# Raymond C. W. Leung


CONTACT INFORMATION

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RESEARCH INTERESTS *Primary Fields:* Delegated Portfolio Management, Asset Pricing Theory, Corporate Finance Theory, Continuous-Time Principal-Agent Problems, and Financial Econometrics

EDUCATION

**University of California, Berkeley,** Berkeley, CA, USA

**Haas School of Business**

*Ph.D. in Finance,* 2010 - May 2016 (expected)

*M.S. in Finance,* 2012

**Department of Statistics**

*M.A. in Statistics,* 2013

**London School of Economics and Political Science,** London, UK

**Department of Economics**

*M.Sc. in Econometrics and Mathematical Economics* (with Distinction), 2010

*Graduate Diploma in Econometrics and Mathematical Economics* (with Distinction), 2009

**University of British Columbia**, Vancouver, BC, Canada

**Sauder School of Business**

*B.Com. Double Major in Finance and Accounting* (with Honours), 2008

**Tsinghua University**, Beijing, China

*Non-Credit Study Abroad (Mandarin Chinese),* Fall 2007

WORKING PAPERS

**Centralized versus Decentralized Delegated Portfolio Management under Moral Hazard**, November 2015

- `Job market paper`


*Abstract:* If an investor wants to invest into two asset classes, should he delegate to a single portfolio manager to manage both asset classes (centralized delegation)? Or should he delegate to two managers, each of whom exclusively manages one asset class (decentralized delegation)? Optimal risk sharing and portfolio choice discretion delineate the difference between centralization versus decentralization. Asset classes whose returns are negatively correlated and have high volatilities will favor centralization. But if the two asset classes have very different mean returns, this disfavors centralization: the single manager may disregard portfolios implementing the investor's desired investments and prefer portfolios in alternative investments. Thus, the investor must pay the single

manager high performance fees to disincentivize deviation. Decentralization eliminates this necessity because one manager cannot trade another manager's asset class, and the investor contracts with each manager individually. But in decentralization, it may be impossible to implement the investor's desired investments because managers deviate without considering the correlation between the managers' returns. This last problem can be resolved in a dynamic setting, in which the investor's wealth "intertemporally glues" together the managers' wealths to provide the correct incentives.

**Dynamic Agency, Delegated Portfolio Management and Asset Pricing**, October 2014

- Western Finance Association, "2015 Cubist Systematic Strategies Ph.D. Candidate Award for Outstanding Research"
- Western Finance Association 2015 Annual Meeting in Seattle, June 2015
- Korean National Pension Service "International Conference on Public Pension Fund Management" in Seoul, November 2014

*Abstract:* We study a dynamic contracting problem in continuous-time dynamically complete market general equilibrium, whereby an investor must delegate all his portfolio choice problems to a manager. This framework is one of the first attempts to attack a combined dynamic contracting and dynamic asset pricing problem. The portfolio manager can exert costly private monitoring effort costs to increase the expected dividend growth rate of a representative firm. The investor can only observe the dividends of the firm over time, and will consider a pie sharing rule contract over the dividends of consumption goods to dynamically incentivize the manager. The key result is that dynamic moral hazard and dynamic optimal contracting endogenously generates stochastic volatility in the asset returns, and substantial state varying stochasticity in the market price of risk and the risk free rate; this is in sharp contrast to an economy without the presence of agency and dynamic contracts where the market price of risk, risk free rate and asset volatility are all constant. Our results raise the question whether a traditionally viewed "idiosyncratic" risk, namely incentives and compensation contracts of fund managers, are priced in that they do affect asset pricing in equilibrium.

**Continuous-Time Principal-Agent Problem with Drift and Stochastic Volatility Control, with Applications to Corporate Finance and Delegated Portfolio Management**, September 2014

- 26th Annual Northern Finance Association 2014 PhD Student Session ("Asset Pricing and Agency" session) in Ottawa, September 2014
- EconCon 2014 at Princeton University, August 2014
- 14th Annual Trans-Atlantic Doctoral Conference at the London Business School, May 2014
- Berkeley-Stanford Spring 2014 Joint Finance Student Seminar, April 2014

*Abstract:* We study a continuous-time principal-agent problem where the agent can privately and meaningfully choose both the drift and volatility of a cash flow, while the principal only continuously observes the managed cash flows over time. Our model contributes a result that is hitherto relatively unexplored in both the continuous-time dynamic contracting and the delegated portfolio management literatures. Firstly, even though there is no direct moral hazard conflict between the principal and the agent on

their preferred volatility choices, but to avoid inefficient termination and compensation from excess diffusion, this first best choice is not reached; this is the "reverse moral hazard" effect. Secondly, the dollar incentives the principal gives to the agent critically depends on the volatility choice, endogenous quasi-risk aversion of the principal, and the elasticity to the exogenous factor level; this is the "risk adjusted sensitivity" (RAS) effect. In a delegated portfolio management context, our model suggests outside investors should prefer funds such that: (i) the investment fund has an "internal fund" available only to management; (ii) the "external fund" for the outside investors closely tracks the value of the internal fund; and (iii) has dynamic incentive fee schemes, and these fees can be interpreted via Black-Scholes "greeks".

**Asset Prices Jump-Spillover Estimation and Inference**, December 2013 *[Paper available upon request]*
*Abstract:* This paper derives an estimation procedure for detecting the presence of jump spillovers of the prices between two different financial assets. By considering a modification of Jacod and Todorov (2009), this paper constructs an estimation procedure, shows the asymptotic convergence properties, and from there derives an inference procedure. The main contribution of this paper is raising the possibility of jump spillovers in financial asset markets, and the introduction of such a concept naturally calls for subsequent work in empirical applications, determination of the optimal jump spillover step size and also the development of the statistical estimation procedures of the Stratonovich integral.

## Invited Conferences, Seminars and Workshops

**2015**

- Western Finance Association 2015 Annual Meeting in Seattle, June 2015.

**2014**

- Korean National Pension Service "International Conference on Public Pension Fund Management" in Seoul, November 2014
- 26th Annual Northern Finance Association 2014 PhD Student Session ("Asset Pricing and Agency" session) in Ottawa, September 2014
- EconCon 2014 at Princeton University, August 2014
- SoFiE Financial Econometrics 2014 Summer School ("The Econometrics of Option Pricing") at the Departments of Economics & Statistics of Harvard University, July 2014
- 14th Annual Trans-Atlantic Doctoral Conference at the London Business School, May 2014
- Berkeley-Stanford Spring 2014 Joint Finance Student Seminar, April 2014

**2013**

- OMI-SoFiE Financial Econometrics 2013 Summer School ("Financial Forecasting") at the Oxford-Man Institute, University of Oxford, July 2013

## Honors & Awards

- Western Finance Association, "2015 Cubist Systematic Strategies Ph.D. Candidate Award for Outstanding Research"

- UC Berkeley, Haas School of Business, "The Carl F. Cheit Outstanding Graduate Student Instructor (Teaching Assistant) Award" for the Master of Financial Engineering program of 2014-2015
- American Finance Association, Doctoral Student Travel Grant, 2015
- UC Berkeley, Graduate Division, Conference Travel Grant, Fall 2014
- UC Berkeley, Haas School of Business, Department Scholarship, 2010 - 2014
- UC Berkeley, Haas School of Business, White Research Fellowship, Fall 2013
- UC Berkeley, Haas School of Business, Research Travel Grant, 2013, 2014, 2015
- UC Berkeley, Haas School of Business, Summer Research Grant, Summer 2014
- UC Berkeley, Graduate Division, Summer Research Grant, Summer 2013
- UC Berkeley, Department of Statistics, Professional Degree Supplemental Tuition (PDST) Grant, Fall 2013
- London School of Economics and Political Science, MSc program performance ranking 3rd in a graduating class of 22 students, 2010
- University of British Columbia, Commerce Dean's Honour Roll, 2003 - 2007
- University of British Columbia, Undergraduate Scholar Program Scholarship, 2003
- Ministry of Education of British Columbia, Canada, Provincial Exam Scholarship, 2003

## Professional Affiliations

**Center for Risk Management Research**, UC Berkeley

*Affiliated Graduate Student*, 2012 – Present

## Teaching Experience

**University of California, Berkeley**, Berkeley, CA, USA

*Graduate Student Instructor (Teaching Assistant)*

- UGBA 133 Investments (for Mr. Sam Olesky), Summer 2011
- EWMBA 231 Corporate Financial Management (for Dr. Mukesh Bajaj), Fall 2011
- EWMBA 203 Introduction to Finance (for Prof. Johan Walden), Spring 2012
- UGBA 103 Introduction to Finance (for Prof. William Fuchs), Fall 2012
- MFE 230A Investments and Derivatives (for Profs. William Fuchs and Nicolae Gârleanu), Spring 2013
- MFE 230A Investments and Derivatives (for Profs. William Fuchs and Joseph Chen), Spring 2014
- UGBA 103 Introduction to Finance (for Prof. Dmitry Livdan), Fall 2014
- UGBA 103 Introduction to Finance (for Prof. Christine Parlour), Spring 2015

## Non-Academic Professional Experience

**UBS Investment Bank**, Hong Kong, China
- Summer Analyst (Leveraged Finance and Technology & Telecom), Summer 2007

**CIBC World Markets**, Toronto, ON, Canada
- Summer Analyst (Global Mining), Summer 2006

## Computing

MATLAB, LaTeX, Microsoft Office, R, Python, Fortran, Mathematica

LANGUAGES English (fluent), Chinese-Cantonese (native), Chinese-Mandarin (fluent), Japanese (basic)

CITIZENSHIP Canada (citizen) and Hong Kong (permanent resident); USA F-1 visa

REFERENCES *Note*: *Please contact Ms. Jaime Hauk for all the reference letters in confidence.*


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