FRONTENAC

MORTGAGE INVESTMENT CORPORATION

Assessing the Risk-Reward Trade-Off

**First Versus Second Mortgage Portfolios**

First mortgages provide a pure credit exposure secured by verified, valuable collateral and protected by a power of sale right. Second mortgages leverage the senior position of a first mortgage and expose the lender to the risk of capital calls in the event of borrower default.

These distinctions between first and second mortgages have important implications from an investment perspective. In this paper, we assess the ways in which the fundamental differences between first and second mortgages affect portfolio performance in terms of the trade-off between risk and reward.

Differentiating First and Second Mortgages

An example is helpful in illustrating the key differences between first and second mortgages. Consider the following two scenarios for a typical residential property valued at $350,000 with $250,000 in mortgage debt.
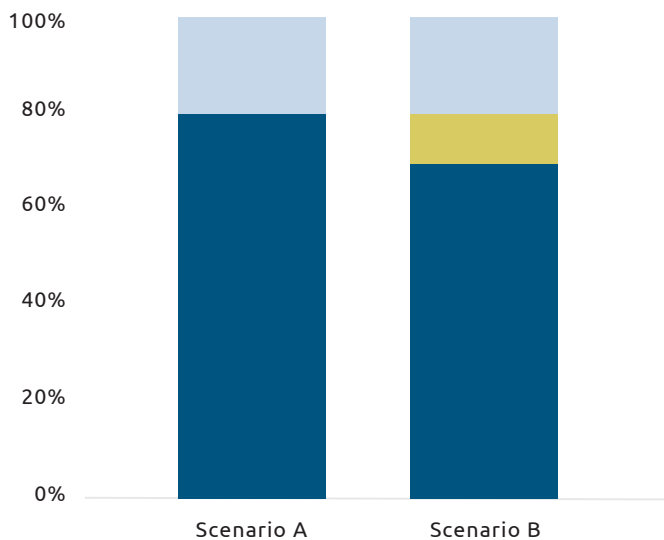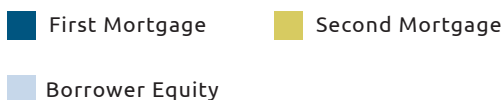
Scenario A

The borrower secures a first mortgage for $250,000 with a 6% interest rate. If the borrower defaults, the lender may execute its power of sale right, which permits the sale of the property to recoup the mortgage principal plus any accrued interest and fees. This is a costly and time-consuming process for the lender, but it is effective for mitigating risk of loss providing the loan was originally underwritten with a suitable margin of safety reflected in the loan-to-value ratio.

Scenario B

The borrower secures a $200,000 first mortgage with a 4% interest rate and a $50,000 second mortgage with a 14% interest rate. If the borrower defaults on the second mortgage, the second mortgage lender is faced with two risks it must mitigate:

1. CAPITAL CALL – The second mortgage lender must commit additional funds to repay the first mortgage to improve its rank in the credit stack. Repaying the first mortgage will allow the lender to proceed with the power of sale. In this example, the lender will attempt to recoup both its initial $50,000 second mortgage as well as the $200,000 of newly committed capital used to pay out the first mortgage.

2. CAPITAL LOSS – Recouping funds via the power of sale is a costly, time-consuming process. Lenders are faced with costs associated with realtors, property management, legal, unearned interest and property repair/remediation. Since second mortgages occupy a junior position and the lender is subject to a capital call in the event of default, lenders are at risk of losing more than the principal on the initial second mortgage.


EXAMPLE

■ First Mortgage   ■ Second Mortgage

■ Borrower Equity

The risk of a capital call is driven by the implied leverage of the second mortgage. For the second mortgage lender, value is generated from the relatively small second mortgage, but the true capital exposure is the combined value of the first and second mortgages. Cash cannot be held in reserve to fund or "cover" these liabilities without greatly diluting the lender's overall return. Therefore, a portfolio of second mortgages has a true capital exposure far greater than its assets, which represents a form of leverage.

As this example illustrates, true capital exposure could be 4–5 times (or more) greater than the value of the portfolio's net assets when you consider total debt relative to the second mortgage value. Given that second mortgage interest rates are merely 1.5–2.5 times higher than first mortgage rates, we do not believe these underlying fundamentals present a compelling investment proposition. A relatively modest increase in defaults could divert the majority of the portfolio's available capital/liquidity while a more significant increase in defaults could drive the fund into insolvency.
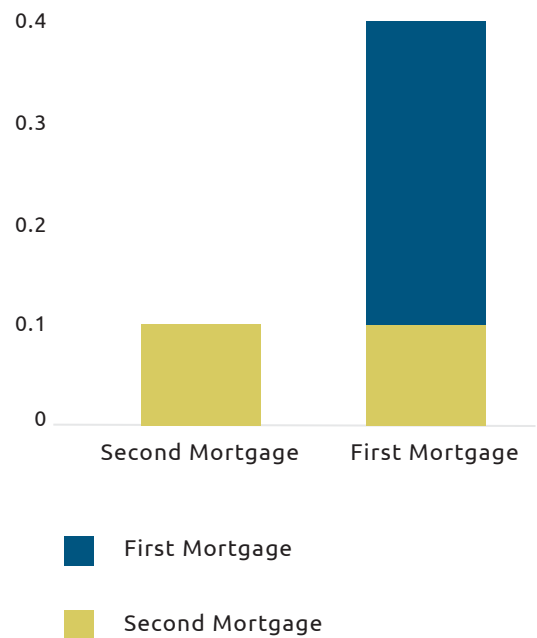
The risk of capital loss is best expressed in terms of the overall investment made into the mortgage by the lender. Let's assume the borrower in the above scenarios defaults on the mortgage(s) and the lenders execute a power of sale to recoup their investment. Let's further assume that the cost of exiting the mortgage equals 25% of the original value of the property.

Legend:
- First Mortgage
- First Loss
- Second Mortgage
- Second Loss
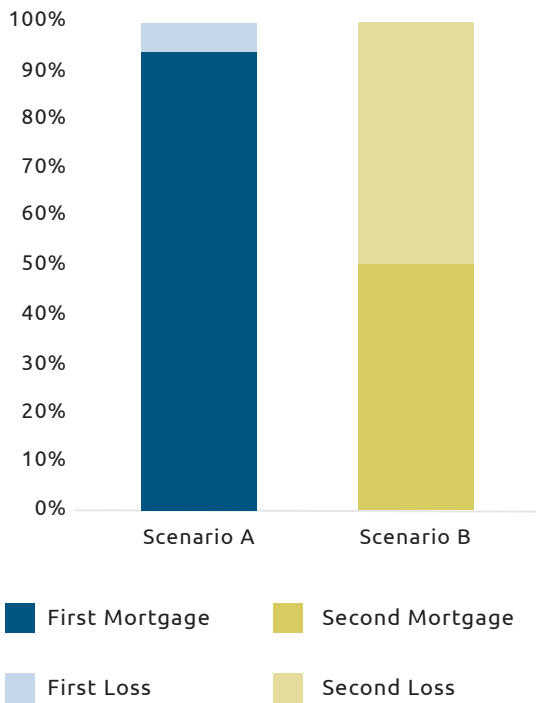
Scenario A

There is one mortgage lender offering a first mortgage up to 80% of the value of the property (80% loan-to-value ratio). After exit costs, the lender in Scenario A experiences a loss of 6.25% of its original investment.

Scenario B

There are two mortgage lenders. One lender offers a first mortgage up to 70% of the value of the property (70% loan-to-value ratio) and a second lender offering a second mortgage up to an additional 10% of the value of the property (80% total loan-to-value ratio). After exit costs, the first lender recoups all of its initial investment in the property. In contrast, the second lender experiences a loss of 50% of its original investment.

Creating a Mortgage Portfolio Model

To evaluate the risk and return of first and second mortgages in a more structured manner, we consider a model consisting of two portfolios of 500 mortgages each.

Property values for each portfolio are randomly generated from a Normal Distribution with a mean of $400,000 and standard deviation of $100,000 to reflect middle market real estate values in Canada.

Portfolio A

Portfolio A includes all first mortgages. Interest rates are randomly drawn from a Normal Distribution with a mean of 8.50%, a standard deviation of 1.00% and a minimum rate of 7.00%.

Portfolio B

Portfolio B includes only second mortgages on the same properties in Portfolio A, but with its own randomly generated parameters for loan-to-value ratios and interest rates that are unique to the second mortgages. Interest rates in Portfolio B are randomly drawn from a Normal Distribution with a mean rate of 12%, a standard deviation of 1.5%, and a minimum rate of 9.5%.

The model estimates the cost of executing a power of sale for each mortgage and randomly selects mortgages as defaulted given a specified default rate.

The analysis tabulates results to consider performance differences between homogeneous portfolios of either all first mortgages or all second mortgages. However, in practice it is common to see portfolios consist of both first and second mortgages. This model provides a framework for evaluating these blended portfolios as linear combinations of distinct first and second mortgage portfolios.
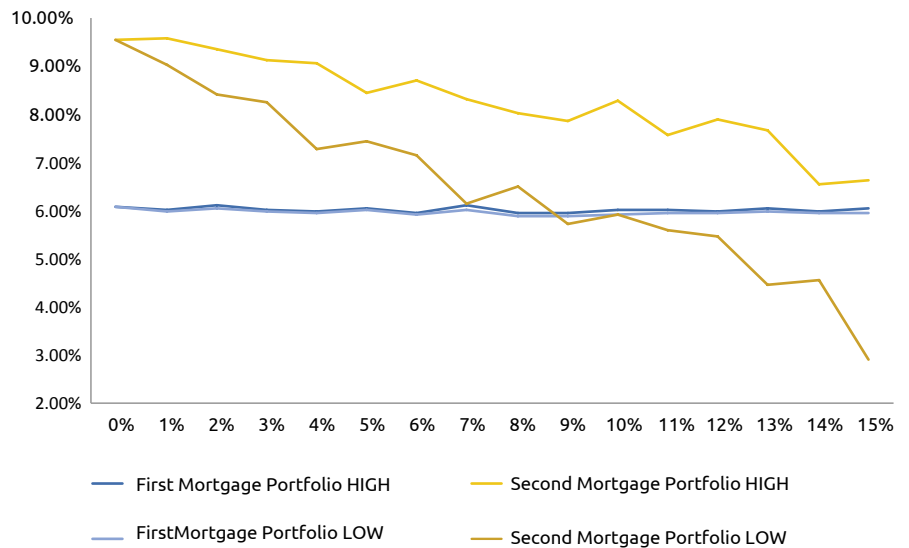
Portfolio Performance

Mortgage portfolios generally perform exceptionally well when default rates are low. The concern for investors and managers is how resilient that performance is in times of trouble, when default rates rise.

Analysis of the abovementioned model reveals that first and second mortgage portfolios behave quite differently. As the chart shows, when default rates are low, second mortgage portfolios would be expected to outperform first mortgage portfolios. This is logical as they benefit from a junior position that leverages the senior first mortgages to command a higher interest rate. Since defaults are low, few losses are realized, and the overall effect of the leverage is positive.

As default rates rise, the model estimates a range of outcomes for each portfolio. Portfolio performance will vary because losses on defaulted mortgages are inconsistent. As the chart shows, rising default rates have significantly different implications for second mortgage portfolios compared with first mortgage portfolios.

First & Second Mortgage Portfolio, Range of Returns

Legend:
- First Mortgage Portfolio HIGH
- FirstMortgage Portfolio LOW
- Second Mortgage Portfolio HIGH
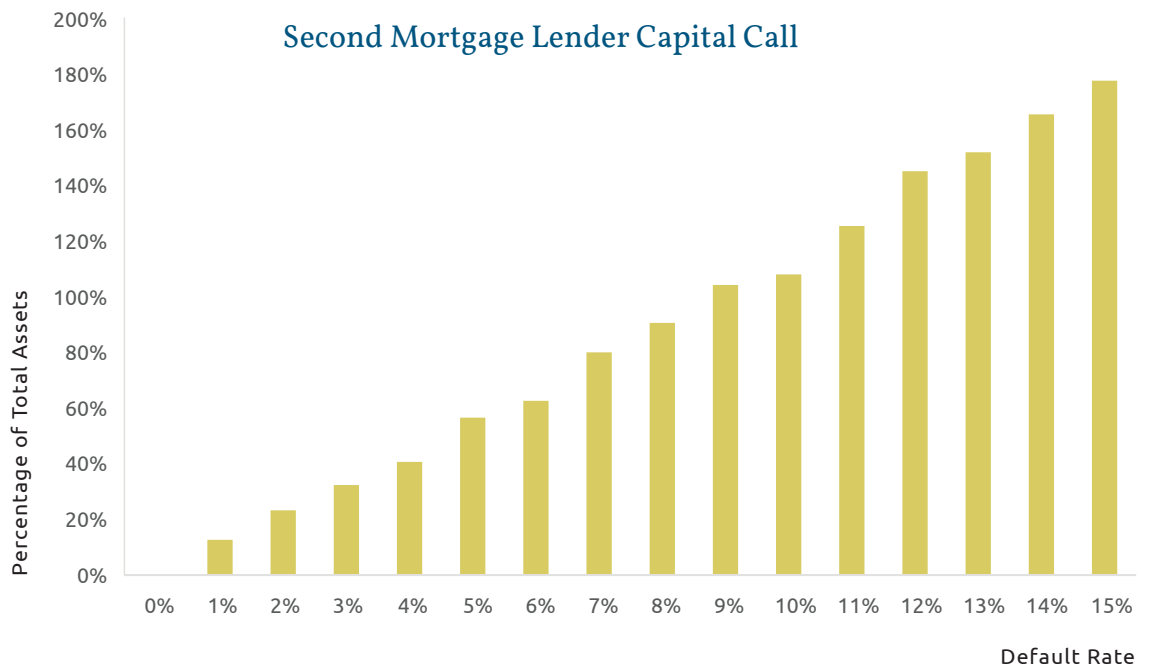- Second Mortgage Portfolio LOW

WE CAN MAKE THE FOLLOWING OBSERVATIONS:

• First mortgage portfolios do not experience a decline in overall performance as a result of rising default rates. First mortgage portfolio performance does not appear correlated with default rates.

• The range of returns for first mortgage portfolios does not appear to change as a result of rising default rates. First mortgage portfolio return variance does not appear correlated with default rates.

• Second mortgage portfolios experience a general declining trend in performance as a result of rising default rates. Second mortgage portfolio performance appears to be negatively correlated with default rates.

• The range of returns for second mortgage portfolios appears to widen as a result of rising default rates. Second mortgage portfolio return variance appears positively correlated with default rates.

Capital Call and Liquidity Risk

The preceding observations are made given the assumption that each portfolio is functional and continuing. This assumption may not be valid for second mortgage portfolios in rising default rate environments because of the capital call and liquidity risk they face in executing the power of sale. Recall that second mortgages leverage the first mortgage to obtain higher interest rates and must repay the first mortgage in the event of default to mitigate risk in the recovery process.

The chart below shows the capital call required of the second mortgage portfolio as a percentage of total portfolio assets at various default rates. For example, at a default rate of 9%, the second mortgage portfolio would face a capital call roughly equal to its total assets (100%).

Second Mortgage Lender Capital Call

Percentage of Total Assets (y-axis: 0% to 200%)

Default Rate (x-axis: 0% to 15%)

Overall, rising default rates put an increasing strain on a second mortgage portfolio's liquidity. Satisfying these capital call requirements is necessary to mitigate risk of losses through the recovery and power of sale process. If the portfolio is unable to satisfy the capital calls, it may:

1. Be unable to meet redemption requests
2. Be unable to continue lending activities
3. Suffer increased losses and weaker performance

Implications From an Investment Perspective

First and second mortgage portfolios exhibit significantly different behavior across a range of default rates. In prosperous economic times characterized by lower default rates, second mortgage portfolios outperform because of the benefit of leverage provided by their junior position. As default rates rise, second mortgage portfolio performance variance increases as losses increasingly weigh on net performance. At higher default rates, the effect of leverage becomes overwhelmingly negative and causes second mortgage portfolios to underperform.

Second mortgage portfolios face the added strain of satisfying capital calls to mitigate risk through their capital recovery process. When default rates are low, capital calls are low and presumably manageable. However, as default rates rise, the capital call quickly eclipses the total assets of the portfolio and is unlikely to be met. This exposes the portfolio to the risk of further losses or overall functional illiquidity.

The preceding analysis has several implications for integrating first and second mortgage portfolios into an overall asset allocation. Mortgage default rates typically follow the broader economy with negative correlation, meaning that default rates rise during bad economic periods and fall during prosperous times.

First Mortgage Portfolios

The analysis suggests that first mortgage portfolios are relatively resilient across a range of potential default rates. This stability is due to the unleveraged nature of the first mortgage and the margin of safety provided by the loan-to-value ratio. However, this stability comes at a cost as first mortgage interest rates are lower than those obtainable on second mortgages. As such, first mortgage portfolios are expected to underperform comparable portfolios of second mortgages during prosperous economic times, when default rates are low.

Given their stability throughout the market cycle (based on the analysis), first mortgage portfolios may provide diversification benefits within an overall asset allocation. First mortgage portfolios appear to present low correlation with the broader economy and an ability to provide consistent, resilient returns.
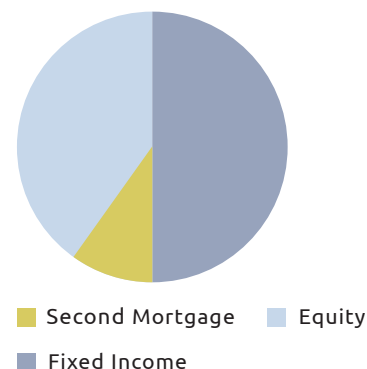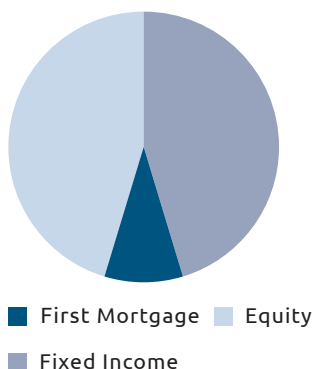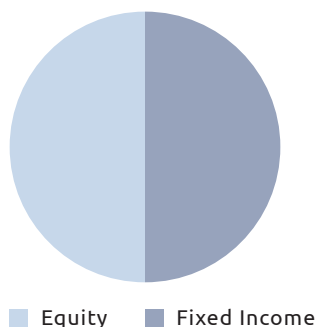
Second Mortgage Portfolios

The analysis suggests that second mortgage portfolios exhibit higher levels of cyclicality and positive correlation with the broader economy. This is due to the junior position of the second mortgage in the capital stack and its relatively smaller size.

As default rates rise, second mortgage portfolio performance weakens as losses increase. However, the implied leverage of the junior position is beneficial in prosperous economic times characterized by lower default rates. Given the cyclicality of second mortgage portfolios, they may provide an alternative source of returns within the cyclical sleeve of an overall asset allocation.

Equity   Fixed Income

First Mortgage   Equity
Fixed Income

Second Mortgage   Equity
Fixed Income

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