

Equity Analysis FN 451

-Role of an equity analyst

Fundamental analysis:

- Approach of fundamental analysis & assets allocation
 - Economic, industry and firm analysis and financial forecast

Valuation Technique:

- Fundamental of assets valuation

- Dividend discount model
- Discounted cash flow model
 - Market multiples
- Workshop: Equity research report writing and analyst presentation technique
- Banking sector analysis

Fundamental of assets valuation

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Basis for all approaches of assets valuation

**Basis for all approaches of assets valuation:
Why we buy most assets?**

- An asset's value is the present value of its (expected) future cash flows

$$V_0 = \sum_{t=1}^{\infty} \frac{CF_t}{(1+r)^t}$$

Challenges:

- Defining and forecasting cash flows
- Estimating appropriate discount rate

Defining and forecasting cash flows

Three alternative definitions of cash flow

- **Dividend discount model:**
 - The DDM defines cash flows as dividends.
 - An investor who buys and holds a share of stock receives cash flows only in the form of dividends.
- **Free cash flow model:**
 - Free cash flows are the cash flows that are available (or free) for distribution to all investors
- **Residual income model:**
 - A stock's value is the book value per share plus the present value of expected future residual earnings

Estimating appropriate discount rate

Discount rate terminology

- **Discount rate:** any rate used in finding the present value of a future cash flow
- **Required rate of return:** minimum return required by investor to invest in an asset
- **Cost of equity:** required rate of return on common stock
- **Cost of preferred stock:** required rate of return on preferred stock
- **Cost of debt:** required rate of return on debt securities
- **Weighted average cost of capital (WACC):** the weighted average of the cost of equity, after-tax cost of debt, and cost of preferred stock

Cost of Equity: Two major approaches for cost of equity

- Equilibrium models:
 - **Capital asset pricing model (CAPM)**
 - Arbitrage pricing theory (APT)
- Bond yield plus risk premium method (BYPRP)

Equilibrium models assumptions

- Investors are rational mean-variance optimizers with homogeneous expectations.
- The market is in a competitive equilibrium (i.e. the market price is the fair price) and no investors can manipulate the market;
- All assets are tradable (all investors have the same assets to invest in);
- No transaction costs, no taxation, investors are not limited in their borrowing and lending, Same interest rate for lending and borrowing (risk free rate of interest);
- Single-period investment horizon (all investors are facing the same investments problems).

Equilibrium model: Capital asset pricing model (CAPM)

- Expected return is the risk-free rate plus a risk premium related to the asset's beta:
- $E(R_i) = R_F + B_i[E(R_M) - R_F]$
- R_F = Risk free rate
- The beta is $B_i = \text{Cov}(R_i, R_M) / \text{Var}(R_M)$
- $[E(R_M) - R_F]$ is the market risk premium or the equity risk premium

Risk-free rate of return

- What do we use for the risk-free rate of return?
 - Choice is often a **short-term rate** such as the 30-day T-bill rate or a long-term government bond rate.
 - We usually match the **duration of the bond rate with the investment period**, so we use the long-term government bond rate.

ThaiBMA Government Bond Yield

(ThaiBMA Government Bond Yield Curve)



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Equity risk premium

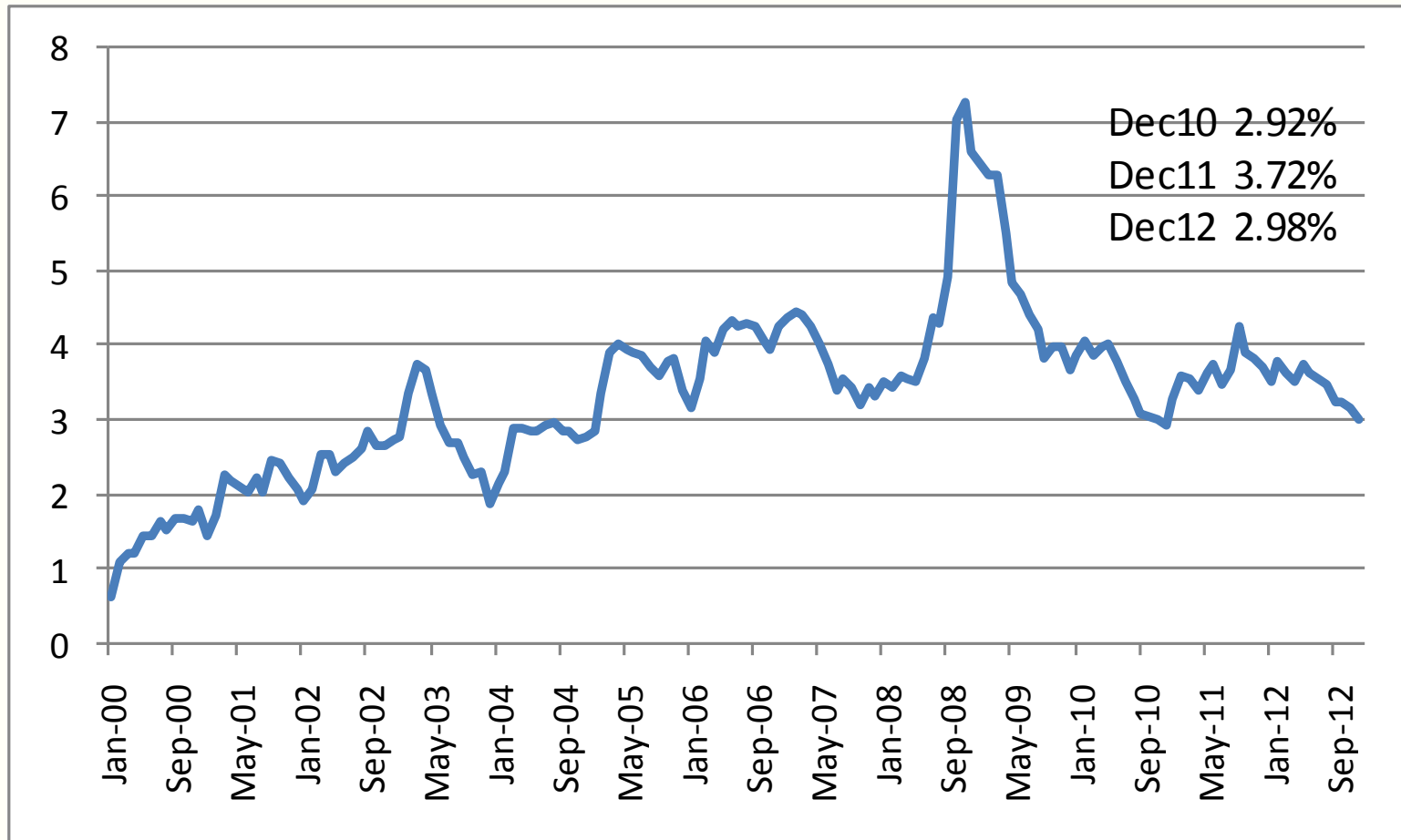
- Historical estimates: Average difference between equity market returns and government debt returns.
- Expectational method is forward looking instead of historical

One common estimate of this type:

- **GGM equity risk premium estimate**

= (dividend yield on index based on year-ahead dividends + consensus long-term earnings growth rate) – (current long-term government bond yield)

SET dividend yield



Source: SET.or.th

Example: Calculating equity risk premium using GGM

⇒ Calculate expected return on SET given:

- Risk free rate 2.75%
- Long term government bond yield 4.25%
- Year ahead dividend yield 3.00%
- SET consensus long-term earnings growth rate 14%



Example: Calculating cost of equity using CAPM

⇒ Calculate BBL's cost of equity given:

- BBL's beta 0.9
- Risk free rate 2.75%
- SET risk premium 12.75%

Equilibrium model: Arbitrage Pricing Theory (APT)

- CAPM adds a single risk premium to the risk-free rate. APT models add a set of risk premiums to the risk-free rate:
- $$E(R_i) = R_F + (\text{Risk premium})_1 + (\text{Risk premium})_2 + \dots + (\text{Risk premium})_K$$
- $$(\text{Risk premium})_i = (\text{Factor sensitivity})_i \times (\text{Factor risk premium})_i$$

APT model: Fama and French Three Factors Model

- One popular model is the **Fama-French three factor model** using company-specific attributes:
 - **RM - RF**: return on equity index minus 30 day T-bills
 - **SMB (small minus big)**: return on small cap portfolio minus return on large cap portfolio
 - **HML (high minus low)**: return on high book-to-market portfolio minus return on low book-to-market portfolio

Fama and French Three Factors Model:

$$K_i = R_f + \beta_i * (k_m - R_f) + \beta_s \text{SMB} + \beta_v \text{HML}$$

- Market risk premium
- Small cap premium
- High book-to-market ratio premium

SMB = the spread in returns between small market capitalization and big market capitalization stocks

HML = the spread in returns between value and growth stocks)

Bond yield plus risk premium (BYPRP) method

- The **bond yield plus risk premium** method finds the cost of equity as:

$$\begin{aligned} \text{BYPRP cost of equity} \\ &= \text{YTM on the company's long-term debt} \\ &+ \text{Risk premium} \end{aligned}$$

- *The typical risk premium added is 3-4%*