

DEUTSCHE BANK PRIZE 2011 IN FINANCIAL RISK MANAGEMENT AND REGULATION

The prize essay competition for research papers in the field of financial risk management and regulation is organised by the FMG on an annual basis with the generous support of Deutsche Bank.

The award committee for 2011 consisted of Ron Anderson (FMG, LSE), Malcolm Knight (Deutsche Bank and LSE) and Christopher Polk (FMG, LSE). In judging the papers submitted the committee applied three criteria:

- The contribution dealt with a substantial problem of *financial risk management and regulation*.
- The contribution was submitted by one or more LSE research students.
- The contribution exhibited the high standards of originality and rigour appropriate for a leading international research university.

This year several excellent papers were submitted that nevertheless were not retained because they fell down on either the first or second criteria. Students thinking to enter the Deutsche Bank prize competition in the future on the basis of an undergraduate or master's thesis written before commencing their research studies might consider alternatively the Deutsche Bank doctoral fellowships that are intended to support future doctoral research at LSE in the area of financial risk management and regulation (see page 13 of this Review).



Malcolm Knight (Deutsche Bank and LSE) and prizewinners, Nelson Camanho and Pragyan Deb (both FMG, LSE)

This year the committee decided to make an award to one paper with the monies for the runner-up prize being carried over to future competitions.

The winning paper was '**Credit rating and competition**' by Nelson Camanho, Pragyan Deb and Zijun Liu, all doctoral students in finance and members of the FMG.

continues on page 2

FINANCIAL RISK MANAGEMENT AND REGULATION

continued from page 1



Ron Anderson (FMG, LSE)

Credit ratings agencies have been widely criticised for applying lax standards to structured products which played an important role in the recent financial crisis at least at its outset. Camanho, Deb and Liu tackle the important issue of the organisation of credit ratings agencies (CRAs) whose earnings are paid by the issuers they rate. They examine the trade-off between reputation and fees for such CRAs under alternative competitive environments. They find that in many circumstances a duopolist

CRA is more likely to award an inflated rating than a monopolist CRA. This theoretical result represents a serious cause for reflection about the right path to take in regulating credit ratings agencies. Some have advocated reforms to bring a higher degree of competition to the industry. The Camanho, Deb and Liu paper raises a serious question about whether reform proposals in that direction will achieve the effects hoped for by their advocates, if the 'user-pay' business model of CRAs remains dominant.

This prize is supported by Deutsche Bank.



Stuart Lewis (Deutsche Bank)



FOURTH ANNUAL PAUL WOOLLEY CENTRE CONFERENCE

9-10 June 2011

The Paul Woolley Centre for the Study of Capital Market Dysfunctionalities

The Fourth Annual Paul Woolley Centre conference took place at the FMG on 9-10 June 2011. It comprised of five sessions:

- 1) Financial institutions and asset prices – theory;
- 2) Financial institutions and asset prices – empirics;
- 3) Bubbles and limits of arbitrage;
- 4) Financial innovation; and
- 5) Liquidity and credit.

The conference started with **Anna Pavlova** (London Business School) who presented a joint theoretical work with Suleyman Basak (London Business School) on 'Asset prices and institutional investors' about the asset pricing implications of the delegation of money management to financial institutions. The model features two types of representative investors: a retail investor with standard preferences; and a money manager (institution), who cares about his performance relative to a benchmark. The modelling of the managers' preferences is one of the main innovations of the paper. It allows for a very transparent analysis of the effects of the financial institutions, closed-form solutions, and helps capture relative wealth effects. The authors find that the manager tilts his portfolio towards the stocks that are part of the benchmark against which he is evaluated, which generates price pressure in these stocks. Institutions also amplify index stock and aggregate stock market volatility and generate countercyclical Sharpe ratios. Following a positive news shock, all investors are willing to buy more, but stocks are in fixed supply. Since managers overweight stocks in their portfolio, the relative wealth effect is larger for them. Thus

for markets to clear, stocks must become less attractive, namely, their Sharpe ratios must fall. To finance their tilt towards stocks, managers must take on leverage. Thus when institutions deleverage, the model predicts that the index used as a benchmark should fall. A policy aimed at reducing risk by forcing institutions to deleverage can therefore have sizeable side effects on the indices used for performance evaluation. Finally, the model generates excess correlation among stocks in the same index.

Ralph Koijen (University of Chicago) started his discussion of the paper by emphasising the clarity of the model and its relevance for the understanding of the functioning of capital markets. After recalling the main results, he presented some empirical evidence about the growth of the mutual fund industry between the 1990s and today, and performed an analysis of the determinants of this growth. Using simple accounting equalities, he showed that the growth of the size of institutions (in proportion to the total market) can be explained by a valuation effect, a flow effect and a financing effect. The first effect simply reflects capital gains of institutions and is slightly negative: mutual fund managers, on average, slightly underperform the market. The second effect (flows) is positive, while the third one (financing, ie, issuance of new equity) is negative. He closed his discussion with remarks about the implications of the model for performance evaluation. The fact that institutions affect the level of benchmarks and volatility in the aggregate is not taken into account in the empirical literature looking at performance evaluation.

In the general discussion that followed, Harrison Hong (Princeton University) suggested an analogy between the preferences of money managers in the model and those of standard agents caring about their status relative to others. Pavlova and Basak acknowledged this point and mentioned that their ultimate goal

was to endogenise preferences by explicitly modelling the delegation process.

The second speaker in session one was **Gara M Afonso** (Federal Reserve Bank of New York). She presented 'Trade dynamics in the market for Federal funds', a model of Fed fund rates, written in collaboration with Ricardo Lagos (New York University). The Fed fund market plays an important role in the economy by setting a reference for the shortest maturity of the term structure, helping to channel liquidity from cash-rich banks to needy ones and also by transmitting the Federal Reserve's monetary decisions to the market. In spite of its importance, this market has received little theoretical attention. Afonso and Lagos propose a search and bargaining based model of the market that pins down the equilibrium interest rates, size of loans, and level of intermediation. The authors argue that this framework captures the two most important features of the functioning of this market. The model shows, consistently with the data, that the distribution of Fed fund rates is time-varying. Namely, empirically, price dispersion is high at the beginning of the day and decreases as time passes. A particularly interesting feature of the model is that intermediation arises naturally, although there are no natural lenders and buyers initially. Some banks endogenously choose to buy at some point in time, and sell later in the day, behaviour often observed in the Fed fund market. The model also has normative predictions: in particular, the authors show that under mild conditions, the market reallocates funds efficiently.

The discussant, **Emiliano Pagnotta** (New York University), insisted on the fact that this model is one of the very first to study the Fed fund markets and to then try to put its building blocks and predictions in perspective. He challenged to some extent the choice of a Duffie-Garleanu-Pedersen type of model, which implies a very complete network, as the right framework to represent the Fed fund markets, because the empirical evidence is that the Fed fund market is a very incomplete network. Further, he pointed out that relationship is an important driver of connections between banks in the market. However, he acknowledged that using another framework might be

counterproductive because of the lack of tractability of network models. Another point he raised was about credit risk, which is absent in Afonso and Lagos' model. His last critique was about the quantitative importance of search frictions. Indeed, some OTC (over-the-counter) markets are very liquid in spite of their decentralised structures and make it very easy to locate counterparties. To conclude, Pagnotta stressed that in spite of these critiques, the theoretical contribution of the authors was very substantial and beyond the particular topic of the paper as they are the first to solve both quantities and prices in a dynamic search model.

In the discussion that followed, Afonso defended the use of a search model à la Duffie-Garleanu-Pedersen and stressed the importance of search frictions for the market by showing a graph of price dispersion. Lagos addressed some of the other critiques about credit risk and incomplete networks. He mentioned that it is very difficult to factor in asymmetric information in this kind of model and said that their extensions allowing for heterogeneous bargaining power may lead to a more realistic topology of the market.

The second session of the conference started with the presentation of **Azi Ben-Rephael** (Tel Aviv University), entitled 'Flight-to-liquidity in the equity markets during periods of financial crisis', about the role of stock liquidity in periods of financial crisis. The paper provides an empirical examination of the flight-to-liquidity phenomenon that occurs when investors (or sub-groups of investors) want to reduce their holdings of illiquid assets toward holding more liquid assets. More specifically, the paper provides a first study on how a possible change in preferences for holding illiquid stocks is reflected in both stock returns and investors' holding positions. The analysis focuses on answering two research questions. The first one, about stock returns, asks how the return difference between illiquid and liquid stocks evolves during crisis periods. The second question, about stock holding positions, asks whether there are any groups of investors who change their positions in illiquid stocks during crises, and what the reason for these trades might be. Ben-Rephael studied ten periods of financial crisis during 1986-2008 using data on common stocks in the US, and making use of conventional stock liquidity measures (ie, the Amihud and the EHBAS measures).



Craig Pirrong (University of Houston)

When exploring the stock returns, Ben-Rephael documents that illiquid stocks experience lower returns relative to liquid stocks over a period of three months after the beginning of the crisis, after controlling for risk and other stock characteristics. In particular, the four-factor alpha return difference between illiquid and liquid stocks accumulates to -4 per cent for NASDAQ stocks over these months. Moreover, these return differences revert back in the following three months. The main results of the paper are concerned with the evolution of holding positions. First, he finds mutual funds, as a group, reduce their holdings of illiquid stocks, while other institutional investors increase their holdings of illiquid stocks. Second, regarding the reason behind the mutual fund trades, he documents that fund managers do not tend to sell illiquid stocks over liquid ones, hence this phenomenon is not driven by the mutual fund managers. Instead, it is driven by the mutual fund customers, ie, it is the result of larger customer withdrawals from funds with less liquid stocks. He also finds that funds with less liquid stocks experienced lower returns in these crisis periods, which, based on the standard positive flow-performance relationship, may explain the mutual fund customers' withdrawal decisions.

The discussant, **Francesco Franzoni** (University of Lugano), pointed out that the paper can be regarded as a cross sectional extension of Coval and Stafford (2007), because it combines their result (ie, fire sales by mutual funds generate price pressure) with the – also previously known – result of Amihud (2002) (ie, the price of illiquid stocks drops more when liquidity deteriorates in the market). On the other hand, he praised the result about the run on illiquid mutual

funds' assets, and suggested disentangling two potential stories: whether illiquid funds are more likely to suffer in bad times and hence investors (rationally) react to poor returns of these funds; or whether investors try to be the first to get out, anticipating a run for the exit, which gets exacerbated by asset illiquidity. Finally, he drew the audience's attention to his own research on hedge funds, as hedge funds tend to first sell liquid assets when they face redemptions, exactly the opposite effect that is documented in Ben-Rephael's paper.

The second presenter of session two, **Gideon Ozik** (EDHEC Business School) talked about 'Skin in the game versus skimming the game: governance, share restrictions, and insider flows', a joint work with Ronnie Sadka (Boston College). They study the potential adverse effect of share restrictions (ie, lockup periods or redemption-notice periods) of hedge funds. In general, share restrictions are thought to be beneficial for both hedge fund managers and investors. On the one hand, they play an important role of protecting the assets under management, giving more flexibility to managers in their investment decisions. On the other hand, as they increase the ability of managers to invest in illiquid assets while protecting the common interests of shareholders, they can provide higher returns for fund investors as well. In their study, Ozik and Sadka, while not providing direct evidence about managerial misbehaviour, nevertheless highlight the potential moral-hazard problem induced by share restrictions. In particular, they argue that if managers invest their own capital in the fund and receive information about future fund outflows, then managers can front-run their own clients. The paper finds that flows predict fund performance among share-restricted funds: they document a return spread of 5.6 per cent annually between 1998 and 2008, and note that this flow effect is mainly present in outflows and not in inflows. They also show that the effect is not concentrated in particular years, and it is permanent in that it even survives for 12 month horizons. They explain that the flow effect is stronger in funds managing insider wealth, suggesting that managers also release information to privileged investors, and funds with weak corporate governance (ie, low levels of investor protection, based on the frequency of audits, SEC registration requirements, high water marks, etc). Finally, they show that the effect is economically significant, as potential profits from this type of front-running can be

estimated to be around \$215 million annually, or \$2.4 billion over the entire sample period.

The discussant, **Petri Jylhä** (Aalto University), pointed out that it is a very relevant paper for academics, because it provides an identification of hedge fund manager misbehaviour and a study of the pricing of poor governance; for practitioners, because front running has wealth effects in favour of the insiders; and also for regulators and policy makers, because front running looks like a wide-spread phenomenon, raising questions as to whether and how it should be prevented. Finally, he noted that the paper fits the increasing amount of empirical evidence on hedge fund misbehaviour (eg, return misreporting, price manipulation, the number of hedge fund managers being in jail), and suggested that more work should be carried out about the theory or evidence on the motives and effects of these issues.

Session three began with **Alex Edmans** (Wharton, University of Pennsylvania and NBER) who presented 'Feedback effects and the limits to arbitrage', a joint paper with Itay Goldstein (Wharton, University of Pennsylvania) and Wei Jiang (Columbia University). Edmans showed a limit to arbitrage that is different from traditional point of views. It arises from the fact that a firm's fundamental value is endogenous to the act of exploiting the arbitrage opportunity. Speculators trade on their private information and the price reveals this information to managers. When the information is good, speculators will buy the asset, and the price increases. Managers get this information and proceed with the investment with positive NPV. This increases the profitability of a long position, which makes speculators better off. However, when the information is bad, managers give up the investment. The share price increases because the negative NPV projects are discarded. This reduces the profitability of a short term position. Optimal abandonment increases the firm's value and may cause the speculator to realise a loss on

their initial sale. Thus, investors may strategically refrain from trading on negative information. The asymmetry of this effect may explain why bad news is incorporated more slowly into prices than good news (eg, Hong, Lim, and Stein (2000)). Moreover, there are potentially important real consequences if negative information is not incorporated into stock prices, such as negative NPV projects being abandoned, leading to overinvestment. Edmans also used the Coca-Cola example to illustrate the idea.

Kostas Zachariadis (FMG, LSE), the discussant of the paper, first went through the key ingredients of the model, and commented on the paper as a 'very clean, nice model'. In addition, he also made several suggestions:

1. The authors should explain more about the assumptions used (eg, project returns under different actions and states).
2. Some weaker assumptions to check the robustness of the model should be used.
3. If speculators pay a cost to acquire the information, how does the cost relate to the parameters in the model?
4. If we use the Kyle model (RES, 1989) in which speculators can also recognise their impact on the price over time, what implications should we have?
5. In the model, speculators are present with some probability. What happens if they are always present?
6. There is a need to look for some evidence when speculators use the derivative market.

David Sraer (Princeton University) then presented his paper 'Quiet bubbles', a joint work with Harrison Hong (Princeton University). The paper develops a model with heterogeneous beliefs and short-sales constraints, which explains why credit bubbles are quieter than equity ones. He showed that credit bubbles are quieter for two distinct reasons. First, since debt up-side pay-offs are bounded, it has a concave payoff function. Using the graphs, Sraer showed that debt is less sensitive to disagreement about underlying asset value than equity and hence has a smaller resale option and



James R Thompson (University of Waterloo)

lower price volatility and turnover. The second is that sufficiently skewed priors and leverage can generate a quiet bubble. Leverage also makes credit bubbles quiet because it allows extreme skewed optimists to buy all the shares and there is little trading and price volatility as the likelihood of other investors having a more optimistic belief than these skewed optimists is low. He argued that the credit bubble in sub-prime mortgage CDOs is fundamentally different as it was quieter – price is high but price volatility and turnover are low.

Georgy Chabakauri (FMG, LSE) was the discussant of the paper. He first went through the main results of the paper and summarised that the bubble actually consists of two parts: the optimism option; and the resale option. He also pointed out that this is a nice application for the standard bubbles to the concave payoff function. For the modelling, Chabakauri suggested that the alternative bubble model, for example, Abreu and Brunnermeier (2003), could be used for a similar problem. Comparing this to the paper, the question is whether the bubble is still quiet. He also mentioned the overview of the 2007 credit bubble (Brunnermeier, 2009) in which, investors were reluctant to go against the





Patrick Bolton (Columbia University)

credit bubbles, and this may be the reason why the bubbles are still quiet. In addition, he also mentioned that the low volatility and low price of the credit bubbles may be simply because of the low risk of credit securities. Moreover, the perceived diversification benefit can also make CDOs less risky. These could all be reasons for the empirical observations and should be taken into account by the authors.

The first talk of session four was delivered by **Patrick Bolton** (Columbia University), who presented his paper co-authored with Martin Oehmke (Columbia University), under the title 'Should derivatives be senior?'. The authors propose a corporate finance model with limited commitment to analyse the effects of the 'super-senior' status of derivatives (ie, derivative counterparties are effectively senior to almost all other claimants in bankruptcy) on firms' cost of borrowing and incentives to engage in derivatives transactions. The authors argue that, on the one hand, derivatives serve a valuable role as risk management tools. However, on the other hand, the derivatives' super-seniority can have two negative effects that lead to inefficiency: (i) It increases face value of debt, which increases derivative position necessary for avoiding bankruptcy, which increases transaction costs, and (ii) It leads to the standard risk shifting / dilution problem when derivatives enter into ex post. Based on these results, the authors argued that it may be time to re-think the special treatment of derivatives.

The discussant, **Ulf Axelsson** (FMG, LSE), pointed out that this is a nice clean paper that seems empirically plausible and relevant. After explaining the main mechanism of the model,

he argued that the paper's main result follows because of the assumption that the transaction cost only increases with notional amount of the derivative contract, not with the premium paid to the counterparty; but it may be more reasonable that variance of derivative position matters. He also argued that derivatives might not necessarily be senior to debt. As the examples, he claimed that repos, which are classified as derivatives in the paper, work more as debt in reality; further, derivatives may not be senior to bank deposits, as the depositors can always front run.

James R Thompson (University of Waterloo) presented the paper entitled 'CDS as insurance: leaky lifeboats in stormy seas'. The paper, co-authored with Eric Stephens (University of Alberta), presents a model incorporating key features of the CDS market. The authors argue that (i) due to insurer's insolvency with asymmetric information, stable insurers become less stable as they are forced to compete on price, (ii) when insured parties have heterogeneous motivations for buying CDS (risk management or speculation), the speculators will contract with unstable insurers, resulting in high counterparty risk, and (iii) if one can purchase contracts from many insurers (ie, non-exclusivity of CDS market), separation of risk type among insured parties can be achieved through insurer choice. The authors also show that requiring CDS contracts to be negotiated through Central Counterparties (CCP) can mitigate the benefit of risk pooling.

The discussant, **Craig Pirrong** (University of Houston), pointed out that the paper has many results (perhaps too many for one paper) that may be also applicable to hedging instruments other than CDS. Regarding the model setup, he argued that it would be more natural to have different risks of portfolio, rather than difference in insurer types. He also suggested that counterparty risk might not be the relevant criteria to evaluate market quality, as there

is trade-off between counterparty risk and investment returns. He argued that the CCP result is most intriguing, especially in light of ongoing developments in OTC derivatives markets, but the paper needs more thorough and careful analysis of payoffs to the banks that contract with a CCP.

The fifth and last session of the conference focused on the issues of liquidity and credit. The first presentation of this session entitled 'Collateral requirements and asset prices' was presented by **Felix Kubler** (IBF, University of Zurich and Swiss Finance Institute) and co-authored with Johannes Brumm (University of Mannheim), Michael Grill (University of Mannheim) and Karl Schmedders (DBA, University of Zurich and Swiss Finance Institute). In the paper, the authors examine the effect of collateral requirements on the prices of long-lived assets. They consider a Lucas-style infinite-horizon exchange economy with heterogeneous agents and collateral constraints. There are two trees in the model economy which can be used as collateral for short-term loans. For the first tree the collateral requirement is determined endogenously whilst the collateral requirement for loans on the second tree are exogenously regulated.

The authors show in the model that the presence of collateral constraints and the endogenous margin requirements for the first tree lead to large excess price-volatility of the second tree. Changes in the regulated margin requirements for the second tree have large effects on the volatility of both trees. While tightening margins for loans on the second tree always decreases the price volatility of the first tree, price volatility of the second tree might very well increase with this change. In the presentation Kubler showed interesting results of the calibration that allowed for the possibility of disaster/crash states.

The discussant for this paper was **Francisco Gomes** (London Business School). He started



with stating that the model presented by Kubler provides an interesting general equilibrium framework to analyse the impact of collateral constraints on asset pricing dynamics. He pointed out that the paper is an application of the theoretical set-up developed in Kubler and Schmedders (2003) which extends the results of the paper by Coen-Pirani (JME 2005). The results of the paper imply that there should be significant impacts of margin requirements (MR) on both the level of asset prices and also their dynamics. Although there is significant evidence of the impact of MR on the level of prices, the evidence on the second moments is very weak. Gomes mentioned the empirical papers of Hsieh and Miller (1990), Day and Lewis (1997) and others which show that the impact of MR on the volatility is not so clear cut. Obviously when margins are endogenous then empirical testing is not so straightforward, however the addition of a clear link between the model results and empirical literature could increase the value of the paper significantly. Gomes also mentioned that the paper only analyses constraints on leverage available to finance long positions in the underlying tree although in reality there are also constraints on the short positions, which are designed by the regulators to control the amount of downward speculation. It would be very interesting to add to the analysis the possibility of short position margins.

The last paper of the conference was entitled 'Dealer attention, liquidity spillovers, and endogenous market segmentation'. It was presented by **Thierry Foucault** (HEC School of Management) and co-authored with Giovanni Cespa (Cass Business School). The paper describes a new mechanism that explains the transmission of liquidity shocks from one security to another ('liquidity spillovers'). Dealers use the prices of other securities as a source of information. As prices of less liquid securities convey less precise information, a drop in liquidity for one security raises the uncertainty for dealers in other securities, thereby affecting



Ulf Axelson (FMG, LSE)

their liquidity. The direction of liquidity spillovers is positive if the fraction of dealers with price information on other securities is high enough. Otherwise liquidity spillovers can be negative. For some parameters, the value of price information increases with the number of dealers obtaining this information. In this case, related securities can appear segmented, even if the cost of price information is small.

The discussant for this paper was **Elias Albagli** (University of Southern California).

In the first part of his presentation, Albagli presented a detailed overview of the results of the model. In particular he outlined a key mechanism that makes the model interesting: informativeness of the price in particular markets affects the information of the agents in other markets through liquidity spillovers. There is a feedback loop between the informativeness of prices in various markets and what leads to interdependent liquidity across markets. As mentioned by Albagli in this framework market disruptions can affect other markets even if the dealers do not appear funding constrained. In this model this is information that propagates the shocks in the economy rather than the standard liquidity constraints investigated frequently in the

literature. Unfortunately this informational theory would be very hard to test empirically.

Albagli also outlined that the results of the paper might depend on the assumptions that are hard to sustain in reality. In particular the assumption of the inability to or existence of cost associated with observing prices from other markets could be justified for high frequency data, but it would not be easy to justify for data sampled with lower frequency. He conjectured that with more plausible assumptions (when agents would be able to observe prices) the spillovers could only be positive and the information acquisition is no longer complementary. In the conclusion Albagli stated that the paper contributes to REE literature modelling illiquidity that can be spread through inter-market information linkages, however some results may change under more standard REE assumptions.

Conference organised by: **Bruno Biais** (Toulouse School of Economics), **Amil Dasgupta** (FMG, LSE), **Denis Gromb** (INSEAD), **Christopher Polk** (FMG, LSE), **Dimitri Vayanos** (FMG, LSE) and **Kathy Yuan** (FMG, LSE)



DEUTSCHE BANK – FMG WORKSHOP DESIGN OF ‘BAIL-IN’ ARRANGEMENTS AND SPECIAL RESOLUTION REGIMES

14 March 2011

A trans-Atlantic group of experts met at the London School of Economics to discuss ‘Bail-in’ and other ideas recently developed that aim at addressing the too-big-to-fail problem by increasing the efficiency of tools available to authorities in resolving distressed, systemically important financial institutions (SIFIs).

The group involved senior academics, bankers, investors, lawyers, and regulators representing a wide variety of perspectives on the issues. Nevertheless, after extensive discussion a good degree of common view emerged on many topics. Some of those present felt it would be useful to record propositions that command broad support. This minute is meant to take note of the main points of common view that emerged at the workshop.

1. A ‘bail-in’ regime or arrangement is intended to facilitate the resolution of a SIFI (which for short we refer to as a ‘bank’) in a manner that avoids losses to taxpayers by triggering the write-down or conversion of selected categories of unsecured, uninsured debt to common equity while preserving the bank’s viable business and restructuring the unviable parts.
2. To be effective, the bail-in needs to be done in such a manner as to avoid formal default of any of the contractual obligations of the bank which otherwise would trigger liquidation and fire sales.
3. To achieve this end, a bail-in needs to have a legal basis in a special resolution regime that gives clear responsibility to a competent authority who is empowered to act in a timely manner.
4. To achieve legal certainty and to not be susceptible to numerous legal challenges, a bail-in regime needs to provide for cross-border recognition, possibly through contract,

of a statutory bail-in power exercised by a home authority.

5. To be a credible resolution tool for SIFIs and Global SIFIs (GSIFs), it must extend to holding companies and relevant subsidiaries.
6. For GSIFs care needs to be taken to assure that the debt subject to bail-in for regulatory purposes is free from ‘ring-fencing’ arrangements that might be applicable to subsidiaries in other jurisdictions. This needs to be clarified and addressed ex ante, possibly through a recovery and resolution plan.
7. The major elements of the design of a bail-in regime include:
 - a) A determination of what debts are subject to bail-in and what debts are not;
 - b) The definition of the bail-in trigger; ie, the conditions under which bail-in debt is converted to equity; and
 - c) When applicable, the conversion ratio, that is the number of common shares received for a given amount of debt.
8. There is no single design that is clearly best. Indeed it is likely that different designs may give rise to similar results in practice. The question of good design should be the subject of further study by academics but also should be adapted to experience in the market place and in real resolution experience.
9. However, there is broad agreement that a good design must meet several criteria:
 - a) It should avoid large ‘cliff effects’ that might otherwise invite speculative attacks.
 - b) To be robust in dealing with the wide range of possible forms of distress, the bail-in regime must allow for regulatory discretion.
 - c) However, discretion should be limited and should not include discretion to make previously exempted debt subject to bail-in conversion.
 - d) As a discipline against possible regulatory forbearance, there may be a role for use of

market-based indicators in arriving at the regulatory decision to invoke bail-in.

- e) The existence of a bail-in regime should help to improve incentives to raise capital before bail-in is reached.

10. Bail-in could be an important addition to the tools available to regulatory authorities in addressing the too-big-to-fail problem. This should be reinforced with progress in bringing greater resiliency to key markets and in the development of macro-prudential tools.

The participants of this workshop were:

Viral Acharya (Stern School of Business, New York University); **Ron Anderson** (FMG, LSE); **Hugo Banziger** (Deutsche Bank); **Peter Brierley** (Bank of England); **Charles Calomiris** (Columbia University); **Howard Davies** (LSE); **Doug Diamond** (Chicago Booth); **Wilson Ervin** (Credit Suisse); **Xavier Freixas** (University Pompeu Fabra); **Simon Gleeson** (Clifford Chance); **Charles Goodhart** (FMG, LSE); **Seth Grosshandler** (Cleary Gottlieb Steen and Hamilton); **Eva Hupkes** (Financial Stability Board); **Tom Huertas** (Financial Services Authority); **Stefan Ingves** (Swedish Riksbank); **Kevin James** (Bank of England); **Malcolm Knight** (Deutsche Bank and LSE); **Chris Lucas** (Barclays); **Sylvie Matherat** (Banque de France); **Ceyla Pazarbasioglu** (IMF); **Christopher Polk** (FMG, LSE); **Patrick Raaflaub** (FINMA); **Hal Scott** (Harvard University); **Richard Stones** (UK Independent Commission on Banking); **Paul Tucker** (Bank of England); **David Webb** (FMG, LSE); **David Wright** (Oxford University); **Kathy Yuan** (FMG, LSE); and **Jean-Pierre Zigrand** (FMG, LSE).

Workshop organised by: **Ron Anderson** (FMG, LSE) and **Malcolm Knight** (Deutsche Bank and LSE)

This workshop was supported by Deutsche Bank.



Deutsche Bank

AXA – FMG WORKSHOP

ISSUES FOR MACROPRUDENTIAL REGULATION

11 February 2011

The FMG hosted a one-day workshop entitled 'Issues for Macroprudential Regulation'. The attendants, both members of academic and policy institutions, discussed the interplays between the financial system and the real economy and how appropriate policy interventions can mitigate the instability inherent in the financial sector.

The workshop opened with a presentation by **Enrique Mendoza** (University of Maryland), entitled 'Overborrowing, financial crises and macroprudential policy'. The paper, a joint work with Javier Bianchi (University of Maryland), presents a model able to reproduce reasonably well stylised facts about financial crises in which private borrowing decisions are socially inefficient. The authors study a real business cycle small open economy model where agents can borrow up to a fraction of the current value of their asset holdings. When the borrowing limit is hit, the economy experiences a crisis featuring a deep fall in output and consumption, coupled with a sharp decrease in credit and asset prices.

The decentralised equilibrium is socially inefficient because private agents do not internalise the impact of their actions on asset prices and thus on the borrowing limit. The paper shows that a benevolent social planner would choose to accumulate less debt during tranquil times compared to the decentralised equilibrium, so as to reduce both the probability of experiencing a crisis and the associated welfare costs. The authors conclude by proving that the social planner equilibrium can be implemented by taxing debt and subsidising dividends from asset holdings. They also highlight that implementation of the optimal policy is subject to severe informational and political economy issues, and that partial implementation can lead to lower welfare compared to the laissez-faire equilibrium.

During the discussion, Benoit Mojon (Banque de France) emphasised that a tax on debt that applies to all the agents in the economy may be too blunt a policy instrument, and that there can be gains from taking a more micro approach to macroprudential regulation by focusing on policies that take into account the great diversity of agents operating on financial markets. Charles Goodhart (FMG, LSE) suggested that studying the effects of partial implementation of the optimal policy may yield valuable insights. Finally, Gianluca Benigno (LSE) claimed that in a model in which policy interventions during crisis periods are allowed, the overborrowing result may break down and private agents may accumulate too little debt during tranquil times compared to the social planner equilibrium.

The second paper of the morning session, entitled 'Minsky's financial instability hypothesis and the leverage cycle', was presented by **Alexandros Vardoulakis** (Banque de France). The paper, co-authored with Sudipto Bhattacharya (FMG, LSE), Charles Goodhart (FMG, LSE) and Dimitrios Tsomocos (University of Oxford), studies how investors' optimism can generate credit expansions and sustained economic growth, followed by sharp credit contractions and economic recessions. In their framework, investors do not know the probability distribution governing the future return on their investments and infer it by observing past realisations of the returns' process. Investors' sentiments act as an amplification mechanism: following a period of good realisations investors become optimistic and willing to extend cheap credit to financial institutions, which in turn increase their leverage and shift their portfolios toward risky investments.

This makes the financial system vulnerable to bad shocks in that a bad realisation of investments' return will compel financial institutions to default on their obligations.

From a policy perspective, the authors find that imposing leverage ratios on financial institutions does not dampen the credit cycle, since financial institutions will respond to them by choosing riskier portfolios. A better policy would be to impose leverage ratios that depend on the investments' riskiness. Moreover, they show that increasing default costs can stabilise the leverage cycle. Finally, the model suggests that risk indicators based on prices, such as the VIX (Volatility Index) or the TED (Treasury Eurodollar) spread, are unable to predict the leverage cycle, since they are biased by optimistic expectations.

The discussion that followed was centred on three issues. First, Mendoza was intrigued by how the policy implications would change if policymakers had more information about the state of the economy than private agents. Martin Summer (Oesterreichische Nationalbank) conjectured that policymakers could then directly influence agents' beliefs, by acting so as to moderate investors' optimism during good times and pessimism during bad times. Second, Goodhart pointed out that in the model the riskiness of an investment is not affected by investors' behaviours and that it would be interesting to relax this assumption. He cited the example of housing credit, which was traditionally perceived as a safe investment, but became riskier as the investment flows directed toward it increased. This suggests the need to look at systemic behaviour to judge investments' riskiness. Third, Nobuhiro Kiyotaki



(Princeton University) wondered whether the same amplification effects would be present in a model with infinitely-lived agents in which expectations are based on long streams of past realisations of the shocks.

The morning session was closed by **Massimo Rostagno** (European Central Bank) who presented a joint work with Lawrence Christiano (Northwestern University) and Roberto Motto (European Central Bank) entitled 'Financial factors in economic fluctuations'. Rostagno started by showing stylised facts of the Euro area and US business cycles, and by highlighting that state-of-the-art DSGE (Dynamic Stochastic General Equilibrium) models do a poor job in replicating the pro-cyclicality of the price of capital. This happens because shocks to the demand for capital are absent in standard models. The paper presents an estimated DSGE model in which the entrepreneurs who demand capital are subject to financing frictions. The results indicate that shocks that affect the entrepreneurs' net worth are able to reproduce well the observed positive co-movement between output and asset prices by generating shifts in the demand for capital. Two financial shocks play a prominent role: a 'financial wealth shock' that changes the value of total equity in the economy; and a 'risk shock' that governs the dispersion of returns on investment and influences investors' propensities to invest and banks' propensities to lend. The authors find that these two shocks are key in enabling the model to replicate the data, thus establishing the centrality of shocks originating from the financial sector as drivers of the business cycle.

Benigno started the discussion by pointing out how in the model a shock to the variance of the investment return has a first order effect on the economy. Mendoza added that it would be interesting to study the impact of this shock on precautionary saving behaviour using a fully non-linear model. Goodhart concluded the discussion by considering that it might be difficult to map the reduced form shocks in the model to observable variables.

The afternoon session started with **Peter Karadi** (Central Bank of Hungary) who presented 'A model of unconventional monetary policy', a joint work with Mark Gertler (New York University). The paper focuses on a quantitative monetary DSGE model that allows for financial intermediaries that face endogenous balance sheet constraints. The model is used to simulate

a crisis that has some basic features of the current economic downturn and is then used to quantitatively assess the effect of direct central bank intermediation of private lending, which is the essence of the unconventional monetary policy that the Federal Reserve Bank has developed to combat the subprime crisis. Karadi and Gertler's work shows numerically how central bank credit policy might help moderate the simulated crisis. They also compute the optimal degree of central bank credit intervention in this scenario and find that the welfare benefits may be substantial if the efficiency costs of government intervention are modest.

If they abstract from the issue of efficiency costs, an equivalent type of credit intervention in their model would be direct equity injections into financial intermediaries. Expanding intermediaries' equity would expand the volume of assets that they can intermediate. In their view, a key factor in choosing between these two policies involves the efficiency costs of the policy action. For certain types of lending, eg, securitised high grade assets such as mortgaged backed securities, the costs of central bank intermediation might be relatively low. In this case, direct central bank intermediation may be justified. In other cases, eg, C&I loans that requires constant monitoring of borrowers, central bank intermediation may be highly inefficient. In this instance, capital injections may be the preferred route. Karadi and Gertler are able to address this issue by expanding their model to allow for asset heterogeneity.

Cesaire Meh (Bank of Canada) then presented a paper entitled 'Bank leverage regulation and macroeconomic dynamics', a joint work with Ian Christensen (Bank of Canada) and Kevin Moran (Université Laval). Bank regulation is among one of the key policy issues to have emerged from the recent events in financial markets worldwide. One aspect of bank regulation that has generated intense interest is how regulatory constraints on bank leverage and balance sheets should be organised. Should they be strengthened? Should they vary with the cycle, perhaps tightening in good times and loosening when activity slows down? How should they interact with the conduct of monetary policy?

Meh, Christensen and Moran address these important questions using the DSGE model with banks and bank capital developed in Meh and Moran (2010). In the model, bank capital emerges endogenously to solve an asymmetric

information problem between bankers and their creditors. As a result, the capital position of a bank affects its ability to attract loanable funds and at a macroeconomic level, bank capital influences the bank leverage, the transmission of shocks and business cycle through a bank capital channel of transmission.

Government regulations on bank leverage have an impact on the bank capital channel, constraining what would otherwise be market-determined responses of bank leverage to macroeconomic factors. Their simulations reveal that this impact can have important quantitative implications. Their findings show that: (i) the response of real variables to technology and monetary policy shocks is markedly dampened by regulation on bank leverage, while the response of prices and interest rates is more volatile; (ii) the response of the economy to financial (bank capital) shocks is more volatile under bank leverage regulation; (iii) a tightening in regulation standards has important economic consequences; and (iv) the time-series properties of the regulation on bank leverage can also have important consequences.

The final presentation of the day was by **Martin Summer** (Oesterreichische Nationalbank) who presented his research on 'Credit risk in general equilibrium'. Quantitative models used in credit risk assessment usually model default risk, loss given default and exposure at default as subject to an exogenous source of risk. However, these parameters of credit risk are in fact endogenous as they are the aggregate consequences of decisions taken by market participants. Summer attempts to develop a model to describe the fact that credit risk is endogenous and consequently in the model insolvency occurs as an equilibrium phenomenon that can be described by fundamental parameters such as risk preferences and endowments.

Workshop organised by: **Charles Goodhart** (FMG, LSE) and **Dimitrios Tsomocos** (University of Oxford)

This workshop was supported by the AXA Research Fund.



CORPORATE GOVERNANCE AT LSE RESEARCH DEBATE BEYOND THE GLASS CEILING: DOES GENDER MATTER?

16 May 2011

Gender diversity on corporate boards is currently one of the most hotly contested, and politicised, subjects in corporate governance, with several European countries like Norway, France and Spain introducing new legal requirements for a minimum of 40 per cent of women on boards. Following the recommendation of Lord Davies, the UK does not impose such quotas but recommends an increase in female participation in the boardroom to 25 per cent.

Renée Adams (University of Queensland), an FMG Research Associate and renowned specialist on the subject was invited to provide some academic evidence on the subject, which was complemented by Lucy Kellaway (Financial Times) with some of her own observations on the subject.

In the paper, 'Beyond the glass ceiling: does gender matter?' Adams looked into the question of whether female board members are different in values to their male colleagues. For this, she surveyed all Swedish board members in 2005, and found out that the values of women were not only different to their male board colleagues, but also differed compared to the

female population at large. When measured against male directors, female directors were found to be (1) more self-transcendent ('other-oriented') than male directors (a 'typical' finding), but also that (2) female directors are more open to change (less tradition-oriented) than male directors (in contrast to the population), and (3) that female directors are more risk-loving than male directors.

In the lively debate that followed, both Adams and Kellaway argued against the introduction of quotas, as it is unclear how a fixed quota system could help to improve the functioning of the board. This opinion was not shared by all in the room. Having said that, there was general agreement in the room that it would be rather odd not to have any female participation on the board, and Adams cited some evidence from one of her other papers on the subject that showed that women in the boardroom do indeed improve its functioning, most notably through higher attendance rates by all board members but also when compared to other less noticeable criteria.

Research debate organised by: **Tom Kirchmaier** (FMG, LSE).

This research debate was supported by the AXA Research Fund.



THE PAUL WOOLLEY CENTRE SCHOLARSHIPS 2011-12

The Paul Woolley Centre for the Study of Capital Market Dysfunctionality



Nelson Camanho



Luca Fornaro



Christoph Ungerer

The Paul Woolley Centre for the Study of Capital Market Dysfunctionality, established within the FMG at the LSE, invited applications from LSE economics and finance PhD students for 'The Paul Woolley Centre Scholarships Programme' for the 2011-12 academic year. The scholarships aim to support students pursuing postgraduate research in the areas covered by the Paul Woolley Centre research agenda. The Scholarships were awarded by a committee consisting of Christopher Polk (Director of the FMG), Dimitri Vayanos (Director of the Paul Woolley Centre), and Paul Woolley (Founder of the Paul Woolley Centre). The Scholarships provide a stipend to support fees and/or living expenses. The amount of the award does not exceed that of the LSE PhD Scholarships, which presently cover fees and a living allowance of up to £14,000 per annum. The Scholarships will be renewable on an annual basis after review. The Paul Woolley Centre Scholars will be based within the Paul Woolley Centre and the FMG and are expected to work closely with its staff and faculty.

The Paul Woolley Centre Scholarships for 2011-12 were awarded to **Nelson Camanho**, **Luca Fornaro** and **Christoph Ungerer**.

Nelson Camanho is a fourth year PhD student in the Department of Finance at LSE. His research interests lie in empirical corporate finance, international finance, delegated portfolio management and financial regulation. He is a General Engineer from l'Ecole Centrale de Lyon, in France, and received a BSc in Industrial and Mechanical Engineering and a Masters in Economics from the Catholic University of Rio, in Brazil, before coming to LSE to start his PhD in 2007.

Luca Fornaro is a fourth year PhD student in the Department of Economics at LSE. He received a BSc in Economics from the Università degli Studi di Torino, Italy and a Masters in Economics from the Paris School of Economics (EHESS), before coming to LSE to start his PhD in 2007. His research interests include international economics, growth and monetary economics.

Christoph Ungerer is a fourth year PhD student in the Department of Economics at LSE. His research focuses on the effects of search frictions in the corporate bond market, the property market and the labour market. His broader research interests are in finance, macroeconomics and applied econometrics. He received a BSc in Economics from the University of Nottingham, an MPhil in Economics from the University of Cambridge and an MRes in Economics from the LSE. In Autumn 2010, he was a Visiting Fellow at Harvard University.

DEUTSCHE BANK DOCTORAL FELLOWSHIPS 2011-13



The Deutsche Bank PhD Fellowship Programme was established with the generous support of Deutsche Bank. These two year fellowships are awarded to two first-rate students on an annual basis and aim to support the effort of these students to pursue their doctoral studies at LSE, in affiliation with LSE's internationally renowned FMG. Each fellow is awarded £15,000 per year for up to a maximum of two years. The award is intended to cover tuition fees, research and living expenses incurred by the recipient as part of their full-time research at LSE.

Awardees must demonstrate an outstanding aptitude for financial research and have the intention of pursuing doctoral research in the following areas:

- Financial Risk Measurement
- Risk Management
- Financial Regulation

The Deutsche Bank PhD scholarships 2011 were awarded to **Toni Ahnert** and **Giorgia Piacentino**.



Toni Ahnert is a PhD student in the Department of Economics. Prior to joining LSE, he obtained Masters degrees from the University of Essex and Universitat

Pompeu Fabra Barcelona, Spain.

His research interests are banking, systemic risks, and the regulatory response to the recent financial crisis. He is currently working on a paper on counterparty risk.



Giorgia Piacentino is a second year PhD Student in the Department of Finance at LSE Finance Department and she has been a member of the FMG since 2010. She

graduated from the University of Rome Tor Vergata and holds an MSc from the Toulouse School of Economics in Financial Markets and Intermediaries.

She works mainly on the theory of financial intermediation, in particular on institutional investors and information transmission. Her research has hitherto produced two co-authored papers: one shows that the career concerns of a fund manager often overwhelm his corporate governance incentive, even when he holds a large block of shares in a firm; and the other demonstrates that competition among rating agencies mitigates the problem of overrating, but that agencies will collude whenever possible and that rating inflation correlates negatively with issuers' investment opportunities. Her work continues to explore competition among intermediaries specialising in portfolio management and information provision.

FMG LEAVERS 2011

A number of students are leaving the FMG and LSE this summer following completion of their PhDs and are beginning working life. FMG asked these students where they were going, what they thought would be the biggest challenge and what they would miss about the LSE/FMG.



Miguel Antón

What is your new role going to be?

Assistant Professor of Finance at IESE Business School in Barcelona.

What are you looking forward to the most about your new role?

I'm very excited about joining a finance group where I can make a difference with my research and my teaching.

What do you think will be the biggest challenge?
I think the answer to this question is very similar among my classmates... the biggest challenge is to publish in top journals!

What will you miss about LSE/FMG?
My friends Vincent, Fabián, and all the other classmates, Christopher's patience with me, the high level of seminars, all the friendly advice from so many faculty members, all the students I taught at the LSE... and David's speeches at finance parties, Mary's smile, Osmana's deals, Aytek and Gyuri playing football in the corridor...

Name one tip for those coming to the job market next year.
Enjoy the job market, it's a great experience. People are very nice in the interviews and in the seminars. Don't forget to write thank-you notes after the fly-outs.



Dragana Cvijanovic

What is your new role going to be?

Assistant Professor of Finance at HEC Paris.

What are you looking forward to the most about your new role?

I look forward to joining a fantastic group, both in terms of research quality and research potential, and in terms of team culture. It

is going to be a lot of fun working with my new colleagues, especially having a chance to combine expertise and learn. This will provide a way to produce things that you can never produce on your own.

What do you think will be the biggest challenge?
Getting to grips with not being a student anymore.

What will you miss about LSE/FMG?
I guess I will miss friends that I gained during my PhD here the most and our endless chats in R409 that kept us away from work. To be honest, I do not really have a feeling that I am leaving LSE/FMG. The reality has not really sunk in, so I still feel that I am and that I will stay a part of the community here.

Name one tip for those coming to the job market next year.
Work hard, keep things in perspective and be yourself.



Vincent Fardeau

What is your new role going to be?

I'm going to be an Economist at the Federal Reserve Board.

What are you looking forward to the most about your new role?

I think I'll be part of a great team (risk analysis section) with very nice and able people. I had a good time with them during the market.

What do you think will be the biggest challenge?
Only 20 days of holiday per year. I should have gone to the Banque de France! (about double!)

What will you miss about LSE/FMG?
The permanent construction works on Houghton Street, of course. And the fire drills. More seriously, LSE offers such a stimulating intellectual environment, it is hard to match.

Name one tip for those coming to the job market next year.
Get ready early!



Zijun Liu

What is your new role going to be?

I am going to be a senior associate at the macro-prudential department at the FSA, working on financial

stability-related issues.

What are you looking forward to the most about your new role?
I enjoy regulation-focused research and applying it to real world problems, so I am looking forward to that.

What do you think will be the biggest challenge?
The biggest challenge is that, unlike academic places, you have to cope with a large number of tasks given a limited amount of time, which requires a good level of time management and decision making skills.

What will you miss about LSE/FMG?
Apart from the lovely people at FMG, I will miss my desk the most, because here at the FSA we don't have our own desks.

Name one tip for those coming to the job market next year.
For job market candidates next year, I suggest that they get as much in-depth feedback as possible on their research before going to the market.



Daniel Metzger

What is your new role going to be?

Assistant Professor in Finance at Stockholm School of Economics.

What are you looking forward to the most about your new role?

Collaborating with my new colleagues and exploring Stockholm.

What do you think will be the biggest challenge?
The transition from PhD student to professor (aka becoming serious).

What will you miss about LSE/FMG?
London and the diversity.

Name one tip for those coming to the job market next year.
Talk to many people before the job market

about your paper. This might allow you to address the weaknesses in a better way as you will have more time to think about them.



Sitikantha Parida

What is your new role going to be?

I am joining as an Assistant Professor of Finance at Clark University, MA, USA.

What are you looking

forward to the most about your new role?

I am looking forward to working as a new faculty member and collaborating with my new colleagues.

What do you think will be the biggest challenge?

I do not expect life of a faculty member to be much different from that of a grad student. You work the same hours including the weekends. The stipend goes up a little bit though.

What will you miss about LSE/FMG?

It was a privilege to be associated with such a great institution. I have thoroughly enjoyed my tenure at FMG and am going to miss my excellent colleagues here the most.

Name one tip for those coming to the job market next year.

Start early; get your job market paper polished by mid-August. Keep discussing your research with others throughout.



Zhigang Qiu

What is your new role going to be?

Assistant Professor in Finance, Hanqing Advanced Institute of Economics and Finance, Renmin University

of China.

What are you looking forward to the most about your new role?

Teaching and research.

What do you think will be the biggest challenge?

It will be my first time as a lecturer. It is challenging to stand in front of hundreds of people.

What will you miss about LSE/FMG?

I will miss everything at the LSE, especially FMG.

Name one tip for those coming to the job market next year.

Try to create a good story of the job market paper. It is useful for the interview.



Yuki Sato

What is your new role going to be?

Assistant Professor of Finance at the University of Lausanne.

What are you looking forward to the most

about your new role?

Working on new research topics.

What do you think will be the biggest challenge?

Again, working on new research topics.

What will you miss about LSE/FMG?

People.

Name one tip for those coming to the job market next year.

Write a good job market paper, and never underestimate the importance of presenting it well.



Gyuri Venter

What is your new role going to be?

Assistant Professor of Finance at Copenhagen Business School.

What are you looking forward to the most

about your new role?

Getting to know and working in a new environment, and with new colleagues.

What do you think will be the biggest challenge?

Not having the guidance of Dimitri.

What will you miss about LSE/FMG?

Playing football in the FMG corridor, and having lunch on the rooftop of the St Clements building.

Name one tip for those coming to the job market next year.

Smile as much as possible!



Piotr Zurawski

What is your new role going to be?

My new role is in the Equity Exotics and Hybrids Department of J P Morgan Investment Bank. The department is

responsible for structuring, pricing and trading complex financial derivatives on both equity and hybrid underlyings.

What are you looking forward to the most about your new role?

I am looking for a real challenge and an objective test of my knowledge and abilities. I would like to put to work as much as possible what I have learnt during my PhD studies and at the same time expand my knowledge to combine theory with practice. I hope that my education and dedication will give me an edge in this very competitive industry.

What do you think will be the biggest challenge?

I don't know yet what would be the biggest challenge. It will likely be something I don't expect as I can prepare for the rest.

What will you miss about LSE/FMG?

Obviously, I will be missing the collegiate and very friendly atmosphere of FMG and the Paul Woolley Centre. I will also miss great intellects from the faculty and fellow students and this freedom that allowed us to research anything we wanted just because we thought it was relevant and interesting. Like many others I will miss the brilliant remarks of Margaret Bray in PhD seminars and inspiring discussions with Rohit Rahi and Dimitri Vayanos.

Name one tip for those coming to the job market next year.

Consider multiple alternatives and remember that a career is something that will last for many years. If you are working hard and your career has a positive drift, even if your start is not what you have dreamt of, still there are no limits to your destination. Think big and enjoy the journey!

FMG EVENTS

Events that have taken place since the publication of the previous *Review* in April 2011 (Winter issue, No 87).

Conferences

Fourth Annual Paul Woolley Centre Conference
9-10 June 2011

Public Lectures

The Future of Finance: The LSE report
Keynote speaker: Charles Goodhart (FMG, LSE)
Panellist: Paul Woolley (FMG, LSE) and Mark Schieritz (Die Zeit)
24 May 2011

Corporate Governance at LSE Events

Brownbag seminar – Who directs the Fed?
Renée Adams (University of Queensland)
16 May 2011

Research debate – Beyond the glass ceiling: does gender matter?
Renée Adams (University of Queensland)
16 May 2011

Capital Markets Workshops

The defeasance of control rights
Carsten Bienz (NHH)
2 March 2011

Carry trades, monetary policy and speculative dynamics
Guillaume Plantin (Toulouse School of Economics)
9 March 2011

Feedback effects of credit ratings
Gustavo Manso (MIT Sloan School of Management)
16 March 2011

Cash is king – what the market learns about targets through merger bids
Ulrike Malmendier (University of California, Berkeley)
23 March 2011

The I-theory of money
Yuliy Sannikov (Princeton University)
4 May 2011

Inefficient provision of inside money by banks
Oliver Hart (Harvard University)
11 May 2011

Should derivatives be senior?
Martin Oehmke (Columbia University)
18 May 2011

Dividends as reference points: a behavioural signaling model
Malcolm Baker (Harvard University)
1 June 2011

Investment and cash flow: new evidence
Jonathan Lewellen (Dartmouth)
8 June 2011

Time varying risk aversion
Luigi Zingales (University of Chicago)
15 June 2011

Uninformed lending and government support of loan markets
Michael Fishman (Northwestern University)
29 June 2011

Lunchtime Workshops

Three tales about aggregation, the business cycle and the granularity of stock market fluctuations

Antonio Mele (FMG, LSE)
2 March 2011

Strategic investment, industry concentration and the cross section of returns

Maria Bustamante (FMG, LSE)
9 March 2011

The role of equity funds in the financial crisis propagation

Harald Hau (INSEAD)
16 March 2011

Informed momentum trading versus uninformed 'naïve' investors strategies

Anurag Banerjee (Durham University)
23 March 2011

Private equity in the 21st century: cash flows, cyclicalities and performance from 1984-2010

David Robinson (Duke University)
4 May 2011

Bond return predictability and inflation uncertainty dynamics

Philippe Mueller (FMG, LSE)
11 May 2011

Agency, firm growth, and management turnover

Stéphane Guibaud (FMG, LSE)
18 May 2011

Scale-invariant uncertainty averse preferences and source-dependent constant relative risk aversion

Costis Skiadas (Kellogg, Northwestern University)
25 May 2011

Cross-market timing in security issuance

Dong Lou (FMG, LSE)
1 June 2011

Delegated activism and disclosure

Konstantinos Zachariadis (FMG, LSE)
8 June 2011

Are all ratings created equal? The impact of issuer size on the pricing of mortgage-backed securities

Jun Qian (Boston College)
15 June 2011

A theoretical analysis of value and momentum strategies

Dimitri Vayanos (FMG, LSE)
29 June 2011

London Financial Regulation Seminars

Fiscal dominance and the long-term interest rate

Philip Turner (BIS)
21 March 2011

Debate: 'Macroprudential regulatory measures are just another way of adjusting interest rates and hence clash with monetary policy'

David Green (FRC) and Charles Goodhart (FMG, LSE)
28 March 2011

The international propagation of financial crisis of 2008 and a comparison with 1931

Bill Allen (Cass Business School) and Richhild Moessner (BIS)
23 May 2011

Credit risk, liquidity risk, and the optimal mix of capital and liquidity requirements

Charles Calomiris (Columbia University)
13 June 2011

The Swiss finish

Alex Merriman (Six SIS International Limited)
20 June 2011

PhD Seminars

All seminars are given by current LSE PhD students.

Pay at the pump: a model of intermediation with two-sided fees

Jason Donaldson (FMG / Finance Department)
3 March 2011

Endogenous cost of equity and contingent capital structure

Jing Zeng (FMG / Finance Department)
10 March 2011

The role of short-term debt in the presence of aggregate risk

John Kuong (FMG / Finance Department)
17 March 2011

Strategic trading and disclosure of informed traders in the presence of copycats

Terence Teo (FMG / Finance Department)
24 March 2011

Institutional asset pricing with heterogeneous beliefs

Shiyang Huang, Zhigang Qiu (both FMG / Finance Department) and Qi Shang (Finance Department)
5 May 2011

The real effects of international stock fire sales

Nelson Camanho (FMG / Finance Department)
12 May 2011

On the sparsity and diversity of the norm constrained minimum variance portfolios

Yu-Min Yen (Finance Department)
19 May 2011

On global and international banking

Friederike Niepmann (Economics Department)
26 May 2011

DISCUSSION PAPERS

Working papers that have been published since the publication of the previous *Review* in April 2011 (Winter issue, No 87) are listed below.

Research undertaken under the core FMG Research Programmes is published under the FMG Discussion Paper (DP) series. Discussion papers are authored primarily by FMG staff, associates and research students and provide specialist insights into cutting edge financial markets research currently being carried out at the FMG. Recently, the Paul Woolley Centre for the Study of Capital Market Dysfunctionality (PWC) has published some of its research as FMG Discussion Papers, as has the AXA-funded risk management programme (AXA).

DP 674

Preferred-habitat investors and the US term structure of real rates

Iryna Kaminska, Dimitri Vayanos and Gabriela Zinna

We estimate structurally a model of the term structure of interest rates that is consistent with no arbitrage but allows for demand pressures. The term structure in our model is determined through the interaction of risk-averse arbitrageurs and preferred-habitat investors with preferences for specific maturities. The model is estimated on US real rates during the 2000s and allows for two factors: one corresponding to the short rate and one to preferred-habitat demand. We find that the puzzling drop in long rates during 2004-05 (Greenspan conundrum) is driven by the demand factor, which in turn is correlated with purchases of long-term bonds by foreign officials. For example, foreign purchases in July 2004 appear to have lowered the 10-year rate by about 100 basis points. Foreign purchases have larger effects following periods when arbitrageurs have lost money.

DP 675

Walking wounded or living dead? Making banks foreclose bad loans

Max Bruche and Gerard Llobet

Because of limited liability, insolvent banks have an incentive to roll over bad loans, in order to hide losses and gamble for resurrection, even though this is socially inefficient. We suggest a scheme that regulators could use to solve this problem. The scheme would induce banks to reveal their bad loans, which can then be foreclosed. Bank participation in the scheme would be voluntary. Even though banks have

private information on the quantity of bad loans on their balance sheet, the scheme avoids creating windfall gains for bank equity holders. In addition, some losses can be imposed on debt holders.

DP 676 (revised version of DP 668)

Bank bailout menus

Sudipto Bhattacharya and Kjell G Nyborg

Bailing out banks requires overcoming debt overhang, in order to sustain their incentives for new lending, as well as dealing with adverse selection with respect to the quality of banks' balance sheets. We examine bailouts that eliminate debt overhang, while attempting to minimize subsidies to banks' equity holders. When banks do not differ with respect to the extent of debt overhang, it can be fully overcome with the minimal amount of subsidies, providing each bank's equity holders no more than their pre-bailout values, with a partial new equity injection, or an asset buyout. When levels of loss given default co-vary with underlying probabilities of default, we characterize the conditions for attaining a similar minimal subsidy outcome, with a Menu of either equity injection or asset buyout plans, satisfying suitable self-selection constraints. These involve global rather than local conditions, with multiple intersections of indifference curves among bank types, and imply strictly greater funds injections than those needed to make existing debt default-free. More troubled banks optimally choose larger bailouts, and these involve a lower price per share (or unit of assets). We also examine the role of coupling asset purchases with providing the bailout agency Options to buy bank equity, to enhance its capture of rents arising from new investments by banks. We compare its performance with equity injections on this dimension, as well as others such as post-bailout stakes held by prior inside equity holders of banks.

DP 677

Second-order approximation of dynamic models with time-varying risk

Gianluca Benigno, Pierpaolo Benigno and Salvatore Nisticò

This paper provides first and second-order approximation methods for the solution of non-linear dynamic stochastic models in which the exogenous state variables follow conditionally-linear stochastic processes displaying time-varying risk. The first-order approximation is consistent with a conditionally-linear model in which risk is still time-varying but has no distinct role – separated from the primitive stochastic disturbances – in influencing the endogenous variables. The second-order approximation of the solution, instead, is sufficient to get this role. Moreover, risk premia, evaluated using only a first-order approximation of the solution, will be also time varying.

DP 678

Switching monetary policy regimes and the nominal term structure

Marcelo Ferman

In this paper I propose a regime-switching approach to explain why the US nominal yield curve on average has been steeper since the mid-1980s than during the Great Inflation of the 1970s. I show that, once the possibility of regime switches in the short-rate process is incorporated into investors' beliefs, the average slope of the yield curve generally will contain a new component called 'level risk'. Level-risk estimates, based on a Markov-Switching VAR model of the US economy, are then provided. I find that

the level risk was large and negative during the Great Inflation, reflecting a possible switch to lower short-rate levels in the future. Since the mid-1980s the level risk has been moderate and positive, reflecting a small but still relevant possibility of a return to the regime of the 1970s. I replicate these results in a Markov-Switching dynamic general equilibrium model, where the monetary policy rule followed by the Fed shifts between an active and a passive regime. The model also explains why in recent decades the US yield curve on average has been steeper than the yield curve in countries that adopted explicit inflation targeting frameworks.

DP 679

Defeasance of control rights

Carsten Bienz, Antoine Faure-Grimaud and Zsuzsanna Fluck

We analyze one frequent clause in bonds, covenant defeasance. Covenant defeasance allows the issuer to remove the bond's covenants by placing the remaining payments with a trustee in escrow to be paid out on schedule. We provide theoretical justification for this option and show empirically that it allows inclusion of more covenants in bond issues. We highlight characteristics that make issuers likely to add a defeasance clause. In line with the model's prediction, the empirical analysis documents 13-24 basis points yield reduction for defeasible bonds – annual saving of about \$1m, or \$11m over the life of the average bond.

DP 680

Dynamic hedging in incomplete markets: a simple solution

Suleyman Basak and Georgy Chabakauri

Despite much work on hedging in incomplete markets, the literature still lacks tractable dynamic hedges in plausible environments. In this article, we provide a simple solution to this problem in a general incomplete-market economy in which a hedger, guided by the traditional minimum-variance criterion, aims at reducing the risk of a non-tradable asset or a contingent claim. We derive fully analytical optimal hedges and demonstrate that they can easily be computed in various stochastic environments. Our dynamic hedges preserve the simple structure of complete-market perfect hedges and are in terms of generalized Greeks, familiar in risk management applications, as well as retaining the intuitive features of their static counterparts. We obtain our time-consistent hedges by dynamic programming, while the extant literature characterizes either static or myopic hedges, or dynamic ones that minimize the variance criterion at an initial date and from which the hedger may deviate unless she can pre-commit to follow them. We apply our results to the discrete hedging problem of derivatives when trading occurs infrequently. We determine the corresponding optimal hedge and replicating portfolio value, and show that they have structure similar to their complete market counterparts and reduce to generalized Black-Scholes expressions when specialized to the Black-Scholes setting. We also generalize our results to richer settings to study dynamic hedging with Poisson jumps, stochastic correlation and portfolio management with benchmarking.

DP 681

Strategic investment, industry concentration, and the cross section of returns

Maria Cecilia Bustamente

This paper provides an alternative real options framework to assess how firms' strategic interaction under imperfect competition affects the industrial dynamics of investment, concentration, and expected returns. When firms have similar production technologies, the cross sectional variation in expected returns is low, firms invest simultaneously, firms' expected returns co-move positively, and the industry is less concentrated. Conversely, in more heterogeneous industries, the cross sectional variation in expected returns is high, there are leaders and followers whose expected returns co-move negatively, and the industry is more concentrated. The model rationalizes several empirical facts, including: (i) that firms' returns co-move more positively in less concentrated industries; (ii) that booms and busts in industry returns are more pronounced in less concentrated industries; and (iii) that less concentrated industries earn higher returns on average.

DP 682 (AXA 7)

Liquidity hoarding

Douglas Gale and Tanju Yorulmazer

Banks hold liquid and illiquid assets. An illiquid bank that receives a liquidity shock sells assets to liquid banks in exchange for cash. We characterize the constrained efficient allocation as the solution to a planner's problem and show that the market equilibrium is constrained inefficient, with too little liquidity and inefficient hoarding. Our model features a precautionary as well as a speculative motive for hoarding

liquidity, but the inefficiency of liquidity provision can be traced to the incompleteness of markets (due to private information) and the increased price volatility that results from trading assets for cash.

DP 683 (PWC 24)

Complicated firms

Lauren Cohen and Dong Lou

We exploit a novel setting in which the same piece of information affects two sets of firms: one set of firms requires straightforward processing to update prices, while the other set requires more complicated analyses to incorporate the same piece of information into prices. We document substantial return predictability from the set of easy-to-analyze firms to their more complicated peers. Specifically, a simple portfolio strategy that takes advantage of this straightforward vs. complicated information processing classification yields returns of 118 basis points per month. Consistent with processing complexity driving the return relation, we further show that the more complicated the firm, the more pronounced the return predictability. In addition, we find that sell-side analysts are subject to these same information processing constraints, as their forecast revisions of easy-to-analyze firms predict their future revisions of more complicated firms.

DP 684 (PWC 25)

Anticipated and repeated shocks in liquid markets

Dong Lou, Hongjun Yan and Jinfan Zhang

We show that Treasury security prices in the secondary market decrease significantly before subsequent auctions and recover shortly after. This price pattern implies a large issuance cost for the Treasury Department, which is estimated to be between 9 and 18 basis points of the auction size. For example, this cost amounts to over half a billion dollars for issuing Treasury notes alone in 2007. Our results appear to be consistent with the hypothesis of primary dealers' limited risk-bearing capacity and the imperfect capital mobility of end investors in the Treasury market (eg, federal agencies, sovereign wealth funds, pension funds, and etc), highlighting the important role of capital mobility even in the most liquid financial markets.

DP 685

Financing constraints, firm dynamics, export decisions, and aggregate productivity

Andrea Caggese and Vincente Cuñat

We develop a dynamic industry model where financing frictions affect the entry decisions of new firms in the home market, as well as the riskiness of operating firms. These two factors in turn determine a joint endogenous distribution of firms across productivity, volatility and financial wealth. We show that this endogenous distribution is crucial to understand export and productivity dynamics after a trade liberalization. In particular, the calibrated model predicts that financing frictions have an ambiguous effect on the number of firms starting to export. They reduce the ability of firms to finance the fixed costs necessary to start exporting, but they also change the distribution of domestic firms so

that most of them find more profitable to access foreign markets. More importantly, the model predicts that financing constraints, even when they have a negligible net effect on the number of exporting firms, reduce the aggregate productivity gains induced by trade liberalization by 30 per cent to 50 per cent, because they distort the selection into export of the most productive firms. In the second part of the paper we verify the main predictions of the model with a rich dataset of Italian manufacturing firms for the period 1995-2003.

DP 686

Short-run bond risk premia

Philippe Mueller, Andrea Vedolin and Hao Zhou

In the short-run, bond risk premia exhibit pronounced spikes around major economic and financial crises. In contrast, long-term bond risk premia feature cyclical swings. We empirically examine the predictability of the market variance risk premium – a proxy of economic uncertainty – for bond risk premia and we show the strong predictive power for the one month horizon that almost entirely disappears for horizons above one year. The variance risk premium is largely orthogonal to well-established bond return predictors – forward rates, jumps, yield curve factors, and macro variables. We rationalize our empirical findings in an equilibrium model of uncertainty about consumption and inflation which is coupled with recursive preferences. We show that the model can quantitatively explain the levels of bond and variance risk premia as well as the predictive power of the variance risk premium while jointly matching salient features of other asset prices.

DP 687

Repo runs

Antoine Martin, David Skeie and Ernst-Ludwig von Thadden

This paper develops a dynamic model of financial institutions that borrow short-term and invest into long-term marketable assets. Because such intermediaries perform maturity transformation, they are subject to potential runs. We derive distinct liquidity and collateral constraints that characterize the fragility of such institutions as a result of changing market expectations. The liquidity constraint depends on the intermediary's endogenous liquidity position that acts as a buffer against runs. The collateral constraint depends crucially on the microstructure of particular funding markets that we examine in detail. In particular, our model provides insights into the fragility and differences of the tri-party repo market and the bilateral repo market that were at the heart of the recent financial crisis.

DP 688

CDS auctions

Mikhail Chernov, Alexander S Gorbenko and Igor Makarov

We analyze credit default swap settlement auctions theoretically and evaluate them empirically. In our theoretical analysis, we show that the current auction design may not result in the fair bond price and suggest modifications to the auction design to minimize mispricing. In our empirical study, we find support for our theoretical predictions. We show that an auction undervalues bonds by 10 per cent, on average, on the day of the auction and link this undervaluation to the number of bonds that are exchanged during the auction. We also document a V-shaped pattern in underpricing during the days surrounding the auction: in the days leading up to the auction, the extent to which bonds are underpriced declines, while after the auction, the extent to which they are underpriced increases, with the smallest underpricing coming on the day of the auction.

SPECIAL PAPERS

Special Papers investigate broader ideas in the financial markets than the Discussion Papers, often following conferences, at which debates have stimulated further research and cooperation between participants and the wider academic and professional financial community.

SP 198

The US political brawl over the causes of the crisis. Some critical comments

Giorgio Szegö

The Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States was released on January 27 2011. The strong political differences within the commission prevented the draft of a shared report. In addition to the majority report, two dissenting ones have been produced. I shall criticize some of their conclusions and point out some unreported facts.

SP 199

Fiscal dominance and the long-term interest rate

Philip Turner

Very high government debt/GDP ratios will increase uncertainty about inflation and the future path of real interest rates. This will reduce substitutability across the yield curve. In such circumstances, changes in the short-term/long-term mix of government debt held by the public will become more effective in achieving macroeconomic objectives. In circumstances of imperfect substitutability, central bank purchases or sales of government bonds have been seen historically as a key tool of monetary policy.

Since the mid-1990s, however, responsibility for government debt management has been assigned to other bodies. The mandates of the government debt manager could have the unintended consequence of making their actions endogenous to macroeconomic policies. There is evidence that decisions on the maturity of debt have in the past been linked to both fiscal and monetary policy. Recent Quantitative Easing (QE) by the central bank must be analysed from the perspective of the consolidated balance sheet of government and central bank

SP 200

The relationship between the objectives and tools of macroprudential and monetary policy

David Green

What is the relationship between the tools and objectives of monetary and macroprudential policy? The narrow question formally put to us to debate today is 'Are macroprudential regulatory measures just another way of adjusting interest rates and hence clash with monetary policy?' My answer is, broadly speaking, yes to the interest rate question and yes to a potential clash with monetary policy, at least if monetary policy is taken to be inflation targeting.

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