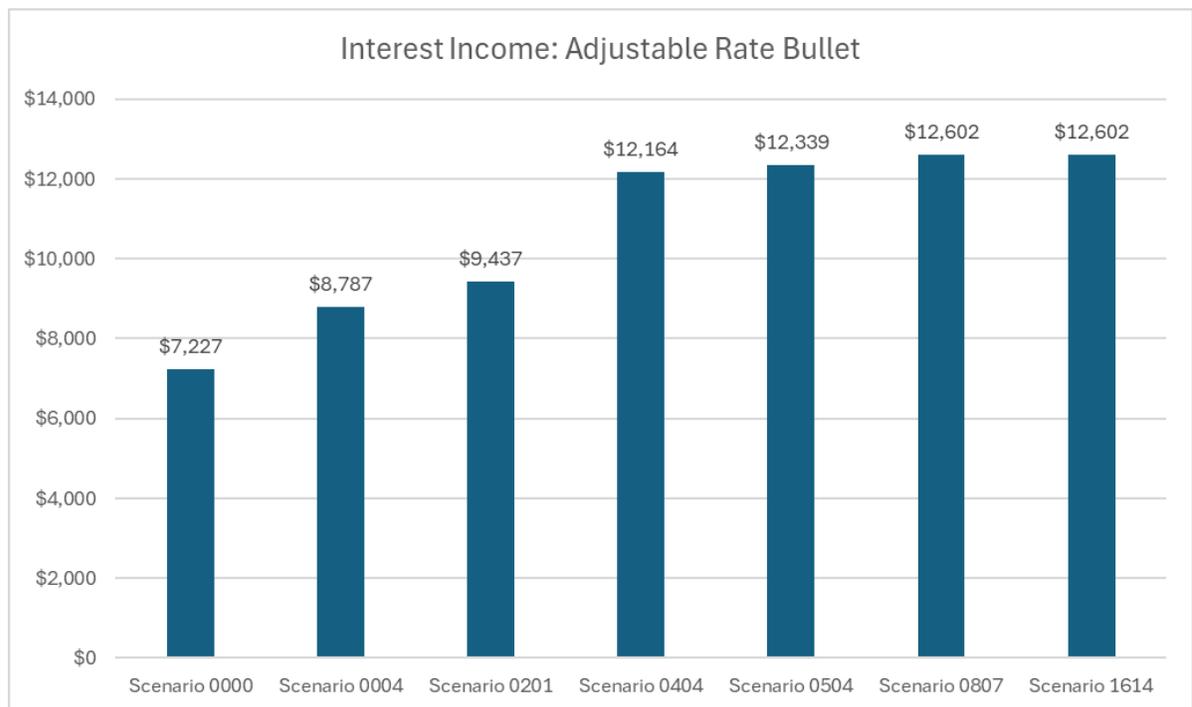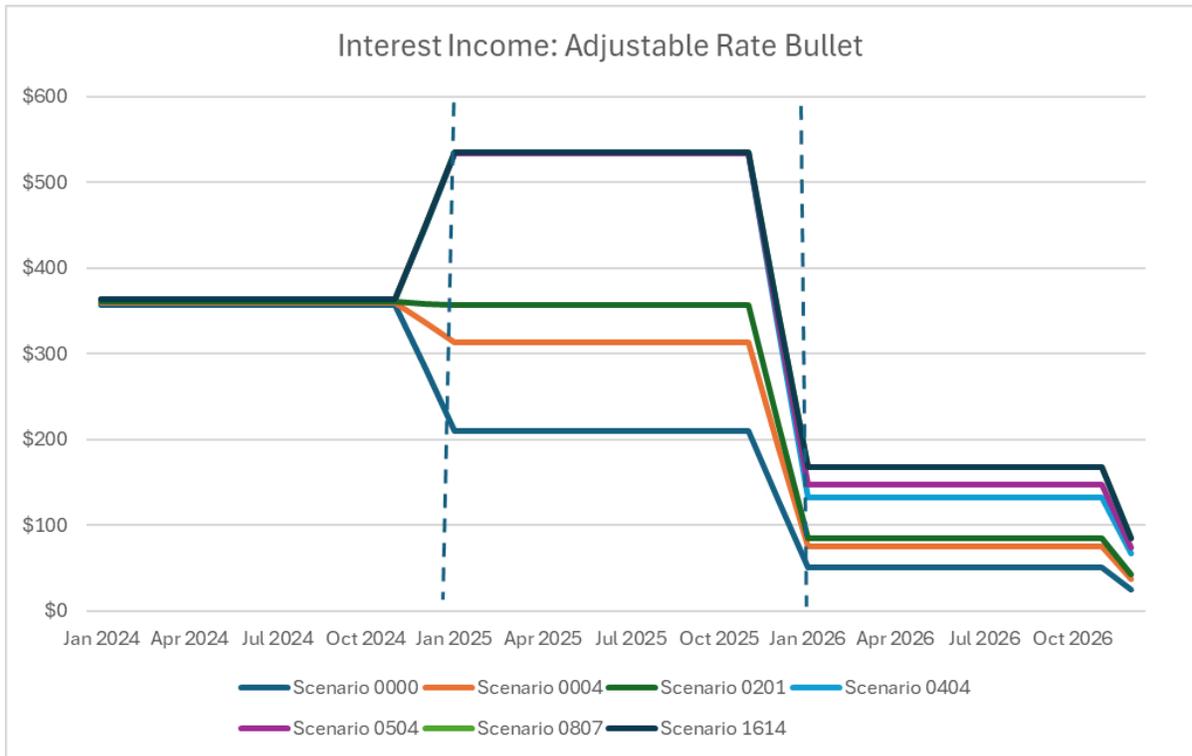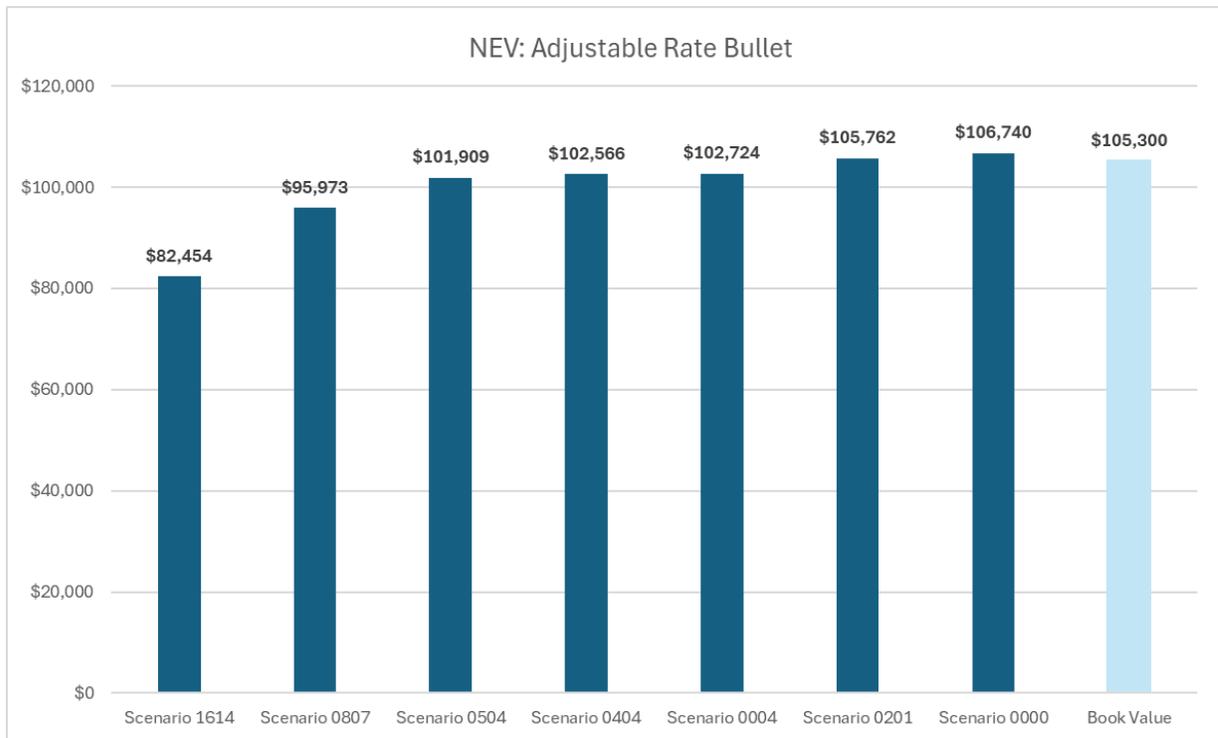
This instrument type does not contain any prepayment assumptions, so interest income changes are only influenced by paydown activity and interest rate changes seen during each repricing period. For this example, the instrument was repriced every 12 months (beginning in December 2024), as outlined by the dotted lines in the line graph above. The $105,000 bullet instrument was assumed to have an $80,000 paydown occur in December 2025 and a $25,000 paydown occur in December 2026. The interest income changes seen for each rate scenario in the bar graph above are entirely driven by repricing rate differences underlying each simulation. For this example, the *1-Year Treasury* index was used as the repricing rate driver which varied under each interest rate scenario accordingly:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	4.70	4.27	3.85	3.42	2.99	2.56	2.14	1.71	1.28	0.85	0.43	0.00
Scenario 0004	4.70	4.38	4.06	3.75	3.43	3.11	2.79	2.47	2.15	1.84	1.52	1.20
Scenario 0201	4.70	4.43	4.15	3.88	3.61	3.34	3.06	2.79	2.52	2.25	1.97	1.70
Scenario 0404	4.70	4.64	4.57	4.51	4.45	4.38	4.32	4.25	4.19	4.13	4.06	4.00
Scenario 0504	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
Scenario 0807	4.70	4.97	5.25	5.52	5.79	6.06	6.34	6.61	6.88	7.15	7.43	7.70
Scenario 1614	4.70	5.67	6.65	7.62	8.59	9.56	10.54	11.51	12.48	13.45	14.43	15.40

The interest rate results outlined in the above bar graph linearly align with the rate changes seen in the above table as expected. Scenario 0000, the low-interest rate scenario, yielded the lowest interest income result and Scenario 1614, the high-interest rate scenario, yielded the highest interest income result. VBC noted the interest income results seen under Scenario 0807 and Scenario 1614 were the same due to the embedded optionality for this instrument. In this example, the loan had a *Periodic Cap* of 2%, meaning the repricing rate could not increase by more than 2% period-over-period. In addition, the loan had a *Lifetime Rate Cap* of 9%, meaning the repricing rate could not exceed 9% for any period. As a result, Scenario 0807 and Scenario 1614, both of which hit the periodic cap of 2% and repricing rate cap of 9%, yielded identical interest income cashflows. Without these repricing rate guardrails, the interest income under Scenario 1614 would have exceeded that of Scenario 0807 as expected. Overall, VBC confirmed the scenario-specific NII changes seen for this instrument type are behaving as expected and align with industry standards.

The NEV calculations for this instrument type were replicated up until December 2026 as well. In this analysis, the government yield curve was used to discount the cashflow which varied under each interest rate scenario accordingly:

NEV: Adjustable Rate Bullet

Scenario	NEV
Scenario 1614	$82,454
Scenario 0807	$95,973
Scenario 0504	$101,909
Scenario 0404	$102,566
Scenario 0004	$102,724
Scenario 0201	$105,762
Scenario 0000	$106,740
Book Value	$105,300

VBC noted the NEV, when compared against the instrument's book value of $105,300, was the lowest under Scenario 1614 and the highest under Scenario 0000 as expected. Scenario 0807, which represents the only other high-rate scenario (+300 bps from current) in this analysis, yielded the second-lowest NEV valuation when compared against the instrument's book value. Scenario 0504, which represents the current market rate environment seen today, saw a $6M jump in its NEV valuation when compared against Scenario 0807. This appropriately reflects the 300 bps differential seen between the two interest rates scenarios. Scenario 0404, which assumes 400 bps for all market curves, yielded NEV results slightly lower than that of Scenario 0004, which assumed market curves gradually ramp up to 400 bps (from 0 bps). This slight NEV increase seen for Scenario 0004 appropriately reflects the lower short-term interest rate differential under this scenario. Lastly, as expected, Scenario 0201 yielded the second-highest NEV valuation as it contained some of the lowest interest rate assumptions, second only to Scenario 0000. Overall, VBC noted the NEV results increased or decreased as anticipated under each interest rate scenario and all results appeared to be reasonable and representative of expectations.

3.4 Adjustable-rate Amortizing Results

For the Adjustable-rate Amortizing instrument type, the NII cashflow was replicated up until December 2027, or four years after the start of the cashflow. The interest income results seen under each scenario are shown graphically below:
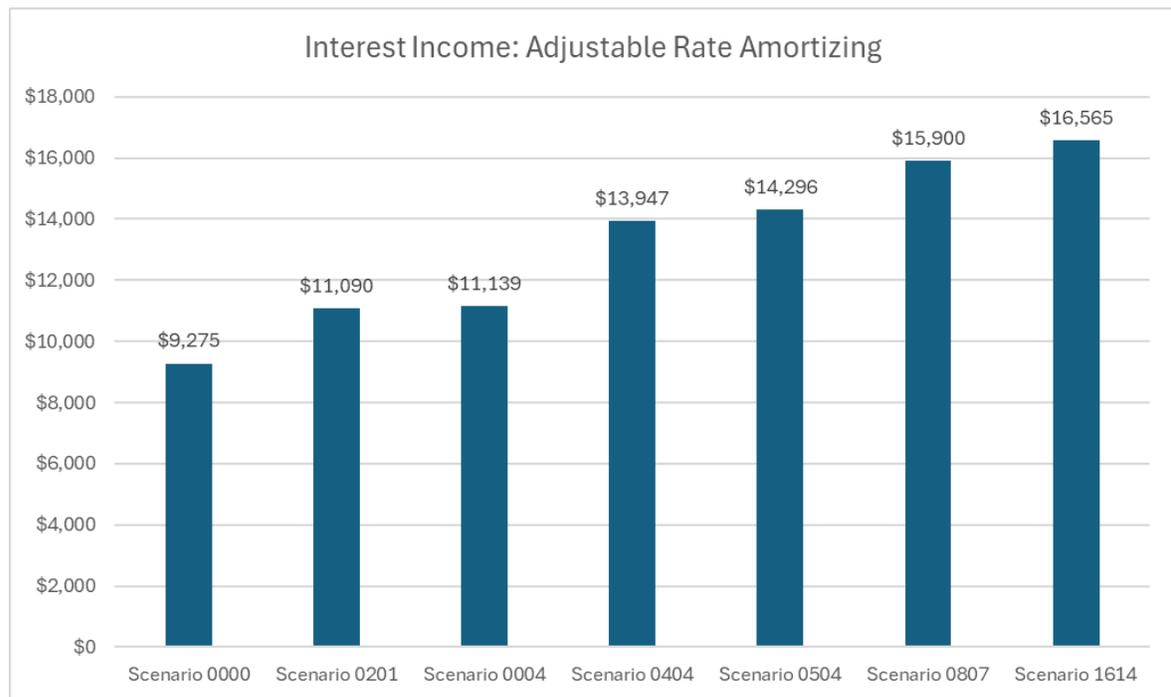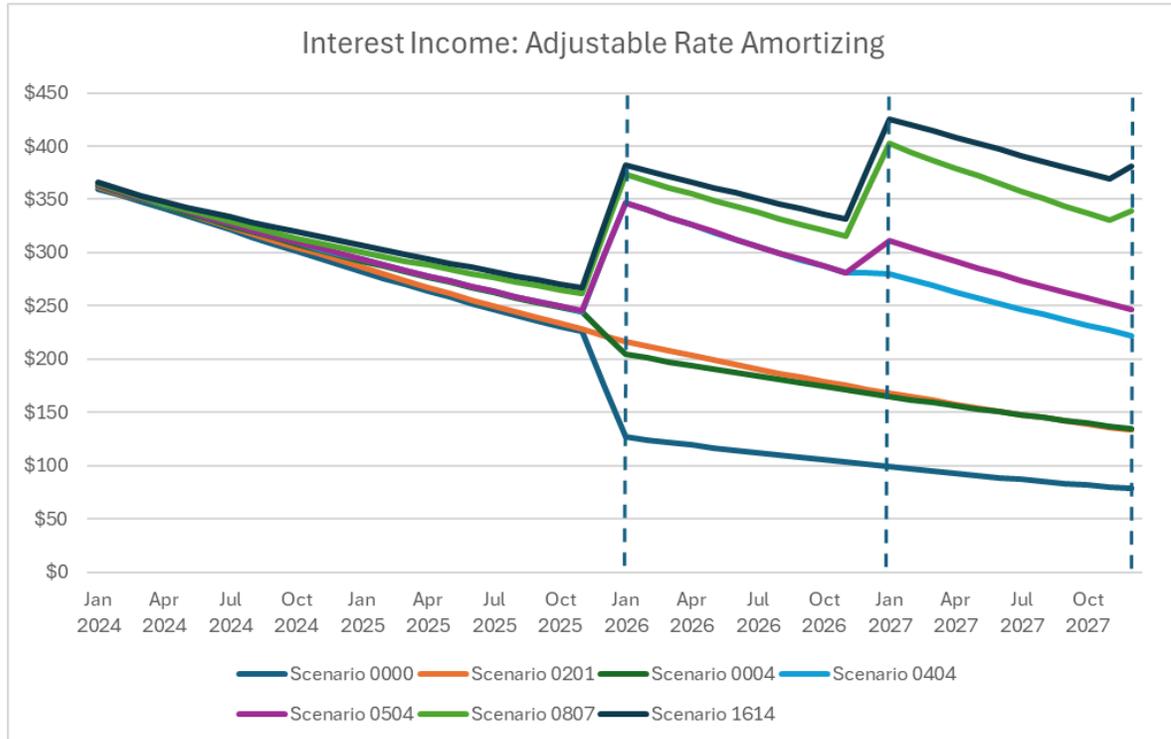
For this instrument type, the NII varies under each rate scenario due to underlying changes in prepayment assumptions as well as repricing rate differences. In this example, the prepayment rate assumptions are a function of the *30-Year Mortgage Refinance* index, which has the below values under each scenario:

|	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	6.70	6.34	5.97	5.61	5.25	4.88	4.52	4.15	3.79	3.43	3.06	2.70
Scenario 0201	6.70	6.43	6.15	5.88	5.61	5.34	5.06	4.79	4.52	4.25	3.97	3.70
Scenario 0504	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0004	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0404	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70
Scenario 0807	6.70	6.97	7.25	7.52	7.79	8.06	8.34	8.61	8.88	9.15	9.43	9.70
Scenario 1614	6.70	7.61	8.52	9.43	10.34	11.25	12.15	13.06	13.97	14.88	15.70	15.70

VBC noted that Scenario 0004 and Scenario 0404 both contain yield-curve specific short-term interest rate assumptions that do not apply to this index, so therefore the prepayment rate assumptions under these two scenarios match those seen under Scenario 0504. All other scenarios directionally aligned (i.e., increased or decreased) as expected.

The interest income changes are also a function of the repricing rate differences underlying each simulation. For this example, the *1-Year Treasury* index was used as the repricing rate driver which varied under each interest rate scenario accordingly:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	4.70	4.27	3.85	3.42	2.99	2.56	2.14	1.71	1.28	0.85	0.43	0.00
Scenario 0004	4.70	4.38	4.06	3.75	3.43	3.11	2.79	2.47	2.15	1.84	1.52	1.20
Scenario 0201	4.70	4.43	4.15	3.88	3.61	3.34	3.06	2.79	2.52	2.25	1.97	1.70
Scenario 0404	4.70	4.64	4.57	4.51	4.45	4.38	4.32	4.25	4.19	4.13	4.06	4.00
Scenario 0504	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
Scenario 0807	4.70	4.97	5.25	5.52	5.79	6.06	6.34	6.61	6.88	7.15	7.43	7.70
Scenario 1614	4.70	5.67	6.65	7.62	8.59	9.56	10.54	11.51	12.48	13.45	14.43	15.40

In this simulation the instrument was repriced every 12 months, beginning in December 2025, as outlined by the dotted lines in the line graph above. As seen with the other instrument types, Scenario 0000 yielded the lowest interest income whereas Scenario 1614 yielded the highest interest income as expected. Scenario 0201 yielded the second-lowest interest income - despite its slightly higher repricing rate assumptions compared to Scenario 0004 - due to this scenario's slightly higher prepayment rates offsetting the effects of repricing. All other interest income results directionally aligned with the prepayment and repricing rate assumptions as expected. Overall, VBC confirmed the scenario-specific NII changes seen for this instrument type are behaving as expected and align with industry standards.

The NEV calculations for this instrument type were replicated up until December 2053, or the maturity date of the Instrument. In this analysis, the government yield curve was used to discount the cashflow which varied under each interest rate scenario accordingly:

VBC»

NEV: Adjustable Rate Amortizing
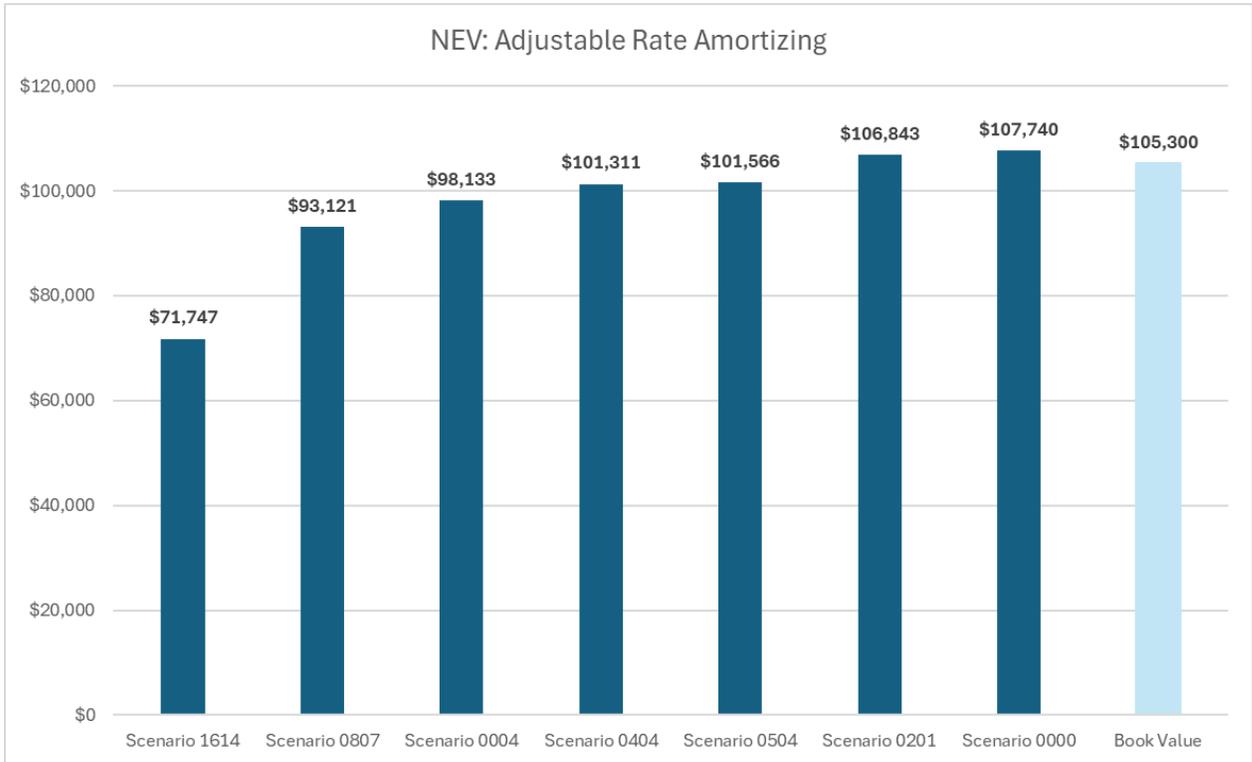
As expected, and as seen under the Fixed-rate Amortizing instrument type, Scenario 1614 and Scenario 0807 yielded the lowest and second-lowest NEV valuations, respectively, whereas Scenario 0000 and Scenario 0201 yielded the highest and second-highest NEV valuations, respectively. All other NEV valuation results under scenarios 0004, 0404, and 0504 linearly aligned with expectations in which those with higher repricing rate assumptions yielded higher NEV valuations. Overall, VBC noted the NEV results increased or decreased as anticipated under each interest rate scenario and all results appeared to be reasonable and representative of expectations.

3.5 Callable Bond Results

For the Callable Bond instrument type, the interest expense cashflow was replicated up until December 2027 (four years after the start of the cashflow) or up until the call date, whichever came first. The interest expense results seen under each scenario are shown graphically below:
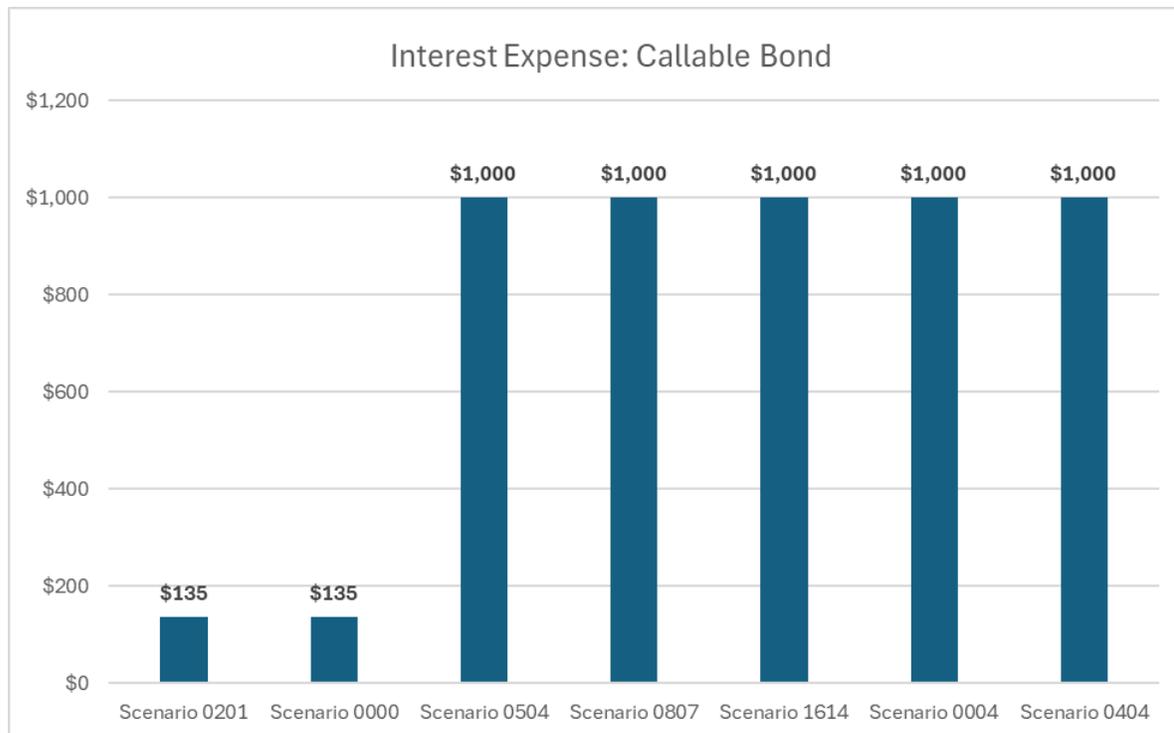
This instrument type contains no prepayment assumptions and the bond in this example has a fixed interest rate, so interest expense changes are only driven by call date changes. As outlined above, the interest expense calculated was the same for all scenarios except for Scenario 0201 and Scenario 0000 as the bond remained active (i.e., was not called) under these scenarios. The two low-interest rate scenarios, Scenario 0201 and Scenario 0000, have an interest expense value of $135 which reflects a call date of July 2024, or seven months after the start of the cashflow. July 2024 was the first callable period in which the market rate, which was linked to the government yield curve, was less than the fixed interest rate on the bond. For this instrument type, it is assumed the bond will be called if the market rates are lower than the bond rate as an institution will likely not want to pay more than the market can provide. While the interest rates underlying these two scenarios are slightly different, the call dates happened to be the same and therefore the interest expense values aligned. VBC confirmed the interest expense differences seen for this instrument type align with expectations and the methodology follows industry best practices.

The NEV calculations for this instrument type were replicated up until January 2031 (the bond's maturity date) or up until the call date, whichever came first. The cashflow end date (i.e., maturity or call date) seen under each scenario is outlined below:

36

	End Date
Scenario 1614	Not called; January 2031
Scenario 0807	Not called; January 2031
Scenario 0504	Not called; January 2031
Scenario 0404	Not called; January 2031
Scenario 0201	January 2024
Scenario 0000	January 2024
Scenario 0004	January 2029

VBC noted the call date utilized for existing commitment interest expense purposes differed from the call date utilized for NEV purposes for Scenario 0000 and Scenario 0201:

	Income Call Date	**NEV Call Date**
Scenario 0201	July 2024	January 2024
Scenario 0000	July 2024	January 2024

This discrepancy is due to the Client's desire to utilize an instantaneous rate change for NEV calculations and a 12-month rate change for IRR calculations, as outlined in Section 2.5.

In this analysis, the government yield curve was used to discount the cashflow which varied under each interest rate scenario accordingly:

NEV: Callable Bond
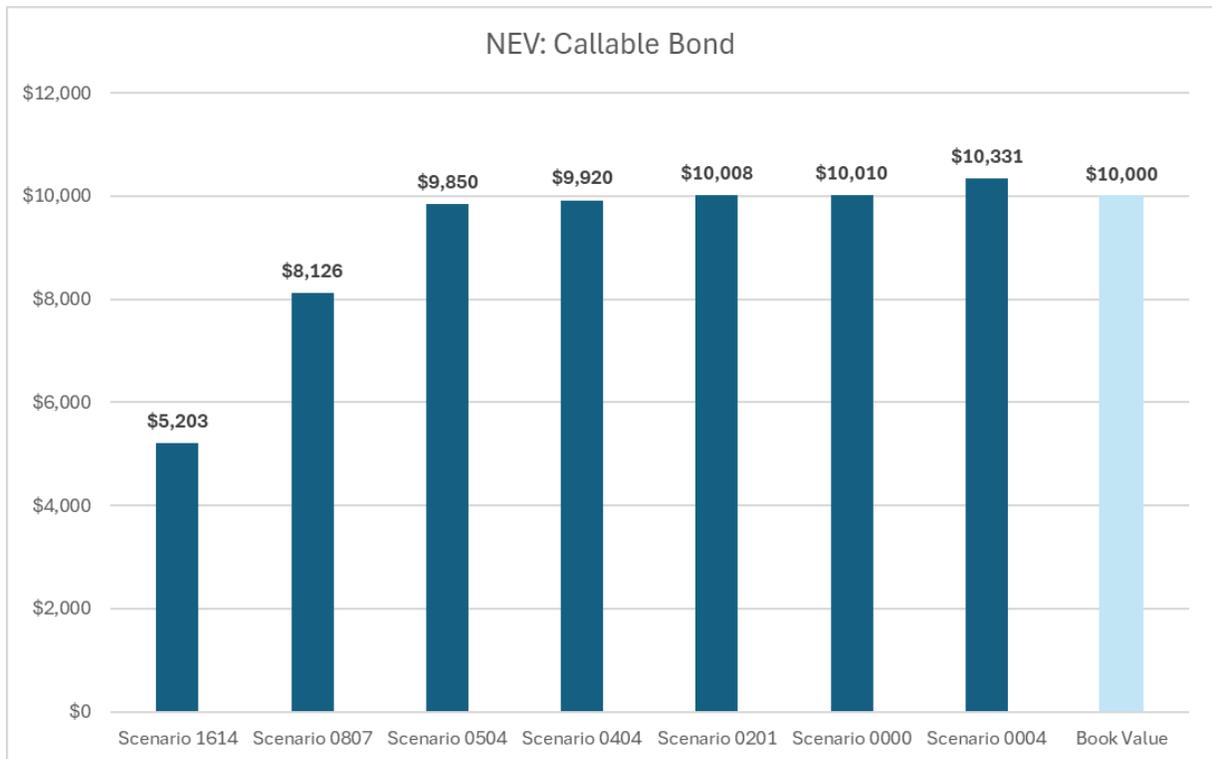
Scenario 0000 and Scenario 0201, the two low-rate scenarios that typically yield the highest NEV results, yielded NEV results very close to the bond's $10M book value due to the bond being called immediately (January 2024) under both scenarios. Scenario 0004, which yielded the highest NEV result for this instrument type, assumed a call date of January 2029. VBC noted the high NEV result for this scenario is logical because the long-term interest rates for Scenario 0004 are lower than that of the other scenarios, except for Scenario 0201 and Scenario 0000. However, the immediate call date seen under Scenario 0000 and Scenario 0201 offset the lower interest rates and thus yielded lower NEV results. All other NEV results linearly aligned as expected, with the high-rate scenarios yielding lower NEV results compared to the low-rate scenarios. Overall, VBC noted the NEV results increased or decreased as anticipated under each interest rate scenario and all results aligned with expectations.

3.6 Non-Maturity Deposit Results

For the Non-Maturity Deposit (NMD) instrument type, the interest expense cashflow was replicated up until December 2026, or the assumed maturity date inputted into the Model. Please note the Model only utilizes assumed maturity date for NEV purposes – not interest expense purposes – but

VBC chose to utilize this truncation point for both analyses for simplicity. The interest expense results seen under each scenario are shown graphically below:

Interest Expense: Non-Maturity Deposits

Interest Expense: Non-Maturity Deposits
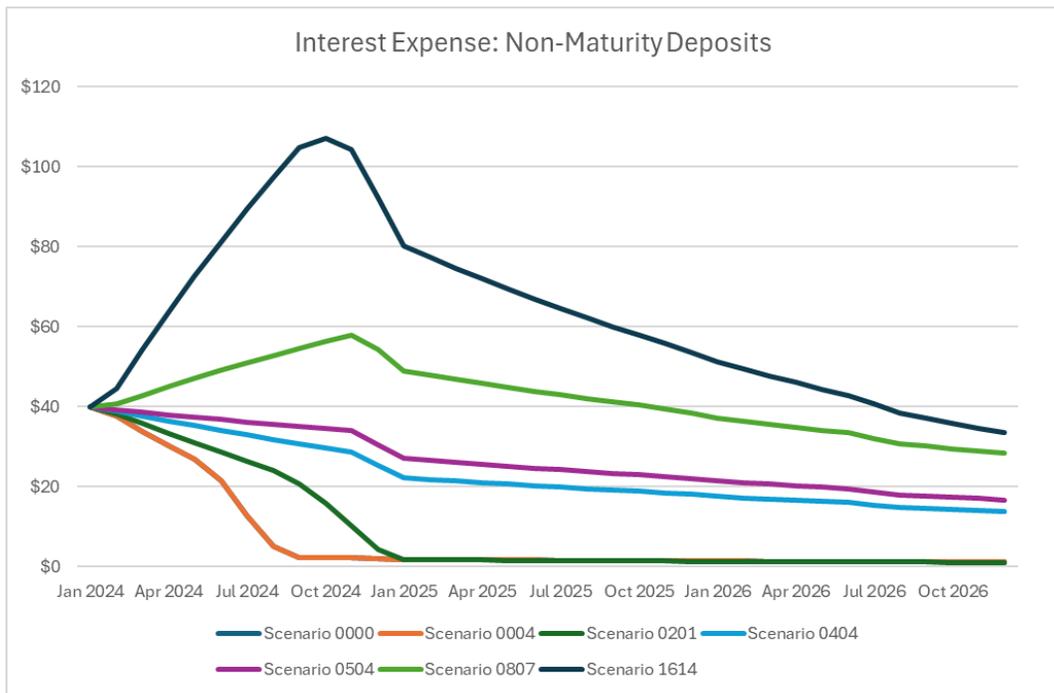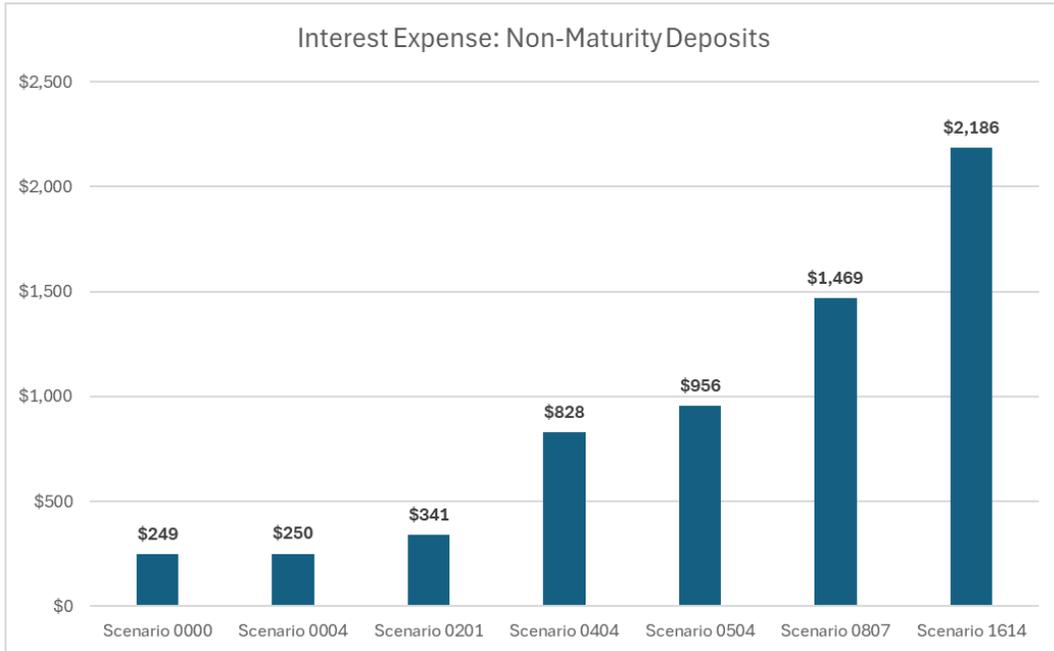
For this instrument type, interest expense changes are driven by repricing rate changes and withdrawal (i.e., decay) changes.

Earning Assets Runoff Factor

The earning assets runoff factor is used in several parts of the model for sharing non-maturing items between the existing and new business. One of the main areas it is applied is to estimate how non-maturity deposits may be shared/allocated to support the existing commitments and the new business.

After the rate and withdrawals are calculated inside of the account, there is a second step that takes place when looking at the profitability of existing commitment reports. The client explained that the model splits the future into existing and new business. The theory is that non-maturity deposits are shared between the existing and new business, supporting the overall structure. If the user did not assume withdrawals, the non-maturity deposits would not mature. With no withdrawals, a category that starts at 10% of total assets, stays at approximately 10% of total assets throughout the simulation. Withdrawal assumptions above 0 would then decrease that non-maturity deposit category below 10% of total assets.

Each category is used to calculate the overall cost of funds. That overall cost of funds is used to simulate the potential profitability of the existing commitments. In order to do this, the model calculates the decline of the contractual assets. Since the existing assets decline over time, the pace of that decline is used to scale (share) the balance of non-maturity deposits.

As mentioned in Section 2.6, the Earning Assets *Runoff Factor* represents the average outstanding balances remaining for each period for all contractual-style assets in the Model. As all contractual-style asset balances change under each rate scenario, the *Runoff Factor* used for each rate scenario changes accordingly as well:
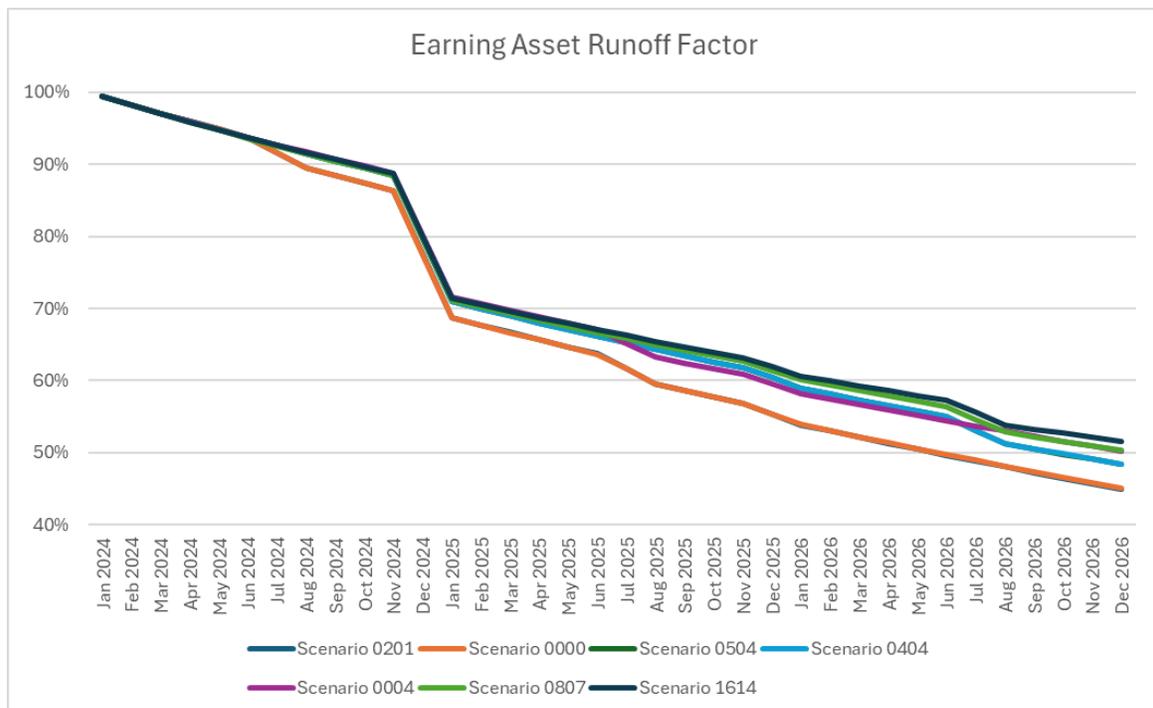
The differences between each scenario are more discernable when looking at the final *Runoff Factor* value used in December 2026:

	Dec 2026
Scenario 0201	44.90%
Scenario 0000	45.00%
Scenario 0504	48.38%
Scenario 0404	48.45%
Scenario 0004	50.22%
Scenario 0807	50.32%
Scenario 1614	51.55%

Please note the *Runoff Factor* for each scenario was provided to VBC by the Client and was not within scope of the certification. In addition, the drivers contributing to the *Runoff Factor* changes were deemed out of scope for this certification. However, VBC noted the two low-interest rate scenarios (Scenario 0201, Scenario 0000) and the two high-interest rate scenarios (Scenario 0807, Scenario 1614) yielded the highest and lowest runoff, respectively, as expected.

The *Money Market $100k - $250k* index was used as the repricing rate driver for this cashflow simulation, which changed accordingly under each rate scenario:
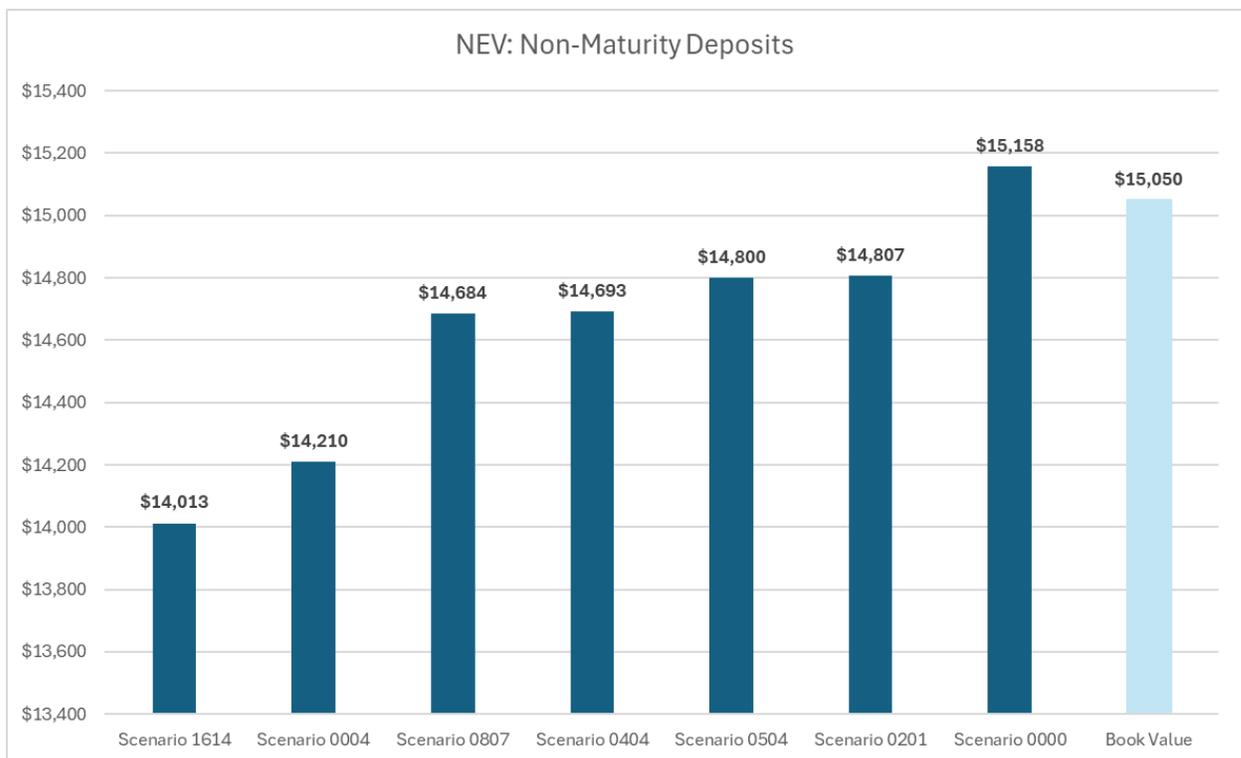
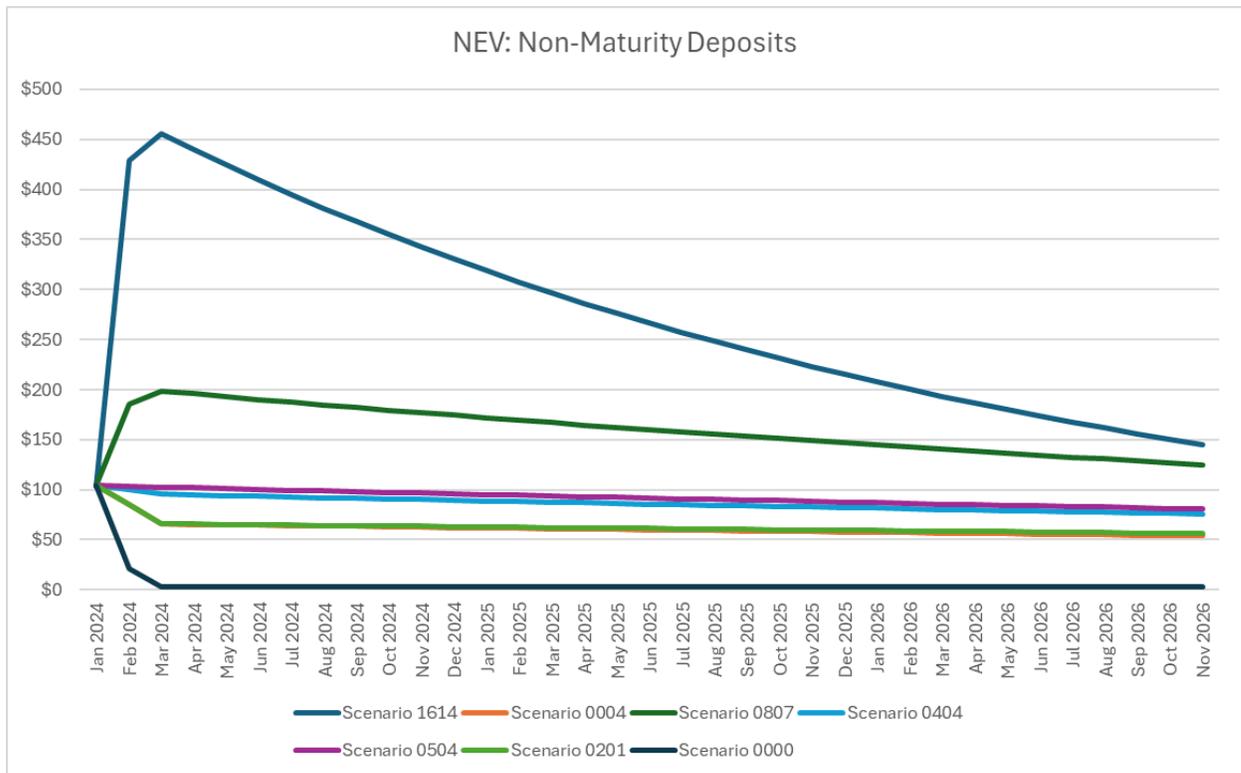|	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	3.20	2.94	2.68	2.42	2.15	1.55	0.70	0.20	0.20	0.20	0.20	0.20
Scenario 0004	3.20	2.94	2.68	2.42	2.15	1.55	0.70	0.20	0.20	0.20	0.20	0.20
Scenario 0201	3.20	3.04	2.89	2.73	2.57	2.42	2.26	2.10	1.71	1.21	0.70	0.20
Scenario 0404	3.20	3.15	3.10	3.04	2.99	2.94	2.89	2.83	2.78	2.73	2.68	2.63
Scenario 0504	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
Scenario 0807	3.20	3.44	3.68	3.92	4.15	4.39	4.63	4.87	5.11	5.35	5.59	5.83
Scenario 1614	3.20	4.08	4.95	5.83	6.70	7.58	8.45	9.33	10.20	10.20	10.20	10.20

Please note this instrument type is assumed to reprice every month in the cashflow. The *Balancing CD* index was used as the withdrawal rate driver, which changed accordingly under each rate scenario:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	4.81	4.31	3.81	3.31	2.81	2.31	1.81	1.65	1.54	1.37	1.15	1.00
Scenario 0004	4.81	4.37	3.93	3.50	3.06	2.62	2.18	1.75	1.65	1.56	1.42	1.23
Scenario 0201	4.81	4.50	4.19	3.88	3.57	3.26	2.96	2.65	2.34	2.03	1.74	1.68
Scenario 0404	4.81	4.72	4.63	4.55	4.46	4.37	4.28	4.20	4.11	4.02	3.93	3.85
Scenario 0504	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81
Scenario 0807	4.81	5.12	5.40	5.67	5.94	6.21	6.49	6.76	7.03	7.30	7.58	7.85
Scenario 1614	4.81	5.84	6.82	7.81	8.80	9.78	10.77	11.75	12.74	13.73	14.71	15.70

All interest rate expense results linearly aligned with the above rate indexes as expected. Scenario 0000 yielded the lowest interest expense estimate whereas Scenario 1614 yielded the highest interest expense result. All other scenario results matched the order outlined in the above tables, which is sorted according to its long-term rate assumption (i.e., column 12). As a result, VBC confirmed the interest expense calculations behaved as expected and aligned with industry standards.

The NEV calculations for this instrument type were replicated up until December 2026, the truncation date. In this analysis, the *3-Year Borrowing* index was used to discount the cashflow which varied under each interest rate scenario accordingly:

NEV: Non-Maturity Deposits

Scenario	NEV
Scenario 1614	$14,013
Scenario 0004	$14,210
Scenario 0807	$14,684
Scenario 0404	$14,693
Scenario 0504	$14,800
Scenario 0201	$14,807
Scenario 0000	$15,158
Book Value	$15,050

NEV: Non-Maturity Deposits

The below table outlines the *3-Year Borrowing* index values under each scenario:

	1	2	3	4	5	6	7	8	9	10	11	12
Scenario 0000	4.70	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Scenario 0201	4.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Scenario 0004	4.70	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
Scenario 0404	4.70	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
Scenario 0504	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
Scenario 0807	4.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70
Scenario 1614	4.70	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

All NEV calculations linearly align with expectations for scenarios 0000, 0201, 0504, 0807, and 1614. For Scenario 0004 and Scenario 0404, the NEV valuation patterns are slightly different than those seen within the IRR results. For example, Scenario 0004 yielded the second lowest interest expense value, and therefore we would expect it to yield the second-highest NEV value. However, Scenario 0004 did the opposite and yielded the second-*lowest* NEV value in the analysis. This is because despite the lower interest rate assumptions utilized under this scenario, which in turn led to lower interest expense projections, the withdrawal rates utilized did not change. For example, for other low-rate scenarios (i.e., Scenario 0000), the *Advantage to Withdraw* changes seen led to a spread of less than 1% between the repricing rate driver and the withdrawal rate driver. As a result, the annual withdrawal assumptions changed from 5% to 0%:

Advantage	Withdrawal
0	0
1	5
2	10
3	15
4	20
5	25

However, for Scenario 0004, the spread between the two rate drivers remained above 1% so the annual withdrawal assumption remained static at 5%. This caused the NEV cashflow to yield low interest expense projections coupled with high runoff assumptions, and thus a low NEV estimate. For Scenario 0404, the NEV results were lower than those of Scenario 0504, despite having lower interest expense projections, due to the decrease in interest rate exceeding the decrease seen in the discount rate driven by the *3-Year Borrowing* index. Overall, VBC confirmed all calculations were accurate and appropriately applied for this instrument type. However, VBC recommends users apply ongoing performance monitoring and sensitivity testing to the manual withdrawal rate assumptions input into the model to ensure all withdrawal rate assumptions align with bank expectations.