

# Bank and Financials Valuation Model

VELA Investment Management

## Overview

Every stock has an intrinsic value that exists independently of its market price. However, while the two often align, there may be periods where the stock price is significantly above or below its estimate of intrinsic value, which can create attractive investment opportunities.

The VELA Summary Valuation Models estimate the intrinsic value of publicly traded companies. There are two versions: a standard model for most businesses and a financial company model that accounts for the distinct structure of banks. We focus on the bank and financials version of the model in this document. While VELA analysts use more detailed internal models, these summary versions provide quick, high-level value estimates.

The bank and financials version of the model follows the same structure as the standard model but uses return on equity (ROE) and payout ratio as the main drivers of value. The model estimates a bank's intrinsic value by tracking how tangible book value (TBV) grows over time, how much of each year's profit is paid out as dividends, and what the company might be worth at the end of the 5-year projection period. The main inputs are:

- Return on equity (ROE) and payout ratio
- Growth in tangible book value
- Terminal price-to-book multiple
- Required rate of return

When reasonable assumptions are applied, the model provides a simple, intuitive framework for evaluating intrinsic value and expected returns. However, results depend entirely on the quality of the assumptions used.

**The Intrinsic Value Estimator is for educational and illustrative purposes only. Its results depend entirely on user inputs and do not constitute investment advice. VELA Investment Management accepts no responsibility for investment decisions made using this model. By using the model, you acknowledge its purpose, assumptions, and limitations.**

# 1 Definitions

This section lists the key terms and inputs used in the Bank and Financials Valuation Model. Each definition provides a quick reference to what the variable means and, when helpful, a short note on how it is used. Details on how these inputs interact within the model are explained later in the *Methodology* section.

## Core Inputs

- $TBV_0$ : Base tangible book value.
- $SC_0$ : Share count at the start of the period.
- $ROE_0, ROE_5$ : Return on equity in year 0 and year 5.
- $r_r$ : Required rate of return (also called the discount rate) — the investor’s minimum acceptable return.
- $NI_0$ : Net income for the base year.
- $P_0$ : Current stock price.
- $D$ : Trailing twelve-month dividends.

## Derived Terms

- $DPR$ : Dividend payout ratio — the percentage of earnings paid out as dividends. It is typically calculated as dividends divided by net income.
- ROE: Return on equity — measures how efficiently the bank generates profits from its equity base.
- TBV: Tangible book value — shareholders’ equity excluding intangible assets (e.g., goodwill); the capital base that compounds with ROE.
- $TBVPS_t$ : Tangible book value per share at time  $t$ .
- $DPS_t$ : Dividends per share at time  $t$ .
- $adjPB_5$ : Adjusted price-to-book multiple at year 5.
- $TV_5$ : Terminal value — the estimated value of the company at the end of the five-year projection.
- $IV$ : Intrinsic value — the present value of all projected dividends plus the discounted terminal value.
- PV: Present value — the value today of a future amount of cash.
- $r^*$ : Expected return — discount rate when the net present value of all cash flows is zero.

# 2 Methodology

This section gives a quick overview of how the model works. The goal is to estimate a bank’s intrinsic value by projecting growth in tangible book value, dividends, and a terminal value based on a price-to-book multiple.

We use time steps  $t = 0, 1, 2, 3, 4, 5$ , where  $t = 0$  is the base year (trailing 1 year) and  $t = 5$  is five years out.

## 1. Return on Equity and Payout Ratio

Return on equity (ROE) is assumed to move linearly from its current level to the year-five target:

$$ROE_t = ROE_0 + \frac{t}{5}(ROE_5 - ROE_0).$$

The dividend payout ratio ( $DPR$ ) represents the portion of earnings paid out as dividends:

$$DPR = \begin{cases} 100 \times \frac{D}{NI_0}, & \text{if } NI_0 \neq 0, \\ 0, & \text{otherwise.} \end{cases}$$

## 2. Earnings and Tangible Book Value

Each year, net income is based on the prior year's book value and that year's ROE:

$$NI_t = TBV_{t-1} \cdot \frac{ROE_t}{100}.$$

Retained earnings grow book value, while dividends reduce it:

$$TBV_t = TBV_{t-1} + NI_t(1 - DPR/100).$$

Assuming the share count remains constant, we calculate per-share values as:

$$TBVPS_t = \frac{TBV_t}{SC_0}, \quad DPS_t = \frac{NI_t \cdot (DPR/100)}{SC_0}.$$

## 3. Terminal Value

At the end of the forecast, the model applies an adjusted price-to-book multiple to estimate the terminal value:

$$adjPB_5 = \frac{P_0/TBVPS_0 + 1}{2}.$$
$$TV_5 = TBVPS_5 \times adjPB_5.$$

## 4. Intrinsic Value

The intrinsic value ( $IV$ ) is the present value of all expected dividends plus the discounted terminal value:

$$IV = \sum_{t=1}^5 \frac{DPS_t}{(1+r)^t} + \frac{TV_5}{(1+r)^5},$$

where  $r = r_r/100$  is the required return.

## 5. Price vs. Value

Finally, we compare the current market price to the intrinsic value:

$$\text{Price} / \text{IV} = \frac{P_0}{IV}.$$

A ratio above 1 means the stock trades above its estimated fair value; below 1 suggests it might be undervalued.

## 7. Expected Return

The expected return is defined as the internal rate of return (IRR) that equates the current stock price with the present value of all future dividends and the terminal value.

We construct the following cash flow stream:

$$\begin{aligned} CF_0 &= -P_0, \\ CF_t &= DPS_t \quad \text{for } t = 1, 2, 3, 4, \\ CF_5 &= DPS_5 + TV_5. \end{aligned}$$

The expected return  $r^*$  is the discount rate that satisfies:

$$0 = -P_0 + \sum_{t=1}^4 \frac{DPS_t}{(1+r^*)^t} + \frac{DPS_5 + TV_5}{(1+r^*)^5}.$$

This rate represents the annualized return you would earn if the projected cash flows and terminal value are realized, and the stock is purchased at the current market price.

## Summary

In short:

1. Project ROE and payout ratio over five years.
2. Estimate annual earnings, dividends, and tangible book value growth.
3. Apply a terminal price-to-book multiple.
4. Discount everything back to today.
5. Compare intrinsic value to market price.
6. Derive expected return.