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NUS RMI CONFERENCE ON QUANTITATIVE ECONOMICS & FINANCE: IN HONOUR OF PROFESSOR JANICE EBERLY

14 August 2024
9:40am to 3:30pm

Clove Room, Level 2,
Shaw Foundation Alumni House
11 Kent Ridge Drive, SG 119244

Program Agenda:

Time	Speaker	Title
9:40 – 10:00	Registration & Refreshments	
10:00 ~ 11:00	Prof. Janice EBERLY (MIT & Northwestern University)	Intangible Capital, Non-Rivalry, and Growth
11:00 ~ 11:40	Prof. Neng WANG (Cheung Kong Graduate School of Business & NUS RMI)	Centralized versus Decentralized Financing
11:40 ~ 12:20	Dr. Chang LIU (NUS)	Financing R&D
12:20 ~ 13:30		*Lunch Break*
13:30 ~ 14:10	Prof. Hui CHEN (MIT)	Market for Manipulable Information
14:10 ~ 14:50	Prof. Emiliano PAGNOTTA (SMU)	Money on the Blocks
14:50 ~ 15:30	Prof. Yi-Chun CHEN (NUS RMI)	Investment under Uncertainty and Information Asymmetry

Program Details:

Title:	Intangible Capital, Non-Rivalry, and Growth
Speaker:	**Prof. Janice EBERLY**
Abstract:	We provide an answer to why growth may slow even in the face of technological improvements. Our focus is on the role of intangible assets. Intangible assets are distinct from physical capital in that they are composed of information that requires a storage medium. A reduction in replication costs for intangible assets reduces rivalry in use and stimulates growth. However, we show how limits to excludability create a countervailing force. Depending on the strength of property-rights institutions, growth may slow even as technology lowers replication costs for intangibles, enhances their non-rivalry, and creates economies of scale and scope.

Title:	Centralized versus Decentralized Financing
Speaker:	**Prof. Neng WANG**
Abstract:	We study optimal dynamic financial contracting for centralized versus decentralized firms. Under centralized financing, headquarters raises funds to jointly finance the operations of multiple projects. Under decentralized financing, each project raises funds separately and operates as a stand-alone organization. Centralized financing effectively uses correlated information between projects to cross hedge cashflow risk and increase the overall operating efficiency. Decentralized financing compartmentalizes project risk and isolates agency problems. We provide a complete analytical characterization of the tradeoff between decentralized financing and centralized financing.

Title:	Financing R&D
Speaker:	**Dr. Chang LIU**
Abstract:	This paper investigates the credit frictions underlying R&D financing via banks and their aggregate implications for innovation policies. We model the relationship between banks' credit supply and entrepreneurs' R&D decision within a moral hazard framework which endogenously pins down borrowing constraints and interest rates facing different types of firms. Combining unique loan and firm-level data sets, our empirical analysis reveals that the staggered rollout of innovation policies across cities in China since 2010 increased financing costs for R&D-intensive firms relative to their less intensive counterparts and negatively affected the average quality of R&D, consistent with the theory prediction. In the quantitative model, we estimate that these policies led to a loss of 0.12 percentage points in aggregate productivity of the Chinese manufacturing sector.

Title:	Market for Manipulable Information
Speaker:	**Prof. Hui CHEN**
Abstract:	We study how investors, firms, and information sellers interact in a market with manipulable information. To better predict the firm characteristics they care about, investors can buy a score from a monopolistic information seller, which aggregates signals that are subject to firm manipulation. The average degree of signal manipulability has no effect on the equilibrium, while the uncertainty about manipulability becomes a new source of noise. Its contribution depends on firms' incentive to manipulate the signals, which in turn depends on the equilibrium price sensitivity to the score. The optimal design of the score weighs signal precision against the endogenous uncertainty due to manipulation. The introduction of mandate investors, who care about the scores on the characteristics and not the characteristics themselves, generates an incentive for information sellers to inflate the scores. When applied to green investing, our model implies that the effectiveness of impact investing on the cost of capital could actually decline as the fraction of green investors or the strength of the mandate keeps rising, because they generate stronger incentives for manipulation.

Title:	Money on the Blocks
Speaker:	**Prof. Emiliano PAGNOTTA**
Abstract:	Abstract Bitcoin emerged as an alternative global monetary system without a controlling agency. Its protocol secures transfers via the investment in computational resources by miners who receive compensation from block rewards and user fees. It preserves decentralization by limiting the throughput capacity of its blockchain. We present a general equilibrium framework with these features that allows for jointly determining prices, fees, and aggregate security. The interaction between users and miners leads to multiple equilibria with sharply different welfare and security properties. We characterize a socially optimal blockchain capacity and bounds on the block size for the long-run feasibility of monetary equilibrium. Our results have implications for the configuration of open blockchains and their relation with scaling protocols such as the Lightning Network.

Title:	Investment under Uncertainty and Information Asymmetry
Speaker:	**Prof. Yi-Chun CHEN**
Abstract:	We analyze a dynamic investment model in which the manager privately observes an investment opportunity with a persistent, stochastic payoff value process $\{V_t\}$. A dynamic contract is designed to provide intertemporal incentives for the manager to truthfully reveal his persistent private information. For the widely analyzed geometric Brownian motion setting in a real-option setting (McDonald and Siegel, 1986; Dixit and Pindyck, 1994), the optimal dynamic contract is characterized by a stopping time version of the 'double marginalization' result for static upstream-downstream monopoly settings. Investors make a one-time payment $M = mK$, a constant multiple $m > 1$ of the one-time option exercising cost K, so that the manager receives $(m - 1)K$ in net and investors collect a profit of $V_t - M$ when the option is exercised. Both investors and the manager earn monopoly rents because the former has an exclusive access to the investment opportunity and the latter has informational rents.