

Public Policy Perspectives on Pension

Following the publication of the first report of the Pensions Commission entitled 'Pension Challenges and Choices' the FMG organised a series of events to discuss various aspects of the reform of Pension schemes. One event was a roundtable discussion attended by Adair Turner (Chairman, Pensions Commission), academics and practitioners to discuss a range of issues raised in the report, relating to the extent to which the 'pensions gap' can be filled on a voluntary basis, through increased savings for retirement in the form of pensions or alternative long-term savings vehicles. The discussion involved evaluating the extent to which there is a market failure in saving for retirement and what incentives are needed to get the right balance between state and private provision.

The public lecture by Axel Boersch-Supan (University of Mannheim) entitled 'Mind the Gap: The Effectiveness of Incentives to Boost Retirement Saving in Europe' evaluated different European countries' policies designed to fill the gap between less generous pay-as-you-go public pensions and retirement needs. Although tax policy and other incentives play a role in filling this gap, Boersch-Supan concluded using US and some European evidence that in the long-run individuals will substitute other forms of saving for state pensions.

Adair Turner, in a public lecture entitled 'Pension Policy: Political Choices and Macro-economic issues', addressed a number of questions central to pensions system design. He began evaluating the determinant of individual saving and the extent to which there is any case for public intervention in retirement provision. He discussed the extent to which public policy should only be concerned with the prevention of retirement poverty or whether it should be designed to achieve a certain target income replacement ratio. He went on to evaluate whether this is best achieved by a pay-as-you-go system or on a funded basis. He also evaluated alternative asset classes including houses as retirement savings vehicles.

The final event in the series was a conference that addressed a number of issues relating to pension reform. Speakers examined pensions and alternative asset classes such as houses as retirement savings vehicles, as well as the implications of tax relief for long-term retirement saving. There were also papers that specifically dealt with the history of pension reform in the UK that evaluated its impact on the well-being of current and future pensioners as well as the experience with stake-holder pensions.

We are currently looking forward to a lecture on 'Reforming public pensions in the US and the UK' by the distinguished economist Professor Peter Diamond (MIT, Department of Economics).

Professor David C Webb, Co-director of the UBS Pensions programme



Adair Turner, Chairman, Pensions Commission



Pensions Research Public Lecture: Adair Turner

Mind the Gap: The Effectiveness of Incentives to Boost Retirement Saving in Europe

Lecture by Axel Boersch-Supan
7 February 2005



Axel Boersch-Supan

The first public lecture on the series 'Public Policy Perspectives on Pension Reform' was given by **Axel Boersch-Supan** (MEA, NBER) on 7 February and was titled 'Mind the Gap: The Effectiveness of Incentives to Boost Retirement Saving in Europe'. The lecture examines the common theme in pension reforms across Europe of reducing

the generosity of the pay-as-you-go public pension pillar that is threatened by the aging population and building up new pillars by private saving through occupational and individual pension plans. There is evidence of a lot of variation within Europe of the extent of retirement saving which reflects among other factors the generosity of public pension systems, capital taxation and capital market requirements.

There are a number of reasons why one might give preferential tax treatment to retirement savings. First, to achieve neutrality between consumption today and later, as well as neutrality between consumption of present and future generations, deferred taxation of savings is required. Second, many people are myopic and only begin to make provisions when it is too late – hence, tax relief will mitigate the negative effects of liquidity constraints. Third, it also may make sense from a purely fiscal standpoint to deploy tax instruments to ensure adequate old-age provision. Finally, there is the argument of adverse selection, where giving preferential tax

treatment to life annuities relative to lump-sum payments can rectify 'poor risks'. Boersch-Supan takes a fairly broad view on incentives to boost retirement saving not restricted to tax privileges.

First, a benchmark number is calculated for how much saving for old age is necessary to stabilize the ailing pay-as-you-go systems in Europe. Since solutions within the pay-as-you-go systems are limited due to sheer size of the dependency increase, almost all pension reform attempts in Europe make use of the added flexibility gained by pre-funding. The paper shows that the earlier cohorts need to fill a smaller gap, while the later cohorts have longer time to exploit the force of compound interest. Hence, the volume in household saving to be generated by tax or other incentives is substantial in Germany. Extrapolating this simulation to France and most other European countries will generate slightly smaller gaps to be filled because aging in Germany is more pronounced than in the EU average. Aging will, however, be stronger in Italy where an even higher volume of saving needs to be generated in order to fill the pension gap.

Boersch-Supan looks at the cross-national variation in an attempt to learn about the effectiveness of the various incentives to boost retirement saving. In most Continental European countries, notably in the three largest countries France, Germany and Italy, the pay-as-you-go mechanism is the most important instrument. There are notable exceptions, however, such as Netherlands and Switzerland. In spite of these differences, there is astounding similarity in the overall replacement rates. Adding up the income from all pillars, the households just after retirement receive approximately 80 per cent of the income they enjoyed before retirement. This replacement rate is identical in Germany, France, Italy, Netherlands and Switzerland and slightly lower in the UK. He finds evidence for strong substitution among the three pillars, that is, a strong adaptation of the private individual and employer-based old-age provision to the public

pension system. In conclusion, there is a strong correlation between the generosity of pay-as-you-go pensions and retirement saving, but, there is no straight correlation between the volume of retirement saving and the extent to which it is tax-favoured. The cross-national evidence suggests that a pension reform towards a multi-pillar system with a substantial portion of funded retirement income will revive the retirement motive for saving in France, Germany and Italy. From a policy point of view there seems to be no doubt that people adjust their behaviour to the generosity of public pension systems like in a system of communicating pipes. Taxes though appear to be uncorrelated with these adjustments. The cross-national evidence, however, reflects long-run adjustments.

The European evidence so far does not add much to the evidence gathered in the US debate. This is despite the large institutional variation in Europe. While there is evidence that subsidies strongly increase saving in the specific form that is subsidized, possibly to the detriment of other saving forms, there is firm evidence that saving related tax relief or similar subsidies increase total saving in Europe. This does not make tax-relief a potentially wasteful instrument. Even if tax relief would only shift other saving to retirement saving, this may be a valuable mechanism if the government wants to make sure that the elderly will have a generous multipillar retirement income. That is, even if the government does not believe in the creation of new saving for macroeconomic purposes, it may still want to repress procrastination not only in form of consumption now, but also in the form of a larger house in the near future, and subsidize retirement consumption in the far future.

Boersch-Supan uses the recent reforms in Germany as 'experiments' that may shed light on which incentives might work and which might fail. Before the 2001 pension reform the only individual retirement saving form, which was tax-favored, was whole life insurance. Both accrual and benefits were tax exempt. Moreover, contributions could be deducted from taxes up to a limit, which depended on the taxpayers other dedicated saving instruments. He shows that the situation pre-reforms did not resemble a 'level playing field'. Public retirement insurance received the most preferential tax treatment, investment funds came worst off. The difference in the net benefit payments from the public retirement insurance scheme and an investment fund was almost 50 per cent of contribution. Also, the unequal treatment of different forms of old-age pension provision cast occupational pensions and investments in investment funds in a highly unattractive light. The asymmetric taxation of the state and private old-age pension provision is reflected in the different levels of net benefit payments but also exercises in incentive effects and triggers substitution effects. This is apparent from the spread of different forms of private old-age pension provision in Germany.

The core of the recent reforms includes two elements. The first element is significant benefit cuts in the pay-as-you-go pillar. The replacement rate is successively reduced, implying benefit cuts of about 20 per cent by the year 2040, the projected peak of population aging in Germany. This is achieved by a change in the benefits indexation formula in two stages, 2001 with the introduction of the 'Reister steps' and 2004 with the introduction of the 'sustainability factor.' The second element of the Reister reform is the introduction and significant promotion of supplementary funded private pensions on the basis of individual retirement accounts to fill the pension gap created by the benefit cuts. The objective is to offer incentives for people to take out supplementary private pension cover, which in the long term, should compensate for future cuts in public pensions. The 'Reister pensions' have not found much attraction, while the originally heavily tax-favoured whole life insurance is still wide spread.

The depth of the incentives makes the Reister pensions rather attractive, and especially so for the well-to-do, but they are less flexible than other retirement investment products. One of the main complaints is that most of the capital has to be annuitized and can therefore not be used as collateral or be bequeathed. The argument though gives clear indication that most workers have not realized that they will depend on Reister pensions for a reasonable retirement income. Also, there is evidence that the demand for Reister products is sluggish, though the take up rates are higher among those who are well informed about the pension system. Information and knowledge creation, therefore, seems to be an important incentive to boost retirement saving.

There is evidence that the German reforms in 2001 and 2004 successfully installed a political process that will stabilize contribution rates to the pay-as-you-go public pension system, avoiding further harm to labour markets and economic growth. However, the jury is still out whether the resulting pension gap will be closed by tax-favoured and subsidized retirement saving. Shifting to deferred tax will cost the German government six billion Euros in lost revenues. The German experience shows that tax relief can be made fruitless if it is combined with regulations that are not transparent.

Boersch-Supan concludes that the evidence in Germany and Europe at large demonstrates that the best policy to boost retirement saving is a transparent description of the level of future pay-as-you-go pensions. Tax relief may serve well as an instrument to dampen liquidity problems especially among young families who have children and to invest in homeownership. The crucial mechanism, however, is simply the substitution between declining pay-as-you-go pensions and retirement savings.

Pension Policy: Political choices and Macroeconomic issues

Lecture by Adair Turner
8 March 2005



Adair Turner, Chairman, Pensions Commission

In 'Pension Policy: Political choices and Macroeconomic issues' on 8 March, **Adair Turner** (Chairman, Pensions Commission) considers some issues which are central to pension system design and therefore central to the Pensions Commission's work, and proposes some possible conclusions. The three specific issues are: (i) What

should be the objectives of public pension policy. Specifically, should it aim to ensure that people on a range of incomes achieve target replacement rates in retirement, or should it solely focus on ensuring poverty prevention? (ii) Whatever the objectives, should they be achieved via a pay-as-you-go unfunded system or via the funded savings route? (iii) What is 'saving', and in particular, where does house-price appreciation fit in our analysis of saving? Can individuals and indeed can the nation save via houses, and what are the consequences of rising housing wealth for the answer to question one?

The first issue that of the fundamental choices facing British pension policy, is strangely one that is rarely debated in these explicit terms. In fact the transition from a partially earnings-related to a flat rate system is not occurring as result of explicitly stated government strategy, but largely as a by-product of another aspect of policy. The UK mandatory earnings-related system is becoming more flat rate because the upper earnings limit and the lower earnings limit – the upper and lower bounds of the earnings range across which earnings-related compulsion applies – are linked to prices and not earnings. They are linked to prices not earnings because the level of the

basic state pension is also currently linked to prices not earnings. There are some historic reasons why this linkage between the two indexations exists, but none are inherent.

Adair Turner proposes the following three justifications for mandatory earnings-related schemes: paternalism, issues of moral hazard and market imperfections, and straight-forward cost-efficiency arguments. In the context of paternalism the government knows individual's interests better than individuals themselves. Alternatively, when many individuals favour savings compulsion, compelling them is not making a decision for them, but rather creating a mechanism by which individuals stick to the decision they say they wish to make. Market imperfection/ cost-efficiency arguments, suggests the provision of a low-cost saving option rather than for mandatory saving within it.

Does some mix of these three arguments justify a mandatory earnings-related policy? Adair Turner argues 'yes but only up to somewhere in the intermediate range', and concludes that this isn't just a 'split the difference' answer but a position we might logically reach on the basis of a consideration of the diversity of individual references.

The basis of this view is as follows. If we look only to the average desired replacement rate, there will be a wide range of individual situations and preferences, which create divergences from the average. Some people are willing to retire later than others, and can therefore achieve any given replacement rate with a lower level of savings. Some people will be happy with less income retirement, others will have other resources such as houses, the distribution of which we cannot allow for in designing a mandatory system.

If we therefore mandate everyone to achieve, through the pension system, the average desired replacement rate at the *average* expected retirement age, then a significant number of people will have been made to over-save relative to their utility preference function. Mandating the average desired replacement level – as many continental European systems would appear to

do – is likely to be sub-optimal in welfare-maximizing terms. But mandating no earnings-related provision is likely conversely to lead to a welfare loss among those who severely under save, and may create individual or political moral hazard. The welfare-maximizing solution is probably somewhere in the middle – low enough to make small the danger that we have forced people to over-save in a way which they could not offset by borrowing elsewhere within their balance sheets, high enough to avoid really severe regrets about loss of relative position, and to avoid really severe political moral hazard.

Given the overall objective, the issue becomes one of how best to achieve it – whether by unfunded PAYG or funded approaches, whether the funded savings it directly compelled or simply strongly encouraged.

The fundamental argument for going compulsory savings rather than PAYG is in Adair Turner's view, that compulsory savings allow the expression of the heterogeneity of individual risk-return preferences, and thus can increase welfare even if the total return and total risk in the economy is unchanged.

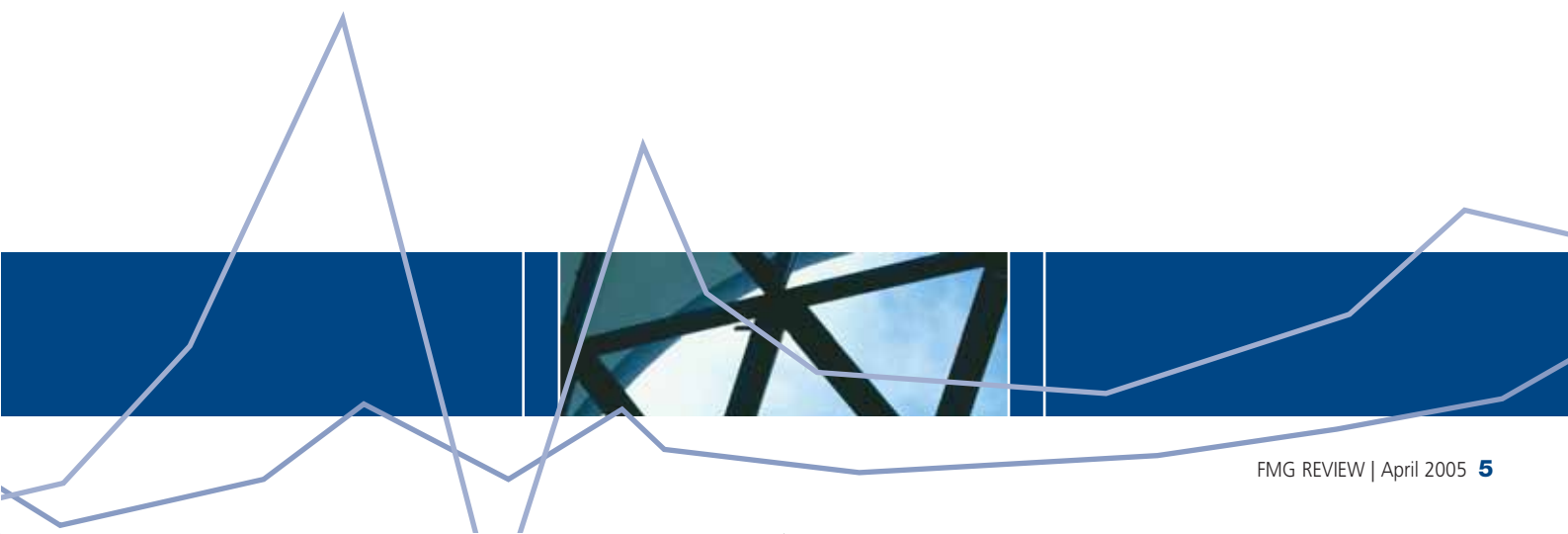
Note however, that the benefit accrues only to a subset of people ie to those whose risk-return trade-offs were constrained by previous membership of the mandatory PAYG scheme. This fact has an interesting implication for how capital market asset allocations should logically differ between countries and how they are likely to evolve in the sterling (GBP) market if Britain continues on its present pension policy path.

The foregoing raises the following substantive issues – is compulsory savings, a required feature of mandatory earnings-related provision? Why do we ever have PAYG earnings-related schemes, or at least why not always allow opt-out from the PAYG? Adair Turner points to the three issues raised earlier, in his discussion of mandatory earnings-related schemes, these being paternalism, moral hazard and cost-efficiency

Adair Turner then addressed his third subject: what is 'saving', and in particular how do we think about house price appreciation, and what implications does saving via houses have for pension policy? This is a subset of issues relating to the definition of saving, and to whether Britain does indeed have a 'savings deficit', which have been raised, and very helpfully raised, since the publication of the Pensions Commission First Report.

However, Adair Turner focused on an issue which is not captured even within this national account framework, which is the phenomenon that for at least the last 25 years private sector wealth has been increasing faster than can be explained by savings of any sort. This reflects household wealth holdings of corporate capital – either held directly or via pension funds and insurance companies, and the fact that residential housing wealth has increased far faster than can be explained by capital investment in houses, consistent with household saving.

Let us suppose that people were willing to liquidate their housing asset during retirement and can do so in some way (eg via efficiently priced equity release products). Then if house prices rise in real terms, haven't we discovered a painless way to save for retirement – extra retirement resources without extra saving? Adair Turner's proposition is that under certain conditions of housing land scarcity and high income elasticity of demand for housing amenity, house prices can rise for a long period (if not indefinitely) faster than GDP, and that when this occurs we can expect to see an increased level of intergenerational income transfer (the essential role of any pension system) achieved via the housing market.



Public Policy Perspectives on Pensions Reform

11 March 2005

Organised by the Pensions Research Team
led by Professor David Webb

Guglielmo Weber (University of Padua, CEPR, IFS) began the conference with the paper 'Efficient Portfolios when Housing is a Hedge against Rent Risk', joint with Lorian Pelizzon (University Ca' Foscari of Venice). This paper uses a theoretical model to analyse the efficiency of household portfolios of assets in the presence of housing risk due to uncertainty over the price of houses and the rental rate. The model was then applied to housing portfolio data from Italy to analyse whether actual portfolios match the efficient allocation predicted by the model. The analysis of the role of housing within a household's portfolio ties in with the discussion of the potential role of housing wealth for retirement provision which was highlighted in the October 2004 first report of the UK Pensions Commission.

The theoretical model in the paper embodies age-dependent but exogenously determined housing needs with consumers choosing whether to rent or own the corresponding housing stock. Consumers also decide their consumption of a non-durable good and their financial investment strategies. The investment options include a risk-less asset (that is assumed to include human capital) and a range of risky financial assets. If the rental value of housing has a positive correlation with house prices, then owning a house is a hedge against rent risk. The empirical section of the paper applies the model to analyse the efficiency of Italian household portfolios. The three possible asset classes considered were housing wealth (defined as the value of the house net of the NPV of current and future rental costs), financial assets and riskless assets (which included human capital). The key empirical result is that many households do not appear to hedge housing risk (including rental risk) in a satisfactory way.

Alex Michaelides (LSE) presented the paper 'Wealth Accumulation and Portfolio Choice with Taxable and Tax-Deferred Accounts', joint with Francisco Gomes (LBS) and Valery Polkovnichenko (University of Minnesota and Federal Reserve Bank of Minneapolis). Empirically the wealth accumulation and portfolio allocation of indirect stockholders and direct stockholder differ substantially. Gomes, Michaelides and Polkovnichenko calibrate a life-cycle model with uninsurable labor income risk and



Alex Michaelides, LSE

generating borrowing constraints to match wealth accumulation and portfolio allocation profiles of direct and indirect stockholders in both taxable and tax-deferred accounts. In the model indirect and direct stockholders have a different degree of risk aversion and willingness to deviate from intertemporal consumption smoothing. Tax-deferred accounts generate an increase in wealth accumulation that is larger for wealthier households. They use the calibrated model to investigate a number of normative questions. While the cost of following a fixed contribution rate over the life cycle is small, the optimal rate can differ substantially across households, and the welfare losses from choosing the wrong one can be substantial. Furthermore, the welfare gain from having access to a tax-deferred account ranges from less than 0.1 per cent to 11.5 per cent, depending on the preference parameters.

David McCarthy (Imperial), in his paper 'Estimating appropriate discount rates for pension benefits', tried to measure the desirability of a pension scheme by estimating the discount rate at which individuals value the future pension benefits derived from such a scheme. He argued that using the risk free rate to discount future pension payments might not be the best alternative because pension wealth is different from other types of financial wealth in terms of liquidity, unhedgeable risks (mortality, wages) All those risks characteristics of pensions, he argued, might induce individuals to require an additional risk premium in the discount rate, above the risk free rate.

In order to estimate the appropriate discount rate inherent in a pension scheme, David first computes the price for that pension scheme, which is defined as the amount of cash that would perfectly compensate the worker in utility terms for the loss of the pension.

Using this price and the expected future cash flows derived from the pension, David is able to identify the discount rate that makes the discounted value of future expected cash flows equal to the pension price. This way, the discount rate has the interpretation of the desirability of the pension scheme for the worker, because a higher discount rate will be associated with a lower price for the pension.

A nice feature of the obtained discount rate is that it takes into account the worker characteristics and therefore, different individuals might value the same pension scheme differently. After calibrating the model to UK data regarding wage profile, taxation, asset returns, mortality rates, job changes and state pensions, David analyses the determinants of the implied discount rates and the implications for pension scheme designs.

The results show that the discount rate is an increasing function of the individual's financial wealth and final salary replacement rates. Moreover, there is a high variation in discount rates across individual characteristics, indicating that although one pension scheme might be desired by a group of individuals, it might not be so by others.

Next, McCarthy analyses the determinants of the implied discount rates by removing one feature of the pension scheme and comparing the resulting rates. He obtains that, on the one hand taxes, annuitisation and mortality insurance make the pension scheme more undesirable, but on the other hand, wage links and the liquidity of the pension scheme make it more desirable.

The talk concluded with some implications for pension scheme design: wage risk is the most important feature making final salary pensions attractive, followed by liquidity issues. Annuitisation, taxation and protection against mortality shocks appear to be less important.

The goal of the paper 'Public policy and saving for retirement: Evidence from the introduction of Stakeholder Pensions in the UK' presented by **Richard Disney** (Nottingham, IFS), joint with Woojen Chung (IFS), Carl Emmerson (IFS) and Matthew Wakefield (IFS), is to assess the effects of the introduction of Stakeholder Pensions on private pension coverage. The Stakeholder Pension plan was introduced in 2001 by the UK government as a way to foster retirement saving for middle earners without access to occupational pensions. The authors use data from the Family Resource Survey on two, two-year periods, 1999-2000 and 2002-2003 before and after the introduction of the scheme. The identification strategy is to define the earning group targeted by the scheme as the 'treated' and to define as counterfactual the fact that, in the absence of the reform, the purchase probabilities of private pensions for the treated and untreated would have followed a common trend. The goal would be to use a 'difference-in-

difference' approach. The authors estimate a Probit model to assess the probability of purchasing a private pension. The results suggest the scheme was not successful in increasing the coverage for the target group, but increased it for a lower income group of households. The authors also take into account the spouse's earnings and find very similar results.

Carl Emmerson (IFS) then presented 'Impact of UK Public Pension Reform on the Level and Composition of Income of Both Current and Future Pensioners'. This paper investigates the effect of past pension reform in the United Kingdom on the state retirement income for current and future generations of pensioners. It makes the point that the generosity of the state pension programme peaked for male average earners who retired in the year 2000. On the other hand, lower income individuals and those who have taken substantial periods out of employment for caring responsibilities will receive greater pension contributions in the future due to the introduction of the State Second Pension and the Pension Credit. This paper also examines the impact of increasing means-tested and decreasing earnings-related elements in the pension system on individuals' incentives to work and save.

The final session of the conference saw **Orazio P Attanasio** (UCL, IFS and NBER) present a joint paper with James Banks (UCL and IFS) and Mathew Wakefield (IFS) on the 'Effectiveness of Tax Incentives to Boost (Retirement) Saving'. The author focuses on the US and the UK, two countries that have been in the vanguard of those that have tried to encourage retirement saving by providing tax-favoured treatment for particular savings accounts. Using a simple and intuitive theoretical model, they show that the effect of this policy is not straightforward. In fact, the main message that comes out is that the effect that tax favored schemes might have on consumption is bound to be relatively small and is not even unambiguously positive.

They consider empirical evidence from these two countries regarding the extent to which funds in some specific tax advantaged accounts (IRAs in the US, TESSAs and ISAs in the UK) represent new savings. The empirical evidence presented suggested that, at the most, only relatively small fractions of the funds going into tax-advantaged savings vehicles can be considered to be 'new' saving. As such, the best interpretation of the evidence is that such policies are expensive ways of encouraging savings. In addition, to the extent that the reshuffling of assets leads to a reduction in the tax liabilities without any real change in economic behavior, there is some deadweight loss associated with such policies.

Reforming public pensions in the US and the UK

Peter A Diamond

MIT, Department of Economics

18 May 2005

5.30pm, Old Theatre

The London School of Economics
and Political Science

Houghton Street, London WC2A 2AE

This event is sponsored by the

UBS Pensions Research Programme at LSE

Peter Diamond is an Institute Professor and Professor of Economics at MIT where he has taught since 1966. He has been President of the American Economic Association, of the Econometric Society, and of the National Academy of Social Insurance. He is a Fellow of the American Academy of Arts and Sciences and a Member of the National Academy of Sciences. He has written on behavioral economics, public finance, social insurance, uncertainty and search theories, and macroeconomics.

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Hedge Fund Strategies Up Close and Personal

Victor Haghani

27 January	Market Efficiency and the Zero-Sumness of Alpha
10 February	Fixed Income Relative Value Strategies
24 February	Corporate Relative Value Strategies
3 March	Market Timing Strategies

Victor Haghani graduated from the LSE in 1984. He worked for Salomon Brothers in New York, first in fixed income research and then in proprietary trading. He was a founding partner of LTCM and moved to London in 1993 to open their London office. Post 1998, Haghani stayed on for the liquidation of LTCM and then became a founding partner of JWM Partners which manages a successor fund to LTCM. He has been on sabbatical for the past two years.

Haghani gave a series of five lectures on hedge funds and the strategies they follow. The first lecture was a general overview: what are the sources of profitable trading opportunities (alpha) that hedge funds are potentially exploiting, and whether such opportunities constitute a zero-sum game, ie, if one gains someone else loses. He argued that one source of alpha is market imperfections such as segmentation, regulatory restrictions, etc, while another potentially more important source is a systematic misvaluation of assets, such as bubbles. He then explored whether these sources of alpha are of a zero-sum nature. The remaining lectures covered three types of strategies followed by hedge funds: fixed-income relative-value strategies, corporate relative-value strategies, and market-timing strategies. In each case, he gave an overview of the possible strategies and explained what the underlying reasons were that could make these strategies profitable. He also gave several examples, drawing on his experience.

Haghani's objective in giving the talks was to familiarize the faculty and PhD students with the world of hedge funds, to share with them a set of insights accumulated over many years of working in the finance industry, and to suggest promising directions for academic research. In particular, towards the end of the talks, he presented a list of questions that he felt were particularly important, and could make good research topics.

Capital Markets Workshop

The Capital Markets Workshop meets regularly throughout the academic year at 5pm on Wednesdays in room R405, Lionel Robbins Building, LSE.

Summer Term 2005

27 April	Suleyman Basak (LBS)
4 May	Gyongyi Loranth (Judge Institute, Cambridge)
11 May	TBC
18 May	Jean-Charles Rochet (University of Toulouse)
25 May	Zsuzsanna Fluck (Michigan State University)
1 June	Charles Jones (Columbia Business School)
8 June	Tano Santos (Columbia Business School)
15 June	Federico Bandi (Chicago GSB)
22 June	Tobias Moskowitz (Chicago GSB)
29 June	Sheridan Titman (University of Texas at Austin)

Organised by **Antoine Faure Grimaud**

Revisions to the programme may take place, these will be identified through the website at:
<http://fmg.lse.ac.uk>

The Capital Markets Workshop is funded by:
The Department of Accounting and Finance, LSE
The Suntory and Toyota International Centres for Economics and Related Disciplines, LSE

Discussion papers

DP 491 (UBS Series 24)

A Human Capital Explanation for an Asset Allocation Puzzle

Alex Michaelides and Francisco Gomes

We show that a life-cycle asset allocation model with liquidity constraints and realistically calibrated uninsurable labor income risk rationalizes the asset allocation puzzle of Canner, Mankiw and Weil (1997). Based on empirical estimates of the correlation between stock returns and individual earnings, labour income is a closer substitute to long-term bonds than to stocks. As a result, more risk averse investors hold a smaller proportion of their risky portfolio in equities. Moreover, this explanation is consistent with the recommendation that younger households should be more heavily invested in stocks than older households.

DP 492

A Model to Analyse Financial Fragility

Charles Goodhart, Dimitrios Tsomocos and Pojanart Sunirand

Our purpose in this paper is to produce a tractable model which illuminates problems relating to individual bank behaviour and risk-taking, to possible contagious interrelationships between banks, and to the appropriate design of prudential requirements and incentives to limit 'excessive' risk-taking. Our model is rich enough to include heterogeneous agents (commercial banks and investors), endogenous default, and multiple

commodity, and credit and deposit markets. Yet, it is simple enough to be effectively computable. Financial fragility emerges naturally as an equilibrium phenomenon. In our model a version of the liquidity trap can occur. Moreover, the Modigliani-Miller proposition fails either through frictions in the (nominal) financial system or through incentives, arising from the imposed capital requirements, for differential investment behaviour because of capital requirements. In addition, a non-trivial quantity theory of money is derived, liquidity and default premia co-determine interest rates, and both regulatory and monetary policies have non-neutral effects. The model also indicates how monetary policy may affect financial fragility, thus highlighting the trade-off between financial stability and economic efficiency.

DP 493

Real Effects of Regional House Prices: Dynamic Panel Estimation with Heterogeneity

Sonia Munoz

This paper uses recently developed methods for estimating dynamic heterogeneous cointegrated panel data models – which allows for heterogeneity in parameters and dynamics across agents – to study housing wealth effects in a dynamic model of the 50 US states and the District of Columbia from the 1970s to the 1990s. The results show that housing prices have a unit root and are cointegrated with consumption. Even though an aging population has some effect on

consumption in some states, it cannot account for the heterogeneity in housing wealth elasticities. Finally, we find that when state heterogeneity is taken into account, housing capital gains translate into increased spending with an elasticity ranging from 0.15 to 0.23.

DP 494

Career Concerns in Financial Markets

Amil Dasgupta and Andrea Prat

What are the equilibrium features of a market where a sizeable portion of traders face career concerns? This question is central to our understanding of financial markets that are increasingly dominated by institutional investors. We construct a model of delegated portfolio management that captures key features of the US mutual fund industry and we embed it into an asset pricing set-up. Fund managers differ in their ability to understand market fundamentals, and in every period investors choose a fund. In equilibrium, the presence of career concerns induces uninformed fund managers to churn, ie to engage in trading even when they face a negative expected return. As churning plays the role of noise trading, the asset market displays non-fully informative prices and positive (and high) trading volume. The equilibrium relationship between fund return and net fund flows displays a skewed shape that is consistent with stylized facts. The robustness of our core results is probed from several angles.



Discussion Papers

DP 495

The Monetary Policy Committee's Reaction Function: An Exercise in Estimation

Charles Goodhart

Almost all economists know the story about the (drunk) person searching for his lost wallet in the night under the lamp-post, not because that was the most likely place to have dropped his wallet, but because that was where the light was. I shall argue here that this story is fitting in the case of Taylor-type Central Bank reaction functions. These functions indicate how Central Banks might adjust interest rates in response to deviations of current inflation and current output from some desired level, so that,

$$i_t = a + b(\pi_t - \pi^*) + b_2 y_t + b_3 i_{t-1} \quad (1)$$

where i is the nominal interest rate, π the current rate of inflation, y is the estimated output gap, and the final term ($b_3 i_{t-1}$) is usually included to account for the empirical evidence of autocorrelation in the time path of interest rates.

DP 496

The Interaction Between the Bank of England's Forecasts and Policy, and the Out-turn

Charles Goodhart

There are long, (and often variable), lags between a change in interest rates and its effect on real output and inflation. Hence policy should be based on forecasts, (King 2000). So the eventual out-turn, eg for output and inflation, is a complex combination of the skills of the forecaster, the response of the policy-makers to the forecasts (and to their other, possibly private, sources of information), and the impact of shocks which were unforeseen at the time of

the forecast. The aim of this paper is to try to disentangle this mixture in the particular case of the Bank of England, and thereby to assess the skills of the forecasters, the adequacy of the response of the monetary authorities, and the time path of shocks which were unanticipated at the time of the original forecasts.

DP 497

Spanning Tests in Return and Stochastic Discount Factor Mean-Variance Frontiers: A Unifying Approach

Francisco Penaranda and Enrique Sentana

We propose new approaches to test for spanning in the return and stochastic discount factor mean-variance frontiers, which assess if either the centred or uncentred mean and cost representing portfolios are shared by the initial and extended sets of assets. We show that our proposed tests are asymptotically equivalent to the existing spanning tests under the null and sequences of local alternatives, and analyse their asymptotic relative efficiency. We also extend the theory of optimal GMM inference to deal with the singularities that arise in some spanning tests. Finally, we include an empirical application to money markets in Europe.

DP 498 (UBS Series 25)

The Wrong Kind of Transparency

Andrea Prat

In a model of career concerns for experts, when is a principal hurt from observing more information about her agent? This paper introduces a distinction between information on the consequence of the agent's action and information directly on the agent's action.

When the latter kind of information is available, the agent faces an incentive to disregard useful private signals and act according to how an able agent is expected to act a priori. This conformist behaviour hurts the principal in two ways: the decision made by the agent is less likely to be the right one (discipline) and ex post it is more difficult to evaluate the agent's ability (sorting). The paper identifies a necessary and sufficient condition on the agent signal structure under which the principal benefits from committing not to observe the agent's action. The paper also shows the existence of strategic complementarities between information on action and information on consequence. The results on the distinction between action and consequence are then used to interpret existing disclosure policies in delegated portfolio management. In particular, they are consistent with hitherto puzzling evidence that mutual funds systematically overperform pension funds.

DP 499

Estimation of Partial Differential Equations with Applications in Finance

Dennis Kristensen

Linear parabolic partial differential equations (PDE's) and diffusion models are closely linked through the celebrated Feynman-Kac representation of solutions to PDE's. In asset pricing theory, this leads to the representation of derivative prices as solutions to PDE's. We give a number of examples of this, including the pricing of bonds and interest rate derivatives. Very often derivative prices are calculated given preliminary estimates of the diffusion model for the underlying variable. We demonstrate that the derivative prices are consistent and asymptotically normally distributed under general conditions. We apply this result to three leading cases of preliminary estimators: Nonparametric, semiparametric and fully parametric ones. In all three cases, the

asymptotic distribution of the solution is derived. Our general results have other applications in asset pricing theory and in the estimation of diffusion models; these are also discussed.

DP 500

Estimation in Two Classes of Semiparametric Diffusion models

Dennis Kristensen

In this paper we propose an estimation method for two classes of semiparametric scalar diffusion models driven by a Brownian motion: In the first class, only the diffusion term is parameterised while the drift is unspecified; in the second, the drift term is specified while the diffusion term is of unknown form. The estimation method is based on the assumption of stationarity of the observed process. This allows us to express the unspecified term as a functional of the parametric part and the stationary density. A MLE-like estimator for the parametric part and a kernel estimator of the nonparametric part are defined for a discrete sample with a fixed time distance between the observations. We show that the parametric part of the estimator is n -consistent, while the nonparametric part has a slower convergence rate. Also, the asymptotic distribution of the estimator is derived. We give a brief discussion of the issue of semiparametric efficiency, and present a small simulation study of the finite-sample performance of our estimator.

DP 501

A Semiparametric Single-Factor Model of Term Structure

Dennis Kristensen

We propose a semiparametric single-factor diffusion model for the term structure of interest rate. This model is highly flexible and

encompasses most parametric single-factor models proposed in the literature. We fit the semiparametric model to a proxy of the Eurodollar short term interest rate and compare it with the most flexible parametric model found in the literature: First directly, by testing the fully parametric model against the semiparametric one. Secondly, we look at how much the bond prices predicted by the competing models differ; this yields an alternative measure of the performance of the models. The fitted semiparametric model picks up nonlinearities which the fully parametric model cannot capture. This leads to a rejection of the parametric model in favour of the semiparametric model in the direct comparison of the two fitted models. Moreover, the calculated bond prices implied by the two competing models are shown to be significantly different.

DP 502

Estimation and Testing of Dynamic Models with Generalised Hyperbolic Innovations

Enrique Sentana

We analyse the Generalised Hyperbolic distribution as a model for fat tails and asymmetries in multivariate conditionally heteroskedastic dynamic regression models. We provide a standardised version of this distribution, obtain analytical expressions for the log-likelihood score, and explain how to evaluate the information matrix. In addition, we derive tests for the null hypotheses of multivariate normal and Student t innovations, and decompose them into skewness and kurtosis components, from which we obtain more powerful one-sided versions. Finally, we present an empirical illustration with UK sectorial stock returns, which suggests that their conditional distribution is asymmetric and leptokurtic.

DP 503

Eurobond Underwriter Spreads

Michael Kollo, Neil Esho and Ian Sharpe

We examine the determinants of underwriter spreads on straight/fixed rate Eurobonds issued by US firms between 1990 and 1998. We find that underwriter spreads are influenced by: (i) the governing law as it influences the timely and orderly renegotiation of contract terms, with bonds governed by English law having significantly lower spreads; (ii) the distribution mechanism, with spreads higher on public issues than private placements; (iii) underwriter reputation, with more reputable underwriters charging higher fees; and (iv) the choice of currency, with spreads higher in the less frequently utilized currencies and/or in currencies where underwriting activities are more concentrated.

DP 504

A Risk assessment Model for Banks

Charles Goodhart, Dimitrios Tsomocos and Ponjanart Sunirand

The objective of this paper is to propose a model to assess risk for banks. Its main innovation is to incorporate endogenous interaction between banks, recognising that the actual risk to which an individual bank is exposed also depends on its interaction with other banks and other private sector agents. To this end, we develop a two-period general equilibrium model with three active heterogeneous banks, incomplete markets, and endogenous default. The setting of three heterogeneous banks allows us to study not only interaction between any two individual banks, but also their interaction with the rest of the banks in the banking system. We show that the model is analytically tractable and can be calibrated against real UK banking data and therefore can be implemented as a risk assessment tool for financial regulators and central banks. We address

Discussion Papers

the impact of monetary and regulatory policy as well as credit and capital shocks in the real and financial sectors.

DP 505 (UBS Series 26)

Defined Benefit or Defined Contribution? An Empirical Study of Pension Choices

Paula Lopes and Joao Cocco

We empirically study individual pension choice between two different defined benefit (DB) plans and a defined contribution (DC) plan. The DB plans differ in their contribution rates and in the way retirement benefits are calculated, as a proportion of final salary or as a proportion of lifetime earnings. We relate labour income characteristics to the choice of pension plan. Among other determinants of pension choice, we find that: (i) individuals who face higher income growth are more likely to choose DB final salary plans, and less likely to choose the DC plan; (ii) individuals who face higher earnings volatility are less likely to choose DB final salary plans; (iii) individuals with higher earnings are more likely to choose either the DC or the DB final salary plan. These results constitute evidence of self-selection of individuals into different pension plans, an important issue for pension fund providers and for those involved in pension reform.

DP 506

Opening and Closing the Market: Evidence from the London Stock Exchange

Hyun Shin, Ian Tonks and Andrew Ellul

Various markets, particularly NASDAQ, have been under pressure from regulators and market participants to introduce call auctions for their opening and closing periods. We investigate the performance of call markets at the open and

close from a unique natural experiment provided by the institutional structure of the London Stock Exchange. As well as a call auction, there is a parallel off-exchange dealership system at both the market's open and close. Although the call market dominates the dealership system in terms of price discovery, we find that the call suffers from a high failure rate to open and close trading, especially on days characterized by difficult trading conditions. In particular, the call's trading costs increase significantly when (a) asymmetric information is high, (b) trading is expected to be slow, (c) order flow is unbalanced, and (d) uncertainty is high. Furthermore, traders' resort to call auctions is negatively correlated with firm size, implying that the call auction is not the optimal method for opening and closing trading of medium and small sized stocks. We suggest that these results can be explained by thick market externalities.

DP 507 (UBS Series 27)

Liability Valuation and Optimal Asset Allocation

Joachim Inkmann and David Blake

Current approaches to asset-liability management employ a sequence of distinct procedures to value liabilities and determine the asset allocation. First, a discount rate that is usually dictated by accounting standards is used to value liabilities. Second, the asset allocation is determined by maximizing some objective function in the surplus of assets over liabilities, taken as given the valuation of liabilities. We introduce a model that allows for the joint valuation of liabilities and the determination of the optimal asset allocation using discount rates that appropriately reflect default risk. We focus on the case of a defined benefit pension plan.

DP 508

Consistent Testing for Stochastic Dominance: A Subsampling Approach

Yoon-Jae Whang, Esfandiar Maasoumi, Robert A. Korajczyk and Oliver Linton

We propose a procedure for estimating the critical values of the extended Kolmogorov-Smirnov tests of Stochastic Dominance of arbitrary order in the general K-prospect case. We allow for the observations to be serially dependent and, for the first time, we can accommodate general dependence amongst the prospects which are to be ranked. Also, the prospects may be the residuals from certain conditional models, opening the way for conditional ranking. We also propose a test of Prospect Stochastic Dominance. Our method is based on subsampling and we show that the resulting tests are consistent and powerful against some $N^{-1/2}$ local alternatives. We also propose some heuristic methods for selecting subsample size and demonstrate in simulations that they perform reasonably. We describe an alternative method for obtaining critical values based on recentering the test statistic and using full sample bootstrap methods. We compare the two methods in theory and in practice.

DP 509

A Live Method for Generalized Additive Volatility Models

Thong Nguyen, Woocheol Kim and Oliver Linton

We investigate a new separable nonparametric model for time series, which includes many ARCH models and AR models already discussed in the literature. We also propose a new estimation procedure called LIVE, or local instrumental variable estimation, that is based

on a localization of the classical instrumental variable method. Our method has considerable computational advantages over the competing marginal integration or projection method. We also consider a more efficient two-step likelihood-based procedure, and show that this yields both asymptotic and finite sample performance gains.

DP 510

Feedback Trading

Jon Danielsson and Ryan Love

Order flow has been found to carry information to the market. When assessing how informative order flow is, the VAR methodology is typically employed, using impulse response functions. However, in such analyses, the direction of causality runs explicitly from order flow to asset return. If data are sampled at anything other than at the highest frequencies then any feedback trading may well appear contemporaneous; trading in period t depends on the asset return in that interval. The implications of contemporaneous feedback trading are examined in the spot USD/EUR currency market and we find that when data are sampled at the one and five minute frequency, such trading strategies cause the price impact of order flow to be significantly larger than when feedback trading is ruled out.

DP 511

Estimating Semiparametric ARCH Models by Kernel Smoothing Methods

Enno Mammen and Oliver Linton

We investigate a class of semiparametric ARCH models that includes as a special case the partially nonparametric (PNP) model introduced by Engle and Ng (1993) and which allows for both flexible dynamics and flexible function form with regard

to the 'news impact' function. We show that the functional part of the model satisfies a type II linear integral equation and give simple conditions under which there is a unique solution. We propose an estimation method that is based on kernel smoothing and profiled likelihood. We establish the distribution theory of the parametric components and the pointwise distribution of the nonparametric component of the model. We also discuss efficiency of both the parametric and nonparametric part. We investigate the performance of our procedures on simulated data and on a sample of S&P500 index returns. We find evidence of asymmetric news impact functions, consistent with the parametric analysis.

DP 512

Estimation of Linear Regression Models by a Spread-Tolerant Estimator

Oliver Linton

We investigate a class of estimators for Linear Regression models where the dependent variable is subject to bid-ask censoring. Our estimation method is based on a definition of error that is zero when the predictor lies between the actual bid price and ask price, and linear outside this range. Our estimator minimizes a sum of such squared errors; it is non-linear, and indeed the criterion function itself is non smooth. We establish its asymptotic properties using the approach of Pakes & Pollard (1989). We compare the estimator with mid-point OLS.

DP 513

Flexible Term Structure Estimation: Which Method is Preferable?

Thong Nguyen, Andrew Jeffery and Oliver Linton

We show that the recently developed nonparametric procedure for fitting the term structure of interest rates developed by Linton, Mammen, Nielson and Tanggaard (2000) overall performs notably better than the highly flexible McCulloch (1975) cubic spline and Fama and Bliss (1987) bootstrap methods. However, if interest is limited to the Treasury bill region alone then the Fama-Bliss method demonstrates superior performance. We further show, via simulation, that using the estimated short rate from Linton-Mammen-Nielson-Tanggaard procedure as a proxy for the short rate has higher precision than the commonly used proxies of the one and three month Treasury bill rates. It is demonstrated that this precision is important when using proxies to estimate the stochastic process governing the evolution of the short rate.

DP 514

The Shape of the Risk Premium: Evidence from a Semiparametric GARCH Model

Benoit Perron and Oliver Linton

We examine the relationship between the risk premium on the S&P 500 index total return and its conditional variance. We propose a new semiparametric model in which the conditional variance process is parametric, while the conditional mean is an arbitrary function of the conditional variance. For monthly S&P 500 excess returns, the relationship between the two moments that we uncover is non-linear and

nonmonotonic. Moreover, we find considerable persistence in the conditional variance as well as a leverage effect as documented by others.

DP 515

Yield Curve Estimation by Kernel Smoothing

C Taanggard, J Nielsen, Enno Mammen and Oliver Linton

We introduce a new method for the estimation of discount functions, yield curves and forward curves from government issued coupon bonds. Our approach is nonparametric and does not assume a particular functional form for the discount function although we do show how to impose various restrictions in the estimation. Our method is based on kernel smoothing and is defined as the minimum of some localized population moment condition. The solution to the sample problem is not explicit and our estimation procedure is iterative, rather like the backfitting method of estimating additive nonparametric models. We establish the asymptotic normality of our methods using the asymptotic representation of our estimator as an infinite series with declining coefficients. The rate of convergence is standard for one-dimensional nonparametric regression. We investigate the finite sample performance of our method, in comparison with other well-established methods, in a small simulation experiment.

Special papers

SP 157

Gradualism in the Adjustment of Official Interest Rates: Some Partial Explanations

Charles Goodhart

After many decades during which mainstream economic theorists posited that Central Banks either did, or certainly should, fix the monetary base, with interest rates being subsequently determined endogenously (the famous IS/LM diagram), realism has finally triumphed (Bindseil 2004, Goodhart 2002). It is now accepted that, not only do Central Banks set official interest rates, (which would be hard to deny given the publicity surrounding the meetings of FOMC, MPC in UK, ECB, BoJ for just that purpose), but that such procedures can be (nearly) optimal so long as Central Banks adjust interest rates appropriately and endogenously in response to foreseen developments in the economy (Woodford 2003).

SP 158

Per Jacobsson Lecture: Some New Directions for Financial Stability?

Charles Goodhart

This paper is a copy of the author's Per Jacobsson Lecture given at the University of Zurich on an occasion hosted by the Bank for International Settlements on Sunday 27 June 2004. It is reproduced with the kind permission of the Per Jacobsson Foundation.

Forthcoming Discussion and Special Papers

Discussion Papers

DP 516

'A GARCH Model of the Implied Volatility of the Swiss Market Index from Options Prices'

Michael Sabbatini and Oliver Linton

DP 517

'A Time Series Analysis of Financial Fragility in the UK Banking System'

Charles Goodhart, Dimitrios Tsomocos and Ponjanart Sunirand

DP 518 (IAM Series No 004)

'Highwaymen or Heroes: Should Hedge Funds be Regulated?'

Jean-Pierre Zigrand, Jon Danielsson and Ashley Taylor

DP 519 (UBS Pensions series 28)

'Portfolio Choice and Wealth Accumulation with Taxable and Tax-Deferred Accounts'

Francisco Gomes, Alex Michaelides, Valery Polkovnichenko

DP 520

'Strategic Financial Innovation in Segmented Markets'

Rohit Rahi and Jean Pierre Zigrand

DP 521

'Conglomerate Entrenchment under Optimal Financial Contracting'

Antoine Faure-Grimaud and Roman Inderst

DP 522 (IAM Series No 005)

'Are "Market Neutral" Hedge Funds Really Market Neutral?'

Andrew Patton

DP 523 (UBS Pensions series 29)

'Barriers to pensions scheme participation in small and medium sized enterprises'

Alistair Byrne, Debbie Harrison and David Blakes

DP 524

'Basel and Procyclicality: A comparison of the Standardised and IRB Approaches to an Improved Credit Risk Method'

Charles Goodhart and Miguel Segoviano

DP 525 (UBS Pensions series 30)

'Credible Pensions'

Timothy Besley and Andrea Prat

Special Papers

SP 159

'How Do We Achieve Regulatory Convergence In Practice?'

Callum McCarthy

Visitors to the FMG

January – April 2005

Bill Allen (Brevan Howard)
Orazio Attanasio (UCL)
Axel Boersch-Supan (University of Mannheim)
Jennifer Conrad (University of North Carolina)
Richard Disney (Nottingham, IFS)
Philip Dybvig (Washington University)
Adel Elizalde (CEMFI)
Carl Emmerson (IFS)
Harrison Hong (Princeton University)
Rajkamal Iyer (INSEAD)
Paul Jenkins (Senior Deputy Governor of the Bank of Canada)
Dennis Kristensen (University of Wisconsin-Madison)
Ruben Lee (Oxford Finance Group)
Silvia Marchesi (University of Siena)
David McCarthy (Imperial)
Hassan Naqvi (University of Singapore)
Ailsa Roell (Princeton University)
Maria Grazia Romano (University of Salerno)
Brunello Rosa (University of Siena)
Per Stromberg (University of Chicago Graduate School of Business)
Otto Van Hemert (Universiteit van Amsterdam)
Guglielmo Weber (University of Padua)
Clas Wihlborg (Copenhagen Business School)

New Funded Research Projects

The FMG has been successful in securing funding for more research in International Financial Stability through the ESRC funded Programme on World Economy and Finance. The new project, entitled 'Stability of the Global Financial System; Regulation and Policy Response', will be lead by Professor Hyun Shin and will be launched in 2005.

There has also been success in securing funding for research in Risk Management through the EPSRC's Quantitative Finance sponsorship programme with a proposal for a project entitled: 'Integrating Historical Data and Market Expectations in Risk Assessment for Financial Institutions' lead by Professor Ron Anderson. The project will be launched in 2005.



Professor Hyun Shin



Professor Ron Anderson



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