Swissquote Conference 2012 on Liquidity and Systemic Risk: Program

Thursday, 8th November	Venue: Building CE, Room CE1 515, EPFL	
09:30-10:15	*Registration/welcome coffee*	
10:15-10:30	**Welcome Address Swissquote**	
10:30-11:30	**Lasse H. Pedersen**	Measuring Systemic Risk (Discussant: Rama Cont)
11:30-12:30	**Carlo Acerbi**	Supply-Demand Symmetry of Market Impact Models (Discussant: Susanne von der Becke)
12:30-14:00	*Lunch break*	
14:00-15:00	**Tobias Adrian**	Intermediary Leverage Cycles and Financial Stability (Discussant: Jean-Charles Rochet)
15:00-16:00	**Martin Hellwig**	Keynote Address: Why has Systemic Risk in Banking and Finance Increased?
16:00-16:30	*Coffee break*	
16:30-18:00	**Panel Discussion**	Challenges of Liquidity and Systemic Risk Tobias Adrian, Martin Hellwig, Lasse H. Pedersen, Jean-Charles Rochet, Damir Filipovic (moderator)
18:00-19:00	*Aperitif*	

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Friday, 9th November		Venue: Building CE, Room CE1 515, EPFL
08:15-09:00	*Welcome coffee*	
09:00-10:00	**Angelo Ranaldo**	Limits to Arbitrage During the Crisis: Funding Liquidity Constraints and Covered Interest Parity
10:00-10:30	*Coffee break*	
10:30-11:30	**Tom Hurd**	A Framework for Analyzing Contagion in Banking Networks (Discussant: Michael Rockinger)
11:30-12:30	**Stephane Villeneuve**	A Bayesian Adaptive Singular Control Problem Arising from Corporate Finance (Discussant: Mete Soner)
12:30-14:00	*Lunch break*	
14:00-15:00	**Konstantin Milbradt**	Endogenous Liquidity and Defaultable Debt (Discussant: Alessandro Fontana)
15:00-16:00	**Christophe Perignon**	A Theoretical and Empirical Comparison of Systemic Risk Measures (Discussant: Antonio Mele)
16:00-16:30	**Closing of the Conference**	

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Abstracts (in alphabetic order of speakers)

Carlo Acerbi, MSCI

Title: Supply-Demand Symmetry of Market Impact Models

Abstract: We discuss the properties of a market impact model under assumed conditions of equivalent liquidity of the buy and sell side of the market of a general security. The problem admits a clear formalization based on analogies with change-of-numeraire techniques in the Forex market. We provide an exact characterization of the symmetrical models, and their full classification. Supply-Demand symmetry turns out to be not simply a parity condition of market impact functions with respect to order sign, as most often believed, but it can be approximated in this simpler way at highly liquid regimes. At less liquid regimes, the two pictures depart completely from each other, as we discuss in a number of examples. Finally, we show that Supply-Demand symmetry is fully compatible with the so-called "market depth time scaling hypotheses" of MSCI's LiquidityMetrics, in the sense that in this modeling framework a Liquidity Surface is symmetrical at no time horizons or at all time horizons.

Tobias Adrian, Federal Reserve Bank of New York

Title: Intermediary Leverage Cycles and Financial Stability

Abstract: We present a theory of financial intermediary leverage cycles within a dynamic model of the macroeconomy. Intermediaries face risk-based funding constraints that give rise to procyclical leverage. The pricing of risk varies as a function of intermediary leverage, and asset return exposure to intermediary leverage shocks earns a positive risk premium. Relative to an economy with constant leverage, financial intermediaries generate higher consumption growth and lower consumption volatility in normal times, at the cost of endogenous systemic financial risk. The severity of systemic crisis depends on intermediaries' leverage and net worth. Regulations that tighten funding constraints affect the systemic risk-return trade-off by lowering the likelihood of systemic crises at the cost of higher pricing of risk.

Martin Hellwig, Max Planck Institute for Research on Collective Goods

Keynote Address: Why has Systemic Risk in Banking and Finance Increased?

Abstract: The lecture discusses different notions of systemic risk in banking and finance and considers to what extent and why systemic risk has increased. A distinction is made between systemic risk in the sense of risks from the financial system to the real economy, risks to the financial system from a common exposure of different financial institutions to the same, or to correlated, shocks, and risks to the financial system from contagion turning problems of an individual institution into a systemic problem. Contagion can arise from domino effects due to contractual linkages,

domino effects due to fire sale externalities, and information contagion associated with correlated exposures. The lecture discusses how financial innovation and prudential regulation have affected different forms of systemic risk and contagion.

Tom Hurd, McMaster University

Title: A Framework for Analyzing Contagion in Banking Networks

Abstract: A probabilistic framework is introduced that represents stylized banking networks and aims to predict the size of contagion events. This framework extends the approaches of Eisenberg-Noe 2002 and Gai-Kapadia 2010 in a number of significant ways. Firstly, it explicitly allows for disassortative edge probabilities (the above average tendency for small banks to link to large banks). Secondly, it allows for random capital buffers and, as we have shown recently, random interbank exposures. As a further variation, the skeleton graph may be any fixed finite graph, rather than the usual infinite random configuration graph. Default cascades can be characterized analytically, avoiding the need for Monte Carlo, in all these cases, under what we term the "locally tree-like independence approximation". As an illustration, we show that edge-assortativity can have a strong effect on the level of systemic risk. However, this effect is indirect, and an alternative graph theoretic quantity, which we call "graph-assortativity", seems to better capture systemic risk.
In the second half of the talk, I will discuss recent work in which further features such as more complex balance sheets are added to this framework. One such model combines illiquidity cascades triggered by shocks to a firm's liabilities with insolvency cascades triggered by shocks to its assets. It is found that in a crisis, the average strength of banks' defensive reactions to illiquidity is inversely related to the size of the insolvency cascade, showing the effectiveness of this type of reaction in reducing insolvency risk.

Konstantin Milbradt, MIT Sloan School of Management

Title: Endogenous Liquidity and Defaultable Debt

Abstract: This paper studies the interaction between fundamental and liquidity for defaultable corporate bonds that are traded in an over-the-counter secondary market with search frictions. Bargaining with dealers determines a bond's endogenous liquidity, which depends on both the firm fundamental and the time-to-maturity of the bond. Corporate default decisions interact with the endogenous secondary market liquidity via the rollover channel. A default-liquidity loop arises: Earlier endogenous default worsens a bond's secondary market liquidity, which amplifies equity holders' rollover losses, which in turn leads to earlier endogenous default. Besides characterizing in closed form the full inter-dependence between liquidity premium and default premium for credit spreads, we also study the optimal maturity implied by the model based on the tradeoff between liquidity provision and inefficient default.

Lasse H. Pedersen, Copenhagen Business School

Title: Measuring Systemic Risk

Abstract: We present a simple model of systemic risk and we show that each financial institution's contribution to systemic risk can be measured as its systemic expected shortfall (SES), i.e., its propensity to be undercapitalized when the system as a whole is undercapitalized. SES increases with the institution's leverage and with its expected loss in the tail of the system's loss distribution. Institutions internalize their externality if they are "taxed" based on their SES. We demonstrate empirically the ability of SES to predict emerging risks during the financial crisis of 2007-2009, in particular, (i) the outcome of stress tests performed by regulators; (ii) the decline in equity valuations of large financial firms in the crisis; and, (iii) the widening of their credit default swap spreads.

Christophe Perignon, HEC Paris

Title: A Theoretical and Empirical Comparison of Systemic Risk Measures

Abstract: We propose a theoretical and empirical comparison of the most popular systemic risk measures. To do so, we derive the systemic risk measures in a common framework and show that they can be expressed as linear transformations of firms' market risk (e.g. beta). We also derive conditions under which the different measures lead similar rankings of systemically important financial institutions (SIFIs). In an empirical analysis of US financial institutions, we show that (1) different systemic risk measures identify different SIFIs and that (2) firm rankings based on systemic risk estimates mirror rankings obtained by sorting firms on market risk or liabilities. One-factor linear models explain between 83% and 100% of the systemic risk estimates, which indicates that systemic risk measures fall short in capturing the multifaceted nature of systemic risk.

Angelo Ranaldo, University of St.Gallen

Title: Limits to Arbitrage During the Crisis: Funding Liquidity Constraints and Covered Interest Parity

Abstract: Arbitrage ensures that covered interest parity holds. The condition is central to price foreign exchange forwards and interbank lending rates, and reflects the efficient functioning of markets. Normally, deviations from arbitrage, if any, last seconds and reach a few basis points. But after the Lehman bankruptcy, arbitrage broke down. By replicating exactly two major arbitrage strategies and using high frequency prices from novel datasets, this paper shows that arbitrage profits were large, persisted for months and involved borrowing in dollars. Empirical analysis suggests that insufficient funding liquidity in dollars kept traders from arbitraging away excess profits.

Stephane Villeneuve, Toulouse School of Economics

Title: A Bayesian Adaptive Singular Control Problem Arising from Corporate Finance

Abstract: We develop a dynamic model of cash holdings under incomplete information about the profitability of the firm's asset aiming at disentangling the role of liquidity and solvency risks in the corporate liquidity decision to default. The firm value is characterized in terms of a free boundary problem in two space dimension that we solve explicitly when assuming a symmetric distribution for the profitability.

Panel Discussion

Topic: Challenges of Liquidity and Systemic Risk

Discussants: Tobias Adrian, Martin Hellwig, Lasse H. Pedersen, Jean-Charles Rochet; Damir Filipovic (moderator)