BPHD 8200 - 001
Financial Economic Theory
Fall 2013

Instructor: Dr. Weidong Tian

Class: 2:00pm – 4:45pm Tuesday, Friday Building Room 207

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Course Description

This course offers a unified theoretical treatment of some fundamental topics in the area of asset pricing theory. The topics include: Optimal Portfolio choice, Market Equilibrium and Fundamental Theorems of Asset Pricing.

Course Objective

This first year PhD course mainly emphasizes the fundamental ideas, mathematical techniques and main results in the area of asset pricing theory. It provides solid background to more advanced topics of financial economics.

Textbook

George Pennacchi. *Theory of Asset Pricing*, Addison-Wesley Series in Finance, Pearson Education, Inc. 2008.

Course Assessment

The course requirements consist on two problem sets (the questions are chosen from the textbook), one presentation on assigned relevant topic, and a final exam.

Grading

Problems sets, presentation and final exam will count 30%, 30%, 40%.

Honor Code

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code.

Academic Diversity

The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individual is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Important Date

August 19, First day of class

September 2, Labor Day (no class)

October 7-8, Student Recess

November 27-30, Thanksgiving Break (no class)

December 4, Last day of class

Other Reading References

The following textbooks are closely related to Part I – Part II of *Theory of Asset Pricing*:

Darrell Duffie. *Security Markets: Stochastic Models. (Chapter I – Chapter III)*, Academic Press Inc, New York, 1988.

Stanley R. Pliska. *Introduction to Mathematical Finance: Discrete Time Models. (Chapter 1 – Chapter 3)*, Blackwell Publishers Ltd, 1997.

John H. Cochrane. *Asset Pricing. (Chapter 1 – Chapter 4)*, Princeton University Press, Princeton and Oxford, 2001.

Darrell Duffie. *Dynamic Asset Pricing Theory. (Part I)*, Princeton University Press, Princeton and Oxford, 2001.

We assume standard knowledge of linear algebra when we discuss discrete-time asset pricing model. Please feel free to check any available undergraduate-level textbook on linear algebra.

The following textbooks are helpful to better understand Part III – Part V of *Theory of Asset Pricing*:

Darrell Duffie. *Security Markets: Stochastic Models. (Chapter IV)*, Academic Press Inc, New York, 1988.

Darrell Duffie. *Dynamic Asset Pricing Theory. (Part II)*, Princeton University Press, Princeton and Oxford, 2001.

Robert C Merton. *Continuous-Time Finance.* Blackwell Publishers, Cambridge, MA.

For more mathematics reading regard to Part III – Part V of *Theory of Asset Pricing*, we recommend the following:

Bernt Okesendal. *Stochastic Differential Equations.* Springer, New York, 1985.

Claude Dellacherie and Paul-André Meyer. *Probabilities and Potential B: Theory of Martingales.* North-Holland, New York, 1982.

Ioannis Karatzas and Steven E. Shreve. *Brownian Motion and Stochastic Calculus.* Second Edition, Springer-Verlag, New York, 1991.

Fima C Klebaner. *Introduction to Stochastic Calculus with Applications.* Imperial College Press, 1998.

Recommended Reading Articles

Part I. Single-Period Portfolio Choice and Asset Pricing

Expected Utility and Risk Aversion

Machina, M. Choice Under Uncertainty: Problems Solved and Unsolved. *Journal of Economic Perspectives* 1, 121-154, 1987.

Gilboa, I., and D. Schmeidler. Maximin Expected Utility With Non-unique Prior. *Journal of Mathematical Economics* 18, 141-153, 1989.

Rabin, M., and R. Thaler. Risk Aversion. *Journal of Economic Perspectives* 15, 219-232, 2001.

Mean-Variance Analysis

Maccheroni, F., M. Marinacci., A. Rustichini and M. Taboga. Portfolio Selection with Monotone Mean-Variance Preference. *Mathematical Finance*, 19 (3), 487-521, 2009.

Anderson, R., and J.P. Danthine. Cross Hedging. *Journal of Political Economy* 89, 1182-1196, 1981.

No-Arbitrage Approach

Bernardo, A and O. Ledoit. Gain, Loss and Asset Pricing. *Journal of Political Economy*, 108, 144–172, 2000.

Bondarenko, O. Statistical Arbitrage and Securities Prices. *Review of Financial Studies*, 16, 875 – 919, 2003.

Carr, P., H. Geman, and D. B. Madan. Pricing and Hedging in Incomplete Market. *Journal of Financial Economics*, 62, 131-167, 2001.

Cherny, A., and D. Madan. New Measures for Performance Evaluation. *Review of Financial Studies*, 19, 2571-2606.

Dybvig, P., and S. A. Ross. Arbitrage, State Prices and Portfolio Theory, *Handbook of the Economics of Finance*, 2003.

Huberman, G. A Simple Approach to Arbitrage Pricing Theory. *Journal of Economic Theory* 28, 183-191, 1982.

Willard, G and P. Dybvig. Empty Promises and Arbitrage. *Review of Financial Studies*, 12, 807–834, 1999.

Equilibrium and Arbitrage

Arrow, K and G. Debreu. Existence of an Equilibrium for a Competitive Economy. *Econometrica*, 22, 265–290, 1954.

Hart, O. The Optimality of Equilibrium When Markets Are Incomplete. *Journal of Economic Theory*, 11, 418–443, 1975.

Werner, J. Equilibrium in Economies with Incomplete Financial Markets. *Journal of Economic Theory*, 36, 110–119, 1985.

Part II. Multiperiod Consumption, Portfolio Choice, and Asset Pricing

A Multiperiod Discrete Time Asset Pricing: No-arbitrage

Harrison, J. M., and D. M. Kreps. Martingales and Arbitrage in Multiperiod Securities Markets. *Journal of Economic Theory*, 20, 381–408, 1979.

Multiperiod Market Equilibrium

Lucas, R.E. Asset Prices in an Exchange Economy. *Econometrica* 46 (1978), 1429-1445. 20, 381–408, 1979.

Epstein, L., and T. Wang. Intertemporal Asset Pricing under Knightian uncertainty, *Econometrica* 62 (1994), 283-322.

Part III. Contingent Claims Pricing

Black, F., and M. Scholes. The Pricing of Options and Corporate Liabilities. *Journal of Political Economy*, 3, 637–654, 1973.

Cox, J. C., and S. A. Ross and M. Rubinstein. Option Pricing: a Simplified Approach. *Journal of Financial Economics*, 7, 229–263, 1979.

Harrison, J. M., and S. Pliska. Martingales and Stochastic Integrals in the Theory of Continuous Trading. *Stochastic Processes and their Applications*, 11, 21–260, 1981.

Harrison, J. M., and S. Pliska. A Stochastic Calculus Model of Continuous Trading: Complete Markets. *Stochastic Processes and their Applications*, 15, 313–316, 1983.

Part IV. Asset Pricing in Continuous Time

Continuous-Time Consumption and Portfolio Choice

Merton, R.C. An Intertemporal Capital Asset Pricing Model. *Econometrica*, 41, 867–887, 1973.

Cox, J.C., and C.F. Huang. Optimal Consumption and Portfolio Policies When Asset Prices Follow a Diffusion Process. *Journal of Economic Theory* 49, 33-83, 1985.

Detemple, J., and S. Murthy. Equilibrium Asset Prices and No Arbitrage with Portfolio Constraints, *Review of Financial Studies* 10 (4), 1133-1174.

Dybvig, P. Dusenberry's Racheting of Consumption: Optimal Dynamic Consumption and Investment Given Intolerance for ant Decline in Standard of Living. *Review of Economic Studies* 62 (1995), 287-313.

Grossman, S., and J. Vila. Optimal Dynamic Trading with Leverage Constraints. *Journal of Financial and Quantitative Analysis* 27, (1992), 151-168.

Grossman, S., and Z. Zhou. Optimal Investment Strategies For Controlling Drawdowns. *Mathematical Finance* 3 (1993), 241-276.

Equilibrium Asset Returns

Huang, C. An Intertemporal General Equilibrium Asset Pricing Model: The Case Of Diffusion Information. *Econometrica*, 55, 117–142, 1987.

Merton, R. An Intertemporal Capital Asset Pricing Model. *Econometrica*, 41, 867–887, 1973.

Cox, J., J. Ingersoll, and S. Ross. An Intertemporal General Equilibrium Model of Asset Prices. *Econometrica* 53, 363-384, 1985.

Cox, J., J. Ingersoll, and S. Ross. A Theory of the Term Structure of Interest Rates. *Econometrica* 53, 385-408, 1985.

Constantinides, G. Habit Formation: A Resolution of the Equity Premium Puzzle. *Journal of Political Economy* 98, 519-543, 1990.

Detemple, J., and F. Zapatero. Asset Prices in an Exchange Economy with Habit Formation. *Econometrica*, 69, 1633-1658, 1991.

Campbell, J. and J. Cochrane. By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior. *Journal of Political Economy* 107, 205-251, 1999.

Chan, Y., and L. Kogan. Catching up with the Joneses: Heterogeneous Preferences and the Dynamics of Asset Prices. *Journal of Political Economy* 110, 1255-1285.

Wang, J. The Term Structure of Interest Rates in a Pure Exchange Economy with Heterogeneous Investors, *Journal of Financial Economics* 41 (1996), 75-110.