

## FIN4112K Seminars in Finance: Applied Portfolio Management

Semester 2, 2014/2015

**Instructor:** Richard Yeh  
**Office:** BIZ2 03-25  
**Email:** bizray@nus.edu.sg

### Recommended Textbooks:

- (1) Financial Modeling, Third Edition (2008), MIT Press, by Simon Benninga (“**FM3**”)
- (2) Investment Valuation, John Wiley & Sons (2012), by Aswath Damodaran
- (3) Market Models – A Guide to Financial Data Analysis, John Wiley & Sons, by Carol Alexander
- (4) Quantitative Methods in Finance, International Thomson Business Press, by Terry Watsham and Keith Parramore

It is strongly recommended that course participants with little functional expertise in using Excel for financial modeling, particularly the use of array and matrix functions, acquire FM3. During the course participants would also be expected to access numerous papers published by academics and practitioners in financial journals and websites.

**Course Synopsis:** This advanced Seminar in Finance module will serve as a comprehensive real world examination of the quantitative techniques available and how these might be applied to portfolio management in the investment management industry. Major topics covered include exploring various quantitative tools and models for Estimating Expected Returns, Modeling Risks, Portfolio Construction & Management, Style Analysis & Bench-marking, and Strategic & Tactical Asset Allocation. Lectures will involve frequent interaction with practitioners from the industry, hands-on lab projects, and real-life examples. Students would be expected to be active in class participation developing financial model building blocks using Excel in the first instance, as well as subsequently utilizing the other tools available in the Center for Asset Management research and Investments (“CAMRI”) Lab. This course is suitable for students interested in a career as an investment analyst or as a portfolio manager in the financial services sector.

### CAMRI Lab:

Launched in April 2010, the new CAMRI Investment Management & Trading Lab is the focal point of CAMRI’s teaching, training, and educational activities. Due to its stated research and educational mission in the Asian fund management context, it will have a preponderance of financial databases, with particular focus on Asian securities. Located at Level 3 of the Mochtar Riady Building, the lab will enhance the students’ portfolio management experience and activity. The Lab has 32 workstations, Bloomberg live feeds, live financial data tickers,

investment and risk management software modules, and various other trading and portfolio management software applications. The aim is to enable participants from NUS Business School to have first-hand experience and training with the best tools available to the professional investment community, and as a result, best prepare them for the investments, financial, and wealth management job markets. The lab currently has Bloomberg, MSCI Barra, OANDA and Financial Trading System installed on all the 32 PCs.

**Pre-requisite:** FIN3102 Investment Analysis and Portfolio Management

**Assessment:**

Mid-Term Test	30
Class participation	10
Homework assignments	20
<u>Final project</u>	<u>40</u>
<b>Total</b>	<b>100</b>

**Course Contents:**

- (1) Portfolio Building Blocks:
  - (a) Estimating Expected Returns
  - (b) Estimating the Variance-Covariance Matrix
  - (c) Building an Efficient Frontier
  
- (2) Estimation Errors:
  - (a) Impact on asset allocation
  - (b) Monte Carlo and Resampling
  
- (3) Equilibrium Models:
  - (a) CAPM, Beta and Single Index models
  - (b) Estimating Beta and Risk Premia
  - (c) Black-Litterman
  
- (4) Data issues:
  - (a) Non-synchronous and missing data
  - (b) Insufficient data and Bootstrapping
  - (c) Illiquidity and Serial Correlation
  
- (5) Risk Models – Development & Applications
  - (a) Fundamental models
  - (b) Principal Components Analysis
  
- (6) Equity Valuation & Portfolio Construction
  - (a) Fundamental –Vs- Relative stock valuation
  - (b) Portfolio construction using different models
  - (c) Portfolio rebalancing incorporating investment views
  
- (7) Portfolio Management & Style Analysis
  - (a) Passive –Vs- Active
  - (b) Alpha-Beta Separation
  - (c) Sharpe Style Analysis

(8) Portfolio Selection & Downside Risk Management

- (a) Shortfall Analysis
- (b) Position Sizing – Optimal fraction
- (c) Within Horizon Risk

(9) Currency Aspects

- (a) Currency Hedging Debate
- (b) Currency Impact and Attribution
- (c) Currency as separate Asset Class