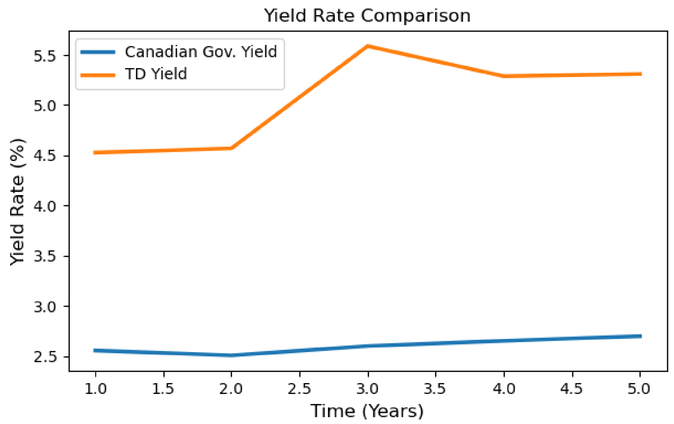
Toronto Dominion Bank (TD) Credit Risk Analysis

Yield Rates



5 year yield rates for bonds issued by the Canadian Government and TD.

Credit Metric Assumptions

1. 50% Recovery Rate
2. 2 Markov States (Solvent, Default)
3. Constant Probability of Solvency every year

Credit Metric Model

1. Canadian 1 year bond yield: 2.56 %
2. TD 1 year bond yield: 4.53 %
3. Probability of Solvency: 96.10 %
4. Probability of Default: 3.90 %

Transition Probability Matrix of Credit Metric Model

	Solvency	**Default**
Solvency	96.10 %	3.90 %
Default	0 %	100 %

Analysis

1. The Credit Metric Model gives greater probability of default. This over-estimate is likely due to our simple model of a fixed probability of solvency every year. This is also represented in the almost constant increase in probability of default every year.
2. The Merton model gives a much lower probability of default even after 5 years. By using different risk free rates every year, the rate at which probability of default increases differs every year.

Merton Model Parameters

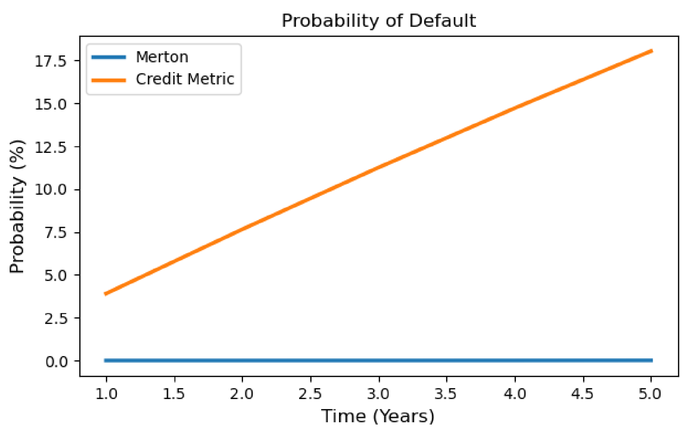
Parameter	**Value**
Stock Volatility (σ_S)	19.37 %
Asset Volatility (σ_A)	1.09 %
Value of Equity (S)	\$115.15 Billion
Value of Liabilities (L)	\$1946.59 Billion
Value of Assets (V)	\$2061.75 Billion
Risk Free Rate (r)	2.56 %

These values are for the first year. For the second year and beyond, the risk free rate is obtained from the yield rates of those years.

Data Acquisition

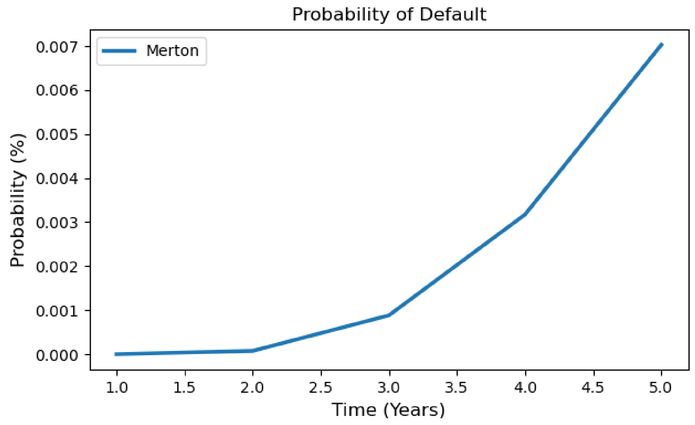
1. Stock volatility was computed using the daily log returns of the closing price of TD stock from March 1st, 2024 to February 28th, 2025.
2. Yield Rates were calculated using various bonds with different maturation dates.

Probability of Default



Probability of Default for TD using both models over 5 years.

Merton Model



Probability of Default for TD using the Merton Model.