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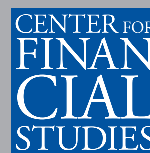

RESEARCH NETWORK ON CAPITAL MARKETS AND FINANCIAL INTEGRATION IN EUROPE

DECEMBER 2004

RESULTS AND EXPERIENCE AFTER TWO YEARS

CENTER FOR FINANCIAL STUDIES

RESEARCH NETWORK ON CAPITAL MARKETS AND FINANCIAL INTEGRATION IN EUROPE

RESULTS AND EXPERIENCE AFTER TWO YEARS

DECEMBER 2004

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EXECUTIVE SUMMARY

In April 2002 the European Central Bank (ECB) and the Center for Financial Studies (CFS) launched the ECB-CFS Research Network to promote research on "Capital Markets and Financial Integration in Europe". The ECB-CFS research network aims at stimulating top-level and policy-relevant research, significantly contributing to the understanding of the current and future structure and integration of the financial system in Europe and its international linkages with the United States and Japan. This report summarises the work done under the network after two years.

Over time the network formed a coherent and growing group of researchers interested in the integration of European financial markets, while using light organisational structures and budgets. The members of this evolving group met repeatedly at the events organised by the network to present the latest results of their research and to share views on policy options. In this sense, the "network of people" intended at the start was created. Overall, the network aroused great interest, as leading academic researchers, researchers from the main policy institutions and high-level policy makers participated actively in it by presenting research results, through speeches and in policy panels. It also stimulated a new research field on securities settlement systems, an area of high policy relevance and interest to the ECB that had not attracted much interest in the research community beforehand. Also, the network seems to have triggered several related outside initiatives by international institutions, such as the IMF or the OECD.

During its first two years the network was organised around three workshops and a final symposium on 10-11 May 2004. To focus research resources and to ensure medium-term policy relevance, a limited number of areas have been given top priority: bank competition and the geographical scope of banking; international portfolio choices and asset market linkages between Europe, the United States and Japan; European bond markets; European securities settlement systems; and the emergence and evolution of new markets in Europe (in particular start-up financing markets).

In order to stimulate further research focused on the priority fields of the network, the ECB Lamfalussy research fellowships were established. These fellowships sponsor projects proposed by young researchers, both advanced doctoral students and younger professors. Five Lamfalussy fellowships were granted in 2003 and five more in 2004. The first papers from this program have already been issued in the ECB working paper series or are forthcoming. One of them won the prize for the best paper written by a Ph.D. student at the 2004 European Finance Association Meetings in Maastricht.

Results of the network in the five top priority areas can be summarised as follows:

Bank competition and the geographical scope of banking. First, integration does not appear to be very advanced in many retail banking markets. Second, some of the inherent characteristics of traditional loan and deposit business constrain the cross-border expansion of commercial banking, even in a common currency area. Hence, the implementation of some policies to foster cross-border integration in retail banking may be ineffective. Third, theoretical research suggests that supervisory structures may not be neutral towards further European banking integration. Finally, a stronger role of area-wide competition policies could be beneficial for further banking integration. This would also stimulate economic growth, as more competition in the banking sector induces financially dependent firms to grow more.

European bond markets. While the government bond market has integrated rapidly with the EMU convergence process, its full integration has not yet been achieved. The introduction of a common electronic trading platform reduced transaction costs substantially, but yield

spreads of long-term sovereign bonds of the euro area are still heterogeneous. This is largely explained by different sensitivities to an international risk factor, whereas liquidity differentials only play a role in conjunction with this latter factor. Somewhat surprisingly in this context, the dynamically developing corporate bond market exhibits a relatively high level of integration. There is also increasing evidence that the introduction of the euro has contributed to a reduction in the cost of capital in the euro area, in particular through the reduction of corporate bond underwriting fees. As a result, firms may wish to increase bond financing relative to equity financing. The development of a larger corporate bond market is also important for monetary policy. For example, US evidence suggests that the rating of corporate bonds may contribute to the persistence of recessions, as rating agencies' policies affect firms asymmetrically in their access to the bond market over the business cycle. US evidence also suggests that liquidity conditions in stock and bond markets tend to be positively correlated.

European securities settlement systems. European securities settlement infrastructures are highly fragmented and further integration and/or consolidation would exploit economies of scale that could greatly benefit investors. It is not clear, however, whether direct public intervention in favour of consolidation would lead to the highest level of efficiency, for example because of the existence of strong vertical integration between trading and securities platforms ("silos"). In contrast, promoting open access to clearing and settlement systems could lead to consolidation and the highest level of efficiency. Finally, regarding concerns about unfair practices by Central Securities Depositories (CSDs) toward custodian banks, regulatory interventions favouring custodian banks should be discouraged, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

The emergence and evolution of new markets in Europe (in particular start-up financing markets). While fairly well integrated, "new markets" and start-up financing are less developed and integrated in Europe than in the United States. However, new markets and venture capitalists are the most important intermediaries for the financing of projects with high risk but with potentially very high return. The analysis carried out within the network reveals that European start-up financiers are mostly institutional investors, while US venture capitalists are mostly rich individuals. Also, new markets are essential for the development of start-up finance in Europe, as they provide an exit strategy for start-up financiers who can then sell new successful projects using initial public offerings. Finally, the legal framework affects the development of venture capital firms. For example, very strict personal bankruptcy laws constrain early stage entrepreneurs, reducing demand for venture capital finance.

International portfolio choices and asset market linkages between Europe, the United States and Japan. At a global scale, asset market linkages have increased recently. For example, major economies such as the United States and the euro area have become more financially interdependent. This phenomenon can be observed in stock and bond markets as well as in money markets, where the main direction of spillovers has recently been from the US to the euro area. Country-specific shocks now play a smaller role in explaining stock return variations of firms whose sales are internationally diversified. Increases in firm-by-firm market linkages are a global phenomenon, but they are stronger within the euro area than in the rest of the world. Various other phenomena also increase market linkages and therefore the likelihood that financial shocks spread across countries. One example is the use of global bonds. Finally, the nowadays more direct access of unsophisticated investors to financial markets may increase volatility.

Other areas. Financial integration affects financial structures, but it does not need to lead to their convergence across countries. Financial structures matter for growth, as market-oriented financial systems benefit all sectors and firms, whereas bank-based systems primarily benefit younger firms that depend on external finance. Moreover, good corporate governance increases firms' value. In particular, the dual board system, where the monitoring and advising roles of the board of directors are separated, is found to dominate the single board structure. Therefore, the further development of the European single market should strongly require good corporate governance. In general, well designed institutions foster entrepreneurial activity, partly by relaxing capital constraints.

The results of the network clearly illustrated the substantial effects the introduction of the euro had on euro area financial markets. In addition to the effects on bond markets, stock markets and the cost of capital summarised above, research produced showed that the single currency had its strongest effects on money markets, whose unsecured segment is now completely integrated. Without any doubt the euro generally enhanced the liquidity and efficiency of euro area financial markets, and ongoing initiatives such as the European Union's Financial Services Action Plan will help to continue this process.

In sum, in the first two years the network has established itself as the hub for the research debate on European financial integration. Some of the best papers produced by the network, leading to the conclusions mentioned above, are currently being considered for publication in two special issues of academic journals. An issue of the Oxford Review of Economic Policy on "European financial integration" is published contemporaneously with this report, and an issue of the Review of Finance is planned for next year. The current policy context, the gradual progress of integration as well as the creation of other related non-ECB or non-CFS initiatives on financial integration suggest that this topic will remain high on the agendas of policy makers and academics for the years to come.

Therefore, the ECB Executive Board and the CFS decided to continue the network, refocusing its priorities. Three priority areas have been added: 1) The relationship between financial integration and financial stability, 2) EU accession, financial development and financial integration, and 3) financial system modernisation and economic growth in Europe. These three areas have become particularly important at the current juncture, but have not received particularly strong attention in the first two years of the network. For example, the area of financial stability research was highlighted by the ECB research evaluators as an area deserving further development. Moreover, despite the results found in the first two years of the network, new developments remain to be further explored in the earlier priority areas.

A three-year extension is envisaged, running from after the May 2004 symposium until 2007, with two events to be held per year. The three-year period is long enough to consider the first effects of the Financial Services Action Plan. It also constitutes a realistic horizon for the ambitious agenda implied by the three new priorities. The generally light organisational structure and working of the network will not be changed. In addition, given the value of the Lamfalussy fellowship research program in inducing further research in the areas of the network, the program has also been extended for all the research topics in the area of the network.

1 INTRODUCTION

Financial markets integration can contribute to higher European economic growth. A study of the European Commission by Giannetti, Guiso, Padula and Pagano (2002)[1] shows that financial integration, defined as a convergence for European financial development toward the US standard, would imply a one percentage point gain in EU GDP growth. This important gain is only a lower bound, as the report did not consider integration of service sectors. To quickly reap all the benefits from further European financial integration, the Commission initiated the Financial Services Action Plan in 1999 to remove the regulatory and market barriers that exist to the cross-border provision of financial services and to encourage the free flow of finance within Europe.

In this context, the European Central Bank (ECB) and the Center for Financial Studies (CFS) launched, in April 2002, the ECB-CFS research network to promote research on "Capital Markets and Financial Integration in Europe". The network was launched in an effort to understand better the state of European integration in each financial market and where improvements are possible. The network was first established for a period of two years, which ended in May 2004. This report summarises the work done under the network.

Section 2 recalls the purpose of the network and its main priority areas. The activities of the network are summarised in Section 3. Section 4 presents the main results, Section 5 makes the case for the continuation of the network and presents additional areas where further work is advisable. Finally, Section 6 explains the organisational structure.

1 Giannetti, M., L. Guiso, T. Japelli, M. Padua and M. Pagano (2002), "Financial integration, corporate financing and economic growth", CEPR, final report to the European Commission, 22 November.

2 PURPOSE OF THE NETWORK AND MAIN PRIORITY AREAS

In 1999, the Commission presented a framework for action in the financial services industry to help achieve the benefits of the Single Market in financial services. The formulated objectives of this Financial Services Action Plan (FSAP) are to ensure a single EU market for wholesale financial services and to guarantee open, secure retail markets and modern, prudential rules and supervision. The Commission proposed 42 measures and a timetable for their adoption with a deadline of 2004. In 2002 the Commission reported that "recent progress in the Council and the European Parliament on a number of proposals demonstrate that the political commitment to implement the FSAP on time is beginning to be translated into firm political agreements … Even if not all barriers have been removed, significant and irreversible progress towards a strong integrated European financial sector by 2005 is achievable – it is a prize that is now within our grasp". In this context the ECB-CFS research network on "Capital Markets and Financial Integration in Europe" was created.

The ECB-CFS research network aims at stimulating top-level and policy-relevant research, significantly contributing to the understanding of the current and future structure and integration of the financial system in Europe and its international linkages with the United States and Japan. The work of the network focuses on three distinct, but not unrelated, main broad research areas: (i) European financial integration, (ii) financial system structures in Europe and (iii) financial linkages between the euro area/European Union (EU), the United States and Japan. When the network was created, these areas were under-researched and knowledge about them insufficient.

A detailed description of key research areas was developed under the supervision of the Steering Committee (SC) and made publicly available in the network "roadmap". While the "roadmap" is geared towards applied and policy-relevant questions, both empirical and theoretical research are important and were encouraged. Annex A contains this "roadmap".

To concentrate research resources and ensure policy focus, a limited number of areas within the three main broad research fields have been given top priority: Bank competition and the geographical scope of banking activities; international portfolio choices and asset market linkages between Europe, the United States and Japan; European bond markets; European securities settlement systems; and the emergence and evolution of new markets in Europe (in particular start-up financing markets).

- Work on *bank competition and the geographical scope of banking activities* has been given priority, because – despite the adoption of the "single passport" principle – the euro area is still experiencing relatively few cross-border mergers compared with domestic consolidation and relatively limited cross-border corporate lending. Also, supervisory structures and regulatory approaches pertaining to the banking sector underwent profound reforms whose effects should be analysed.

- Priority was also given to *international portfolio choices and asset market linkages between Europe, the United States and Japan,* as the past few decades have brought an enormous expansion of international capital flows. As a consequence, global financial linkages have strengthened. While their impact on economies is nowadays far larger than traditional trade linkages, for example, knowledge about the driving factors behind international financial flows is still relatively limited.

- *European bond markets* have undergone rapid changes in the past few years, including the development of euro area-wide electronic secondary market trading platforms, as well as the development of a more significant corporate bond market.

These changes are so recent that their main sources and their wider implications are not widely understood. For example, bond markets constitute one key market for the conduct of monetary policy by central banks.

– Work on *European securities settlement systems* has also received priority as the fragmentation of this industry in Europe, resulting in high cross-border securities trading costs, may well constitute the single most important obstacle to further securities market integration.[2] The rapid structural change in the European securities settlement industry, and the very limited research available on these topics when the network was created, made work in this area particularly important and relevant to policy-makers.

– The area of *new markets* also received a very high priority. In 1998, the European Commission reckoned that "fewer technology-based enterprises are created in Europe and their prospects for growth are inhibited. Also, venture capital is underdeveloped in many European countries compared with the United States, in particular in the field of seed and early stage finance".[3] This highlighted the importance of the availability of a wide range of funding and investment possibilities for innovations and risk sharing – and hence ultimately for growth and welfare.

2 See Giovannini Group (2001), Cross border clearing and settlement arrangements in the European Union, Brussels, November; and Giovannini Group (2003), Second report on EU clearing and settlement arrangements, Brussels, April.

3 European Commission (1998), Fostering entrepreneurship in Europe: Priorities for the future. COM (98) 222 final.

3 ACTIVITIES OF THE NETWORK

3.1 CONFERENCES

In its first two years the network was organised around three workshops and a final symposium. Workshops systematically worked down the list of main priority areas, covering each priority area on at least two occasions. The symposium covered all areas of the network. Each workshop and the symposium featured parallel sessions where research in the relevant area of the network was presented and ended with a policy panel. This section briefly summarises the structure of each workshop and of the symposium.

The network was launched with a workshop at the ECB on 29-30 April 2002. It featured "agenda setting" talks by prominent researchers and members of the network Steering Committee, pure research paper presentations and the key policy speeches "Monetary policy in an environment of global financial markets" by Otmar Issing (ECB), "Competition, co-operation and public action: Three necessary drivers for European financial integration" by Tommaso Padoa-Schioppa (ECB) and "Consolidation in the European securities infrastructure – What is needed?" by Sirkka Hämäläinen (ECB).

The sessions of the launching workshop concentrated on the priority areas of European debt market structures and international financial linkages. In the closing plenary session, Jesper Berg (ECB), Alberto Giovannini (Unifortune Asset Management) and David Wright (European Commission) gave their views about the status of the European financial system and the way forward to complete integration. Vítor Gaspar (ECB) acted as moderator. Annex B contains the program and a detailed summary of the workshop. Aside from the research progress reported in the parallel sessions, the main result of the launching workshop was the development of the "roadmap" to help guide work under the network (see Annex A). This roadmap has been developed by ECB staff under the auspices of the SC on the basis of the "agenda setting" talks and the policy speeches at the workshop, in collaboration with the ECB Internal Contact Group, the NCB Contact Group (see section 6 below for those groups) and other workshop participants.

The response to the workshop announcement was very encouraging. Representatives of all invited institutions expressed interest in participating (including Eurosystems NCBs, the BIS, IMF, World Bank, Board of Governors of the Federal Reserve System, and the European Commission). Also, the response to the first Call for Papers was satisfactory with 68 submissions received. This positive response led to a decision to combine the two workshops originally planned for the first year (2002) into the larger launching workshop. There were 114 participants, of which 38 were from academia, 35 from the ECB and 41 from other official institutions. Affiliations of network event participants are detailed in Annex C.

In deciding to establish the network, the ECB wished to hold subsequent workshops in other European cities to present the network as a truly European initiative. As a consequence, two more workshops in 2003 were hosted by euro area national central banks (NCBs).

The Bank of Finland hosted the network's second workshop in Helsinki on 11-12 March 2003. The main priority areas analysed in the course of the workshop were (1) bank competition and the geographical scope of banking activities; (2) international portfolio choices and asset market linkages between Europe, the US, and Japan and, as a special topic requested by several launching workshop participants, European equity markets. The workshop combined research key lectures, research paper presentations and a plenary panel discussion on "The future of exchanges, consolidation or competition". Panel speakers were Niall Bohan (European Commission), Peter Gomber (Deutsche Boerse AG), Hannu

Halttunen (Nordea) and André Went (Euronext). Annex D contains the program and a summary of this workshop.

The Call for Papers elicited 59 submissions, from which 15 papers were selected. The workshop was intended to gather a rather smaller number of participants relative to the launching workshop to allow for discussions on each selected paper. There were 87 participants, of which 39 were from academia, 15 from the Bank of Finland (the hosting institution), 15 from the ECB and 18 from other official institutions.

The Bank of Greece hosted the network's third workshop in Athens on 20-21 November 2003. The main priority areas analysed in the course of the workshop were (1) European bond markets; (2) European securities settlement systems; and (3) start-up financing and new markets. This third workshop also combined research key lectures, research paper presentations and a plenary panel discussion on "European Securities Settlement Systems", which included Kenneth D. Garbade (Federal Reserve Bank of New York), Randy Kroszner (University of Chicago), Anso Thiré (Euroclear France), and Gertrude Tumpel-Gugerell (ECB). Annex E contains the program and a summary of the network's third workshop.

The Call for Papers elicited 77 papers, again confirming the research community's interest in the network initiative. 18 papers were selected for presentation in Athens. There were 77 participants, of which 37 came from academia, 3 from the Bank of Greece (the hosting institution), 16 from the ECB and 21 from other official institutions.

The network's first two years were concluded with a symposium in Frankfurt on 10-11 May 2004 (see Annex F for the program and a summary of the symposium). The Call for Papers brought in 118 submissions. The symposium was an opportunity to summarise the progress that the network has accomplished in terms of research and to outline its continuing efforts and new priority areas. A policy panel focusing on "Drivers of European financial integration – Markets or policy?" concluded the symposium. It was chaired by Tommaso Padoa-Schioppa (ECB) and included high-level representatives of the public and the private sectors: Mario Draghi (Goldman Sachs), Alexander Schaub (European Commission) and Jens Thomsen (Danmarks Nationalbank). Furthermore, Robert Flood (International Monetary Fund) delivered a key lecture on new approaches to assessing financial integration; Otmar Issing (ECB) gave a speech on "Asset prices and monetary policy"; Alexandre Lamfalussy (Institut d'études européennes, Université Catholique de Louvain) expressed his views on European bond markets; and Gertrude Tumpel-Gugerell (ECB) closed the symposium by laying down the priorities for work within the network for the coming three years. There were 149 participants, of which 55 came from academia, 51 from the ECB (the hosting institution) and 43 from other official institutions.

3.2 FELLOWSHIPS

The SC believed that the main priority areas selected for both workshops in 2003 were under-researched areas that were highly relevant to the work of the ECB and the Eurosystem. In order to stimulate network participants further to undertake research in the above-mentioned fields, the ECB members of the SC proposed to fund some focused research activity in the context of the network in the form of fellowships. These fellowships are aimed at young researchers, mainly very advanced doctoral students and young professors. This target group was felt to be particularly responsive to suggestions for research areas of high policy importance. The fellowships were named after Alexandre Lamfalussy, the first President of the European Monetary Institute.

Following a Call for Projects highlighting the top priorities of the network, five fellowships were granted in 2003 and five more were granted in 2004. Each fellowship is endowed with €10,000. The 2003 Lamfalussy fellows' papers are available in Annex G.

In 2003, the five Lamfalussy fellowships were granted to:

- Rui Albuquerque (Assistant Professor, University of Rochester), "Asymmetric information and the persistence of international equity flows", ECB Working Paper No. 310. This project falls under main priority area "International portfolio choices and asset market linkages between Europe, the US and Japan".

- Giulia Iori (Lecturer, King's College, University of London), "An investigation of the efficiency and stability of alternative designs for securities clearing and settlement infrastructures", ECB Working Paper No. 404. This project is a contribution to main priority area "European securities settlement systems".

- Leo Kaas (Assistant Professor, University of Vienna), "Bank competition and financial market integration", ECB Working Paper No. 403. This contributes to main priority area "Bank competition and the geographical scope of banking activities".

- Albert J. Menkveld (Assistant Professor, Vrije Universiteit Amsterdam), "Substitutability, fragmentation and price discovery in the European government bond market: An empirical study based on EuroMTS data", ECB Working Paper No. 385. This project falls under the main priority area "European bond markets".

- Yigal S. Newman (Ph. D. student, Stanford Graduate School of Business), "The volume of new issuance and its impact on market-wide credit spreads" forthcoming in the ECB Working Paper Series. This project contributes to the main priority area "European bond markets". Newman received the 2004 European Finance Association award for best Ph. D. paper for his contribution.

In 2004, the five Lamfalussy fellowships were granted to:

- Tomas Dvorak (Assistant Professor, Union College, Schenectady, New York), "European Union enlargement and equity markets in candidate countries". Following the European Commission report outlining the timing and countries involved in enlargement, stock prices in the ten eastern European candidate countries went up on average by over 46%. The project will investigate whether the rise in stock prices in the accession countries was related to EU enlargement and in particular, whether the rise in stock prices was a result of repricing of systematic risk due to integration of local stock markets into the world market.

- Mariassunta Giannetti (Associate Professor, Stockholm School of Economics), "International banks: Effects on firm growth and financial stability". Using micro-level data for listed and unlisted companies and information on foreign bank entry, the project will analyse whether local firms in emerging markets really benefit from the entry of foreign banks in terms of growth and investment policies. Moreover, it will study whether young firms with little collateral benefit as much as listed companies.

- Miklós Koren (Ph. D. student, Harvard University and Hungarian Academy of Sciences), "Financial integration and income volatility". The purpose of this project is to investigate empirically the relationship between financial integration and income volatility and to provide a theoretical model explaining the findings. The envisaged key mechanism is that

financial integration helps countries adopt less risky technologies, which results in long-term income stability.

– Michael Kollo (Ph. D. student, London School of Economics), "The pricing of underwriting services by European, U.S. and Japanese underwriters in the Eurobond market". Underwriter fees are an important part of the cost of capital for firms and therefore may act as a barrier to entry into the Eurobond market. The project will test the relative importance of different determinants of underwriter fees across the different European and other nationalities of underwriters in the Eurobond market and will also provide a currency breakdown.

– Philip Lane (Associate Professor, Trinity College), "Global bond holdings and the Eurozone". The project is based on the observation that the pattern of foreign ownership is not totally globalised, in the sense that the nationality of investors still matters. This heterogeneity in the investor base has consequences for the stability of the international demand for the assets issued by a given region as well as for the transmission of financial shocks and for the choice of exchange rate regime. The project will investigate these issues by analysing bilateral patterns in global bond holdings with a particular emphasis on the impact of EMU. The compositions of the selection committees in 2003 and 2004 are detailed on the network website (http://www.eu-financial-system.org/fellowships.html).

3.3 PUBLICATIONS

Dissemination of the work undertaken within the network is through the normal academic publication process via peer-reviewed journals. However, in order to disseminate results from the network at an early stage, the SC decided to suggest the possibility of releasing papers presented in the workshops or the symposium in the ECB Working Paper Series. It is expected that 10 to 20 of the best papers presented in the workshops or submitted to the symposium will be released in this way.

In addition to the publication in the ECB Working Paper Series, two academic journals are planning special issues. First, the "Oxford Review of Economic Policy" is preparing a special issue on European financial integration, building on the work of a selection of network contributors. The authors were asked to prepare broad papers, discussing the most important developments in the main parts of the European financial system. The editors Xavier Freixas (University of Pompeu Fabra), Philipp Hartmann (ECB) and Colin Mayer (University of Oxford) will prepare a general assessment of the papers published and discuss policy options. The outline of this special issue, which will be published in December 2004, is in Annex H.

Second, some of the symposium papers will be solicited for a special issue of "Review of Finance", the journal of the European Finance Association, devoted to capital markets and financial integration in Europe. All the papers in this issue will be screened through the journal's regular refereeing process. Franklin Allen (University of Pennsylvania) and Marco Pagano (University of Naples Federico II) from the network SC will edit this special issue.

Finally, there are plans to combine the papers of the "Oxford Review of Economic Policy" special issue with about 20 further commissioned papers for a book on "Financial Markets and Institutions: A European Perspective". This volume would be edited by the same three persons for Oxford University Press. It will cover sections on "Financial systems and financial integration", "Financial systems and the corporate sector", "Financial institutions", "Financial markets", and "Financial regulation and macroeconomic policy". The time horizon for the preparation of this book is longer, extending to the end of 2005.

3.4 WEBSITE

A website for the network has been established as a source of information for researchers and practitioners interested in European financial integration. It can be accessed at the following address http://www.eu-financial-system.org. It contains important information on European financial integration that can be accessed either through links or through a library of research papers and official reports. As such, it facilitates the dissemination of the information related to network events and the work done within the network. Over time, the website has been developed into a source of information for researchers worldwide interested in European capital markets and financial integration. The IT infrastructure of the network website is hosted by the CFS. It is maintained by the network secretariat as a service to the network contributors and to the general public.

The website contains *inter alia*: A description of the network's goals and main research areas; announcements of upcoming workshops nd summaries of past events; information about funding of research in the field of the network, notably the Lamfalussy Fellowship program; available statistical resources; and a library of research papers and policy documents in the area of the network.

The library has a search function that allows users to search for research areas, keywords, authors, etc. To a large extent, research papers have been chosen among unpublished work. However, the library also includes seminal published papers and books of special interest.

Now that the ECB-CFS research network website has been up for almost 24 months, some usage statistics are available. The ECB-CFS website had 209 "unique visitors"[4] in 2002 (covering a period of 3 months), 10,188 unique visitors in 2003 and 11,545 unique visitors in 2004 (covering a period of 9 months). There were 1.7 visits per visitor in 2002, 1.4 in 2003 and 1.4 in 2004. A visit is here defined as each new incoming visitor who was not connected to the site during the last hour. A visitor viewed or downloaded a page, image or file from the site 1.1 times per visit in 2002, 4.8 in 2003 and 4.1 in 2004.

Another relevant statistic is the page viewed by those visitors. We restrict this measure to 2003 and 2004 given the short period in which the website was active in 2002. In 2003, 35% of visits viewed the home page (35% in 2004), 11% (8% in 2004) viewed the library and 6% (8% in 2004) viewed the page related to upcoming events. To give an idea of who uses the website, we report the origin of visitors in 2003 only. National central banks viewed or downloaded a page, image or file 4.9 times per visit,[5] followed by the European Commission (1.1 times/visit) and the Federal Reserve Board (0.5 times/visit).

3.5 RELATED INITIATIVES

This section describes other initiatives that fall into the scope of the network and have been, for the most part, initiated by participants to the network, but do not fall into the above activities.

The Second ECB Central Banking Conference on the "Transformation of the European Financial System" took place in Frankfurt in October 2002. The purpose of the conference was to convey the interest of the ECB in the transformation of the financial system via, among other things, financial integration. The conference was based on four papers. Jean Dermine (INSEAD) addressed the lessons that can be learnt for banking system integration from the corporate structures adopted by banking firms. Raghu Rajan and Luigi Zingales (both University of Chicago) described substantial development of market finance in Europe, as compared with more traditional

4 A unique visitor is defined as a host (IP address) who came to visit the site and viewed at least one page.

5 Identified NCBs were the Bank of Finland, the Oesterreichische Nationalbank, the Banco de Portugal, Sveriges Riksbank and the Banco de España.

bank credit financing. Kpate Adjaouté (HSBC Republic Bank) and Jean-Pierre Danthine (Lausanne University) looked at EMU's implications for the pricing of government bonds and equities, arguing that the introduction of the euro had a larger effect on equity returns than usually perceived. Finally, Bruce Carnegie-Brown and Matt King (both JP Morgan) studied corporate bond markets, advancing the hypothesis that the European issuance boom following the introduction of the euro may not be explained by the single currency. The proceedings of the Second ECB Central Banking Conference were published in May 2003.[6]

In October 2002, the ECB published the "Report on Financial Structures" in collaboration with the national central banks of the Eurosystem. The report aims at serving as a reference work for researchers, policy makers and the general public. It describes systematically the structure of the financial systems of the countries constituting the euro zone. The report shows that the euro area financial system is both deep and highly diversified. However, it is changing rapidly. While credit institutions still play a pivotal role in the euro area economy, non-financial sectors have been redirecting their funds increasingly towards new forms of financial intermediation. The report also notes the increased scope for non-financial corporations to use debt securities for their financing.

The policy relevance of financial integration and financial linkages that the network set as a main priority area at its inception two years ago has been confirmed by various initiatives recently taken by other institutions. For example, the IMF research department has started a strongly related "Global Linkages" initiative. It organised a conference on "Global Linkages" in Washington, D.C. on 30-31 January 2003 to explore how economic linkages across countries have changed in recent years and what implications these changes have for policy makers in developed and emerging markets. This initiative is strongly related to the network priority on international financial linkages.

The OECD also appears to be planning a related initiative on financial integration and the ability of financial systems to absorb shocks.

Finally, a purely academic network initiative by the Center for Economic Policy Research (CEPR) on "International financial integration", aiming to improve understanding of the link between financial integration and financial efficiency, and between financial efficiency and economic performance, has recently been submitted for funding to the European Commission. This proposed initiative is quite similar to the present network. The Commission decided to put it on hold.

6 Gaspar, V., P. Hartmann and O. Sleijpen (eds., 2003), *The Transformation of the European Financial System*, Proceedings of the 2nd ECB Central Banking Conference, Frankfurt: European Central Bank.

4 RESULTS OF THE NETWORK

This section reviews the main results of the network, going through the five priority areas, as formulated in the network "roadmap". What follows is a selection of particularly relevant results, as it is impossible to summarise all papers that were contributed to the network events. A summary of all contributed papers is available in Annexes B, D, E and F.

4.1 RESULTS IN PRIORITY AREAS

4.1.1 BANK COMPETITION AND THE GEOGRAPHICAL SCOPE OF BANKING

Results reveal that, first, integration is not very advanced in many retail banking markets. Second, some of the inherent characteristics of the traditional loan and deposit business constrain the cross-border expansion of commercial banking, even in a common currency area. Hence, the implementation of some policies to foster cross-border integration of retail banking may be ineffective. Third, theoretical research suggests that supervisory structures may not be neutral towards further European banking integration. Finally, a stronger role of area-wide competition policies could be beneficial for further banking integration. This would also stimulate economic growth, as more competition in the banking sector induces financially dependent firms to grow more.

The ECB Occasional Paper on measuring financial integration in the euro area by Lieven Baele (Ghent University), Annalisa Ferrando, Peter Hördahl, Elizaveta Krylova and Cyril Monnet (all ECB; see the symposium) finds that the degree of integration varies in the different segments of the retail banking markets. In the corporate lending market, short-term and medium- and long-term lending markets are still segmented. Short-term corporate lending is least integrated. Household mortgage loan rates appear to have become more uniform across countries, while the consumer credit segment remains highly fragmented. This price-based evidence is confirmed by quantity-based evidence showing that cross-border activities within the euro area are still limited in the retail-banking markets. In this sense, there are also clear signs of persistence in strong home biases in lending and borrowing to non-financial corporations and households.

Findings presented by Steven Ongena (Tilburg University) at the launching workshop and the second workshop confirm the home bias' persistence. Empirical evidence shows that large multinational corporations still prefer small local institutions to global financial institutions for their local cash management – i.e. short-term lending, liquidity management, etc. This is surprising, as one would expect multinational corporations to be the first beneficiaries of global banks. His studies also point to informational and political barriers that limit mergers and acquisition in banking. In particular, there is evidence that banks "over-invest" domestically. Furthermore Luigi Guiso (University of Sassari), Paola Sapienza (Northwestern University) and Luigi Zingales (University of Chicago) reported evidence in the launching workshop that even if financial markets become increasingly integrated, domestic financial institutions do not become redundant. These results suggest that local financial development and therefore local banks are an important determinant of a region's economic success, even in an environment where there are no frictions impeding capital movements. All in all, traditional retail loan and deposit business appears to solve economic frictions in a way that is difficult to reconcile with cross-border expansions comparable to the one observed for wholesale business.

Simple measures such as facilitating domestic competition have been put forward in order to facilitate mergers and acquisitions. Leo Kaas (University of Konstanz and Lamfalussy fellow) has addressed theoretically the consequences that policies favouring foreign banks' entry into a domestic banking sector would have on competition, bank stability and

economic welfare. His results suggest that policies favouring foreign banks' competition would improve welfare if incumbent banks were somehow less efficient. In addition, two papers have studied the effects of competition in banking. In the symposium, Hans Degryse and Steven Ongena (both Tilburg University) reported empirical results suggesting that when bank branches face stiff local competition, they engage relatively more in relationship-based lending. The effect of competition on industry specialisation is much less pronounced. The authors concluded that branches of a bank engage somewhat fewer borrowers in the same industry if local market concentration decreases. Finally, they also reported that the probability of observing relationship banking decreases significantly with the distance separating the borrower from the lender. Stijn Claessens (University of Amsterdam) and Luc Laeven (World Bank) tested empirically whether competition in the banking sector is beneficial to economic growth. Their results depend upon the degree of financial development. In less developed countries, sectors that are financially dependent grow slower when the financial system is more competitive, while in developed countries more competition is associated with higher growth. More precisely, financially dependent firms will grow by 1.5% per annum more if the country's financial sector is more competitive. These findings support the view that market power in banking systems might be beneficial to less developed countries but detrimental to industrial countries.

The regulatory and supervisory framework was found to affect the retail credit market. In the launching workshop, Gayle DeLong (Baruch College) and Claudia Buch (Kiel Institute of World Economics) found that regulation is a driving factor behind international mergers: Banks operating in a more regulated environment are less likely to be the target of international bank mergers. Hence, regulatory barriers are an impediment to further mergers and acquisitions. Also in the launching workshop, Harry Huizinga (Tilburg University and European Commission) and Gaetan Nicodeme (European Commission) found that international non-bank depositors appear to favour banking systems covered by explicit deposit insurance and they are attracted to systems with co-insurance, a private administration, and a low deposit insurance premium. The sensitivity of non-bank deposits to deposit insurance policies opens up the possibility of international regulatory competition in this area. A theoretical analysis by Giovanni dell'Ariccia (IMF) and Robert Marquez (University of Maryland), also presented at the launching workshop, shows that a centralised regulator would increase efficiency at the cost of flexibility in applying different regulations to countries with different financial systems. The benefits of a single regulatory framework therefore heavily depend on the symmetry in the financial systems of the relevant countries.

Finally, the joint consequences of bank sector consolidation on reserves holdings and inter-bank market liquidity have been analysed theoretically by Elena Carletti (CFS), Philipp Hartmann (ECB) and Giancarlo Spagnolo (Sveriges Riksbank and University of Mannheim), who presented their results at the launching workshop. They conclude that a merger wave leading to greater banking system heterogeneity is more likely to generate an adverse outcome in terms of the aggregate liquidity needed. In contrast, a merger movement that leaves behind relatively little heterogeneity in banks' balance sheets may leave inter-bank market liquidity unaffected or even improve it.

4.1.2 EUROPEAN BOND MARKETS

While the government bond market has integrated rapidly with the EMU convergence process, its full integration has not yet been achieved. The introduction of a common electronic trading platform reduced transaction costs substantially, but yield spreads of long-term sovereign bonds of the euro area are still heterogeneous. This is

largely explained by different sensitivities to an international risk factor, whereas liquidity differentials only play a role in conjunction with this latter factor. Somewhat surprisingly in this context, the dynamically developing corporate bond market exhibits a relatively high level of integration. There is also increasing evidence that the introduction of the euro has contributed to a reduction in the cost of capital in the euro area, in particular through the reduction of corporate bond underwriting fees. As a result, firms may wish to increase bond financing relative to equity financing. The development of a larger corporate bond market is also important for monetary policy. For example, US evidence suggests that the rating of corporate bonds may contribute to the persistence of recessions, as rating agencies' policies affect firms asymmetrically in their access to the bond market over the business cycle. US evidence also suggests that liquidity conditions in stock and bond markets tend to be positively correlated.

The government bond market integrated significantly with the EMU convergence process and with some efforts to harmonise issuing procedures and conventions. For example, there is also a longer trend in the gradual reduction in the home bias of government bond investments. However, empirical results from the ECB Occasional Paper on measures of integration presented at the symposium also indicate that full integration of the government bond market has not yet been achieved. For example, while the level of convergence in yields is impressive, yields of government bonds with similar, or in some cases identical, credit risk and maturity have not entirely converged. Typically, yields on 10-year euro area government bonds may differ by around 15-20 basis points between different countries.

To explain the persistent yield differentials observed between long-term sovereign bonds in the euro area, Carlo Favero (Bocconi University), Marco Pagano (University of Salerno) and Ernst-Ludwig von Thadden (University of Mannheim) identify the relative roles of an international risk factor (measured as the differential between high-risk US corporate bonds and US government bonds) and liquidity differentials. At the symposium, they argued that liquidity differentials alone do not explain much of the yield differentials. The differentials are largely explained by varying sensitivities of local yields to the international risk factor. Liquidity only plays a role when interacting with the international risk factor.

Most European government bonds are now traded on MTS, the single international platform. Lamfalussy fellow Albert Menkveld (Vrije Universiteit Amsterdam), Yiu Cheung and Frank de Jong (both University of Amsterdam) conducted a microstructure study of MTS, showing that national order imbalances appear to be diversifiable across all market participants. More precisely, none of the national order imbalances in the government bond markets of Germany, France, Italy or Belgium affects benchmark yield (i.e. German yield) innovations. Governments have also a lot to gain from integration and well designed markets. The design of markets is crucial for their integration and the prevailing prices. Specifically, differences in the microstructure of the European treasury bills market across countries and through time affect short-term yields in government treasury auctions, and thus the cost of funds for governments. In particular, as shown in the paper by Bruno Biais, Antoine Renucci and Gilles Saint-Paul (all University of Toulouse) presented at the symposium, regularly issuing bills significantly reduces yields. Also, when bills are traded on a centralised, transparent electronic limit order book, such as MTS, their liquidity rises and the yields decline significantly. Governments could therefore enhance liquidity and reduce yields and the costs of their funds by efficiently designing Treasury securities and issuing procedures, as well as by promoting modern trading systems. Biais et al. estimate, for example, that by designing Treasury auctions more efficiently

governments could raise up to €350.19 million more than they do presently.

The ECB Occasional Paper on measures of integration also reports price-based integration measures for corporate bond markets in a subset of six euro area countries. These measures suggest that, somewhat surprisingly, the level of integration is reasonably high in this young and rapidly expanding market. Specifically, the country where a bond is issued has only marginal explanatory power for the cross-section of corporate bond yield spreads, once a number of systematic risk factors are corrected for. Quantity-based indicators tend to support this conclusion. Considering the proportion of assets invested in bond market funds with a European-wide investment horizon between 1998 and 2002 the market share of European-wide managed bond funds (both government and corporate) increased dramatically, from below 20% to above 60% (on average), indicating a drastic reduction in the home bias of bond portfolios in the euro area. This is even more striking when comparing it with the home bias in cross-Atlantic portfolios of corporate loans. At the symposium, Mark Carey and Greg Nini (both Federal Reserve Board) provided empirical evidence that interest rate spreads on syndicated corporate loans are on average 30 basis points lower in Europe than in the US. The authors conclude that the syndicated loan markets in Europe and the US might not be fully integrated and presume that the explanation for the home bias they observe in the data may be an important factor for understanding this pricing difference.

There is increasing evidence that the euro's introduction has contributed to a reduction in the cost of capital in the euro area. Arturo Bris (Yale University), Yrjo Koskinen (Stockholm School of Economics) and Mattias Nilsson (Stockholm Institute for Financial Research) showed at the second workshop that the introduction of the euro has lowered firms' cost of capital by further increasing capital market integration in Europe and by eliminating currency risks among the countries that joined EMU. More precisely, they showed that the valuations of large firms in euro land (as measured by Tobin's Q) in the period 1998-2000 increased by 7.9% per year relative to firms in non-EMU countries, after controlling for firm-, country- and time-specific effects.

Also, at the launching workshop, Kostas Tsatsaronis (BIS) and João Santos (Federal Reserve Bank of New York) showed that the euro led to a reduction in the underwriting fees of international corporate bonds issued in the new currency and that this reduction is largely explained by greater contestability of the investment banking business in the post-EMU European market. There was a clear global downward trend in fees over the 1994-2001 period, with value-weighted average fees for 2001 standing 86 basis points below their 1994 levels, the equivalent of a 37% reduction, which is largely attributable to a sharp drop in the euro-denominated segment. As a result, underwriting fees for euro-denominated corporate bonds are now at the same level as in the dollar segment of this market.

As a consequence of the lower borrowing costs for firms, bond markets are expected to develop further. This is important, given that Goizueta Taurn Chordia (Emory University), Arsani Sarkar (Federal Reserve Bank of New York) and Avanidhar Subrahmanyam (University of California, Los Angeles) showed that the liquidity of US Treasury bond markets is significantly and positively correlated with the monetary policy stance during crises. They found that the ratio of net borrowed reserves over total reserves in crisis times explains about 4.5% of the variation in bond spread after 2 months.[7]

Another issue in firm financing is the issuance of corporate bonds. In the third workshop, Yigal Newman (Stanford University and

7 The authors consider three crises: The bond market crisis of 1994, the Asian financial crisis of 1997 and the Russian default/LTCM crisis of 1998.

Lamfalussy fellow) and Michael Rierson (Citigroup) documented that a very large firm's new issues of corporate bonds can temporarily raise the yield spreads of bonds issued by other firms.[8] They also show that the increase in yield spreads begins well before the issuance date. The temporary aspect of the effect and the fact that it happens relatively close to the date of issuance rather than to the announcement suggests that this effect is not due to new fundamental information about the issuer that may be revealed during the issuance process.

Finally, João Santos argued in the third workshop that rating agencies' policies affect firms asymmetrically in their access to the bond market over the business cycle. As a consequence, the impact of recessions across firms is not uniform. The cost of capital increases most for mid-credit quality firms. As ratings become increasingly uncertain in recessions, information becomes more asymmetric. Uncertainty about the quality of those firms then raises the cost of access to capital. As a consequence, recessions will tend to last longer in the presence of asymmetric information than in its absence.

4.1.3 EUROPEAN SECURITIES SETTLEMENT SYSTEMS

European securities settlement infrastructures are highly fragmented and further integration and/or consolidation would exploit economies of scale that could greatly benefit investors. It is not clear, however, whether direct public intervention in favour of consolidation would lead to the highest level of efficiency, for example because of the existence of strong vertical integration between trading and securities platforms ("silos"). In contrast, promoting open access to clearing and settlement systems could lead to consolidation and the highest level of efficiency. Finally, regarding concerns about unfair practices by Central Securities Depositories (CSDs) toward custodian banks, regulatory interventions favouring custodian banks should be discouraged, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

The two Giovannini reports (2001, 2003) stressed the need to improve significantly the structure of securities clearing and settlement systems in Europe, especially regarding cross-border settlement. Legal and technical barriers to further integration were highlighted. Given the Giovannini group's already very comprehensive work in analysing barriers to consolidation, the network focused on somewhat complementary issues. Two points were particularly addressed. First, there is a lot to gain in Europe from further consolidation of securities settlement systems. Second, in addition to the barriers highlighted in the Giovannini reports, there may be intrinsic features of the securities trading and settlement industry that prevent consolidation.

Regarding the first point, Markku Malkamaki (Bank of Finland), Heiko Schmiedel (ECB) and Juha Tarkka (Bank of Finland) investigated the existence and extent of economies of scale in depository and settlement systems. They presented their results at the third workshop. They showed that settlement in Europe is 33% more costly than in the US, as the average cost per settled transaction is $3.86 in Europe and only $2.90 in the US domestic market. This difference is partly explained by segmentation in the European market, as the average cost for operating an international CSD in Europe is $40.54, relative to $3.11 for a domestic one. However, looking at the exploitation of economies of scale in Europe and the US, they also showed that systems on the other side of the Atlantic are operating at a much more efficient level. The European settlement infrastructures show a strong potential for cost saving: Costs will increase by a factor of only 0.7 when the number of instructions increases by 1 – whereas the analogous factor for the US is 0.9. Hence, Europe has a lot to gain from

8 For this paper, Newman received the 2004 European Finance Association award for the best Ph. D. paper.

further consolidation. This has also been shown in the symposium by Jens Tapking (ECB) and Jing Yang (Bank of England), who theoretically analysed, in a two-country model, welfare implications of vertical and horizontal integration. They show that both vertical integration of trading platforms and settlement systems and horizontal integration of settlement systems are welfare improving. However, given the level of complexity in EU international securities settlement systems, the effectiveness of settlement industry infrastructure may benefit from further initiatives simplifying the procedure for cross-border settlement, as for instance advocated in the second Giovannini report (2002).

Cyril Monnet (ECB) and Thorsten Koeppl (ECB) argued at the third workshop that lifting all legal and technical barriers to consolidation may not suffice to ensure that the best forms of consolidation take place. They analysed theoretically the role of vertical "silos" in securities market organisation for efficient horizontal consolidation between components of the silo, i.e., exchanges and back-office operations such as clearing and settlement. An efficient merger is characterised by the lowest cost of clearing and settlement. The paper shows that it is impossible to achieve such a merger when silos are in place because the lack of information about the competitor's cost structure raises the costs of achieving an efficient merger. These additional costs can never be covered with the revenues of the merger, as they increase with the revenues. The authors then showed that exchanges can achieve an efficient merger by outsourcing their own settlement operation, respectively, as long as each settlement system competes for settling all trades of the merged exchange. Hence, they argue that fostering competition and open access to securities settlement systems may be required.

Regarding the efficient design of the structure of securities settlement systems, Cornelia Holthausen and Jens Tapking (both ECB) tackled the issue of the pricing strategy of Central Securities Depositories relative to custodian banks at the third workshop. Both CSDs and custodian banks provide the same service, but custodian banks often need to resort to CSDs. In an environment where CSDs' pricing strategies do not discriminate between custodian banks and usual investor banks, Holthausen and Tapking showed that CSDs can increase the costs of custodian banks by increasing the variable part of their price schedule. The equilibrium market share of the CSD is relatively high and the equilibrium is usually not efficient. However, whether the efficient market share of the CSD is higher or smaller than the equilibrium market share depends on the parameters. The authors concluded that regarding concerns about unfair practices by CSDs toward custodian banks, regulatory interventions favouring custodian banks should be discouraged, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

Also related to the efficient design of this industry, Giulia Iori (University College London and Lamfalussy fellow) presented at the symposium a study on the efficiency and stability of alternative designs for securities clearing and settlement infrastructures. She assumes that settlement takes place in batches throughout the day and that settlement can be delayed. She found that increasing the frequency of settlement (and therefore approximating real-time settlement) increases the likelihood of failure but reduces the systemic effects from a failure. As a consequence, the shorter the interval between settlement batches, the more stable gross settlement systems are compared with net settlement systems, and vice-versa.

4.1.4 THE EMERGENCE AND EVOLUTION OF NEW MARKETS IN EUROPE (IN PARTICULAR START-UP FINANCING MARKETS)

Relative to the United States, European "new markets" and start-up financing are relatively little developed and integrated. However, new markets and venture capitalists are the most important intermediaries for the financing of projects with high risk and with potentially very high return. The analysis carried out within the network reveals that European start-up financiers are mostly institutional investors, while US venture capitalists are mostly rich individuals. Also, new equity markets are essential for the development of start-up finance in Europe, as they provide an exit strategy for start-up financiers, who can then sell new successful firms using initial public offerings. Finally the legal framework affects the development of venture capital firms. For example, very strict personal bankruptcy laws constrain early stage entrepreneurs, reducing demand for venture capital finance.

Marco Da Rin (University of Turin) described at the third workshop key characteristics and issues in the European venture capital industry. During the 1990s, the European venture capital (VC) industry invested 50% less than its US counterpart, showing the relative underdevelopment of this industry in Europe. Also, its characteristics are different. The European landscape of VC firms is highly captive, with an important presence of bank subsidiaries, corporate VC firms and public VCs. Typically, these types of VC firms invest less in early stage and high-technology projects and provide less soft support to private companies compared with individual venture capital. There is also evidence that the goal of European VCs is to sell their firms. As shown by Giovanna Nicodano, Marco Da Rin and Alessandro Sembenelli (all University of Turin) at the third workshop, the creation of New Markets could therefore foster the creation of VC firms, as additional exit opportunities create further incentives for VCs to invest. However, Da Rin reported findings suggesting that European VCs might actually not make a difference for the companies they are financing. While VC-backed companies raise more capital with IPOs than mature firms, they do not tend to grow faster than these other firms. At the third workshop, Tereza Tykvová (Center for European Economic Research, Mannheim) and Uwe Walz (University of Frankfurt and CFS) brought additional evidence that firms backed by bank-dependent and public VCs have significantly lower market value relative to firms backed by independent VCs. In general, firms backed by independent VCs perform better and display a lower return volatility than firms of other VCs or non venture-backed firms.

Marco Da Rin (University of Turin) reported that VC firms are investing very locally and usually less than 10% of the partners come from abroad. Also, cross-border investments of VC firms represents less than 2% of total investments. Finally, less than a third of funds originate from foreign investors. Most foreign investors are from the US and are concentrated in only a small number of firms. This shows a very low degree of integration in this sector. As for characteristics limiting integration in the credit markets, this may be explained by the nature of the VC industry, which is quite different from that of other financial intermediaries: VC makes localised and undiversified investments; is based on human rather than financial capital and has a small number of investors. However, financial integration could indirectly restructure the VC industry through its affect on the allocation of funds and the changes in the EU economic structure, notably on the listing ability of new firms. In this regard, financial integration may improve exit channels for VC and reallocate talent and human capital.

Finally, the legal framework surrounding early finance can also greatly affect the VC industry and the development of New Markets. At the third workshop, Douglas Cumming (University

of Alberta) and John Armour (Cambridge University) reported that very strict personal bankruptcy laws discourage early stage entrepreneurs and therefore significantly reduce the demand for VC finance.

4.1.5 INTERNATIONAL PORTFOLIO CHOICES AND ASSET MARKET LINKAGES BETWEEN EUROPE, THE UNITED STATES AND JAPAN

At a global scale, asset market linkages have increased recently. For example, major economies such as the United States and the euro area have become more financially interdependent. This phenomenon can be observed in stock and bond markets as well as in money markets, where the main direction of spillovers has recently been from the US to the euro area. Country-specific shocks now play a smaller role in explaining stock return variations of firms whose sales are internationally diversified. Increases in firm-by-firm market linkages are a global phenomenon, but they are stronger within the euro area than in the rest of the world. Various other phenomena also increase market linkages and therefore the likelihood that financial shocks spread across countries. One example is the use of global bonds. Finally, the nowadays more direct access of unsophisticated investors to financial markets may increase volatility.

Robin Brooks (IMF) and Marco Del Negro (Federal Reserve Bank of Atlanta) reported at the launching workshop that the degree of co-movement across national stock markets has increased dramatically in recent years. They found that the ability of country-specific effects to explain international variation in asset and sales growth and return fell significantly during the late 1990s, while the explanatory power of global industry effects increased and in some cases surpassed that of country effects. Yet, this question is not settled. Although Geert Rouwenhorst (Yale University) reckoned at the second workshop that there are some grounds to believe that international linkages are becoming stronger, he presented evidence that country effects are still large. Where firms are located still appears to matter more than what they actually produce, although there is evidence that at the European level industry effects are gaining further importance.

Stronger international linkages may be explained by growing cross-listings. Michael Halling (University of Vienna), Marco Pagano (University of Salerno), Otto Randl and Josef Zechner (both University of Vienna) reported at the symposium that more companies are listing their shares, not only on their domestic stock exchange, but also on foreign exchanges. They found that cross listing initially raises trading volume in foreign markets, but a declining trend then follows. Although this would suggest a return to the dominance of the domestic market, the decline in foreign trading is quite slow for certain companies. Foreign trading volume turns out to be higher for export-oriented companies and for companies that cross-list on foreign exchanges with lower trading costs and better insider trading protection. Also, small, high-growth and high-technology firms tend to have relatively high foreign trading activity.

Investors, as firms, are seeking ways to exploit financing capacities of all markets by creating instruments, such as global bonds, that can be simultaneously traded in multiple markets. Darius Miller (Indiana University) and John Puthenpurackal (Ohio State University) reported at the third workshop that global bonds are likely to be an expanding form of finance, as this instrument reduces the cost of debt capital. According to their study, the borrowing costs for global bonds are 15 basis points lower than on those of comparable US domestic bonds. Moreover, issuing costs of global bonds are 13 basis points lower than those of US domestic bonds. Making these types of instruments more attractive will undoubtedly bring additional linkages between Europe, the US and Japan, thus increasing the risk of volatility spillovers among the different markets.

Examining the effects of monetary policy announcements and macroeconomic news on interest rates in the money markets, Michael Ehrmann and Marcel Fratzscher (both ECB) at the second workshop already reported evidence that the spill-over effects are stronger from the US to the euro area than vice versa. They also found that since the introduction of the euro the cross-Atlantic interdependence of money markets has steadily increased. In a similar vein, Michael Fleming (Federal Reserve Bank of New York) and Jose Lopez (Federal Reserve Bank of San Francisco) examined at the third workshop whether information from other trading centres affect intra-market variances for US treasury bonds in London, New York and Tokyo. They find strong evidence that volatility spills over from New York to London and Tokyo but not the reverse.

Increased volatility spillovers may become worrisome with the "democratisation" of access to financial markets. Michael Haliassos (University of Cyprus), Luigi Guiso (University of Sassari) and Tullio Jappelli (University of Salerno) presented evidence at the second workshop that lower access costs brings less sophisticated investors into stock markets, with the potential consequence of inducing greater volatility. For example, unsophisticated investors can react excessively to market signals, e.g., because of small investors' limited ability to withstand financial pressure. This suggests that it would be wise to consider policies that can reduce volatility, such as improving the flow of accurate financial information.

Cross-border asset holdings are also encouraged by the harmonisation of securities regulation, as Jonas Vlachos (University of Chicago) showed at the symposium. Institutional or cultural differences have negative effects on bilateral asset holdings, and results for regulatory differences are robust even after taking these effects into account. Hence, with increased cross-border asset holdings, local markets will be populated with investors that have more diverse information and portfolios. The presence of heterogeneous investors in stock markets has been analysed by Rui Albuquerque (University of Rochester and Lamfalussy fellow), Gregory Bauer (University of Rochester) and Martin Schneider (New York University), who showed that this heterogeneity is crucial for explaining international portfolio choices. They propose a model of international portfolio choice where investors are heterogeneous, both within a country and across countries. Bringing the model to the data, their main finding is that domestic heterogeneity of investors is much more important than cross-country heterogeneity.

4.2 RESULTS IN OTHER AREAS

Financial integration affects financial structures, but it does not need to lead to their convergence across countries. Financial structures matter for growth, as market-oriented financial systems benefit all sectors and firms, whereas bank-based systems primarily benefit younger firms that depend on external finance. Moreover, good corporate governance increases firms' value. In particular, the dual board system, where the monitoring and advising roles of the board of directors are separated, is found to dominate the single board structure. Therefore, the further development of the European single market should strongly require good corporate governance. In general, well designed institutions foster entrepreneurial activity, partly by relaxing capital constraints.

In "The euro-area financial system: Structure, integration and policy initiatives", Philipp Hartmann, Angela Maddaloni and Simone Manganelli (all ECB) provide an overview of the current structure and integration of the euro-area financial systems and related policy initiatives. They document how the euro-area financial structure is placed somewhat in between those of the US and Japan, with financial institutions playing an important role, but with market-based instruments developing

further. They find that financial integration has progressed quickly in some of the main euro-area financial segments, such as the unsecured money market, but rather slowly in others, such as retail banking. Despite further financial integration, they also show evidence that in various dimensions the financial structures of euro-area countries seem to become more diverse over time. Apparently, progress in financial integration does not imply convergence of financial structures.

At the symposium, Solomon Tadesse (University of South Carolina) provided empirical evidence of the impact of financial structure (bank-based or market-based) on technological innovation. Market-based financial systems have an overall positive effect on technological progress. However, financial structure appears to affect industries heterogeneously. In particular, industries whose small and young firms are relatively more dependent on external finance fare better in bank-based financial systems. Hence, financial structure plays an important role in shaping a country's industrial structure.

Related to financial structure is the question of why banks adopt multiple lending, i.e., why banks share financing of a single firm with other banks. Elena Carletti (CFS), Vittoria Cerasi (University of Milan) and Sonja Daltung (Sveriges Riksbank) tackled the effects of multiple-bank lending at the symposium. First it improves banks' monitoring incentives by allowing them to finance more projects and therefore achieve greater diversification. Second, it entails free-riding problems and duplication of efforts, thus reducing banks' incentives. Multiple lending is optimal whenever the first effect dominates the second. The model predicts a greater use of multiple-bank lending when banks are small relative to the projects they finance, when firms are less profitable and when poor financial integration, strict regulation and inefficient judicial systems make monitoring more costly.

Finally, three noteworthy papers on firm financing and corporate governance were presented at the symposium. First, Mihir Desai, Paul Gompers and Josh Lerner (all Harvard University) investigated the importance of the institutional framework for entrepreneurial activity in Western and Central and Eastern European (CEE) regions. The authors identified a particular sensitivity of entrepreneurial activity to institutional factors (corruption/fairness, protection of property rights, well-functioning legal system) in countries of the CEE region. In particular, less corruption and better protection of property rights increase entry and reduce exit of firms. This supports the view that well-designed institutions foster entrepreneurial activity in emerging countries, partly through the positive impact on relaxing capital constraints.

Second, Renée Adams and Daniel Ferreira (both Stockholm School of Economics) addressed the question of why – unlike in the US – European governance structures rely on a "dual" board system, which separates the monitoring and advising roles of the board of directors. In their model revealing information and getting advice enables the manager to make better decisions, but this might increase his probability of getting fired when this information changes the board's opinion about his ability. This trade-off provides a rationale for the board to reduce its monitoring activity up-front whenever it is not too costly to induce the manager to reveal his information. The authors show further that the first-best level of monitoring can be attained when a "dual" board system is used. Hence, when given the choice between a single and a dual board system, as in the new European company statute, firms may be advised to rather adopt the dual board system.

Finally, Mariassunta Giannetti and Andrei Simonov (both Stockholm School of Economics) found at the second workshop that investors are more likely to buy a firm's stock when the ratio of control to cash-flow rights of the principal shareholder – expected to be

positively correlated with the extraction of private benefits in a firm, and therefore used as a proxy for bad governance – is lower. Improved corporate governance has a stronger effect on sophisticated investors, like financial institutions and foreign investors, while large domestic investors and individuals who are board members do not base their investment decisions on corporate governance grounds. Corporate governance is therefore an important aspect in understanding portfolio choices across countries.

5 FUTURE STEPS: CONTINUATION OF THE NETWORK AND OF THE LAMFALUSSY RESEARCH FELLOWSHIP PROGRAM

In its two years, the network has achieved the goals it formulated at the start. It provided a forum in which researchers from academia and policy institutions interested in the evolution of the European financial system regularly meet to discuss their findings. It deepened our understanding of European financial integration by mapping the current European financial market landscape. It also provided theoretical underpinnings for many of the facts observed. Finally, the network stimulated research on securities settlement systems, a research area that hardly existed before.

Based on these achievements, the network will continue for three further years, refocusing its priorities. Three priority areas have been added: 1) The relationship between financial integration and financial stability; 2) EU accession, financial development and financial integration; and 3) financial system modernisation and economic growth in Europe. These three areas have become particularly important at the current juncture, but have not received particularly strong attention in the past two years of the network. The three sub-sections in this section show the motivation for choosing the three additional priorities and list specific questions that could be addressed under them. Moreover, despite the results found in the first two years of the network, there are new developments in the earlier priority areas that merit further exploration.

The Lamfalussy research fellowship program has also been reconfirmed as a tool for fostering research in the network's priority areas. Accordingly, five new fellowships have been attributed for projects pertaining to the new areas of the network described below (see Section 3.2).

5.1 THE RELATIONSHIP BETWEEN FINANCIAL INTEGRATION AND FINANCIAL STABILITY

While an integrated area offers more opportunities to share risk and to allocate capital, it might be less resilient to unexpected and uninsurable shocks, as they may propagate wider and faster. Moreover, it is of interest to know whether greater integration could increase the risk of cross-border contagion in a financial crisis. With the integration of European financial markets going forward, it is important to understand what type of integrated financial structure is the most resilient. The ECB has an obvious interest in this, as in accordance with Article 105(5) of the Treaty, the European System of Central Banks shall "contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system". Furthermore, the ECB research evaluators highlighted financial stability research as an area deserving further development.[9]

As explained in the October 2003 article of the ECB Monthly Bulletin on the integration of Europe's financial markets, a comprehensive review of the EU arrangements for financial regulation, supervision and stability was underway. The review, which should contribute to the further integration of the EU's institutional financial architecture, was initially triggered by the report of the Lamfalussy Committee on the regulation of European securities markets in 2001.[10]

The work of the research network on the relationships between financial integration and financial stability could therefore help shape a view of what this new financial architecture should be. Particularly important questions

9 Goodfriend, M., R. Koenig and R. Repullo (2004), External evaluation of the economic research activities of the European Central Bank, Frankfurt, ECB.

10 Committee of Wise Men (2001), Final report of the committee of wise men on the regulation of European securities markets, Brussels, 15 February.

include: Are market-based or banked-based financial structures more resilient to shocks? How can financial regulations be designed so as to be conducive to integration while still ensuring financial stability? What is the link between financial integration and contagion risk? What are the mechanisms that can trigger contagion and financial fragility? How and to what extent do financial crises affect economic activity? Finally, how does competition in the financial services industry affect the ability of the financial system to withstand shocks?

5.2 EU ACCESSION, FINANCIAL DEVELOPMENT AND FINANCIAL INTEGRATION

As expressed by the President of the ECB, "Assessing the impact of EU enlargement on the European economy is a complex question. Despite the considerable complexity surrounding this issue, one thing that is clear is that EU enlargement will provide new opportunities to trade and investment flows. Many of these effects are visible because of the high degree of economic integration already reached between the present Member States and the acceding countries."[11] Further financial integration is likely to follow swiftly the political and economic integration of these countries in the European Union. There are many ways in which this financial integration can take place. One way, which currently seems to be a dominant one, is that foreign financial institutions acquire financial institutions of new member states.[12] Another way would be the cross-border provision of financial services. Clearly the first is likely to be faster than the second and may develop accession country financial systems faster as well. The example of the "old" EU member states suggests that there are many obstacles to the direct provision of financial services abroad, particularly in retail markets. The heavy presence of foreign financial institutions may, however, pose other challenges for the new member countries, e.g., in the area of financial stability and supervision. All these developments will determine financial structures, development and competition in financial services across the enlarged European Union.

Important questions for further work within the network are therefore the following: What factors explain differences in financial structures across new and old EU member states? What role is financial integration taking in this development? What is the relation between financial integration and financial development? Who benefits from financial development in the process of integration? Are there any risks to financial stability during fast changes in financial structures and institutional arrangements? How will financial integration among accession countries advance relative to integration between accession countries and the previous EU countries?

5.3 FINANCIAL SYSTEM MODERNISATION AND ECONOMIC GROWTH IN EUROPE

The capacity of financial systems to promote economic growth depends not only on their level of integration, but also on their quality and the efficiency with which they channel savings into investment. In other words, when tackling the issue of economic growth, it would be too narrow to place the focus entirely on the level of integration. While several financial systems can be very financially integrated, they may not be developed in such a way as to achieve a greater volume or efficiency of financial intermediation, and therefore may not improve the growth performance of the economy. Financial modernisation and financial development, however, improve the efficiency of financial intermediation, and the process is influenced by many factors other than financial integration. As the network has so far contributed relatively little to issues

11 "The challenges for the European economy in 2004", Speech by Jean-Claude Trichet, President of the European Central Bank, Conference organised by Foro de la Nueva Economia and The Wall Street Journal, Madrid, 29 January 2004.

12 See "Financial Sectors in EU Accession Countries" (Ed. Christian Thimann), ECB, 2002.

regarding the link between finance and growth, this topic has been added as a separate priority area.

Work could focus, in particular, on the following issues: How can one further improve the structure of highly developed financial systems? How can one measure a financial system's success in performing its functions? What are the costs and the benefits of modernising the financial system? What is the best form of corporate governance? What are the implications of uniform accounting standards? What is the best way to incorporate improvements in the structures of the financial system? What is the most effective way to enforce rules?

6 ORGANISATION OF THE NETWORK

The ECB-CFS network is organised as a "network of people" with a particularly light structure. The present section describes its character as a network of people and its internal structure.

6.1 A "NETWORK OF PEOPLE"

The ECB-CFS network was conceived as a "network of people", based on the observation that potential synergies between researchers in NCBs, the ECB and the academic sectors were hardly exploited. It provides a co-ordination device for the best researchers to work together in areas of special interest to the ECB. Hence, a key feature of the network is a strong interaction among all these researchers. A "network of people" means that the goal is not an exhaustive representation of institutions, but rather a collaboration among the best minds researching the network's chosen topics, irrespective of the institution or department in which they work.

Contributions to the ECB-CFS network are made through continuous active participation in the its organised events. Active participation can take several forms, be it as a panel participant, a paper presenter, a discussant or a session chair. The list of contributors to the network during its first phase is available in Annex I. Leading researchers from academia and policy institutions joined the network to benefit from the continuous interaction on a theme of common interest. Participation in the network implies a two-sided commitment. On one side, the CFS and the ECB organise and provide funding for meetings of the SC and for workshops and conferences, establish a network website and intermediate contacts between academic and central bank network participants. On the other side, researchers produce original, publishable research in the fields of the network, present it at the workshops and conferences and make it generally available on the network website. The combination of these factors in the framework of a network and the cross-fertilisation between researchers from different institutions over time results in synergies that lead to productivity and output that goes beyond what can be expected from the simple one-off organisation of traditional seminars and workshops. While the purpose of the network is to produce and stimulate research in the particular fields mentioned above, no attempt is made by the SC to prescribe concrete research projects to network contributors. Explicit priority areas, policy panels and speeches are, however, used to signal to contributors issues of particular importance.

6.2 STRUCTURE

The network initiative was initially envisaged for period of two years and has now been extended for another three years. It is jointly organised by the ECB and the CFS. This shared organisation and the character of a "network of people" had the consequence of keeping the general organisational structure "light", e.g., by sharing the administrative burden.

The network is headed by a Steering Committee (SC). The SC is composed of two ECB representatives, two CFS representatives and leading academic scholars in the main areas of the network. The composition of the SC is reported in Annex J. Apart from managing the network, the role of the SC is also to co-ordinate the involvement of researchers from Eurosystem NCBs and from other European and overseas central banks, such as the US Federal Reserve; and to liaise with researchers in the academic sector. The SC members located in Frankfurt meet regularly, usually every 2 to 4 weeks. Consultation with the outside SC members is conducted through electronic mail.

Also, an NCB Contact Group and an ECB Internal Contact Group were set up to ensure the necessary information exchanges with policy areas of the ECB and with NCBs. The compositions of the two groups are detailed in

Annex K. Members of the two contact groups tend also to be involved in the activities of the network. The existence of these groups, inter alia, allows the network to benefit from a stronger consideration of the relevant policy context.

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EXECUTIVE SUMMARY

The ECB-CFS research network on "Capital Markets and Financial Integration in Europe" aims at stimulating top-level and policy-relevant research, significantly contributing to the understanding of the current and future structure and integration of the financial system in Europe and its international linkages with the United States and Japan. The present document and associated table establish a "roadmap" to help guide work under the network. They (i) define the scope of the network, (ii) identify a set of research areas and (iii) highlight concrete issues where new research looks particularly promising and/or necessary. From the "roadmap", five specific areas, listed below, are considered top priority. These areas will feature as special themes in network workshops, and papers on these topics will receive special consideration for presentation in those workshops.

Work under the network has to fulfil the usual academic standard of being publishable in a peer reviewed journal, while:

(1) dealing with European financial integration, with financial system structures in Europe or with financial linkages between the euro area/European Union, the United States and Japan;

(2) focusing on financial intermediaries, financial markets (including the related settlement infrastructures) or the relationship between finance and the rest of the economy; and

(3) providing a description of/measuring one of the items mentioned under (1) above, explaining driving factors behind these items, discussing obstacles to integration or deriving policy implications on the basis of efficiency or stability considerations.

While the "roadmap" is geared towards applied and policy-relevant questions, both empirical and theoretical research are important and welcomed.

The three criteria referred to above define a large number of relevant topics, which are summarised in the table. The five top priority areas selected are:

(1) bank competition and the geographical scope of banking activities;

(2) international portfolio choices and asset market linkages between Europe, the United States and Japan;

(3) European bond markets;

(4) European securities settlement systems; and

(5) the emergence and evolution of new markets in Europe (in particular start-up financing markets).

1 INTRODUCTION[1]

The ECB-CFS research network on "Capital Markets and Financial Integration" aims at stimulating top-level and policy-relevant research, significantly contributing to the understanding of the current and future structure and integration of the financial system in Europe and its international linkages with the United States and Japan.

The present document and the related table on page 35 establish a "roadmap" to help guide the work under the network. It has been produced under the auspices of the network Steering Committee. It particularly benefited from the "agenda setting" talks given at the launching workshop of the network, as well as from comments by workshop participants and ECB staff.

More in detail, the purpose of this "roadmap" is

(i) to define the scope of the network,
(ii) to identify a set of research areas and
(iii) to highlight concrete issues where new research looks particularly promising and/or necessary.

The document is structured as follows. Section 2 summarises the structure of the "roadmap", thereby defining the scope of the network. Section 3 provides brief descriptions of the specific research topics from the "roadmap". Finally, section 4 defines a small number of priority areas, which will feature as special themes in the network workshops.

1 The views expressed in this document do not necessarily represent the views of the European Central Bank (ECB), the Eurosystem or the Center for Financial Studies (CFS). It has benefited from comments by Franklin Allen, Ignazio Angeloni, Claudia Buch, Giorgio Calcagnini, Mark Carey, Vítor Gaspar, Reint Gropp, Hanna Hempell, Heinz Herrmann, Peter Hördahl, Cornelia Holthausen, Harry Huizinga, Stephane Kerjean, Stefanie Kleimeier, Jan-Pieter Krahnen, Philip Lane, Guillaume Leclercq, Angela Maddaloni, Simone Manganelli, Arnaud Mehl, Christina Metz, Cyril Monnet, Per Nymand-Andersen, Steven Ongena, Charlotte Ostergaard, Marco Pagano, Chryssa Papathanassiou, Enrico Perotti, Harald Sander, João Santos, Martin Scheicher, Sandrine Scheller, Giancarlo Spagnolo, Mikael Stenstrom, Evangelos Tabakis, Jens Tapking, Christian Upper and Jukka Vesala.

Table Summary of the "roadmap"

<table>
<tr><th colspan="2">Main research areas →
Financial system segments ↓</th><th colspan="3">European financial integration and financial linkages with the United States and Japan</th><th colspan="2">Financial system structures in Europe</th></tr>
<tr><td rowspan="3">Financial intermediaries</td><td>Banks</td><td colspan="2" rowspan="3">• Geographical scope of banking and lending relationships
• The optimal degree and implications of bank competition
• Determinants of bank mergers (in particular cross-border)
• Implications of bank consolidation (e.g. for credit and interbank markets)
• International portfolio choices of institutional investors (mutual funds, pension funds, re-insurance companies, etc.)</td><td rowspan="8">• Description and measurement
of:
– price linkages,
– the geographical scope of lending and investment, and
– the relative importance of funding sources.
Particular importance is given to developing new measures, using microdata to address aggregate phenomena and undertaking comparisons across EU countries, the United States and Japan

• Driving factors
are:
– competition,
– co-operation and
– public action
as well as interactions between them.
(What is the role of the euro?)

• Obstacles
are, e.g.:
– different legal and tax systems,
– heterogeneous regulatory approaches,
– incompatible industry standards (e.g. accounting and disclosure) and
– cultural and language barriers.

• Policy implications
Effects on efficiency, financial stability, growth and welfare.</td><td colspan="2" rowspan="3">• Bank vs. market financing
• Resiliency of the financial system
• Risk-sharing with bank intermediation
• Specialisation vs. universal banking
• Efficiency of European banks
• Ownership structures of financial intermediaries
• Insolvency regimes
• Transparency and accounting rules
• Technology and financial services (internet banking, financial e-commerce, etc.)</td></tr>
<tr><td>Securities firms</td></tr>
<tr><td>Insurance companies</td></tr>
<tr><td rowspan="4">Financial markets</td><td>Equity</td><td rowspan="4">• Asset price and volatility linkages across countries and their changes
• Determinants of market returns (country-specific vs. euro area wide, domestic vs. external)
• Contagion and crisis linkages
• Determinants of inter-national portfolio flows
• Restructuring of settlement infrastructures (fragmentation and potential reform of the securities settlement industry, determinants and role of cross-border settlement costs)</td><td>• Consolidation of stock exchanges
• Foreign listings and the role of depository receipts
• Relative importance of sector and country effects</td><td rowspan="4">• Importance and determinants of the breadth and completeness of markets / financial innovation (development of repo and derivative markets, breadth of risk profiles, emergence of commercial paper, index-linked bonds and mortgage-backed securities markets etc.)
• Role of legal systems
• Liquidity in secondary markets
• Market micro-structures
• Role of electronic market trading platforms
• Organisation of primary markets</td><td>• Private vs. public equity
• Equity vs. debt financing
• Corporate governance and control (forms of corporate control, board turn-over, shareholder rights)
• Accounting conventions and market volatility</td></tr>
<tr><td>Fixed income (money and bond markets)</td><td>• Determinants of inflation, liquidity and default risk premia
• Substitutability of government bonds from different sovereign issuers
• Integration of repo markets</td><td>• Selection of benchmark bonds/yield curves
• Market expectations and the predictability of monetary policy
• Size and development of corporate bond markets
• Which liabilities replaced by corporate bond growth?</td></tr>
<tr><td>Foreign exchange</td><td>• Capital flows and exchange rates</td><td>• Market microstructure and exchange rates</td></tr>
<tr><td>Clearing and settlement infrastructure</td><td></td><td>• Optimal securities settlement system structures (e.g. concentration)</td></tr>
<tr><td colspan="2">Finance and the Economy</td><td colspan="2">• Determinants of country investment portfolios (including households) and the home bias phenomenon
• Goods market and financial integration
• Globalisation and the increasing role of capital flows
• Synchronisation of international business cycles</td><td colspan="2">• Determinants of the cost of capital and economic growth
• Start-up financing
• Financial indicators of economic growth and other underlying economic variables</td></tr>
</table>

2 THE STRUCTURE OF THE "ROADMAP"

The "roadmap" is summarised in the table on page 35, which has the following structure. It has three broad dimensions: (i) the columns describe the main broad research areas; (ii) the rows describe the main segments of a financial system; (iii) the large and shaded inner box describes the main broad approaches and factors that apply to all dimensions defined by research areas (i) and (ii) above. Finally, the cells of the table contain a selection of bullet points, which highlight concrete topics or issues that are of particular importance. Next, the three broad dimensions will be described in greater detail.

There are three distinct, but not unrelated, *main broad research areas*: (i) European financial integration, (ii) financial system structures in Europe and (iii) financial linkages between the euro area/European Union (EU), the United States and Japan. For presentational reasons, the first and the third areas have been put together in the first column of the table, while the second area has been put in the second column. The first column describes the area of research on *financial integration and financial linkages between different* ***geographical*** *entities*. In other words, this dimension of the work of the network deals with cross-country or cross-regional linkages within the euro area/EU and with linkages between the euro area/EU, the United States and Japan. Financial linkages are defined by relationships between prices and by relationships between quantities across the relevant geographical entities, mainly countries. The second column describes the area that deals with the *structure of the euro area/EU financial system as a whole* in terms of the importance of the different **ways of financial intermediation and** the different **sources of funding**. Depending on the ways of intermediation and the sources of funding, different types of financial systems can be distinguished. Given that the financial systems in different euro area/EU countries are not fully homogeneous, this broad area also includes comparative work on the structure of different financial systems in various countries.

The *main segments of a financial system* are traditionally differentiated by referring to financial intermediaries, on the one hand, and financial markets, on the other. Apart from focusing on financial integration, linkages and structure with respect to institutions and markets, the network also intends to include work on the interaction between the financial system (in the narrow sense) and the rest of the economy. Among the *financial intermediaries*, banks should receive special attention, but the network also intends to spur more work on securities firms (such as mutual funds) and insurance/re-insurance companies. In terms of *financial markets*, the network covers fixed income (bond and money markets), equity and foreign exchange markets, as well as the related securities clearing and settlement infrastructures. As to the *relation between the financial system and the rest of the economy*, there is a special interest in the implications of features of the financial system for economic activity and the importance of goods market integration for financial integration, and vice versa. However, work on the non-financial sectors of the economy only, without a primary role for financial variables, would not be considered.

There are a number of *factors and approaches*, which are at the heart of the network and apply to all sub-areas defined by the matrix of dimensions of research areas and financial system segments. They are summarised in the large shaded box in the centre of the table.

First, there is interest in the exact *measurement* of the degree of financial integration and in precise *descriptions* of the type(s) of financial system structures observed. For example, financial integration may be measured on the basis of the correlation or dispersion patterns of asset prices or by the regional and international scope of lending, financing and investment activities. Financial system structures may be described by the quantitative documentation of the relative importance of different sources of funding.

Second, there is interest in the identification of the factors that *drive* the process of financial integration and the design of financial system structures. These driving factors include competitive market forces, co-operative initiatives between market participants and policy action by public authorities. For example, how do market forces shape the degree of financial integration and how can policies be effective in healing market imperfections? Needless to say that the role Stage Three of Economic and Monetary Union (EMU) and the euro play as a force in this game is of special interest to the present initiative.

Directly related is the interest in the identification of *obstacles* to the integration process or to the emergence of the best financial system structure. Such obstacles are often historically grown elements of financial sectors that cannot be easily removed, e.g. for political economy reasons. They include legal differences between countries, regulatory approaches, country-specific industry standards (e.g. market conventions or IT standards) or corporate governance systems. It is important to understand how and to what extent these obstacles hamper the process of European financial integration and the emergence of an efficient financial system structure.

The shaded box closes with issues that add a more normative perspective and, ultimately, the derivation of *policy implications*. Across all fields, the network is interested in the assessment of the efficiency and the stability of the structures observed. This should then establish the link to growth and general welfare. Consequently, the research conducted in the context of the network should try to deduce policy conclusions from its findings, in particular in the areas of greatest relevance.

In summary, research papers that address the areas defined by the "roadmap" table, as described above, fit into the work programme set for the network. In other words, a paper can be considered under the network, if it finds a match in the table regarding all three broad dimensions discussed above. This means that it should deal with at least one of the main broad research areas, involve one (or more) of the main financial system segments and address one (or more) of the factors and approaches mentioned in the shaded box of the table. Papers that directly address one of the bullet points enumerated in the non-shaded parts of the table will receive special consideration for future network workshops and conferences. The next section describes some of these special issues in greater detail, so as to better explain what is behind those issues. Finally, while the "roadmap" is geared towards applied and policy-relevant questions, both empirical and theoretical research are important and welcomed.

3 SPECIFIC ISSUES OF THE NETWORK

The "roadmap" table described above contains a selection of bullet points in the different cells. These bullet points each refer to an issue or a research topic of special importance to the network. To clarify what is meant under these brief entries, a list of short descriptions follows.

3.1 EUROPEAN FINANCIAL INTEGRATION AND FINANCIAL LINKAGES WITH THE UNITED STATES AND JAPAN

THE GEOGRAPHICAL SCOPE OF BANKING AND LENDING RELATIONSHIPS

Banking business has become more international over the past few decades. However, not all banking products are traded globally. Many credit and deposit markets regional in character, whereas securities and foreign exchange trading is global. It is important (for the institutional design of supervisory structures, for instance, or for competition policies) to understand the regional and international scope of lending and deposit taking. What is the "relevant market" for a specific banking service? Does it cut across borders or not? Are banks located in different regions or countries competing with each other? What are the implications for market integration? Are long-term lending relationships geared to home banks or host banks, e.g. do they depend on the country of origin? What are the lending and borrowing linkages between banks? What are the implications for contagion risk? Empirical applications with a strong euro area/EU component are highly desirable.

THE OPTIMAL DEGREE AND IMPLICATIONS OF BANK COMPETITION

In the past, too much bank competition was often regarded as undesirable, or even dangerous. It was argued, for example, that banks not earning monopolistic profits would take excessive risks and therefore endanger the stability of the financial system. Similarly, in the past, many countries had some controls on the credit process or on capital flows. Financial liberalisation, lighter regulatory approaches and also globalisation have recently increased the role of competitive forces in the banking sector, and reductions in government ownership and government guarantees may continue this process in the future. It is important to understand what the implications of this greater competition in the banking sector are, in particular regarding risk taking by banks and the availability of credit to firms, but also in terms of the provision of financial services more generally. A precondition for this is a better understanding of the process of competition in the banking sector as such, e.g. from the perspective of industrial organisation and information economics. This will have to take account of the differences between the various banking services. In the European context, the relevance (or not) of cross-border competition in the provision of banking services seems to be an important issue, with the situation potentially differing in wholesale and retail business. The results will allow policy-makers to better assess whether further liberalisation and deregulation are advisable and, if so, in which areas, or whether this process has already gone too far. Empirical applications to the euro area/EU are particularly important. Possible additional questions include: What are the implications of increased integration for risks in banking, and thus for banking supervision? How should supervision be designed to allow for fair competition and further banking market integration within the EU?

DETERMINANTS OF BANK MERGERS

The past decade has seen a wave of mergers and acquisitions (M&As) in the banking industry in Europe and worldwide. Most of these M&As involved banks established in the same country. What are the reasons for this "home bias" in financial consolidation? More generally, research needs to clarify better what motivated these bank mergers and which policies are likely to increase or reduce merger

activity in the banking sector. What characteristics are shared by the few banks that are successful in entering foreign markets? Of special importance are theoretical and empirical analyses explaining why there have thus far been only a smaller number of cross-border bank mergers in the euro area/EU and whether this is likely to change.

IMPLICATIONS OF BANK CONSOLIDATION

Bank consolidation tends to increase concentration in lending and deposit markets, but it may also foster integration. Would more cross-border consolidation be desirable for the financial landscape, in particular banking integration, in the euro area/EU? Would cross-border consolidation be better for regional competition than national consolidation? If the answers to both these questions are yes, which policies would facilitate cross-border consolidation in European banking sectors? Do the current forms of consolidation have adverse effects on competition in loan and deposit markets in the euro area/EU? Do potential cost or profit efficiency advantages offset increases in market power? Given that there are mainly national bank mergers, special emphasis should be placed on the effects of consolidation on regional and national loan and deposit markets, e.g. small business finance. How important is bank consolidation for credit and deposit market integration? How does consolidation affect the liquidity insurance provided by interbank markets and the liquidity-providing function of banks? Is there a risk that, beyond a certain level, they may become less liquid and less able to smooth out liquidity shocks to the banking system? What do these effects imply for the liquidity management of the central bank? Finally, how does the consolidation process affect asset diversification, the risk-taking behaviour of banks and the risk of instability in the banking system as a whole?

INTERNATIONAL PORTFOLIO CHOICES OF INSTITUTIONAL INVESTORS/DETERMINANTS OF INTERNATIONAL PORTFOLIO FLOWS

The largest asset portfolios tend to be managed by institutional investors. Their behaviour thus has a significant impact on international capital flows and global asset price fluctuations. Despite the high mobility of capital in world markets, the home bias in portfolios remains persistent. It is therefore important to better understand the investment decisions of institutional investors. Particularly valuable would be portfolio choice analyses on the basis of disaggregated, firm-level data, not only within the euro area, but also globally (in particular regarding "G-3" capital flows). This could make it possible, for instance, to link institutional investors' choices to household portfolios. Is the growth of the mutual and private pension fund business continuing? Does increasingly professional management of portfolios reduce home bias in euro area countries and increase financial integration? What have been the implications of the removal of currency-matching and other regulations from investment portfolios? Has the importance of cross-sector asset allocation strategies relative to cross-country strategies increased through these developments, thereby reducing country effects in returns? What are the market imperfections that lead to biases in portfolio choices? How important are different groups of institutional investors in countries' portfolios (mutual funds, pension funds, hedge funds, re-insurers, etc.)? What are the implications for asset price volatility and exchange rates?

ASSET PRICE AND VOLATILITY LINKAGES ACROSS COUNTRIES AND THEIR CHANGES/ CONTAGION AND CRISIS LINKAGES

There is an increasing number of research papers estimating asset market linkages across different countries, both in "normal" times and in crisis situations. This literature is important for the network, but it needs to be extended and deepened in various directions. First, cross-

asset linkages (e.g. between stocks, bonds and money market instruments) should receive greater attention. Moreover, it is increasingly important to explicitly identify the factors that determine the strength of return and volatility linkages and their changes over time. Methodological approaches that explicitly model gradually shifting or regime-switching correlations or other (non-linear) measures of co-dependence are particularly interesting for advances in those directions. For crisis linkages, further developments of multivariate extreme-value analysis are important, e.g. when combined with regression-type analysis adding explanatory variables. More conceptual or even theoretical work needs to better clarify the relationship between price/return correlation and market integration. Other measures seem to be needed. The recent application of concepts such as β- and σ-convergence (borrowed from growth theory) seem (at least in part) to point in this direction (β-convergence refers to the speed of convergence of prices of the same asset in different locations, and σ-convergence to the evolution of asset price dispersion across locations over time).

DETERMINANTS OF MARKET RETURNS/ DETERMINANTS OF INFLATION, LIQUIDITY AND DEFAULT RISK PREMIA

EMU implied a change from a more nationally oriented financial market behaviour to more area-wide approaches. Therefore, analyses of the factors driving financial market returns in the euro area/EU should reassess their main sources. Which fundamental variables drive stock returns and bond yields? Are country-specific data more important than area-wide statistical releases, or vice versa? As European stock markets become increasingly integrated, thus affecting the pricing of the relevant risk factors, how will this impact on the cost of capital for firms? Does Europe need US-type data release calendars with "lock-up conditions", etc.? Do euro area returns become more independent of external factors outside the euro area? What explains any change identified? How important is the introduction of the euro for these changes? Recent research has found a diminishing role of country effects in global equity returns and an increasing role of sector effects. Is this a cyclical phenomenon, potentially related to a contemporaneous boom in the IT sector, or rather a persistent one? Has EMU played a role for European developments that go beyond the global trend? Which economic explanations can be found for it? Another task is the separation of different risk premia for bond returns, in particular regarding potential liquidity risk premia in contrast to inflation and default risk premia. Are the liquidity levels for different government bond issues in the euro area uniform and, if not, why? Moreover, better models of default premia in corporate bond yields are needed.

LIQUIDITY IN SECONDARY MARKETS/ SUBSTITUTABILITY OF GOVERNMENT BONDS FROM DIFFERENT SOVEREIGN ISSUERS

EMU has basically unified the unsecured euro money market and acts as a catalyst for further consolidation in other euro area financial markets. This raises the issue of how liquidity evolves in money, bond, equity and derivatives markets. For example, financial market microstructure analysis can be used to assess various dimensions of liquidity, such as the trading volume, transaction costs and the price impact of trades and order flows. A related question is the implications of liquidity changes or differentials for market returns. To what extent are differences in liquidity or changes in liquidity priced as risk factors in bond markets? Are there episodes where liquidity dries up in the secondary markets? When and why does this happen? How severe are the consequences for market efficiency and financial stability? Moreover, are there different "liquidity pools" of assets within the same euro area asset class (such as government bonds) and, if so, why? For example, despite relatively small default risk differentials, government bonds from various euro area countries do not seem to be fully substitutable. How is the degree of substitutability of

government bonds from different sovereign issuers affected by the existence and size of derivatives markets tied to specific national bonds? Particularly new areas are the liquidity of secondary corporate bond and repo markets. Liquidity issues have recently also been raised for foreign exchange markets, where consolidation in the corporate and financial sectors as well as the introduction of the euro have eliminated a portion of the trading volume.

RESTRUCTURING OF SETTLEMENT INFRASTRUCTURES

A barrier to further integration of euro area financial markets is the current shape of the securities clearing and settlement infrastructure in Europe. Despite rapid recent changes, including a large number of horizontal and vertical mergers, the high fragmentation of securities settlement systems leads to high cross-border settlement costs, hampering cross-border securities trading within the euro area/EU. Moreover, banks increasingly compete with traditional institutions of the industry by offering in-house trading, clearing and settlement services, while central counterparty clearing is offered by clearing houses. In light of this, a number of important questions arise. A very important one concerns the optimal securities settlement system structure in the euro area, in particular regarding the right degree of centralisation and the right degree of horizontal and vertical integration between firms and exchanges. Another is the political economy reasons that make the reform of these structures difficult and, linked thereto, whether any policy or regulatory interventions should be carried out to facilitate reform. Third, how do the different securities settlement channels (international central securities depositories, national central securities depositories, global custodians) compete and co-operate with each other? Here, recent theoretical work on competition within and between networks has defined a starting point. Linked to this question, an interesting issue concerns the impact of the "insourcing" of securities services by banks. Finally, there is very little published research addressing the cost and pricing of securities settlement services. This whole field of the network is as complex as it is important. Since there is hardly any research literature available, work in this field could be extremely topical and important.

CONSOLIDATION OF STOCK EXCHANGES

The introduction of the euro has brought to the fore the large number of stock markets in Europe. Meanwhile, various markets have tried to merge or even staged take-over attempts. An accurate cost-benefit analysis of the effects of greater stock market consolidation is needed. This implies assessments of economies of scale and the effects of liquidity pooling, as well as potential political economy reasons for obstacles to greater consolidation. Is there an "optimal structure" of stock markets in Europe, and how can it be reached? Is this optimal structure identical for all stock market segments? Should the consolidation of listing and trading be linked to the consolidation of settlement procedures, and vice versa? Are electronic trading links and joint ventures substitutes for or complements to consolidation?

FOREIGN STOCK LISTINGS AND THE ROLE OF DEPOSITORY RECEIPTS

Another step towards more financial integration is the increased listing of foreign stocks in a country's equity market. Some markets seem to be more successful in attracting foreign listings than others. What drives the decision to list abroad, and what drives the choice of where to list? What are the advantages and disadvantages of doing so, compared with a common market? An even more direct way of integrating stock markets is the issuance of depository receipts, such as the increasingly important American Depository Receipts (ADRs) used by US investors at home to trade stocks listed abroad. How advanced is the use of depository receipts in Europe? How do they change the competition between

different exchanges? How do they compare to other forms of integration? How important are foreign listings/depository receipts as a vehicle of cross-border capital flows? Do firms which enjoy access to foreign exchanges face lower costs of equity capital? Do they face different relative costs of debt and equity capital? Does their financial structure therefore change with access to foreign exchanges? Does equity capital raised abroad replace or complement domestic equity sources? Hence, to what extent does a foreign listing/depository receipt issue imply competition for domestic suppliers/ intermediaries of equity capital and/or domestic suppliers/intermediaries of debt capital?

INTEGRATION OF REPO MARKETS/ SUBSTITUTABILITY OF GOVERNMENT BONDS FROM DIFFERENT SOVEREIGN ISSUERS

Whereas the unsecured euro money markets integrated very fast with the introduction of the euro, the same did not happen with the repo markets. Despite some recent growth in this segment, various obstacles to its full integration remain, such as the fragmentation of securities settlement systems, the parallel existence of different master agreements and the imperfect substitutability of government debt within the euro area. Nevertheless, with few exceptions, this important market for central banks has received very little attention in academic literature. Therefore, theoretical and empirical papers on the role of repo markets and on how to create a unified repo market in the euro area are important. Moreover, do the impediments mentioned above lead to significant arbitrage opportunities? How does the microstructure of the repo market work? And finally, what is the importance of the further development and relative size of the repo market, in comparison with the unsecured money market, for financial system stability.

CAPITAL FLOWS AND EXCHANGE RATES

The increasing size of international capital flows has drawn the attention to their role in determining exchange rates. This theme figured highly in the discussions on the early depreciation of the euro. The network encourages further work on the influence changes in stocks and flows of international equity, bond and money market investment and financing have on “G-3” exchange rates, in particular on that of the euro. When doing so, however, it is important that a number of macroeconomic constraints are explicitly accounted for. Obviously, a pre-condition for such exchange rate research is a thorough understanding of what moves capital between the euro area, the United States and Japan in the first place. Particularly important is understanding how market participants form expectations about the productivity and growth potentials of the “G-3” economies, and about relative fiscal and monetary policies.

DETERMINANTS OF COUNTRY INVESTMENT PORTFOLIOS AND THE HOME BIAS PHENOMENON

This heading would include research on the observation that individuals hold too little of their wealth in foreign assets, and therefore do not optimally hedge risks across countries. Related to this, macroeconomic literature has identified a “consumption home bias” phenomenon, meaning that output risks are not optimally shared across countries, so that domestic consumption is correlated with country-specific shocks to domestic output. An interesting question is whether, from a European perspective, these two forms of home bias may be related. How do the portfolio choices of different groups of investors differ and what does this imply for the causes of home biases? Another topic that could be covered under this heading concerns the role of real estate in households’ wealth. This is a topic of some significance with respect to understanding investment decisions in the economy, given that real estate is one of the

most important ways of saving for many individuals. Finally, an important area is “home bias at home”, analysing to which extent biases in international portfolio changes are any different from biases in regional portfolio choices within countries. This issue could be particularly relevant for assessing whether EMU will significantly reduce portfolio biases in the euro area.

GLOBALISATION AND THE INCREASING ROLE OF CAPITAL FLOWS/SYNCHRONISATION OF INTERNATIONAL BUSINESS CYCLES

Previous research suggests that the various types of capital flows differ in their impact on the economy in terms of their volatility, for instance, or in terms of whether they tend to crowd out or complement domestic savings. More research on the links between the structure of cross-border capital flows and economic activity (growth and volatility) is needed. To this end, it is important to better understand the link between financial flows and the synchronisation of international business cycles, as well as the determinants of the structure of capital flows. One determinant that has not received sufficient attention so far is the domestic institutional environment, including corporate governance rules. On the one hand, it has been argued that domestic demand for bank credit, debt and equity capital is determined by the characteristics of domestic industries and firms and by the domestic institutional environment governing agency costs in financing decisions. The structure of foreign capital inflows would then be expected to be similar to domestic financial structures. However, firms might also opt for foreign sources of funding with the aim of taking advantage of corporate governance rules that are better at reducing the (agency) costs of certain types of financing. In that case, the structure of cross-border capital flows would be expected to differ markedly from domestic financial structures.

GOODS MARKET AND FINANCIAL INTEGRATION

This heading would include research on the interaction of financial integration and real integration, including the direction of causality. It would also cover research on the role of financial integration for business cycle transmission and, more generally, on the link between financial integration and economic growth. In addition to other channels, could an increased integration of European capital markets have a positive impact on economic growth by increasing the attractiveness of European markets for companies and investors, including foreign ones? Moreover, this area could include measurement issues of price-based and quantity-based financial and goods market integration indicators.

3.2 FINANCIAL SYSTEM STRUCTURES IN EUROPE

BANK VERSUS MARKET FINANCING

In principle, bank and market financing are complementary elements of any financial system. Historically, however, the European and Japanese financial systems have been based on bank lending. The US financial system, by contrast, has developed financial markets much more rapidly and extensively. It is of interest to the network to understand the current state of bank and market financing in the euro area/EU. Will the European financial system develop over time into a structure very similar to the one observed in the United States, or will substantial differences remain? What are the factors that drive the relative importance of bank and market financing (legal systems, political economy factors, etc.)? Are there differences between more bank-based financial systems in terms of the efficiency of the resource allocation, the cost of capital and economic growth or in terms of financial stability? Bank-based financial systems tend to be less well understood than market-based financial systems in terms of how bank intermediation contributes to risk sharing for

instance. Is there any substantial difference in the riskiness of the average household's asset holdings in bank-based and market-based systems? Is it true that markets better share cross-sectional risk, while banks provide intertemporal smoothing? One difference between a further development towards a more market-based financial system in Europe and the situation in the United States could be the greater involvement of universal banks in Europe, as opposed to specialist financial intermediaries.

THE RESILIENCY OF THE FINANCIAL SYSTEM

Experience with financial instabilities during the past few years emphasises the importance of the ability of financial systems to absorb adverse shocks. This capacity of a financial system is particularly important in the context of a rapidly changing financial landscape, such as that in Europe. In the context of European financial markets, promising areas of research for the network would address the following questions. What is the relationship between the type of financial system (e.g. bank versus market-based) and the ability of the financial system to withstand shocks? How can the choice of accounting rules and standards increase transparency, accountability and the ability of marking to market, and thereby strengthen the capacity of the financial system to absorb shocks? How is the role of European banks as providers of liquidity insurance to the corporate sector evolving? What is the link between financial fragility and contagion? How important are contagion and financial fragility in practice, and what mechanisms trigger them? How and to what extent do financial crises impact on economic activity? Finally, does competition in the financial services industry affect the ability of the financial system to withstand shocks?

THE EFFICIENCY OF EUROPEAN BANKS

For a long time, Europe has been characterised by a situation of "over-banking", particularly excessive numbers of branches. Consolidation has solved this problem only partly. In particular, previous empirical research has shown that many larger mergers are often not efficiency-enhancing. Better knowledge of which mergers are efficiency-enhancing in Europe, and which are not, would be important. More generally, empirical studies on the evolution of cost and profit efficiency in the European banking sector are needed. Are there differences between countries? What explains these differences? What is the role of cross-border competition in potential efficiency improvements? Can efficiency also be assessed on a product-by-product basis, instead of only at the level of the overall firm? There is also an interest in investigating the sources and implications of structural differences in the banking systems, such as differences in bank market concentration, the number of bank–firm relationships, branching, ownership concentration and technology.

INSOLVENCY REGIMES

A special complication in the international financial landscape is the heterogeneity of insolvency regulations, also for financial intermediaries. The Directive on the winding-up of credit institutions has harmonised certain conflict-of-law issues in cross-border insolvencies of banks with several branches in the EU. However, the treatment of bankrupt affiliates in a group of companies remains an issue. Furthermore, conflicts can arise between insolvency regimes for banks located in and outside the EU. The countries following the "single-entity" approach (e.g. the United Kingdom) pool all assets of a bankrupt bank and its branches for the satisfaction of all creditors. Other countries (such as the United States) follow the "separate-entity" approach that ring-fences local assets of a branch for the satisfaction of the local creditors/depositors. When these two approaches meet, there is no answer how to solve the conflict. An analysis of these problems could provide evidence for the next generation of EU regulations and solutions for EU authorities in the case of financial crises. Contract and market-based

bankruptcies have gained momentum and they could be a solution to ease tension created by differences in legal regimes. An important issue is whether the current situation creates uncertainty for foreign equity and bond investors as to what the priority of their claims would be if the respective company were to go bankrupt. Or, do differences in insolvency laws imply distortions in international investments?

TECHNOLOGY AND FINANCIAL SERVICES

The development of new technologies is drastically transforming the global financial landscape. What impact will the internet have on the provision of financial services in Europe? Will it increase bank competition and reduce over-branching? Under which conditions will it do so? Search costs need to be modelled and the effects of obfuscation-friction strategies. In addition, the effects of transparency on producers and consumers are of relevance for assessing the impact of the internet on markets for financial services. How fast is internet banking evolving? Which products are more affected by it, and which less (deposit-taking and retail payments, lending, securities trading, etc.)? Is the expansion of financial e-commerce a concern in terms of financial stability or consumer protection?

THE IMPORTANCE AND DETERMINANTS OF THE BREADTH AND COMPLETENESS OF FINANCIAL MARKETS/FINANCIAL INNOVATION

Another essential element of the network is the number of financial products available in a financial system. Which markets are missing or still relatively illiquid in the euro area/EU? What is the status of these markets and what are the conditions under which they would emerge and develop further? How important are specific markets for risk sharing and financial development? Studies on the following markets in Europe seem particularly important: (i) the European corporate bond market as a whole and the breadth of the risk profiles in it, (ii) the market for asset-backed securities, (iii) commercial paper markets, (iv) credit and other derivatives markets and their links to cash markets, (v) index-linked bond markets, (vi) private equity and start-up markets, and (vii) markets for repurchase agreements (repos). In this research, the euro area-wide perspective (or at least some cross-country dimension thereof) is particularly important.

ROLE OF LEGAL SYSTEMS

Recent literature has argued that the type of legal system is a crucial long-term determinant of the type of financial system in an economy. What is the most adequate legal environment for well functioning financial markets? Is there a need to reconcile common law and civil law approaches? How important is the harmonisation of legal systems for the development of the euro area financial system? Is there a need to go beyond the legislative initiatives launched under the EU Financial Services Action Plan? Is there a need for legal harmonisation to foster integration in financial markets? What is the impact of the legal systems of European countries on the development of specific markets? To which extent do laws influence cross-border capital flows? Conversely, to what extent does the elimination of obstacles to cross-border capital flows create pressures for legal reform? To what extent does it create room for “legal arbitrage” and what would be the implications (race to the bottom or to the top)? What is the role/importance of the legal system as compared to the influence from political economy factors?

MARKET MICROSTRUCTURES/THE ROLE OF ELECTRONIC TRADING PLATFORMS

The literature on the financial market microstructure highlights the importance of market design features in determining the efficiency and liquidity of a given market. More recently, microstructure-type analyses have even been used to address rather aggregate phenomena, such as exchange rate developments, international currency uses, monetary policy implementation, etc.

Therefore, this approach makes it possible to analyse important general issues about the state of European financial markets in depth, including market liquidity, informational efficiency and the effects of news (price discovery), transaction costs, trading practices, high-frequency arbitrage relationships and integration. In Europe, in particular, electronic trading has gained an ever greater market share in secondary markets, especially in the stock and bond markets, but to some extent also in the money markets. This allows the functioning of markets to be studied with increasing "granularity" and precision. The design and scope of electronic trading platforms is of interest itself, since it to a large extent determines the aspects enumerated above. For example, is it advisable also to give retail customers access to electronic platforms (open systems), or should they be reserved for wholesale interbank trading? What is the optimal degree of transparency in those systems? What is the role of inter-dealer trading? How important is it that the same system spans different countries?

THE ORGANISATION OF PRIMARY MARKETS/EQUITY VERSUS DEBT FINANCING/PRIVATE VERSUS PUBLIC EQUITY MARKETS/START-UP FINANCING

The way primary bond and stock markets are organised has an important impact on the cost of debt and equity financing. Can important changes be identified in the organisation of bond underwriting business and initial public offerings (IPOs)? What are the implications for the relative cost of debt and equity financing? In the euro-denominated international bond markets, for example, a significant entry of foreign book-runners could be observed with the introduction of the euro and consequently also a substantial reduction of underwriting costs. By eliminating exchange rate risk, a common currency may also modify companies' choices between debt and equity, as has for the first time been argued in a recent paper. Very little is known about how private equity markets work. How important are private equity markets in comparison with regular and start-up public equity markets? What determines a company's choice between private equity and an IPO in the start-up segment of the public stock market? What are the important elements of venture capital and private equity financing? What is the best way to provide for the financing of new firms, avoiding both under- and over-provision of funds? How is European financing of innovative start-up businesses developing? Which policy measures could support efficient start-up financing in Europe? Can any lessons be drawn from the US experience? What explains the large differences between countries? Which financial intermediaries and individual investors fund venture capital firms? Further analysis is also needed of new European public equity market segments, such as the *Neue Markt* and the *Nouveau Marché*, in particular a comparison with those in the United States (notably the Nasdaq).

CORPORATE GOVERNANCE AND CONTROL/OWNERSHIP STRUCTURES OF FINANCIAL INTERMEDIARIES

Governance of industrial firms tends to be diverse in Europe. For example, general shareholder rights, take-over regulations and observed board turnover can vary significantly across countries. Activity in the market for corporate control is not uniform either. Major differences exist between the United Kingdom (or the United States) and continental European countries. What is the right balance between harmonisation and competition between systems? Is one system superior to the other in terms of performance? What form does system competition take (e.g. foreign listings versus relocation of headquarters versus voluntary firm-level commitments in response to pressure from foreign shareholders)? What are the implications of different forms of competition (e.g. does a migration of headquarters entail significant external effects)? To what extent is there a danger that either harmonisation or competition might

destroy the internal consistency of a corporate governance system and lead to a worsening of performance? There are also pronounced differences in corporate structures. Is one better than others in terms of innovations, for instance? Are differences in corporate governance more pronounced across national borders or across different types of firms (e.g. firms with and without access to international capital markets, small firms versus large firms)? Are different rules required for different activities/types of firms? Should/will harmonisation and competition play different roles in changing the rules for different types of firms (e.g. rely on competition for internationally active firms, rely on harmonisation for the others)? Finally, studies of the ownership structures of financial intermediaries are important, such as the implications of different degrees of concentration in ownership.

TRANSPARENCY AND ACCOUNTING RULES/ ACCOUNTING CONVENTIONS AND MARKET VOLATILITY

The international harmonisation of accounting standards has proven to be a difficult undertaking. The importance of transparency and accounting practices have recently been illustrated by the Enron failure and other corporate scandals. A largely unexplored area is the extent to which differences in accounting practices can explain differences in stock market volatility across countries. Is more transparency always better? What are the implications of more transparency for efficiency and financial stability.

THE SELECTION OF BENCHMARK BONDS AND YIELD CURVES

Both fiscal consolidation in the United States and EMU have reduced the role of the government bond yield curve as a benchmark on which to base the pricing of derivatives, for instance. In Europe, the swap curve now basically plays the benchmark role for non-government bonds. How did that happen and what determines the choice of benchmark curve more generally ("benchmark-tipping phenomenon")? How does the choice of benchmark affect the pricing in the market (if at all)?

MARKET EXPECTATIONS AND THE PREDICTABILITY OF MONETARY POLICY

Bond and money markets offer many instruments to assess market expectations about monetary policy. For example, potential expectation errors on interest rate changes can be derived. Moreover, the degree of market uncertainty can be measured from implied volatilities and risk-neutral densities. In deriving market expectations and measures of uncertainty, the measurement of risk premia plays a key role, and should therefore be investigated further. Research in this direction can show how predictable monetary policy is and how successful central bank communications are in preventing an increase in uncertainty in the market.

THE SIZE AND DEVELOPMENT OF CORPORATE BOND MARKETS/WHICH LIABILITIES ARE REPLACED BY CORPORATE BOND GROWTH?

A very visible and pronounced event around the introduction of the euro was the significant growth of primary corporate bond markets in the euro area. How much of this can be associated with the start of Stage Three of EMU and how much is related to other developments, such as corporate restructuring and the financing of privatisation in the telecommunications sector, etc.? More generally, what are the macroeconomic and microeconomic variables that determine bond issuance volumes? Are they the same in the domestic and international segments of the market? Is the European corporate bond market becoming more even in terms of the issuing sectors or will banks continue to dominate this market? How broad and stable is the high-risk ("junk") segment of the market? Which liabilities are replaced by the growth of bond issuance? Can further increases be

expected in the market size of asset-backed securities (e.g. collateralised debt obligations), optional credit instruments (e.g. spread options, callable and convertible corporate bonds), and other credit derivatives (e.g. credit default swaps). How will the advancement of such market segments affect the functioning of financial markets as a whole?

THE MARKET MICROSTRUCTURE AND EXCHANGE RATES

Recent research has underlined the importance of order flows for the behaviour of exchange rates. Order flows have been shown to have permanent effects on currency prices. However, apart from the dynamics of inter-dealer trading, what are the transactions behind order flows that make them so informative? Are central bank foreign exchange operations likely to be as informative as dealer order flows and, therefore, more likely to have lasting effects on exchange rates than previously thought? How does the emergence of large electronic broking systems, through which the largest share of trading volume is channelled today, affect the role of order flows? Has the concentration process in the dealer community and among non-financial firms had any adverse effects on the efficiency of foreign exchange trading?

DETERMINANTS OF THE COST OF CAPITAL AND ECONOMIC GROWTH

The real implications of changes in financial structures and integration are very important. The overall efficiency of financial markets determines the cost of capital. And the cost of capital heavily influences investment activity, firm growth (in terms of, inter alia, production and employment) and, ultimately, economic growth. An important area of work would be to derive aggregate measures of financial market efficiency and the cost of capital. Is there any trend or structural change in the development of financial system efficiency and the cost of capital in the euro area/EU? Does the increasing integration of financial markets in the euro area lead to greater financial market efficiency, as reflected in market spreads, for instance? Are there signs of better access of firms to external financing, which allows them to grow faster? Based on the measures mentioned above, how strong is the link between the cost of capital and growth? What will be the impact of current public reforms on the cost of capital and which further reforms could lower the cost of capital in the euro area/EU? In particular, what are the links between regulatory changes, their effects on the functioning of various sources of funding and the subsequent impact on the cost of capital for firms? Finally, what is the impact of globalisation on the equity cost of capital?

FINANCIAL INDICATORS OF UNDERLYING ECONOMIC VARIABLES

Prices of financial assets provide a rich source of information for markets and policy-makers with respect to investors' expectations about future developments in underlying economic variables, such as the economic growth prospects, inflation and monetary policy. Before the introduction of the euro, available asset prices allowed information to be extracted for each individual national economy. Following the introduction of the single currency, some markets and instruments have been created that allow information for the euro area as a whole to be obtained (e.g. the EURIBOR spot and derivatives markets, the EONIA swap market, and the euro-denominated swap and swaptions markets). At the same time, other prominent financial indicators are still based on national financial instruments, but are often used as indicators for the entire euro area (e.g. German Bund futures and options and, until recently, the French index-linked bond market). The rapid evolution of financial markets in the euro area necessitates research on what type of information can be extracted from observed asset prices, in particular with respect to euro area-wide economic fundamentals. This also requires careful analysis of factors other than those purely related to expectations, which also

affect the pricing of the financial instruments examined. In particular, issues linked to risk premia, market liquidity, microstructure effects and other market-specific factors need to be considered carefully in this context. Available financial indicators should also be evaluated with respect to their ability to forecast economic fundamentals or the degree of uncertainty about such fundamentals. Moreover, there is a need to assess the information of specific national financial indicators when these are used to provide information about the euro area as a whole.

4 MAIN PRIORITIES

The list of important topics in Section 3 is rather long. Although hints where given in each paragraph as to whether the respective topic is among those with very high importance or not, it may be useful to repeat the limited number of areas that have been given top priority. Each of these few selected areas is envisaged to become a special theme in one of the forthcoming workshops (or has already been one in the launching workshop of the network). Good papers in these fields will be given priority in the workshops.

The launching workshop of the network at the ECB in April 2002 already had two main priority areas, apart from the "agenda-setting" that led to the present "roadmap", namely European debt market structures and international financial linkages. The former area featured, on the one hand, papers addressing issues on the "Geographical scope of banking and lending relationships", "Determinants of bank mergers" and "Implications of bank consolidation for interbank markets". On the other hand, it featured papers addressing the effect of the euro's introduction on the "Determinants of bond market yields", the choice between "Equity and debt financing" and the "Organisation of primary bond markets". The area of international financial linkages was represented by papers on "Equity market volatility linkages across countries", the "Determinants of equity market returns" and the "Relative importance of country and sector effects in equity markets".

Areas that will continue to be given very high priority in the network are bank competition and the geographical scope of banking, international portfolio choices and asset market linkages between Europe, the United States and Japan, as well as European bond markets. In addition, the new areas of European securities settlement systems and of the emergence and evolution of new markets in Europe (in particular start-up financing markets) will receive top priority.

Work on **bank competition and the geographical scope of banking** continues to be very important, as the euro area is still experiencing relatively few cross-border mergers compared with domestic consolidation, as supervisory structures and regulatory approaches are being reformed and as the "special" status of banks is being questioned in a number of respects. Such work should focus on "The optimal degree of bank competition", "Determinants of bank mergers" (in particular regarding obstacles and drivers of cross-border bank consolidation), "Implications of bank consolidation" and the "Efficiency of European banks". The results can be expected to provide important insights regarding the development of integrated and efficient banking markets in the euro area in the context of global financial markets.

The past few decades have brought an enormous expansion of international capital flows. Linkages created by capital flows may now have a far larger impact on domestic economies than traditional trade linkages, for example. They are, of course, intimately linked to important asset prices, such as exchange rates, government bond and stock prices. However, knowledge about the driving factors behind international financial flows is still relatively limited. This is why priority was also given to **international portfolio choices and asset market linkages between Europe, the United States and Japan**. Work on this area should focus on "International portfolio choices of institutional investors", "Determinants of international portfolio flows", "Asset price and volatility linkages across countries and their changes", "Contagion and crisis linkages", "Determinants of market returns", "Capital flows and exchange rates", "Market microstructure and exchange rates", "Determinants of country investment portfolios and the home-bias phenomenon", "Globalisation and the increasing role of capital flows". Work using disaggregated firm and high-frequency data sets is especially encouraged. At the methodological level,

approaches combining and integrating methods from finance, open economy macroeconomics and micro-macro capital-flow modelling seem particularly promising. Work in this area is likely to be important to explain recent swings in the exchange rates between the euro, the US dollar and the Japanese yen.

Work on **European bond markets** should focus on "Liquidity in secondary bond markets", "Bond market microstructure", "The role of electronic bond market trading platforms", "Substitutability of government bonds from different sovereign issuers", "Determinants of inflation, liquidity and default risk premia", "The size and development of corporate bond markets" (including explanations for the issuing boom that occurred parallel to the introduction of the euro), the "Organisation of primary bond markets", "Selection of benchmark bonds and yield curves", and bond yields as indicators for monetary policy and other economic fundamentals ("Market expectations and the predictability of monetary policy", "Financial indicators of underlying economic variables"). European bond markets have undergone rapid changes in the past few years, including the development of euro area-wide secondary market trading platforms. Moreover, bond markets constitute a key area from the point of view of central banks, and research related to this market is therefore likely to be highly relevant from a policy perspective.

The fragmentation of the European securities settlement industry, resulting in high cross-border securities trading costs, may well constitute the single most important obstacle to further securities market integration. Work on **European securities settlement systems** is therefore of great importance. It should focus on the optimal securities settlement system structures (in particular the optimal degree of concentration) and the "Restructuring of settlement infrastructures" (in particular the political economy of securities settlement system reform, competition and co-operation between different settlement channels, and costs and pricing of securities settlement services). The rapid changes that the structure of the securities settlement industry currently is undergoing and the relatively limited research available on these topics so far, make work in this area particularly important and relevant to policy-makers.

An important difference between the US and European financial systems is the greater "breadth" of markets in the former. In other words, the "financial architecture" of the United States builds on a wider range of financial instruments traded in more liquid markets. On the other hand, **new markets** are also emerging in Europe and some of them have developed rapidly in the recent past. Given the importance of the availability of a wide range of funding and investment possibilities for innovations and risk-sharing – and hence ultimately for growth and welfare – the area of new markets is also receiving a very high priority. It would focus, in particular, on the "Importance and determinants of the breadth and completeness of financial markets", **"Start-up financing"**, "Private versus public equity markets", the "Organisation of primary markets". These topics cover "new" equity markets and venture capital. Moreover, this important topic also includes work on the widening and deepening of credit markets, such as asset-backed securities, credit derivatives, commercial paper, and repo markets. Finally, work on the evolution of other new derivatives markets in Europe is encouraged. Of specific interest are, for example, the structure and liquidity of key new markets, the driving factors behind their expansion, the optimal number of markets and welfare implications. Work with a euro-area wide perspective would be favoured and work on international comparisons (particularly between the euro area and countries like the United States and Japan) is specifically encouraged.

ANNEX B PROGRAM AND SUMMARY OF THE LAUNCHING WORKSHOP

HELD AT THE ECB IN FRANKFURT, APRIL 29-30, 2002

Day 1:	**Building an agenda – Issues and methods**
	Monday 29 April, 2002
14:00-14:30	**Jan Krahnen** (CFS), *Welcome address* Keynote speech by **Otmar Issing** (Member of the ECB Executive Board)
14:30-15:30	**1) The Structure of Financial Systems** **Chair: Jan Krahnen** (CFS)
	Franklin Allen (University of Pennsylvania), *The structure of financial systems and financial stability*
	Eli Remolona (BIS), *Debt securities market micro and macro structures*
15:30-16:00	Coffee Break
16:00-17:00	**2) European Financial Integration** **Chair: Jean-Pierre Danthine** (University of Lausanne)
	Marco Pagano (University of Salerno), *Measuring financial integration, based on "Study to analyse, compare, and apply alternative indicators and monitoring methodologies to measure the evolution of capital market integration in the European Union*" (January 2002), study for the Internal Market Directorate General of the EU Commission by CSEF, University of Salerno
	Xavier Vives (INSEAD), *Industrial organisation of banking, bank competition and bank market integration*
17:00-17:30	Coffee Break
17:30-18:30	**3) Global Financial Linkages** **Chair: Axel Weber** (University of Cologne)
	Philipp Lane (Trinity College Dublin), *International financial linkages*
	Giancarlo Corsetti (University of Rome III), *Empirical stylised facts of international financial linkages*
18:30-19:00	**Philipp Hartmann** (ECB) and **Jan Krahnen** (CFS), *ECB-CFS Research Network: a roadmap*
20:00	Dinner speech by **Tommaso Padoa-Schioppa** (ECB)
Day 2:	**European debt market structures and international financial linkages – First results**
	Tuesday 30 April, 2002
8:30-9:00	**Chair: Antonio Sáinz de Vicuña** (ECB)
	Colin Mayer (Oxford University), *Corporate governance and legal structures*

9:00-10:30 **Session 1.1: Law and Financial Markets**

Harry Huizinga (Tilburg University and European Commission), *Deposit insurance and international bank deposits* (with Gaëtan Nicodeme, European Commission)

Tuomas Takalo (Bank of Finland), *Law or finance: Evidence from Finland* (with Ari Hyytinen and Ikka Kuosa, ETLA)

10:00-10:15 Discussant: **Kostas Tsatsaronis** (BIS)

10:15-10:30 Open discussion

Session 1.2: Nominal Convergence and Financial Integration
Chair: Harald Hau (INSEAD)

Giorgio Calcagnini (University of Urbino), *Financial convergence in the European Monetary Union?* (with Fabio Farabullini, Banca d'Italia, and Donald Hester, University of Wisconsin)

Stefanie Kleimeier (University of Maastricht), *European financial market integration* (with Harald Sander, University of Cologne)

10:00-10:15 Discussant: **W. Jos Jansen** (De Nederlandsche Bank)

10:15-10:30 Open discussion

10:30-11:00 Coffee Break

11:00-13:00 **Session 2.1: Bank Competition, Credit Market Integration and Public Policy**
Chair: Xavier Freixas (Pompeu Fabra)

Giovanni Dell'Ariccia (International Monetary Fund), *Competition among regulators and credit markets integration* (with Robert Marquez, University of Maryland)

Reint Gropp (ECB), *Contestability, technology and banking* (with Sandrine Corvoisier, ECB)

Giancarlo Spagnolo (University of Mannheim), *Bank mergers, competition and liquidity* (with Elena Carletti, University of Mannheim, and Philipp Hartmann, ECB)

12:30-12:45 Discussants: First two papers **Elena Carletti** (University of Mannheim), last paper **Cornelia Holthausen** (ECB)

12:45-13:00 Open discussion

Session 2.2: The Effect of the Euro on Bond Markets
Chair: Marina Emiris (National Bank of Belgium)

Roberto Blanco (Banco de Espana), *The euro area government securities markets: Recent developments and implications for market functioning*

Yrjo Koskinen (Stockholm School of Economics), *Capital structure and the euro* (with Arturo Bris and Mattias Nilsson, Yale School of Management)

João A. C. Santos (Federal Reserve Bank of New York), *The cost of barriers to entry: Evidence from the market for corporate euro bond underwriting* (with Kostas Tsatsaronis, BIS)

12:30-12:45 Discussant: **Christian Upper** (Deutsche Bundesbank)

12:45-13:00 Open discussion

13:00-14:00 Lunch

14:00-16:00 **Session 3.1: Regional and International Scope of Banks and Credit Markets**
Chair: Mark Carey (Board of Governors of the Federal Reserve System)

Claudia Buch (Kiel Institute of World Economics), *Cross-border bank mergers: What lures the rare animal?* (with Gayle DeLong, Baruch College)

Luigi Guiso (University of Sassari) *Does local financial development matter?* (with Paola Sapienza, Northwestern University, and Luigi Zingales, University of Chicago)

Steven Ongena (Tilburg University), *To what extent will the banking industry be globalized? A study of bank nationality and reach in 20 European nations* (with Allen Berger, Fed Board, Qinglei Dai, Norwegian School of Management, and David Smith, Fed Board)

15:30-15:45 Discussant: **Olivier de Bandt** (Bank of France)

15:45-16:00 Open discussion

Session 3.2: International Financial Linkages
Chair: Stijn Claessens (University of Amsterdam)

Lieven Baele (Ghent University), *Volatility spillover effects in European equity markets: Evidence from a regime switching model*

Robin J. Brooks (International Monetary Fund), *Firm-level evidence on global integration* (with Marco Del Negro, Fed Atlanta)

Paul Ehling (University of Lausanne), *The EMU and strategies of asset allocation* (with Sofia B. Ramos, University of Lausanne)

15:30-15:45 Discussants: **Stijn Claessens** (University of Amsterdam) and **Daniela Klingebiel** (World Bank)

15:45-16:00 Open discussion

16:00-16:30 Coffee Break

16:30-18:00 **Plenary Session**
Chair: Vítor Gaspar (ECB)

Alberto Giovannini (C.E.O., Unifortune Asset Management), *The work of the Giovannini Group and implications for research*

Jesper Berg (ECB), *The Eurosystem's work on euro area financial structure*

David Wright (European Commission), *The status of the implementation of the Financial Services Action Plan*

18:00-18:30 Keynote speech by **Sirkka Hämäläinen** (ECB)

Vítor Gaspar (ECB), *Concluding remarks and future initiatives of the "Capital Markets and Financial Integration in Europe" Research Network*

INTRODUCTION

On 29-30 April 2002, the **European Central Bank** (ECB) and the **Center for Financial Studies** (CFS) hosted a workshop at the ECB to launch their network initiative aiming at promoting research on "Capital Markets and Financial Integration in Europe". The research network aims at co-ordinating and stimulating top-level policy-oriented research that significantly contributes to the ECB's understanding of developments in European financial structure and the linkages between European financial systems and those in the United States and Japan. The format is a network of people and its key feature will be a strong interaction between researchers in the ECB, other Eurosystem central banks, other official institutions and academia. This document summarises the launching workshop.

The workshop combined research "agenda setting" talks, research paper presentations, keynote addresses by ECB Executive Board Members and a plenary panel discussion. Prominent academics presented their views on the state of the literature and provided advice on future research agendas in three key research areas: 1) the structure of financial systems; 2) European financial integration; and 3) global financial linkages. During the second day, research papers selected through a call for papers on European debt markets and international financial linkages were presented and discussed. The second day ended with a panel discussion that included David Wright, the Director Internal Market of the European Commission, and Alberto Giovannini, who chairs an advisory group of financial market participants. Three ECB Executive Board members, Otmar Issing, Tommaso Padoa-Schioppa and Sirkka Hämäläinen, gave keynote addresses at the workshop.

DAY I

BUILDING AN AGENDA – ISSUES AND METHODS

Jan Krahnen (CFS) welcomed workshop participants and introduced **Otmar Issing** (member of the ECB Executive Board), who delivered the opening keynote speech entitled *"Monetary policy in an environment of global financial markets"*. In it, Issing stressed how financial markets are essential for the transmission of monetary policy. Monetary policy sets only the current short-term interest rate, but for today's investment decisions future refinancing conditions are also relevant. In this context, the monetary policy strategy is crucial to provide the markets with a reference against which new information can be consistently evaluated. The more predictable monetary policy is, the smoother its implementation will be, since the market can adjust interest rates in anticipation of policy actions. Therefore, understanding of the determination of asset prices needs to be widened and deepened. This is especially true for financial markets in the euro area, which have seen the most remarkable pace of change of all the developed financial markets over the last few years. Issing encouraged new research in the field of financial linkages, global trends and other factors determining the evolution of financial markets in Europe. In addition, new ways to extract market information and expectations as well as a better understanding of the propagation mechanism of monetary policy to economic activity through financial markets are highly relevant questions for policy-makers.

1) THE STRUCTURE OF FINANCIAL SYSTEMS

This session was chaired by **Jan Krahnen** (CFS) and started with **Franklin Allen** (University of Pennsylvania) presenting his views on *"The Structure of Financial Systems and Financial Stability"*. Allen started by pointing out how the comparison between the Anglo-Saxon market-based system and the German-style bank-based system is the central theme of the research agenda on the structure of

financial systems. The focus of theoretical and empirical research has been on market-based systems; more work is needed on the advantages and disadvantages of the bank-based system. Issues that need to be addressed fall into four categories. First, the organisation of the financial system influences risk-sharing by households. This raises questions about the risk of the average household's portfolios in bank-based and market-based systems. Second, the relationship between the availability of information and the allocation of resources in bank-based systems deserves more attention. Third, market-based systems seem more successful than bank-based systems in financing new firms. This raises the question about the best way to finance start-ups. Finally, the relationship between financial integration and the euro is an important topic for research. The proposed research agenda on financial stability contains four categories as well. First, the relationship between the type of financial system (bank vs. market-based) and financial stability is of great relevance. For example, to what degree are market-based financial systems susceptible to financial crises (e.g. Long Term Capital Management)? Or is the regulation of banks a desirable way to ensure financial stability? Second, the large and rapid effect of financial crises on the real economy is an important topic. Third, the link between financial fragility and contagion needs to be explored further. How important are contagion and financial fragility in practice and what mechanisms trigger them? Finally, is competition in the financial services industry compatible with financial stability?

In the second part of the session, **Eli Remolona** (Bank for International Settlements) presented his paper *"Micro and macro structures in fixed income markets: The issues at stake in Europe"*. He discussed issues related to the effects of the euro on market functioning (in providing liquidity and forming prices) by distinguishing between size and structural effects. A clearly interesting research topic in this field is the measurement of liquidity in European fixed income markets (e.g. the price impact of trades, focusing on the role of private information). The assessment of the structural differences between European and US markets is important as well. This includes differences in the mix of major players, the market microstructures, the benchmarks, the information structures and the way the central bank operates in the markets. The second part of Remolona's talk focused on the competition between various market microstructures. Understanding the mechanisms of this competition would be helpful to come to grips with such issues as the advantages of electronic trading, the optimal level of transparency, the role of inter-dealer markets and the formation of benchmarks. Finally, the extent to which prices in fixed income markets reflect fundamentals (factors that affect asset values but are exogenous to the process of providing liquidity), including fundamentals about the underlying economy and about credit risk, is important as well. The top three research issues for Remolona are: 1) the role of inter-dealer markets (trading among dealers plays an essential role in the price discovery process); 2) the benchmark tipping process (the trading process leads to a critical level of activity in one of the instruments, so that it is used as a pricing reference); and 3) the behaviour of default risk premia.

The talk by **Colin Mayer** (Oxford University), *"Corporate governance and legal structures"*, was originally scheduled for the first day, together with Allen's and Remolona's. Due to Mayer's scheduling conflicts, this talk had to be postponed until the following day. For coherence, we summarise it under this section, rather than with the submitted papers, as indicated in the programme. Mayer reviewed the developments in corporate finance, starting with complete markets models, moving through incomplete contract models up to the political economy of finance. He focused on how theoretical developments and empirical evidence have shaped the research agenda in this field. Starting from a point of view where finance decisions do not matter (Modigliani and Miller theorem), corporate finance has now

expanded in many directions, including financial institutions, corporate governance, law and finance. Great attention has been given to the role of law in the development of a financial system. The significance and quality of the legal system was emphasised by the introduction of incomplete-contract models. One prediction of this branch of literature is that whenever the legal system performs poorly non-market processes play a more prominent role. On the other hand, the political economy of finance stresses that law and regulation are an outcome of lobbying, and therefore cannot be treated as exogenous. What emerges from the empirical literature is that there is no convincing evidence that favours one theory over another in explaining differences in financial systems. Nevertheless, further understanding of these issues is of utmost importance, not least for policy-making. According to Mayer, if one shares the view that different systems are best suited for different activities, the implication is that policy should be enabling rather than restrictive or prescriptive. According to him, the ECB-CFS Research Network can play an important function in terms of identifying a research agenda, facilitating research activities in this area through workshops, and particularly encouraging exchanges of data as well as ideas.

Due to time constraints, there was no discussion after Allen's and Remolona's presentations. **Antonio Sáinz de Vicuña** (ECB) asked Mayer's view about the conflict between harmonisation and competition, in the context of the European Union. In particular, he was worried that competition might hamper the purposes of regulation. According to **Mayer**, harmonisation is important, especially in the regulation of certain parts of the financial system. However, provided there is good standardised information disclosure, and provided that the systemic risks associated with bank failures are not present, one can argue quite strongly for differences in regulatory structures and competition between different systems. **Jan Krahnen** (CFS) pointed out that most of the empirical work is carried out on German and UK data. He asked whether there is a need for more analysis also focusing on other European countries. **Mayer** thinks that this is precisely the sort of requirement that arises in this area of research. There has been very little serious international comparative work that tries to use standardised data banks and techniques across countries.

2) EUROPEAN FINANCIAL INTEGRATION

Jean-Pierre Danthine (University of Lausanne) chaired this session. The first speaker, **Marco Pagano** (University of Salerno), talked about *"Measuring Financial Integration"*. His talk was based on a report prepared by the Centre for Studies in Economics and Finance for the European Commission: "Study to analyse, compare, and apply alternative indicators and monitoring methodologies to measure the evolution of capital market integration in the European Union" authored by himself, Klaus Adam, Tullio Japelli, Annamaria Menichini and Mario Padula. He evaluated the degree of European financial integration by looking at indicators in four broad categories: 1) indicators of credit and bond market integration; 2) indicators of stock market integration; 3) indicators of integration based on economic decisions of household and firms; and 4) indicators of institutional differences. Some of these indicators are based on asset returns and prices, others on asset quantities (either flow or stock measures). When theoretical benchmarks are available, he uses the concepts of β-convergence and σ-convergence of returns. These indicators are taken from the economic growth literature. b-convergence regresses the average growth rate on the initial level of the variable of interest and interprets a negative correlation as a sign of convergence. This is interpreted as a measure of the speed of adjustment of single countries towards the long-run benchmark value. σ-convergence measures if countries tend to become more similar over time in terms of deviations from the benchmark, and it is computed as a cross-sectional standard deviation of a variable.

Pagano's preliminary conclusions suggest that: a) Convergence in credit and bond markets should be achieved soon. It is important to monitor the evolution of the share of foreign assets held by the national banking sectors in order to get a measure of the home bias and therefore of the degree of market segmentation of European credit markets; b) Monitoring of stock market integration should be done by using quantity-based indicators, such as the share of equities managed by equity funds with an international investment strategy; c) Indicators based on household decisions are rather volatile and hence unreliable. One should focus instead on indicators based on the decision of firms, such as those based on merger and acquisition activities.

Xavier Vives (INSEAD) talked about *"Industrial organisation of banking, bank competition and bank market integration"*. He started by pointing out how, over the last sixty years, the banking system has moved from regulation, intervention and stability towards liberalisation and greater instability. This resulted in an increase in competition, disintermediation, market integration, financial innovation and financial fragility. Adding to these factors, technological change in information technology and communications paved the way for a radical transformation of the banking sector. The banking business witnessed a major consolidation wave and moved from taking deposits and granting loans to the provision of services to investors and firms. Such developments pose key questions. Is too much competition in the banking sector potentially harmful, causing greater instability? Does the consolidation wave pose a threat to competition? Is the internet and globalisation making banking contestable, thus reducing the scope for public intervention and competition policy? What is the impact of mergers? Modern industrial organisation and financial intermediation analysis may provide useful tools to answer these questions. What emerges is that there is a danger of both excessive competition and excessive market power. The reason is that banking is a multi-product industry, with different levels of competition in different product markets. Thus the optimal level of competition depends on the institutional characteristics of regulation and on bank soundness. The implication is that different countries may have different optimal levels of competition intensity. Countries with a sound legal structure can benefit from vigorous rivalry. By contrast, economies with weak institutional structures and high social costs of failure should moderate the intensity of competition.

In the discussion, **Philipp Hartmann** (ECB) pointed out how the current literature is divided about the desirability of competition in banking. One line of thought, based mainly on empirical contributions, supports it for efficiency reasons, while the other, based more on theoretical arguments, is against it for stability reasons. He asked whether the speaker would feel that the current situation in banking suggests more attention to competition or stability. **Vives** responded that the period in which banks were strictly regulated implied huge efficiency losses. The key question we need to answer is: what is the optimal degree of competition? His impression is that banking can take quite a bit of competition as long as it is regulated appropriately. **Marco Pagano** (University of Salerno) stressed the difficulty of defining integration in banking. He suggested that it would be a sign of integration if a company could issue debt and take credit from banks in different countries on the same terms. He then asked the following questions: How to make this definition operational at the data level? Can we ever measure integration? **Vives** thinks that these are very important issues, but that there are no clear-cut answers. For example, in retail, deposit and services markets there may be differences in preferences and culture that explain variations in conditions. The consequence is that these differences need not be sub-optimal. The law of one price might not make sense for some of these products.

3) GLOBAL FINANCIAL LINKAGES

The last session of the day was chaired by **Axel Weber** (University of Cologne). **Philipp Lane** (Trinity College Dublin), *"Global Financial Linkages: Some Theory and Empirics"*, stressed the importance of gross asset trade and net trade flows for the link between global financial integration and macroeconomics. While according to the theory gross asset trade is driven by international diversification and risk sharing needs, reported net trade flows would be the result of efficient capital allocation and consumption-smoothing objectives. Concerning gross asset trade, global factors like different risk aversions by different types of investors determine asset pricing and could be used to explain systemic risk events and contagion effects. International financial exposure also gives rise to international wealth effects, which are the focus of recent international macro research. Lane also mentioned the importance of improving the data situation in terms of cross-border stocks and flows. Due to the increasing importance of valuation effects, net foreign asset positions are very difficult to measure. Using the accumulated current account as a proxy can be highly misleading. Caution is also warranted when deriving data on net investment income. The reverse sign of average net foreign asset positions and net investment income for many countries is the result of asset returns exceeding (falling short of) liability returns for debtor (creditor) countries. Detailed data are thus essential to analyse the effects of net trade flows. As topics for future research, Lane suggested analysing international monetary policy co-ordination from the perspective of incomplete risk sharing, looking at non-fundamental explanations for capital flows, reconsidering the issue of exchange rate misalignments and further investigating global financial panics and contagion events.

Giancarlo Corsetti (University of Rome III), *"Global Financial Linkages and Open-Macro Models"*, provided an overview of the new-open macroeconomics literature stressing the importance of cross-border goods market segmentation. The recent literature follows earlier developments in international finance by showing that market imperfections provide the foundation for new cross-border spillover effects, which here are represented by relative price adjustments in the goods market, i.e. movements in the terms of trade. Empirical evidence suggests that there is a need for models with both goods and asset market segmentation. This should lead to a rethinking of the determination of exchange rates and their role in the international transmission mechanism. This international transmission channel will affect optimal policy rules as well. There are many approaches to model goods market segmentation. Corsetti mentioned simple shipping costs, diverse cross-country preferences for home and foreign goods, nominal rigidities such as firms deciding whether to price their goods in their home currency (producer currency pricing) or in the export market's currency (local currency pricing), and distribution costs paid in local currency. He advocated a new and promising approach for modelling goods market segmentation – vertical integration between firms located in different markets (according to some estimates 70% of international trade is intra-firm). This modelling approach is able to reproduce several attractive features, including local price discrimination, an incomplete exchange rate pass-through, high exchange rate volatility and the possibility of multiple equilibria. Corsetti suggested that future macro research should continue to increasingly rely on industrial organisation results and focus on the vertical integration of firms, taking into account their location decisions.

In the discussion, **Harald Hau** (INSEAD) pointed out that at first sight the two contributions in this session appear quite "orthogonal" to each other, the first stressing the importance of capital flows and the second claiming more attention for the micro-structure of goods market segmentation. This focus of the recent theoretical literature was considered odd due to the fact that trade flows only explain

a minor share of today's capital flows. **Giancarlo Corsetti** (University of Rome III) argued for patience, as researchers are trying to extend the finance part of the new-open macro models, in the same way as the finance literature had been improved like previously the finance literature had been improved by incorporating the real side of the economy. **Axel Weber** (University of Cologne) stressed the similarities between international macro theory and international finance as both continue to further explore the importance of frictions in their respective fields.

After the agenda-setting presentations, **Jan Krahnen** (CFS) gave a short presentation about the status of the preparations of a "roadmap" to guide the future work of the ECB-CFS Research Network. Krahnen suggested a first list of topics that the network could cover over the next two years. These topics will be grouped by area of interest and will form the basis for the future calls for papers, announcing the next workshops and conferences. The detailed roadmap of the network is discussed in a companion document: *ECB-CFS research network on "Capital Markets and Financial Integration in Europe": a roadmap*.

Tommaso Padoa-Schioppa (member of the ECB Executive Board) delivered the dinner speech, *"Competition, co-operation, public action: three necessary drivers for European financial integration"*. He pointed out how the euro can be considered not only as the crowning achievement of the European Single market, but also as the beginning of a deeper integration process. By increasing price transparency, reducing transaction costs, and ultimately stimulating competition, the single currency is acting as a powerful catalyst for financial integration. As the title of his speech suggests, Padoa-Schioppa thinks that the completion of the financial integration process requires interaction between three (equally necessary) drivers: i) competition, ii) co-operation and iii) public action. Free competition across borders permits market forces to push towards greater integration. Co-operation is needed to overcome situations where the optimal outcome is not achieved by the simple interaction of independent individual decisions. Public action should intervene whenever a public good is at stake or when a market failure occurs. One example where interaction between the three drivers is needed is the securities settlement systems. Since, in the short run, some market participants may benefit from its fragmentation, they lack the incentive to change. Competition by itself cannot work and some form of co-ordination is required. In these circumstances, public action could act as a catalyst for change. He ended his speech by encouraging further research on how the interaction between co-operation and competition can work towards the selection of an efficient market structure.

DAY 2

EUROPEAN DEBT MARKET STRUCTURES AND INTERNATIONAL FINANCIAL LINKAGES – FIRST RESULTS

LAW AND FINANCIAL MARKETS

Antonio Sáinz de Vicuña (ECB) chaired the session. **Harry Huizinga** (Tilburg University and European Commission) presented the paper *"Deposit insurance and international bank deposits"* (jointly with G. Nicodeme, European Commission), which examines how international depositors respond to national deposit insurance policies. The authors find that international non-bank depositors appear to favour banking systems covered by explicit deposit insurance, and they are attracted to systems with co-insurance, a private administration, and a low deposit insurance premium. The sensitivity of non-bank deposits to deposit insurance policies opens up the possibility of international regulatory competition in this area. They considered as an example the EU deposit insurance directive of 1994, which requires minimum standards for national deposit insurance policies, but not on

the level of deposit insurance premium. This directive thus may not preclude regulatory competition in the area of deposit insurance in Europe.

In the presentation *"Law or finance: Evidence from Finland"* by A. Hyytinen (ETLA), I. Kuosa (ETLA) and **Tuomas Takalo** (Bank of Finland), the authors study the changes in Finnish corporate governance and financial systems for the period 1980-2000. During this period, Finland experienced simultaneous financial and currency crises, and a large-scale change in industrial structure. Takalo described how the crises and the structural change occurred at the same time as a thorough reform of Finnish corporate governance was implemented. In the paper, the authors explain the development of the financial system in the light of this corporate governance reform. Following the law and finance literature, they equate corporate governance with the legal mechanisms by which outside investors are protected. Their measures of shareholder and creditor protection reveal that shareholder protection has been strengthened, whereas creditor protection has been weakened. They find that Finnish firms have substituted equity for debt on a significant scale. Indeed, the weakening of creditor rights provides an explanation for the gradual contraction in corporate lending during the 1990s. Finally, the authors find that the changes in investor protection have to some extent preceded the reorganisation of the Finnish financial market, while changes in creditor rights occurred in parallel with market developments.

In the discussion of the first paper, **Kostas Tsatsaronis** (BIS) wondered whether deposit insurance limits are too low to be relevant for international depositors, such as big corporations and banks. Moreover, deposit insurance should have a second order effect, because other factors should dominate the behaviour of depositors (location of trade, international capital flows, etc.). He thinks the paper provides an interesting stylised fact (i.e. asymmetry in the behaviour of banks and non-banks), but the interpretation of the results is puzzling. Regarding the second paper, he found that it documented very well the legal framework in Finland. The paper lays a good foundation for future work, such as the response of Finland to the introduction of the euro. **Antonio Sáinz de Vicuña** (ECB) asked how it is possible to measure creditors' or shareholders' protection across borders in the euro area. **Takalo** answered that the measure they apply in the paper had been used in other studies, and that therefore he did not see any problem in extending their measurement criterion to other EMU countries.

NOMINAL CONVERGENCE AND FINANCIAL INTEGRATION

This session, chaired by **Harald Hau** (INSEAD), started with **Giorgio Calcagnini** (University of Urbino) presenting his paper *"Financial convergence in the European Monetary Union?"*, co-authored with Fabio Farabullini (Banca d'Italia) and Donald Hester (University of Wisconsin). The paper reports results from three types of tests of financial convergence. The first type, σ-test, is borrowed from the growth literature. This test was also mentioned by Marco Pagano in his talk on the first day of the workshop. It examines whether the standard deviations of a set of cross-sectional measures of series that are believed to be converging diminish over time. There is evidence of convergence in inflation rates, short-term nominal interest rates, but not for real per capita GDP, relative to a group of non-EMU countries. The results from this test generally support the hypothesis that European integration has led to convergence in financial markets. A second type of test looks at convergence in the banking industry structure by comparing levels and trends in interbank claims and non-interest income at banks (such as fees and commissions). One would expect these flows to increase as barriers are removed. The results show that interbank claims were larger at EMU banks than at banks in other countries, but no clear trend emerged. The final test investigates the convergence of marginal

rates of return on assets and marginal costs of liabilities. The main conclusion is that within the group of six biggest EMU countries, a single market for banks started to emerge in the last two years of the sample (1997 and 1998).

The second paper, by **Stefanie Kleimeier** (University of Maastricht) and Harald Sander (University of Cologne), was entitled *"European Financial Market Integration"*. The focus of the paper is on integration in retail banking markets. The authors argue that looking simply at the law of one price could be misleading, because of the high heterogeneity of the products exchanged in these markets. Therefore, they suggest a co-integration analysis to study the emergence of a uniform banking market. They postulate the existence of a long-run relationship between the national interest rate of a country and the interest rate in the rest of the euro area. While in the short run deviations from the equilibrium relationship are possible, in the long run these deviations should die out. They find very limited evidence for co-integration before the introduction of the euro. They also find that the relationship of national lending markets with the remaining euro area lending markets exhibits strong signs of structural changes at the moment of the introduction of the euro. According to the authors, this is a clear indication that euro area credit markets are changing dramatically, although more evidence is needed before drawing conclusions on the integration of these markets. There are some tendencies towards a more uniform corporate lending market, while consumer lending markets are still more fragmented. Finally, they find that the pass-through process (i.e. the impact of monetary policy decisions on lending rates) is still far from perfect and exhibits strong asymmetries across countries, thus pointing again towards lack of integration.

The discussant **Jos Jansen** (De Nederlandsche Bank) asked how two papers on the same subject could arrive at such different answers to the question of whether the banking sector is integrated or not. Apart from sample periods and other differences in the data, the answer lies in the different methodologies applied. A problem with Kleimeier's approach is the short sample available. Co-integration analysis typically requires a relatively long time series. In addition to this, extensive structural change and, presumably, parameter instability characterised the times over which the analysis is performed. Hence care must be exercised in the interpretation of the results. Regarding Calcagnini's paper, **Jansen** found it puzzling that the sample ended in 1998, as we are particularly interested in what happened afterwards. **Christian Upper** (Bundesbank) made a similar point, saying that retail interest rates were prices of different assets before the introduction of the euro and thus no conclusion about integration could be drawn using pre-EMU samples. **Francesco Papadia** (ECB) asked whether similar results on convergence would be obtained by applying the same tests on average retail interest rates on bank deposits and loans. **Calcagnini** replied that, since no such analysis had been performed, he had no answer to the question.

BANK COMPETITION, CREDIT MARKET INTEGRATION AND PUBLIC POLICY

The chairman for this session was **Xavier Freixas** (Pompeu Fabra). The first contribution was by **Giovanni dell'Ariccia** (IMF). He presented a joint paper with Robert Marquez (University of Maryland) entitled *"Competition among regulators and credit market integration"*. The objective of the paper is to analyse and compare the regulatory equilibria that emerge in several countries when the banking regulation decision is centralised with the one that exists when regulators are separate and independent across countries. The underlying trade-off is between efficiency and flexibility. Independent regulators fail to take into account the positive externalities of their own regulations and therefore tend to under-regulate compared with centralised regulators. In other words, centralised regulators internalise positive externalities. However, a centralised regulator

who faces the constraint of imposing a single set of rules on different countries necessarily loses the flexibility that each national regulator was enjoying and might not fulfil country-specific needs. Therefore, the conclusion of the paper depends heavily on the degree of asymmetry among the countries concerned. Countries with similar financial systems will benefit from a centralised regulator. However, the existence of multiple financial links matter, as they create a free rider problem: a country envisaging joining a single regulatory union might prefer free riding on the existing regulatory framework of its financial partners, while still benefiting from the flexibility of having an independent regulator.

Reint Gropp (ECB) presented the paper *"Contestability, technology and banking"* written with Sandrine Corvoisier (ECB). The objective of the paper is to analyse whether internet banking increased contestability in the banking market. The authors test a relation derived from a simple model of market contestability for banks. This relation expresses the post-entry equilibrium interest margin – a proxy for the degree of competition – as a function of market concentration, internet penetration and costs. The authors also conjecture that internet technology has reduced sunk costs for deposits more than for loans. Using semi-aggregated data for a group of 9 of the 12 euro area countries, they claim to find strong support for an increase in contestability in time deposit markets. However, effects are more moderate for loan markets. The results also show that banking markets in Europe are not perfectly contestable, which suggests that physical bank structures continue to matter.

Giancarlo Spagnolo (Mannheim University) presented joint theoretical work with Elena Carletti (Mannheim University) and Philipp Hartmann (ECB): *"Bank Mergers, Competition and Liquidity"*. The objective of the paper is to analyse the joint consequences of consolidation on loan rates, reserve holdings and interbank market liquidity. The model features stochastic withdrawal shocks on deposits, which banks can finance either with reserves or by interbank market borrowing, and competition in differentiated loans. When liquidity shocks are uncorrelated a merger creates an internal money market saving interbank borrowing costs for the two institutions. Surprisingly, for most parameter configurations this internalisation effect dominates the diversification of liquidity risk, so that merged banks increase reserve holdings. As a consequence of the internal money market, they also enjoy lower liquidity risk and expect lower liquidity needs than competitor banks. As to the loan market, merged banks gain market power but also enjoy cost advantages through lower refinancing costs and potentially also through efficiency gains. Loan rates increase when the market power effect dominates. Finally, aggregate bank system liquidity improves through higher reserve holdings and deteriorates through an asymmetry in deposit bases induced by loan competition. Hence with uncorrelated shocks the aggregate liquidity effects of a merger are an empirical question, whereas with correlated shocks they are unambiguously negative. The results have policy implications for central bank liquidity management, antitrust analysis and financial stability.

Elena Carletti (University of Mannheim) discussed the first two papers, while **Cornelia Holthausen** (ECB) discussed the last one. Regarding the first paper, **Carletti** pointed out that the results were strongly dependent on assumptions concerning preferences of regulators that do not seem to be micro-founded. She argued that the reduced form equation used by the authors would need more motivation. For example, it generates a trade-off in the regulator's objective function that does not seem to be consistent with some standard banking theories, such as the charter value hypothesis. On Gropp's paper, she asked which technology is the relevant one. The weaker effect of internet banking on loan markets suggests that internet banking does not have a significant impact on banks' ability to gather information about local markets.

However, other forms of technological progress seem to have an impact and have made it easier for banks to process and evaluate information as well as to obtain information about competitors. **Vítor Gaspar** (ECB) raised a similar point. He remarked that, in the context of the paper, it did not seem possible to establish that the results found were coming from contestability as opposed to other consequences of technological progress. For example, internet banking led to lower search costs. In the last paper of the session, the discussant **Holthausen** pointed out that the assumption concerning the constant rate on the interbank money market was unsatisfactory. For instance, one can easily envisage the central bank changing this rate in response to merger activity. **Gaspar** (ECB) suggested extending the analysis to allow for a corridor for interest rates in the interbank market, defined by the central bank's standing facilities.

THE EFFECT OF THE EURO ON BOND MARKETS

The session was chaired by **Marina Emiris** (National Bank of Belgium). Three papers on the effect of the euro on tradable debt markets were presented in this session. The first analysis conducted by **Roberto Blanco** (Banco de España), *"The euro-area government securities markets: Recent developments and implications for market functioning"*, studies the recent key developments in the euro-area government bond markets. He finds that the spreads over German bonds of previously high-yield debt have narrowed significantly. By contrast, the spreads of all other euro-area sovereign debt have widened since the introduction of the single currency. The author argues that this could reflect an increase in differences in both liquidity and credit risk between German securities and other euro-area sovereign debt. The author also shows that market microstructure factors, such as relative market liquidity, play a part in determining relative prices. Finally, the analysis suggests that the reduction in the relative supply of government bonds, as a consequence of the improvement in public finances, has had a limited effect in the euro area, in contrast to the evidence in the US market.

The second paper, *"Capital structure and the euro"*, was presented by Philip Vermeulen (ECB) on behalf of the authors, **Yrjo Koskinen** (Stockholm School of Economics), Arturo Bris and Matthias Nilsson (Yale School of Management), since the planned presenter had fallen ill. The paper studies the changes in corporate leverage induced by the introduction of the euro. Three hypotheses are put forward. First, the diminished currency risks should imply a lower likelihood of financial distress, and hence should lead to increased corporate leverage. Second, the euro should lower the cost of capital, and as a result we should observe decreased corporate leverage in the firms of the countries that adopted the common currency. Finally, in a fixed exchange system, firms have an incentive to maintain excessive leverage, as the government can bail them out by devaluing the currency if they become financially distressed. We then should observe higher debt ratios prior to the introduction of the euro for firms that benefited from currency depreciation. The paper finds that the firms in the euro area lowered their market-based leverage after the introduction of the euro. Moreover, this leverage reduction is stronger for those countries with a history of currency crises. They also show that firms in the euro area have increased their equity issuance since the advent of the euro. This supports the view that the euro has lowered firms' cost of capital by enhancing equity market integration and by eliminating currency risks within the countries that have adopted the common currency.

Kostas Tsatsaronis (Bank for International Settlements) and **João Santos** (Federal Reserve Bank of New York) made a joint presentation of the paper *"The cost of barriers to entry. Evidence from the market for corporate euro bond underwriting"*. The paper shows that the arrival of the euro had an important impact by reducing the underwriting fees of international corporate bonds issued in

the new currency. The euro brought down the costs of this funding source to levels similar to those in the US. This finding is particularly striking, given the fact that in 1994 the average fee for bonds denominated in European currencies was twice the corresponding figure in the US. The paper also shows that the reduction in the cost of corporate bond underwriting was largely due to greater contestability of the investment banking business achieved with the introduction of the euro. Therefore, one can conclude that the costs of economic barriers to entry in the pre-EMU market were significant, and their elimination gave borrowers in the new currency a wider range of options. A second finding of the paper is that the elimination of market segmentation increased the business of the larger international investment banks, rather than intensifying the links between euro area borrowers and bankers from the same country. This is interpreted as evidence that borrowers put a greater weight on reputation than on business relationships in the choice of an underwriter.

Christian Upper (Deutsche Bundesbank) acted as discussant. Regarding Blanco's study, he questioned the use of the premium of the on-the-run bond as a proxy for liquidity. The on-the-run bond, for the German market at least, does not command a narrow spread, and hence cannot be considered more liquid than other bonds. This is likely to introduce some measurement error in the analysis. Regarding Santos' and Tsatsaronis' paper, Upper mentioned that gross fees constitute only a part of the costs of underwriting. This might have some consequences in the interpretation of the results, as a reduction in the costs of underwriting should also include the discount one actually gets on the market. **Issam Hallak** (CFS) questioned whether the increased demand for euro assets from US investors could explain the reduction in underwriting costs in Santos' and Tsatsaronis' paper. **Marco Pagano** (University of Salerno) asked how many companies gained access to the bond market for the first time. In his opinion it would be interesting to know the difference between their yield and the normal yield in the same sector. Santos answered that these are very interesting questions, but their data set does not have the detailed information to answer them. Regarding the effective costs of the underwriting, **Jan Krahnen** (CFS) asked whether the authors had discussed the issue with market practitioners, in order to be sure that competition really happens on the nominal fees and not on something else outside the data (similar to what is observed in credit markets). **Tsatsaronis** spoke with a representative from the Association of Bank Underwriters, who agreed with the basic thrust of the paper, in the sense that the corporate bond market has become more competitive in the euro area.

REGIONAL AND INTERNATIONAL SCOPE OF BANKS AND CREDIT MARKETS

Mark Carey (Fed Board) chaired the session. **Claudia Buch** (Kiel Institute of World Economics, with Gayle de Long) in *"Cross-border bank mergers: What lures the rare animal?"* provides an empirical analysis on the causes of cross-border bank mergers. The authors use a novel data set of over 2,300 mergers that took place between 1978 and 2001. They study the impact of country characteristics such as language, regulation, or distance, on the likelihood of a merger between a country pair. They also analyse changes in merger behaviour over time, and study the impact of selected regulatory changes on merger activity. It is found that regulation is a driving factor behind international mergers. In particular, their results suggest that banks operating in more regulated environments are less likely to be the targets of international bank mergers. Therefore, the authors conclude that the lifting of regulatory barriers can spur growth in cross-border bank mergers. Still, informational barriers such as distance and common cultural factors will continue to hold back merger activity. The paper also provides evidence that banks from developed countries tend to take over those from developing countries. Finally, the results in the paper

suggest that during the 1980s, bank mergers tended to occur between banks from similar countries, even if those banks were located in different continents. In the 1990s, as eastern European and Latin American countries opened up, banks from western Europe and the United States began to engage in cross-border, intra-continental mergers.

Luigi Guiso (Ente Einaudi, with Paola Sapienza and Luigi Zingales) in *"Does local financial development matter?"* studies the effects of differences in the development of national financial institutions, when domestic agents have access to foreign financial markets. Rather than studying data from several countries, the authors use Italian data at provincial level, and argue that the results can be interpreted as an upper limit to what integration can achieve. An indicator of local financial development is constructed, which reflects the notion that developed financial markets grant easier access to external funds to domestic households and firms. By using this indicator, the authors find that (local) financial development enhances the probability that an individual starts his own business, favours entry, increases competition, and promotes growth of firms. These results are interpreted as evidence that even if financial markets become increasingly integrated, domestic financial institutions do not become redundant. Furthermore, as predicted by theory, the results indicate that large firms are more likely to seek finance on the international market than smaller firms. Overall, the results suggest that local financial development is an important determinant of the economic success of an area, even in an environment where there is no friction between capital movements.

Steven Ongena (Tilburg University, with Allen Berger, Qinlei Dai, and David Smith), *"To what extent will the banking industry be globalized? A study of bank nationality and reach in 20 European nations"* argues that the banking industry may never become fully globalised, even after adjusting to the full effects of deregulation, technological progress and increased cross-border non-financial activity. The proper question is, rather, *to what extent* will the banking industry be globalised? The paper studies the importance of different financial service providers (ranging from a small bank located in the host nation, to a large global bank in a distant financial centre) for the provision of cash management to large multinational corporations. The term *cash management* refers to all short-term banking needs (including liquidity management, short-term lending, foreign exchange transactions). The authors, using data on more than 2,000 foreign affiliates of these corporations in each of 20 European nations, identify two distinct dimensions of globalisation: bank nationality and bank reach. The first refers to the location of a bank's headquarters. Bank reach refers to the geographic scope and size of the bank. It is found that for their local cash management, most multinational affiliates choose a small, local institution located in the country in which the services are demanded, while only a rather small percentage uses the services of a global financial institution. Moreover, it is also found that bank reach is strongly associated with bank nationality, i.e. firms that use host nation banks for cash management services are less likely to use a global bank and more likely to use a local or regional bank. The findings suggest that the extent of future globalisation of the banking industry is limited.

In his discussion, **Olivier de Bandt** (Banque de France) emphasised the common theme of all the papers in the session, namely testing financial integration at national and/or international level. The focus is particularly on credit market integration, and the behaviour of households and firms. All papers provided some evidence of potential limits to globalisation in the banking industry: local financial institutions will continue to play a role for domestic markets. Another distinctive feature of the three papers is the use of novel data sets. Concerning the paper by Buch, he remarked that mergers are only one way to penetrate a foreign market. To obtain a measure of financial integration, other strategies such as

the number of foreign branches or subsidiaries should be taken into account. One criticism raised was the pooling of acquiring and targeted banks in the sample. On the paper by Guiso, de Bandt encouraged the authors to provide a clearer interpretation of the newly developed financial indicator. He also criticised the lack of measures for the goodness of fit in the estimations. Finally, he raised some doubts about the stability of the results obtained by Ongena, noting that more details should be given to explain why variables linked to eastern Europe were the only ones to be significant in the empirical results. All in all, he concluded that the analyses pointed to the existence of two polar cases, which may be related to the underlying strategy of clients: regional banks or global banks.

INTERNATIONAL FINANCIAL LINKAGES

Stijn Claessens (University of Amsterdam) chaired the session. **Lieven Baele** (Ghent University) presented his paper *"Volatility spillover effects in European equity markets: Evidence from a regime switching model"*. He estimates the magnitude and the time-varying nature of volatility spillovers from aggregate European and US equity market indices to 13 local European equity markets. The ultimate goal is to analyse the fundamental forces driving volatility in European stock markets. In the analysis, he allows volatility in the different European markets to depend on a purely country-specific shock, a regional European shock and a global shock from the US. More specifically, he investigates whether the process of economic, monetary and financial integration have fundamentally altered the sources and intensity of shock spillovers to individual European stock markets. He uses a regime switching model to distinguish between periods of high and low spillover intensity, and high and low volatility. He finds these regime switches to be very important, which implies that shock spillover intensity varies significantly through time. The importance of EU shocks increased for most markets during the 1990s, and has become important for euro area countries and Denmark. For countries like Norway, Sweden, Switzerland, and the United Kingdom, the importance of US shocks is still higher than those coming from the EU.

Robin Brooks (International Monetary Fund) presented his joint paper with Marco Del Negro: *"Firm-Level Evidence on Globalization"*. He argued that the degree of co-movement across national stock markets has increased dramatically in recent years. The paper aims at exploring some of the causes behind this phenomenon. It does so by constructing a new firm-level data set that covers monthly stock market data and annual balance sheet and income statement information from 1985 to 2002 for about 10,000 companies in 42 developed and emerging stock markets. The authors find that the ability of country-specific effects to explain international variation in asset and sales growth and returns on assets fell significantly during the late 1990s, while the explanatory power of global industry effects grew and in some cases surpassed that of country effects. Using this data set, they also estimate a factor model, which decomposes firm-level equity returns into a global, a country-specific, an industry-specific and a firm-specific component. Compared with the previous literature, the factor model drops the assumption that firms have the same exposure to a given country or industry factor. Their main finding is that country-specific shocks play a smaller role in explaining the stock return variation of firms that are diversified internationally, while the country-specific component plays a greater role for companies that are more domestically oriented.

Paul Ehling (University of Lausanne) presented his joint paper with Sofia Ramos (University of Lausanne) entitled *"The EMU and strategies of asset allocation"*. The authors test two strategies for portfolio allocation: country versus industry diversification. They do this by testing whether a set of industry portfolios can improve the

efficient frontier of country portfolios and, vice versa, whether a set of country portfolios can improve the efficient frontier constructed from industry portfolios. They isolate the effects of EMU by considering different kinds of samples: euro area countries, European Union but not EMU countries, and other European countries. Their results show that since the introduction of the euro, country portfolios have provided equally good diversification opportunities as industry portfolios. However, mixing both strategies still offers diversification gains. They do not find significant differences between euro area countries and different groups of non-euro area countries. Therefore, the authors conclude that either EMU is not responsible for the apparent shift in the efficient portfolio frontier, or that it has affected all the countries in Europe, regardless whether they have joined EMU or not.

Daniela Klingebiel (World Bank) discussed Robin Brooks' presentation. She raised some doubts about the dependence of the results on the particular data set used. The data set seems to be heavily biased towards the U.S. Therefore it is not clear to what extent the results really hold across countries and globally. She is particularly concerned about the situation for emerging markets. She presented some results of her own work, showing that during the 1990s internationalisation in capital raising and trading in foreign shares grew rapidly, especially in middle income countries. In the second part of the discussion, **Stijn Claessens** (University of Amsterdam) pointed to the need in the three papers for a well-defined asset-pricing model. The papers use a single factor asset-pricing model, running into the problem that it becomes impossible to distinguish between tests for lack of diversification and tests for lack of integration. Only with a multi-factor model can one explicitly test for the sources of financial integration: is a higher degree of integration the result of financial convergence, real convergence or similar concepts of economic policy? Further, he stressed how these works suffer from being partial equilibrium models. He pointed towards a growing body of literature that shows how the introduction of small transaction costs in a general equilibrium model of international asset pricing can generate a large deviation from the optimal prices. This suggests the inclusion of stock positions or flow side in empirical analyses of this kind.

PLENARY PANEL SESSION

Vítor Gaspar (ECB) chaired the last session of the workshop. In this panel, technical and political experts were invited to give their views about the status of the European financial system and the way forward to complete integration.

Alberto Giovannini (C.E.O., Unifortune Asset Management) began his presentation, *"The work of the Giovannini Group and implications for research"*, by recalling the mandate of the Giovannini Group and the work it has performed so far. The group was set up in 1996 and consists of financial market participants. Its purpose is to advise the European Commission on financial market issues. Specifically, the group puts together financial, economic and legal viewpoints, with the aim of identifying inefficiencies and problems in EU financial markets and proposing possible solutions to increase market integration. A key area where serious barriers to integration exist is the clearing and settlement area. Here, technical impediments, as well as fiscal and legal cross-border barriers are still in place. The group's analysis found that, as a result of this type of impediment, cross-border transactions are subject to post-trading costs 8–10 times higher than those for domestic transactions. Giovannini argued that the combination of widespread barriers and high transaction costs paints a bleak picture of EU financial markets in the near future. He also discussed the potential role of policy-makers in promoting EU financial integration. He mentioned several problems policy makers would have in tackling this process, including powerful special interests, the information

disadvantages of policy-makers vis-à-vis market participants, and the fact that it is hard to describe and quantify the benefits of integration. He concluded by raising a number of questions. These included the impact of eliminating barriers to integration on individual national markets, the possibility that increased integration may be destabilising, and the role of regulators in an integrated EU market.

Jesper Berg (Head Capital Markets and Financial Structure Division, ECB) outlined the ongoing non-research work of the ECB in enhancing the Eurosystem's analysis of financial structures in the euro area in *"The Eurosystem's work on euro area financial structure"*. The goal is to produce, within the next few months, a report that will serve as the main reference source in this area. A number of reasons were given for the importance of this work, including the need to improve the overall structural analysis, to improve understanding of the monetary policy transmission process, and to better understand key determinants of trends in financial structures. Berg mentioned that while the Eurosystem has already produced extensive work on financial structure in the euro area, the current project focuses on more general aspects of the euro area financial structure. The envisaged output of the project is a publication with 12 country chapters, as well as a euro area chapter. Each of these chapters will deal with the specifics of the sources of financing, the markets/intermediaries, and the uses of financing in each country and the euro area. Berg advanced a few preliminary conclusions that could be drawn from the work done so far. For example, households appear to be the main providers of funds (through intermediaries), and non-financial corporations are the main recipients of funds in the euro area. A relatively clear trend in the financial structure of the euro area is the rapid internationalisation of the financial sector, although more so in markets than among intermediaries. In contrast to these findings, which seem common across a majority of countries, there appear to be substantial differences between countries regarding the ratio of external to internal financing for non-financial corporations. Finally, with respect to the household sector, housing loans seem to be the major source of financing, although some important differences between countries exist.

David Wright (Director Internal Market, European Commission) discussed *"The status of the implementation of the Financial Services Action Plan"*. He described the progress made to date on the Financial Services Action Plan (FSAP) and reflected on future issues. The FSAP, which was adopted in 1999 by the European Commission, outlines the overall policy of the EU for achieving integrated financial markets. Wright reported that important progress had been made and the work is currently halfway through. There is increasing support within the EU for deeper financial integration, and therefore a growing need for more resources in order to monitor progress in the future. Despite the recent progress in implementing the FSAP, Wright noted that a large number of important issues are still outstanding. For example, further work is required on the Investment Services Directive, ultimately depending on the choice of trading structures in the EU. Cross-border mergers are another important area that needs further development. In particular, he highlighted the need for a new directive on takeovers and for common disclosure rules. He also mentioned a number of legal issues, including the need to harmonise and modernise company law. More work is needed in the area of settlement and clearing. The main concern at the moment, according to Wright, relates to pension funds, where no progress had been made to date. Specifically, he raised the question whether Europe's markets could cope with future expected pension flows. In the light of these and other outstanding issues, Wright discussed some areas where he believes future research would be particularly valuable. He mentioned the need for long-term monitoring systems for the progress of integration in EU financial markets. The role of EU enlargement and its possible consequences and benefits was

also pointed out. He suggested that the consequence of tax distortions in capital markets should be studied more, in order to find out whether these are important and whether the market can be expected to circumvent such distortions by itself. He also highlighted information issues. Specifically, the potential role of disclosure externalities and their impact on market volatility and liquidity should be investigated further, as well as the trade-off between efficiency and supervision.

In the general discussion, the question was raised about the ranking of the importance of various barriers and impediments for financial integration in the EU. **Giovannini** responded that it is difficult to make a specific ranking of such barriers. Moreover, he prefers to focus on ways of disposing of integration impediments, rather then ranking them. Relating to the substantially higher cost of cross-border transactions, as compared with domestic transactions, **Giovannini** was asked what he thought the real implications of this higher cost were. **Giovannini** responded that he saw the high cross-border costs as a prohibitive tariff, resulting in fewer cross-border transactions than would otherwise be the case. He expressed the view that a number of additional market functions could be carried out and a better allocation of resources could be achieved if this barrier were eliminated. **Giovannini** was asked how his conclusions will be conveyed. He responded that the final report will make proposals on how impediments for market integration can be eliminated. It will also cover various legal aspects relating to this. Furthermore, it will have an analysis of different financial structures and their properties with respect to efficiency. **Wright** noted that while a large number of problems have been identified in the area of cross-border clearing and settlement, domestic clearing and settlement within each EU country cannot be described as inefficient. He expressed the view that the market alone cannot be expected to solve the current problems associated with cross-border clearing and settlement, since these involve legal, competition, and access issues, among others.

Sirkka Hämäläinen (member of the ECB Executive Board) delivered the concluding keynote speech, *"Consolidation in the European securities infrastructure. What is needed?"*. She pointed out how the securities infrastructure in the euro area remains highly fragmented. A large number of stock and derivative exchanges, and several national clearing and settlement institutions still survive, despite the consolidation process triggered by the single currency. In order to fully reap the benefits of the single currency in financial markets, this problem must be solved. The key question she posed is whether the consolidation process of the securities infrastructure will proceed without some form of public involvement. It is true that in a competitive environment market forces push for the most efficient solution. But how competitive is the European securities infrastructure? And, in any case, will market pressures be sufficient to overcome existing national interests? Available analysis of the business environment for securities trading, clearing and settlement indicates the existence of several sources of insufficient competition. According to Hämäläinen, there are two main fields in which public action can play a prominent role: removing obstacles to consolidation and ensuring an integrated regulatory and oversight framework. She concluded her speech by suggesting a few topics for research: 1) analyse the economic circumstances under which there is an argument for public involvement in the consolidation process itself; 2) what is the optimal degree of concentration in the securities industry?; and 3) what is the impact of the "insourcing" of securities services on the consolidation of the industry and on the oversight, supervision and financial stability functions?

Vítor Gaspar (ECB) closed the workshop, stressing that the research network will cover

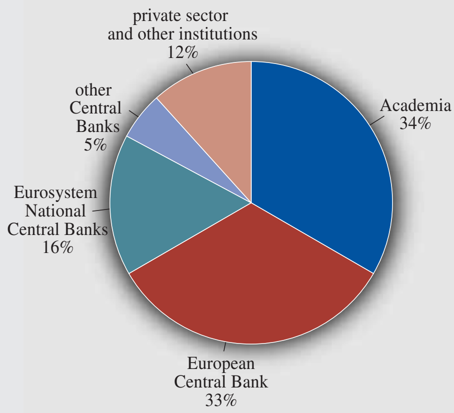
three broad topics: 1) European financial integration; 2) European financial system structures; and 3) financial linkages between Europe, the US and Japan. The main purposes of the network will be to provide a comprehensive research agenda, provide a "roadmap" identifying the topics to be covered in future workshops and conferences, encourage and facilitate exchanges of data, and reserve a special role for young researchers. Young researchers will be invited to submit research proposals through a call for projects. The most promising proposals will be selected and funding will be available. All researchers involved in the network are expected to produce original research on relevant topics, present it at the forthcoming workshops and conferences, interact with other researchers in the network, and eventually publish their research in top academic refereed journals. He announced that the summary proceedings of the workshop and the research roadmap of the network will be made available shortly and posted on the network website. Dates and venues of the next workshops will also be announced on the network website.

ANNEX C AFFILIATION OF PARTICIPANTS TO NETWORK EVENTS

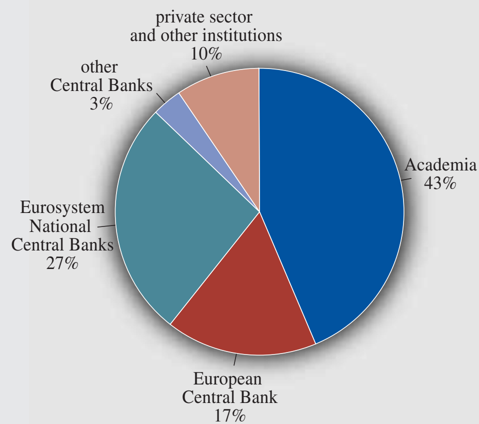
Affiliation

(% share of total participants)

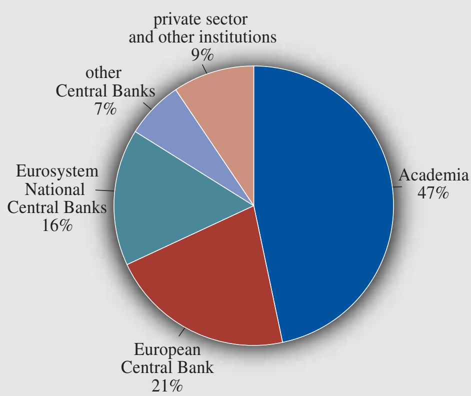
Launching Workshop



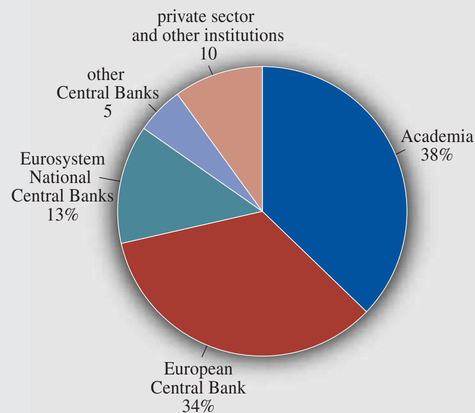
Second Workshop



Third Workshop



Symposium



ANNEX D PROGRAM AND SUMMARY OF THE SECOND WORKSHOP

HOSTED BY THE BANK OF FINLAND IN HELSINKI, MARCH 11-12, 2003

Day 1 (Tuesday March 11)

8:45-9:15 Welcoming coffee

9:15-9:30 **Sinikka Salo** (Executive Board Member, Bank of Finland)**,** *Opening remarks*

9:30-10:15 **Steven Ongena** (Tilburg University),
Key lecture on the impact of technology and regulation on the geographical scope of banking activities: theory and evidence

10:15-10:30 Open discussion

10:30-11:00 Coffee break

11:00-13:00 **Parallel sessions**
Session 1.1: Bank consolidation and its implications
Chair: Rune Stenbacka (Swedish School of Economics, Helsinki)

Emilia Bonaccorsi di Patti (Bank of Italy), *Winners or losers: the effects of banking consolidation on corporate borrowers* (with Giorgio Gobbi, Bank of Italy)

Maria Fabiana Penas (Free University of Amsterdam), *Gains in bank mergers: evidence from the bond markets* (with Haluk Unal, Robert H. Smith School of Business, University of Maryland)

Dag Morten Dalen (Norwegian School of Management), *Regulatory competition and multi-national banking* (with Trond E. Olson, Norwegian School of Economics and Business Administration)

12:30-12:45 Discussant: **Jukka Vesala** (ECB)

12:45-13:00 Open discussion

Session 1.2: European equity markets and corporate governance
Chair: David Mayes (Bank of Finland)

Yrjo Koskinen (Stockholm School of Economics), *The euro is good after all: corporate evidence* (with Arturo Bris, Yale School of Management, and Matthias Nilsson, Stockholm Institute for Financial Research)

Thomas Gehrig (University of Freiburg), *Cross-listings and the geography of firm's ownership* (with Thierry Foucault, HEC)

Mariassunta Giannetti (Stockholm School of Economics), *Which investors fear expropriation? Evidence from investor stock picking* (with Andrei Simonov, Stockholm School of Economics)

12:30-12:45 Discussant: **Leo de Haan** (Dutch Central Bank)

12:45-13:00 Open discussion

13:00-14:00 Lunch break

14:00-14:45 **Tullio Jappelli** (University of Salerno)
Key lecture on financial market integration, corporate financing and economic growth

14:45-15:00 Open discussion

15:00-15:30 Coffee break

15:30-17:30 **Parallel sessions**

Session 2.1: Financing structure of firms; theory

Chair: Jan Krahnen (Center for Financial Studies)

Xiaoyun Yu (Indiana University), *Informational efficiency and liquidity premium as the determinants of capital structure* (with Chung Chan, University of Minnesota)

Tuomas Takalo (Bank of Finland), *Equilibrium in financial markets with adverse selection* (with Otto Toivanen, Helsinki School of Economics)

Thorsten Koeppl (ECB), *Limited enforcement and efficient interbank arrangements* (with Jim McGee, University of Western Ontario)

17:00-17:15 Discussant: **Leo Kaas** (University of Vienna)

17:15-17:30 Open discussion

Session 2.2: Integration of equity markets

Chair: Harry Huizinga (Tilburg University and Economic Advisor to the European Commission)

Michael Haliassos (University of Cyprus), *Household stockholding in Europe, Where do we stand and where do we go* (with Luigi Guiso, University of Sassari and Tullio Jappelli, University of Salerno)

Eric Theissen (University of Bonn), *Competition between exchanges: Euronext vs. Xetra* (with Maria Kasch-Haroutounian, University of Bonn)

Miguel Angelo Ferreira (ISCTE School of Business), *The importance of industry and country effects in the EMU equity markets* (with Miguel Almeida Ferreira, ISCTE School of Business)

17:00-17:15	Discussant: **Simone Manganelli** (ECB)
17:15-17:30	Open discussion

19:30 Dinner
Benn Steil (Council on Foreign Relations, New York),
Dinner speech on building a transatlantic securities market

Day 2 (Wednesday March 12)

8:00-8:30 Coffee

8:30-9:15 **Geert Rouwenhorst** (Yale School of Management)
Key lecture on international financial linkages

9:15-9:30 Open discussion

9:30-10:00 Coffee break

10:00-12:00 **Session 3: International portfolio choice and asset market linkages**
Chair: Philipp Hartmann (ECB)

Helene Rey (Princeton University), *Exchange rates, equity prices and capital flows* (with Harald Hau, INSEAD)

Michael Ehrmann (ECB), *Interdependence between the euro area and the US: what role for EMU?* (with Marcel Fratzscher, ECB)

Charlotte Ostergaard (Norwegian School of Management), *International diversification in bank asset portfolios* (with Claudia Buch, Kiel Institute for World Economics, and John C. Driscoll, Board of Governors of the Federal Reserve System)

11:30-11:45 Discussant: **Yigal Newman** (Stanford School of Business)

11:45-12:00 Open discussion

12:00-13:30 **Policy panel**
The future of exchanges: competition or consolidation?
Moderator: Juha Tarkka (Bank of Finland)

Niall Bohan (European Commission, Brussels)

Peter Gomber (Deutsche Boerse AG, Frankfurt)

Hannu Halttunen (Nordea, Finland)

Andre Went (Euronext, Paris)

13:30-13:45 **Vítor Gaspar** (ECB), *Concluding remarks*

13:45-14:45 Lunch

INTRODUCTION

On 29-30 April 2002, the **European Central Bank** (ECB) and the **Center for Financial Studies** (CFS) hosted a workshop at the ECB to launch their network initiative aiming at promoting research on "Capital Markets and Financial Integration in Europe". The research network aims at co-ordinating and stimulating top-level policy-oriented research that significantly contributes to the ECB's understanding of developments in European financial structure and the linkages between European financial systems and those in the United States and Japan. The format is a network of people and its key feature is a strong interaction between researchers in academia, the ECB, other Eurosystem central banks and other official institutions. On the basis of the discussions held during the Launching workshop regarding the areas where research is needed, five top priorities areas have been selected: (1) bank competition and the geographical scope of banking activities; (2) international portfolio choices and asset market linkages between Europe, the United States and Japan; (3) European bond markets; (4) European securities settlement systems; and (5) the emergence and evolution of new markets in Europe (in particular start-up financing markets). Subsequent workshops were designed to cover these different areas.

The second workshop of the network was hosted by the Bank of Finland in Helsinki on 11-12 March 2003. The main priority areas analysed in the course of the workshop were (1) bank competition and the geographical scope of banking activities; (2) International portfolio choices and asset market linkages between Europe, the US, and Japan and (5) the European equity markets. The workshop combined research key lectures, research paper presentations, and a plenary panel discussion on "The future of exchanges: consolidation or competition", that included Niall Bohan (European Commission, Brussels), Peter Gomber (Deutsche Boerse AG, Frankfurt), Hannu Halttunen (Nordea, Finland), and Andre Went (Euronext, Paris). This document summarises the second workshop of the Network.

DAY I

Juha Tarkka (Bank of Finland) welcomed workshop participants and introduced **Sinikka Salo** (member of the Bank of Finland executive board), who delivered the opening remarks. She recalled that many of the processes that are shaping Europe today are closely linked to the development and working of financial markets. On the one hand, changes in Europe political structures are reflected in its financial system. For example, the most crucial change on our continent at the present time is the enlargement of the European Union. The challenge for financial markets is the collection and transfer of huge amounts of capital that is needed in the 10 new member states to enable them to catch up with the living standards of the older member states. It is most likely that, 10 years into the future, the European financial markets will in many respects be quite different from their current situation. On the other hand, developments in financial markets have a crucial impact on how the EU can be renewed and how it will develop in the years to come. Despite the successful introduction of the euro and the single monetary policy, EU financial markets are in many respects still fragmented and national. Finally, she recalled the result of several studies showing that further financial integration can be expected to have significant positive effects on growth and increase market efficiency.

KEYNOTE LECTURE ON THE IMPACT OF TECHNOLOGY AND REGULATION ON THE GEOGRAPHICAL SCOPE OF BANKING ACTIVITIES

Juha Tarkka (Bank of Finland) then introduced **Steven Ongena** (Tilburg University) who addressed two themes in his key lecture "*The impact of technology and regulation on the geographical scope of banking*", (i) the implications of distance and borders in banking and (ii) the effect of technology and regulation on these geographical barriers.

Ongena first clarified the concept of borders. Economic borders arise endogenously from information problems due to strategic behaviour of market participants, e.g. relationship lending can be seen as a barriers to entry. Economic borders also have an exogenous component, such as different standards of legal origin, corporate governance practices, supervisory practices, political systems or languages.

He then reviewed the theory and evidence related to distances and borders in four areas: 1) spatial pricing and rationing; 2) branching and servicing; 3) segmentation and 4) entry and mergers and acquisitions. In the first area, theories on the effects of transportation costs, monitoring costs or asymmetric information predict that loan rates should be positively related to distance to the closest competitor, while it should be negatively related to distance to the lender. These relationships are strongly supported by the empirical evidence. Regarding the second area "branching and servicing", Ongena reported that there is little support that the strategy of banks to open branches is affected by distance. Related segmentation, there is convincing evidence that banks over-invest domestically. The existence of country-specific credit risk or the fact that foreign banks may not be in a better position than local lenders to extend credit to borrowers than local lenders might explain this fact. Regarding the fourth area, entry and M&As, Ongena reported that cross-border bank M&As are less frequent than cross-border M&As in other industries or than M&As between domestic banks. So borders are a significant impediment to bank M&As. Finally, on strategies of entry, the evidence is mixed. Contrary to banks in the US, banks in Germany e.g. appear to adopt a "follow-your-customer" strategy. However, it seems accepted in the literature that lower efficiency in banking activities is related to borders and not to distance.

Ongena then elaborated on the likely impact of technology and regulation on distance and borders, still focusing on the four areas listed above. Regarding pricing, new technology like on-line banking should spur competition thus

reducing loan rates. However there is only little evidence that this is the case. Indeed, there are two forces at work. A better access to information has a negative effect on loan rates, but an improved ability to process information increases loan rates and bank profits. Regarding rationing, banks should face increased competition from capital markets, which might induce banks to lend across larger distance. Ongena presented empirical support for this claim, showing that the estimated distance between banks and lender increased in Belgium and in the US. Regulation has a larger impacts on areas 3) and 4). In particular, Ongena reported that while the integration of the EU wholesale capital market was achieved, there is still a long way to go in order to integrate the retail loan market. In particular, contrary to the US, the distance at which banks lend internationally has not increased in Europe. As a bottom line, while regulatory "borders" in the EU have been removed, the exogenous economic borders remain very strong. Against this background, Ongena drew two main policy implications. First, it appears warranted to facilitate cross-borders M&As using for instance pro-active competition policies. Second, it appears necessary to reflect on the current status of the regulatory framework, which might not be able to deal with complex corporate structure arising from cross-borders M&As.

In the discussion, **Thomas Gehrig** (University of Freiburg) asked whether Hotelling's framework – a theory to analyse the choice of location as part of a competitive strategy – could be used to understand the pattern of bank branching in Europe. In his view, an increase in distance has a negative effect on the number of branches opened and he invited the authors to explore the interaction between information and market structure effects. Ongena responded that he and his co-author **Hans Degryse** (Tilburg University) did not explore yet the essence of local competition in Europe but suggested that, to do so, it would be necessary to explore the identity of banks that are located nearby the lending institution. **Philipp Hartmann** (ECB) then asked the authors to elaborate further on the future of bank supervision in Europe. In Ongena's view, supervision should become more integrated at the European level so as to build up expertise as European M&As proceed. At the same time national supervisors should be maintained. Regarding the impact of technology on banking activities, **Jukka Vesala** (ECB) stressed that the amount of loans granted by online banks is low, possibly because of the informational disadvantage these banks face. However, Vesala wondered whether these banks will become more serious competitors when they will be able to receive deposits. Ongena replied that ultimately technology will have an effect on the competitiveness of online banks, but he also emphasised that it will become more difficult for them to compete when they will engage in cross-border activities. Juha Tarkka (Bank of Finland) invited the author to elaborate further on the interaction between the exploitation of economies of scale and technological progress in banking. In his view, because of the possibility to outsource many operations, size does not really matter any more. On this matter, Ongena referred to the US experience where small banks outsource many activities to information technology providers but retain some aspects of their business such as lending activities. The same process is taking place in Europe, although at a much slower pace. Then the authors were asked to be more precise why they regard transportation costs as important, given new technologies. Degryse replied that in his view, transportation costs are important for the decision to take a loan as well as for the ease with which a loan can be monitored. He also emphasised that transportation costs are related to "informational distance". Finally, the authors were asked their views on the likelihood of a pan-European retail market. Degryse answered that so far there is no empirical evidence that retail markets become pan-European. Hartmann further commented that progresses on the retail side are limited on a European-wide level because of the exogenous borders underlined by Ongena.

There are some inherent limits to the integration of retail business, some of which may be impossible to overcome.

SESSION 1.1 BANK CONSOLIDATION AND ITS IMPLICATION

The session was chaired by **Rune Stenbacka** (Helsinki Swedish School of Economics). The first paper, "*Winners or losers? The effect of banking consolidation on corporate borrowers*", was presented by **Emilia Bonaccorsi di Patti** (Bank of Italy) (co-author Giorgio Gobbi, Bank of Italy). The paper uses a rich dataset on Italian firms and banks to investigate borrowing and lending behaviour. The paper investigates the impact of bank M&As from borrowers' perspective, contrary to the prevalent approach in the literature that concentrates on the perspective of merging banks. The main question is whether bank M&As change borrowers' credit availability and investment capability because of a loss of information in relationship-based lending. The authors suggest that small firms with few bank relations or high risk firms could be most affected because of the dissipation of information in bank M&As and the following restructuring of the organisation. However, the main conclusion of the paper is negative: None of the different classes of borrowers are adversely affected – not even the smallest or weakest firms, or firms most dependent on few banks.

The second paper, "*Gains in bank mergers: Evidence from the bond markets*", was presented by **Maria Penas** (Vrije Universiteit Amsterdam) (co-author Haluk Unal, University of Maryland). The paper documents significant effects of US bank M&As on the concerned banks' bond returns and spreads. Thus the authors conclude that banks are different from non-financial firms as firms' spreads are typically not affected by M&As. The paper then analyses the determinants of the positive bond returns and lower spreads associated with bank M&A-announcements. The main findings are that increasing risk diversification increases returns and lowers spreads as default risk is reduced. The most striking finding is that the incremental size-increase of the new banking organisations is a significant factor. Notably, return increases and spread reductions mainly occur for medium-sized banks that become sufficiently large through consolidation. If medium-sized banks grow large enough (and become too-big-to-fail), banks' bond-holders will expect a bailout by public authorities in case of trouble to be more likely and thus they will demand a lower risk premium.

The last paper of the session was presented by **Peik Granlund** (Finnish Financial Supervisory Authority), "*Economic evaluation of bank exit regimes in the US, EU and Japanese financial centres*". The paper documents the legal frameworks for bank protection and creditor rights in the different financial centres and studies then the impact of these legal features on banks' bond spreads. Banks' cost of funds should be the lower the greater creditor protection and the higher bank bailout probability, as the risk premium would be lower. The paper also investigates the impact of shareholder protection on bank asset growth and predicts a positive relationship. The main conclusion is that banks seem to enjoy lower spreads in more "protected" regimes. The evidence as regards asset growth is ambiguous.

Jukka Vesala (ECB) discussed the three papers. He noted on the first paper that it would help to articulate the underlying welfare analysis more clearly. In particular, the paper seems to focus on how producers' surplus is affected by bank M&A and what factors determine how this is shared between customers and the bank. But it is not immediately clear how the focus on borrowers fits into this. In addition, it would be worthwhile analysing further why consolidation should be an important influence on bank-customer relations. Finally, some suggestions were made about using two-stage estimation techniques, inclusion of non-

performing loans, and robustness checks concerning the measurement of "firm quality". Regarding the second paper, Vesala warned against interpreting too sharply the implications for the too-big-to-fail problem. Under a full bailout expectations banks' spreads would be zero (or amount only to the liquidity premium), but in the sample, banks' have significantly positive spreads (on average 90 basis points in the US) and the impact of M&As is found at most at 16 basis points. Another major suggestion was that since finance theory predicts bond spreads to be non-linearly related to default probability, spreads should remain stable and close to zero for large intervals and only react significantly relatively close to the default point. Against this background, the relatively large spread reductions found for targets could suggest that these banks were in a relatively weak condition (and therefore targets) and this could be usefully studied further. Comments on the last paper largely focused on the empirical analysis. Especially, the measurement of financial assistance probability is quite judgmental. Rating agencies' "support ratings" (measuring exactly the bailout probability by public authorities or parent financial organisations) could be used to increase objectivity. Moreover, the credit spread (and asset growth) analysis should preferably be based on a larger sample of banks and on instruments that are sufficiently liquid. It should also be extended to multivariate regressions (including bank-specific risk and other determinants, market-specific factors).

SESSION 1.2 EUROPEAN EQUITY MARKETS AND CORPORATE GOVERNANCE

The session was chaired by **David Mayes** (Bank of Finland). The first speaker **Yrjo Koskinen** (Stockholm School of Economics), presented the paper "*The euro is good after all: corporate evidence*" (co-authored with Arturo Bris, Yale School of Management and Matthias Nilsson, Stockholm Institute for Financial Research). The objective of the paper is to determine the effects of the euro on corporate behaviour since its introduction in 1997. The analysis relies on data at the firm level from 1995 to 2000, from 10 EU countries that adopted the Euro, 3 EU countries that did not join EMU, as well as Norway and Switzerland. The authors analyse firms' valuation and investments in the sample. Large firms in EMU countries increased in value, as measured by Tobin's Q, especially those in countries that experienced currency crises. In itself this is not enough to show the positive effect of the euro as investment opportunities could also have improved. However, the authors' view is that better investment opportunities were created by the single market, much before the advent of the euro. Given the assumption that all firms face similar investment opportunities, one should observe that firms with reduced cost of capital would invest relatively more. Indeed, the authors find that the introduction of the euro had a positive effect on investments of firms in the euro area. This justifies the claim that the cost of financing decreased due to the introduction of the single currency. However the authors emphasised that the introduction of the single currency implied the adoption of a single monetary policy. Some firms could be adversely affected by asymmetric inflation shocks among EMU countries, which are impossible to overcome when a single monetary policy is used. This effect could have driven the cost of capital up. In this regard, increased capital markets integration is key in order to improve risk sharing opportunities in Europe. Hence, the authors reached the conclusion that the introduction of the euro has lowered firms' cost of capital by further increasing capital markets integration in Europe and by eliminating currency risks among the countries that joined EMU.

Thomas Gehrig (University of Freiburg) presented the paper "*Cross-listings and the geography of firm's ownership*", co-authored with Thierry Foucault (HEC). The objective of this theoretical paper is to propose another explanation for the increased cross-listings of European stocks in the US. The authors argue that cross-listing is a mechanism through

which market information is generated. They consider a framework with two types of shareholders: sophisticated shareholders who can engage in multi-market trading and unsophisticated shareholders who exclusively trade in their domestic markets. Shareholders might have private information on the value of a firm. A firm facing the option to go public might choose to cross-list or not, may choose to allocate equities between different class of shareholders. Cross-listing creates market segmentation. This segmentation reduces market liquidity for a firm's shares. But the authors show that it also forces informed investors to trade larger quantities overall. As a consequence, prices reveal more of the information possessed by informed investors. Therefore a firm faces a trade-off between liquidity and information. The benefits of cross-listing are maximal if the allocation of equities is judicious. In particular, firms must allocate shares to unsophisticated investors in both markets so as to create the information effect. An interesting consequence of the analysis is that firms and exchanges would not necessarily benefit from market integration. As the trade-off vanishes with markets integration, firms will loose the informational benefits of cross-listing. As a consequence, revenues of exchanges from listings will diminish. Hence, firms and exchanges might oppose further markets integration.

Mariassunta Giannetti (Stockholm School of Economics) presented the paper "*Which investors fear expropriation? Evidence from stock picking*", co-authored with Andrei Simonov (Stockholm School of Economics). This paper investigates whether investors take firms' corporate governance into account in their investment decision. To this end, the authors use a data set that provides comprehensive information on almost all stockholders of companies listed on the Swedish stock market. They find that fears of expropriation in companies where the extraction of private benefits is expected to be greater, discourage investors who enjoy only security benefits from buying shares. Their analysis relies on the ratio of control to cash flow rights of the principal shareholder. This ratio is expected to be positively correlated with the extraction of private benefits by a firm and is therefore used as a proxy for bad governance. The authors find that this ratio matters, in the sense that the overall impact of a marginal change in the ratio for a specific firm on the probability that investors buy the stock of this firm is negative and significant. The effect of improved corporate governance is found to be stronger for sophisticated investors, like financial institution and foreign investors, while large domestic investors and individuals who are board members, do not base their investment decisions on corporate governance grounds. Hence, the authors find that corporate governance is an important factor in order to understand portfolio choices across countries.

Leo de Haan (Dutch Central Bank) acted as discussant. Regarding the Bris, Koskinen and Nilsson paper, he questioned the result on the ground that Tobin's Q for non-EMU countries decreased substantially in the early 1990s, as they had been hit by a severe currency crisis. He argued that in the aftermath of such a crisis, the authors crude control for this event might not take into account all of its consequences. He also called for further explanation on why the difference between EMU and non-EMU countries' Q is only significant until 1997. Finally he questioned the finding that the euro effect on Q appears in 1998 and is non-recurrent and wondered why this is the case. Regarding Foucault and Gehrig's paper, de Haan asked whether listing fees and trading revenues could be set in such a way as to restore investors' incentives to promote financial integration, instead of imposing regulation. He also wondered how firms would do in practice to allocate the proper amount of shares to unsophisticated investors. Finally, given the recent progress made in facilitating access to exchanges, he enquired about the future of cross-listings should unsophisticated shareholders disappear. Regarding Gianetti and Simonov's paper, de Haan found it

surprising that the median investor holds stocks from only a single firm. He questioned the methodology on the ground that private investors hold stocks mainly indirectly through mutual funds, which are assimilated in the paper to financial institutions. From the floor, it was asked whether the results of Bris, Koskinen and Nilsson's paper are robust to different specifications of Tobin's Q. On this question, Koskinen replied that they did not perform any robustness checks yet. Also he clarified that the euro effect on Q is not temporary. Rather this effect is permanent and does not revert after 1998. In his reply to de Haan, Gehrig expressed the opinion that regulation is unlikely to provide the right incentives as long as benefits from cross-listing are present. Although he reckoned that the absence of unsophisticated investors would change the results, as this would eliminate any incentives of firms to cross-list. However, he pointed out that the assumption of having some investors tied to a specific market is reasonable. Finally, Gianetti pointed out that many empirical studies show that small investors with brokerage account in the US hold one stock or a few stocks only.

KEYNOTE LECTURE ON FINANCIAL MARKET INTEGRATION, CORPORATE FINANCING AND ECONOMIC GROWTH

Jan Krahnen (CFS) introduced **Tullio Jappelli** (University of Salerno) who lectured about "*Financial market integration, corporate financing and economic growth*". His talk was based on a report prepared by the Center for Economic Policy Research for the European Commission by himself, Luigi Guiso, Mario Padula and Marco Pagano. The aim of the report is to determine the gains from economic integration, the potential losers and winners at the country and sector level. First Jappelli reviewed the evidence on the link between financial development and growth. He concluded that financial development of a country benefits more industries with high dependence on external financing relative to those using internal cash flow. Then he exposed reasons why financial integration might promote financial development. He highlighted three main channels. Bank mergers and increased competition facilitate access to funds. Regulation might be improved and financial integration might give laggard countries access to financial markets. However, he pointed out that the full effect of financial integration on financial development might be limited by the lack of convergence of institutions or of their operation. In particular, he emphasised that setting rules is of little help unless they are well enforced. In addition, he stressed the difficulty for foreign banks to penetrate the local credit markets, which is the ones that matter for most firms. In order to empirically determine the effect of financial integration on growth, the authors use an international industry-level panel of 49 countries covering the period 1981 to 1995. They regress the growth in value-added in a given country and sector on three explanatory variables. 1) Financial development, defined alternatively as the combination of financial activity (private credit over GDP) or the size of the financial sector (private credit plus market capitalisation), multiplied with an indicator of financial dependence (the degree of external financing for each sector). If all countries were fully integrated the effect of this variable would be nil, because national (or local) financial development should not matter for the growth of national firms, whatever their dependence on external finance. 2) A proxy for financial efficiency, measured by an index of accounting standards, is used as instrumental variable for financial development. 3) Some country-specific and sector-specific control variables and fixed effects. The authors find that the coefficient of interaction between financial dependence and financial development is positive and stable over time. Furthermore, accounting standards matter for growth. Results are similar for the period after 1991. Hence, Jappelli concluded that further promotion of financial integration is warranted as integration was only partial in the 1990s. Based on these estimates, Jappelli then presented the results of simulations of the

impact of financial integration in Europe. There, two alternatives definition of integration have been used. Financial integration is either defined as a convergence of European financial development to the level of the US, or as convergence toward the level of the best country in Europe. In the first case, the impact of financial integration is a 1 percentage point gain in EU GDP growth, while it is 0.75 percentage points in the second case. Jappelli stressed that these numbers are lower bounds, as the effect of financial integration on service sectors was not considered. Furthermore he pointed out that countries that are already financially developed will benefit less from further integration, while in countries that are less financially developed, the financial sector will in all likelihood lose market shares and profits.

In the discussion, Jappelli was asked to clarify whether state subsidies were taken into account in the measures of financial development or financial integration. Jappelli answered that the use of country and sector dummies should take care of this issue. **Juha Tarkka** (Bank of Finland) asked whether transportation costs and informational barriers were a limit to financial integration and wondered whether these barriers could be removed by regulation. Jappelli replied that some determinants of financial development can be modified by policy makers. He reiterated that the main difficulty resides in the implementation of rules rather than in their adoption. Jan Krahnen (CFS) wondered if the fact that the US has a financial system which relies more on financial markets relative to Europe can influence the results. Jappelli answered that it is not clear whether the composition between market-based and bank-based finance matters for growth. Rather, the overall size of financial markets seems to be more important. Finally, an alternative approach was suggested from the floor, that would use fewer countries but longer time-series so as to verify that the results are not driven by time-series effects. Jappelli reckoned that the analysis would be useful although difficult to carry out. For instance, he mentioned the fact that a time-series analysis would require time-dependent indicators for factors related to financial development and to financial integration. Furthermore, analysing fewer countries would necessarily add noise to the data.

SESSION 2.1 FINANCING STRUCTURE OF FIRMS; THEORY

Jan Krahnen (Centre for Financial Studies) chaired the session. The first paper of the session, "*Informational efficiency and liquidity premium as the determinants of capital structure*" by Chung Chang (University of Minnesota) and **Xiaoyun Yu** (University of Indiana), analysed the optimal capital structure of firms when the firm's debt and equity is traded on secondary markets. A firm initially decides to finance a project by issuing debt and equity. Both instruments are traded later among two types of investors that choose whether to trade in the market for equities or bonds: traders that use private – and unknown to the firm - information concerning the value of the project and traders that are uninformed but need to obtain liquidity. At this stage, the firm uses information that is revealed through prices to decide whether to liquidate or finalise the project. Yu emphasised that the leverage decision of a firm determines not only how well prices will reflect private information concerning the project value, but also how many liquidity traders are participating in the equity market. On the one hand, increasing leverage makes equity more sensitive to information and, hence, increases the profit of informed traders. On the other hand it reduces the amount of liquidity trading in equity thereby lowering profits for informed traders. Based on this trade-off the authors derive the following results. First, the optimal leverage is such that debt is not any longer default-free, but not so risky as to induce informed trading in the bond market. Hence, there is only a default premium on debt when issued but no liquidity premium that compensates bondholders for losses due to informed trading. Second, since all informed trading takes place in the stock

market, at the optimal level of debt stock prices reveal the maximum amount of information, while the liquidity premium, required to protect against informed trading, is minimised. Finally, over-leveraged firms will not be able to obtain information from securities prices efficiently, and, hence, excessive debt can involve costs beyond the costs associated with financial distress.

The second speaker, **Tuomas Takalo** (Bank of Finland) also emphasised the importance of private information for optimal financial decisions by firms in his paper "*Equilibrium in financial markets with adverse selection*" (joint with Otto Toivanen, Helsinki School of Economics). The authors look at a standard financing problem with adverse selection. There are two types of entrepreneurs either having a project with positive or negative net return. When entrepreneurs have access to funds from outside the economy, this unlimited supply of funds leads to low interest rates and inefficient pooling equilibria with over-investment in projects. The authors depart from this benchmark by allowing entrepreneurs to invest their own funds. Entrepreneurs are then also investors in the sense that they face an initial choice whether to use their wealth to finance their own or somebody else's project. The scarcity of funds leads to an increase in the interest rate at which projects get financed. For certain parameter values, this increase in the interest rate allows to screen for entrepreneurs with good projects and, hence, allows to re-establish efficient outcomes in form of separating equilibria. Within these equilibria, the mode of finance is equity if the average quality of projects is high and debt otherwise. Finally, Takalo stressed that the model has some counter-intuitive implications as far as increases in wealth are concerned. First, when wealth increases inefficient equilibria become more likely since the supply of funds is abundant. Second, while equity is only used to finance good projects in wealth constrained economies, increases in wealth make equity the choice of finance for bad projects.

The final paper of the section, "*Limited enforcement and efficient inter-bank arrangements*" by **Thorsten Koeppl** (ECB) and James MacGee (University of Western Ontario), puts forward limited enforcement of contracts as an explanation of financial arrangements rather than private information. Starting from some stylised empirical evidence on co-operative arrangements between banks in contemporary Germany and the historic US, the authors try to assess whether banks can mutually insure against their asset risk even if there are no formal institutions to enforce insurance transfers. In the model, banks face two types of risk. The liability side of a bank's balance sheet is affected by random withdrawal demands from depositors. Furthermore, banks face default risk on their loan portfolios with the aggregate size of default being stochastic. Koeppl first pointed out that it is the interaction between both types of risk that enables banks to overcome limited enforcement. In the absence of liquidity risk, insurance against asset risk is not feasible since – in the absence of enforcement – a bank that is called upon to make a transfer has no incentive to do so after the risk has materialised. When banks face liquidity risk, however, the threat of being excluded from liquidity provision when failing to make a transfer is enough to enforce partial risk sharing. The amount of risk sharing here depends on the correlation between the two risk factors with a negative correlation fostering risk sharing. In the second part of his presentation, Koeppl demonstrated that a competitive market for liquidity can not provide this insurance. While the price mechanism is able to channel liquidity efficiently between banks, it can never exploit the correlation between the shocks to allow for self-enforcing insurance arrangements between banks. Finally, Koeppl stressed the co-existence of liquidity provision and asset insurance in the empirical examples. While interpreting this fact as supporting evidence for the paper, he emphasised, however, that the findings of the paper go beyond the narrow focus on inter-bank arrangements and apply more generally.

Leo Kaas (University of Vienna) discussed the papers. He saw the strength of the paper by Yu in combining an optimal choice of financial instruments with a friction arising from later trade in secondary markets. He wondered, however, how robust the findings were with respect to the informational assumptions made in the model. Traders can observe prices only in the market where they trade, while the firm is able to observe both prices. Furthermore, when debt or equity are issued traders are not yet informed while they are potentially informed later. Regarding the paper by Takalo, Kaas expressed concerns about the interpretation of the model in light of financial development. According to him, financial market integration – via enhanced access to markets – lowers financing costs and should *per se* have positive welfare effects in general. Kaas attributed the detrimental effect of a wealth increase in spite of lower financing costs to the particular model of adverse selection used. For the paper presented by Koeppl, Kaas appreciated the novel approach used to model and analyse interactions between the asset and liability side of banks' balance sheets. He pointed out, however, that – due to risk-neutrality and the timing of the model – one should not use the term "insurance", but rather "ex-post trade". Furthermore, he asked Koeppl whether the inefficiency of markets arouse only from the fact that banks are required to be solvent when trading on the market for liquidity.

In her response Yu pointed out that modeling information acquisition – possibly in a dynamic setting – could help to address the comments, but was likely to increases the complexity of the model tremendously. When **Elena Carletti** (University of Mannheim) remarked that the liquidation decision should not be carried out by the firm, but rather by investors, Yu stressed that it would be difficult to introduce an agency problem within the existing framework and that it was not clear how results would change. Finally, Koeppl explained that the solvency constraint for banks in the market for liquidity is precisely modelled to mimic the enforcement problem of co-operative arrangements between banks. This fact allowed for a sensible comparison between different forms of liquidity provision. **Thomas Gehrig** (University of Freiburg) mentioned that the inefficiency of markets is seemingly driven by the fact that prices are restricted to be linear and that more general pricing structures are potentially able to implement efficiency via competitive markets.

SESSION 2.2 INTEGRATION OF EQUITY MARKETS

The session was chaired by **Harry Huizinga** (Tilburg University and European Commission). The first speaker, **Michael Haliassos** (University of Cyprus), presented the paper "*Household stockholdings in Europe. Where do we stand and where do we go?*" (co-authored with Luigi Guiso, University of Sassari and Tullio Jappelli, University of Salerno). Haliassos started by documenting how the 1990's witnessed a significant increase in households' stock market participation in all major European countries and in the United States. Despite this common trend, persistent differences across countries remain, with the U.S., the British and Swedish households having considerable more participation than French, German and Italian ones. The key contribution of the paper is to explain how differences in stock market participation and stockholdings across countries can be attributed to households' characteristics, such as age, income, wealth and education. The main finding is that there is a positive correlation between the participation decision on the one hand and wealth and education on the other hand. However, wealth and education have only a small effect on the portfolio shares of stocks, among those households who do participate in the stock market. The authors argue that different participation rates are consistent with the international pattern of entry costs. More specifically, countries with lower transaction and information costs are those with higher participation rates. In addition, since the lowering of such costs brings into the markets less sophisticated

investors, the authors argue that this could induce greater volatility in stock markets. For example by reacting excessively to market signals because of limited sophistication or because of limited ability to withstand financial pressure. This should prompt a discussion about policies that could mitigate these concerns, such as improving the access to accurate financial information and ensuring sufficient financial education to newcomers.

Eric Theissen (University of Bonn) presented the paper "*Competition between exchanges: Euronext versus Xetra*", co-authored with Maria Kasch-Haroutounian. The motivation for the paper is that many exchanges in Europe may soon face the decision to join one of the two dominating continental European trading systems, Euronext and Xetra. Euronext is a common trading platform that originated from the merger of exchanges in Amsterdam, Brussels, Paris and (in 2002) Lisbon. Xetra, instead, is the electronic trading system of the Deutsche Börse AG, recently adopted by Austria and Ireland. It is plausible to expect that a factor leading to further consolidation of exchanges in Europe should be the quality of these markets, the more efficient ones having an advantage over the others. The paper analyses one of these factors, namely the execution costs in Xetra and Euronext. The comparison is made with a sample of 40 pairs of stocks, matched by market capitalisation, trading volume and volatility. Each pair consists of one French stock traded on Euronext Paris and one German stock traded in Xetra. The main finding of the paper is that, although there are no significant differences in quoted spreads, effective spreads and their components as well as the realised spread and the adverse selection component are lower in Germany. Neither differences in the number of liquidity provision agreements (i.e. the existence of sponsors or liquidity providers for stocks), nor differences in the minimum tick size can explain the higher execution costs in Euronext. The authors conclude that investors in Euronext are less protected against informed traders, and that Euronext offers lower operational efficiency.

Miguel Almeida Ferreira (ISCTE School of Business) presented the paper "*The importance of industry and country effects in the EMU equity markets*", co-authored with Miguel Angelo Ferreira (ISCTE School of Business). This paper uses the methodology developed by Heston and Rouwenhorst to test the relative importance of country effects versus industry effects in the euro area. This is relevant for financial integration, because when previously segmented markets start to integrate, gains from diversification through a country-based approach should decrease with respect to those one could obtain through a sector-based approach. Using a sample of 10 industry indices and 11 EMU countries, the authors find that country effects still dominate over industry effects. However, although over the whole sample country effects have been relatively more important in determining equity returns, the evolution of the national and global effects through time reveals an increasing relative importance of industry effects. In particular, in the last sub-sample period 1999-2001, industry effects are becoming similar in size to country effects. A comparison with 5 non-EMU European countries shows that the increasing importance of industrial influences is not limited to EMU countries.

The discussant **Simone Manganelli** (ECB) stressed how the three contributions of this session could be viewed as different pieces of evidence of ongoing financial integration in the euro area. The paper by Haliassos – by looking at households' portfolio composition – shows that country dummies still explain households' decisions, after controlling for their age, income, wealth and education. Manganelli suggested to extend the time series of the data set, and to look at how these results evolve over time. Regarding the paper by Theissen, he criticised the use of number of traded shares as a proxy for traded volume, which is subsequently used as a matching criterion for French and German stocks. According to this proxy, the same company would double its trading volume after a 1:2 stock split. This is

obviously inadequate and casts some doubts on the reliability of the results. The results of the paper by Ferreira are difficult to interpret in the light of financial integration, because relationships in equity markets are highly time-varying and therefore it is difficult to disentangle cyclical movements from structural changes. **Philipp Hartmann** (ECB) asked whether the spreads in Theissen's paper were computed using daily or intra-day data, as different definitions might produce very different results. Theissen clarified that the daily spreads are computed as averages of intra-day spreads. He admitted the limitation of the number of traded shares as a proxy for trading volume. He speculated however that this is unlikely to affect the results because the descriptive statistics show that there are no significant differences among the different groups of stocks. Haliassos replied that the data available for the United States as of 2001 show a slight increase in stock market participation, thus confirming the trend outlined in the paper.

DAY 2

KEYNOTE LECTURE ON INTERNATIONAL FINANCIAL LINKAGES

Philipp Hartmann (ECB) introduced **Geert Rouwenhorst** (Yale School of Management) who gave a key lecture on "*International financial linkages*". The main objective of his talk was to illustrate the effects of globalisation and integration on financial linkages. He first recalled the common wisdom that globalisation and integration of markets accentuate financial linkages. As business cycles are more likely to be synchronised, policies and institutions will be more co-ordinated so that asset prices will move together. Furthermore, integration should go together with a decrease in the "home bias" of investors and the globalisation of firms. All these effects will accentuate financial linkages. However, other factors that are due to further integration are likely to temper financial linkages. Among others, Rouwenhorst mentioned the greater specialisation of countries which might favour sector-related business cycles. In addition, globalisation expands the set of investment opportunities, which might allow greater diversification and insurance. Also, competition among exchanges might foster greater efficiency. Overall, he concluded that the net effect of greater globalisation and integration on financial linkages is unknown.

Next Rouwenhorst presented empirical evidence on the evolution of financial linkages. He first presented a time-series plot of the average correlation of four markets (France, Germany, UK and US – the "core countries") from 1870 to 2000, which shows that there is a general increase in correlation, but that the correlation is generally very low (below 0.6). He explained that this could not be the result of perfectly diversified markets, as the correlation between two diversified portfolios is around 0.98. Furthermore using pair-wise correlation over time, he showed that the average correlation is generally higher in periods where markets are integrated than when they are segmented.

Rouwenhorst then addressed the role of emerging markets in financial linkages. He showed that emerging markets have two effects. First, they lower the overall correlation between markets, as they are typically less correlated to existing non-emerging markets. Second, they increase the investment opportunity set for investors. The overall effect of emerging markets is an increase of diversification opportunities, as measured by the ratio of the market portfolio volatility over the average market volatility. How do correlations change as a consequence of globalisation? Rouwenhorst presented evidence that the country effect is still very large. In a globally integrated market, firms' location should not matter, i.e. from prices and returns it should be impossible to tell a firms' location. However, where firms are located seems to still matter more than what they actually produce, although there is evidence that, in Europe, industry effects are gaining some importance. Rouwenhorst concluded his talk by saying that, although the world is not yet fully globalised, there is some ground to believe that international linkages are becoming stronger. He also pointed out that the expansion of the opportunity set should give some compensation for investor who seek diversification.

In the general discussion, Rouwenhorst was asked whether the "home bias" of investors will decrease in the long run. Rouwenhorst answered that the home bias was extreme because of restrictions imposed on financial institutions. He added that even if these barriers were removed, he expected the home bias to persist, as he suspects behavioural biases can never be overcome. **Helene Rey** (Princeton University) pointed out that one difficulty of sharing risks further is that it is difficult to create new markets, such as markets for bonds indexed on GDP. She then asked why markets were so difficult to create. Rouwenhorst replied that a successful market must have demand and supply. Hence, the willingness of an institution to create a market

is not sufficient, as it must generate enough trades for the market to survive. **Jan Krahnen** (CFS) questioned the assumption that the "core countries" in 1870 are identical to the ones in 2000 and asked whether changing the definition of "core countries" would affect the result. Rouwenhorst acknowledged that this would be a concern if average returns were analysed. However, since average correlations are looked at, the selection bias is not a concern here. Hartmann remarked that European government bond holdings by non residents had increased by 10-20 percentage points in the past, thus suggesting a decrease in the "home bias" of investors.

SESSION 3 INTERNATIONAL PORTFOLIO CHOICE AND ASSET MARKET LINKAGES

The session was chaired by **Philipp Hartmann** (ECB). The first paper, "*Exchange rates, equity prices and capital flows*" by Harald Hau (INSEAD) and **Helene Rey** (Princeton University), focused on explaining exchange rate movements with macro fundamentals. The main objective of the paper is to develop a model that can bridge the gap between foreign exchange market microstructure and macroeconomic fundamentals. By developing an equilibrium model in which exchange rates, stock prices and capital flows are jointly determined, the authors are able to derive a number of testable implications for the joint dynamics of these variables, which explicitly depend on assumptions about traders' degree of risk sharing. In the most interesting case of incomplete risk sharing, the model implies a high level of exchange rate return volatility (albeit lower than equity return volatility), a negative correlation between foreign equity returns in local currency and the value of the foreign currency, and a positive correlation between the value of a foreign currency and the net equity flows into that market. Interestingly, using data for OECD countries relative to the US, the authors find these implications of the model to be supported by the data.

Michael Ehrmann (ECB), presented the second paper, "*Interdependence between the euro area and the US: what role for EMU?*", which is co-authored with Marcel Fratzscher (ECB). In this paper, the authors study the degree of interdependence between the US and the euro area from the viewpoint of financial market participants, by examining the effects of monetary policy announcements and macroeconomic news on interest rates in the money markets. Using pre-EMU German data as well as euro interest rate data following the introduction of the single currency, the authors find that the interdependence of money markets has steadily increased over time. In addition, there is stronger evidence of spill-over effects from the US to the euro area than in the opposite direction. However, the authors also find that euro area news have become increasingly important for the euro money market, suggesting that markets have undergone a learning process about the monetary policy of the ECB.

Charlotte Ostergaard (Norwegian School of Management) presented the third paper of the session, "*International diversification in bank asset portfolios*" (joint with Claudia Buch, Kiel Institute for World Economics, and John Driscoll, Board of Governors of the Federal Reserve System). This paper analysed the internationalisation of the banking industry, focusing in particular on direct cross-border lending, i.e. "international banking". Using a standard mean-variance portfolio model, the authors estimate benchmark portfolio weights, which they subsequently compare to the actual "portfolios" of banks' foreign and domestic assets. Based on data from four major industrialised economies, the authors find that banks in general tend to over-invest domestically, relative to the benchmark, showing that there is a similar home bias for bank credit, as there is one for stock investments. In investigating the possible reasons for this type of domestic over-investment, they find that proxies for information costs associated with foreign

investments did not seem to be important. Instead, credit risk considerations appeared to play a more important role, in that banks tend to over-invest more in markets characterised by high credit quality and also to invest even more if credit conditions further improve.

The discussant of this session was **Yigal Newman** (Stanford Graduate School of Business). Newman first highlighted a very strong feature of Hau and Rey's paper: the fact that it produced a number of clearly testable implications, which turned out to be confirmed by the data. He also noted that the implications of the model and the empirical results related to the correlation between equity returns and exchange rate movements run counter to "conventional wisdom". He therefore urged the authors to be more clear in the paper in explaining the mechanisms in the model that produce this result, and to also provide better economic intuition for these findings. Commenting on the paper by Ehrmann and Fratzscher, Newman suggested that in their investigation of money markets interdependence prior to EMU, more European markets could be examined than only the German one. Furthermore, he also asked what role the relative size of markets may play in explaining interdependence between markets. Finally, on the paper presented by Buch, Newman noted that a nice feature of the paper was the unique data set on cross-border claims of banks in four major industrialised countries. On the other hand, he questioned whether this data set could be seen as fully representative, since it excludes a number of markets (notably emerging markets) that may represent important investment opportunities for banks. The discussant also suggested that the authors should discuss the way banks choose to hedge or not to hedge their international exposures, as well as the reasons underlying these decisions.

In the general discussion, Philipp Hartmann (ECB) argued that developments happening around the time of the conference seem to provide further evidence in favour of the arguments in Hau and Rey paper. In particular, one could observe rising US stock markets with a depreciating dollar and declining European stock markets with an appreciating euro.

PLENARY PANEL SESSION

Juha Tarkka (Bank of Finland) chaired the concluding panel discussion of the workshop. Participants were invited to give their views about the future of exchanges: competition or consolidation?

Niall Bohan (European Commission) presented channels through which competition is changing the economics of trade execution. He first concentrated on competition between exchanges and multilateral trading systems. He recalled that these arrangements are the basis for the price formation mechanism. The dimensions along which exchanges can compete with each other are many, ranging from the initial listings fees, the increase of liquidity on platforms thus reducing the bid-ask spread, the reduction of trade execution costs, to the vertical integration of exchanges with clearing and/or settlement systems. In his view, it is impossible to predict how competition will shape the future of the European trading landscape, although he reckoned that consolidation is inevitable. However, he stressed that from the standpoint of regulatory authorities, one should avoid favouring a preferred market structure while still being concerned that the consolidation process and outcome are not distorted by anti-competitive strategies or behaviours that would undermine the efficiency of the price-formation process.

Then Bohan discussed the issue of trade internalisation by banks. He recalled that 22-25% of client orders of large houses are now internalised. This increased internalisation was the result of the steady concentration of client brokerage accounts over the course of the 1990s combined with increased netting or settlement capacity within large banks. Internalised trading differs from exchange-based trading as the system operator

determines the conditions of trades and whether they are executed internally. This feature implies that internalised trades do not face the same regulation as "order book" trades, while still competing with exchanges. Bohan recalled that concerns were expressed on the possibility that internalised trading would siphon so much liquidity away from exchanges that the price mechanism would suffer. He admitted that there is little evidence, as aggregate internalised order flows or the types of orders that are internalised are unknown. Therefore he concluded that the regulatory authority should concentrate on the risks pertaining to the combinations of different systems in the executions of trades, and ensure that trades are internalised only where there is benefits for the clients. In this way, the integrity and efficient price formation of the overall market system can be preserved.

Andre Went (Euronext) then described the business model chosen by Euronext, horizontal integration and vertical efficiency. Euronext offers local access to members and listed companies, where markets are regulated according to local jurisdiction. However, in conjunction to this local presence, there is a single central order book with single market rules. Among the benefits offered by this system are the international exposure and liquidity for listed companies and cost reductions for members. Members appear to rationalise progressively their access by making use of their direct access, while investors pay fees on cross-border transactions that are close to the ones charged for domestic transactions. The system also exploits economies of scale and synergies by removing the duplication of systems such as the number of clearing platforms. Went asserted that the consolidation process will continue, as cross border activities are bound to increase and competition puts pressure on fees. He concluded that ultimately further consolidation is beneficial for shareholders and users, as it will enhance liquidity and cut cost.

Peter Gromber (Deutsche Boerse) concentrated his talk on two main topics. First he asked about the efficient level of consolidation. He observed that exchanges and settlement systems in Europe are very integrated: the four big exchanges (Deutsche Boerse, Euronext, London Stock Exchange and Nordic) represent approximately 78% of the total market. In his view, the next step for consolidation will soon occur and be headed by one or more of the four exchanges. Cost efficiency represents the main driving force of consolidation. The growth in transactions drives unit costs down and significantly reduces the implicit trading costs for market participants. Hence, Gromber concluded that consolidation will continue. He then addressed the issue of internalisation of trades and its regulation. He called for implementing a regulation that would protect investors' rights and establishes a high level of market efficiency. In particular he suggested quoting internalised trades in parallel in the open order book as a solution to the problems created by internalisation.

Hannu Haltunen (Nordea) began his presentation by describing Nordea. It is the largest bank covering the four Nordic countries and resulted from the merger of four nordic country banks. Linking these four nordic banks are four separate but inter-linked settlement systems with links also to European entities. Haltunen then exposed his views on consolidation. He predicted that further economies of scale can be realised as well as a higher level of liquidity. However, he asked three issues related to consolidation. 1) Should consolidation be vertical or horizontal? 2) What should the governance structure be, for- or non-profit? 3) Should access be exclusive or open?

Tarkka then invited the panel participants to discuss the different views expressed. Bohan reiterated that determining the risks of internalisation should be a priority. Went said that the current draft of the Investment Services Directive (ISD) is covering most of the issues

highlighted so far. He further claimed that the debate on vertical *versus* horizontal integration is secondary, and that corporate governance issues are less relevant as long as services are provided efficiently to customers. Gomber also noted that the debate on vertical versus horizontal integration had calmed down. Regarding internalisation, he emphasised that it is key to find a solution that will preserve the efficiency and integrity of the price formation mechanism. Haltunen said that further consolidation would entail high short term costs that might temper the willingness of some institutions to actually consolidate. In spite of these costs, he expressed the view that consolidation will continue, although the pace and the new drivers of further consolidation are uncertain. He finally asked Bohan whether, from the point of view of customers, the regulatory authorities were taking a stance on this issue. Bohan replied that on the trading side, the regulatory environment is taking shape. However he saw a need to improve the clearing and settlement sides, where vested interests are very present. He called for further actions from the public authorities to remove barriers for cross-border clearing and settlement, and to closely monitor the risks inherent to clearing and settlements systems. Tarkka then asked whether regulatory barriers were of importance for further consolidation. Went replied affirmatively and Gomber highlighted the difference of regulatory treatment between types of institutions regarding, for instance, liquidity provision. **Philipp Hartmann** (ECB) asked whether internalisation can be seen as an indirect way to reshuffle liquidity pools among exchanges, with the aim of fostering consolidation. Went said that the ISD still allows for internalisation and expressed concerns that the price formation process might be damaged if pre-trade transparency is not required. He finally claimed that pre-trade transparency is compatible with stronger competition, so that this should not be a concern when adopting pre-trade transparency.

CLOSING REMARKS

Vítor Gaspar (ECB) closed the workshop by first thanking **Sinikka Salo**, **Juhha Tarka** and their team at the Bank of Finland for their organisation. He then reviewed the activities of the ECB-CFS Research Network so far, starting from the launching workshop which took place in April 2002 in Frankfurt, and looking at where the network stands and where it will go. He recalled that a main output of the launching workshop was the "roadmap", a document describing the scope of the network and highlighting some areas that should receive primary attention over the first two years of it. He recalled that the chosen areas were (1) bank competition and the geographical scope of banking activities; (2) international portfolio choices and asset market linkages between Europe, the United States and Japan; (3) European bond markets; (4) European securities settlement systems; and (5) the emergence and evolution of new markets in Europe (in particular start-up financing markets). The launching workshop covered parts of areas (2) and (3), the present workshop addressed areas (1) and (2). Finally, the forthcoming workshop at the Bank of Greece in Athens in November 2003 will resume on topic (3) and also cover areas (4) and (5). He announced that the current phase of the network will be concluded by a conference in Frankfurt, in the late spring of 2004. He then described some steps taken after the launching workshop. To further the interaction in the network and to facilitate the flow of information on the topics of interest to network participants, a web-site was made available at http://www.eu-financial-system.org. Of special interest is an online library of some seminal published papers and many recent working papers in the areas of the network. Finally he mentioned the creation of the Lamfalussy Fellowship by the European Central Bank to stimulate further research on the five priority areas of the network.

ANNEX E PROGRAM AND SUMMARY OF THE THIRD WORKSHOP

HOSTED BY THE BANK OF GREECE IN ATHENS, NOVEMBER 20-21, 2003

Day 1 (Thursday November 20, 2003)

9:30-10:00 Welcoming Coffee

10:00-10:15 **Nicholas Tsaveas** (Bank of Greece) *Opening Remarks*

10:15-11:00 Tour of the Exhibition Celebrating the 75th Anniversary of the Bank of Greece

11:00-13:00 **Parallel sessions**

Session 1.1: Government bond market microstructures; liquidity and spillovers

Chair: **Eli Remolona** (Bank for International Settlements)

Avanidhar Subramahnyam (UCLA*), An Empirical Analysis of Stock and Bond Market Liquidity* (with Goizueta Taurn Chordia, Emory University and Arsani Sarkar, FRB New York)

Yui Chung Cheung (University of Amsterdam), *Trading European Sovereign Bonds: The Microstructure of the MTS Trading Platforms* (with Frank De Jong, University of Amsterdam and Barbara Rindi, Bocconi University)

Michael J. Fleming (Federal Reserve Bank of New York)*, Heat Waves, Meteor Showers, and Trading Volume: An Analysis of Volatility Spillovers in the U.S. Treasury Market* (with Jose A. Lopez, Federal Reserve Bank of San Francisco)

12:30-12:45 Discussant: **Albert Menkveld** (Vrije Universiteit Amsterdam)

12:45-13:00 Open discussion

Session 1.2: Topics in the governance and integration of european financial markets

Chair: **Charles Kahn** (University of Illinois)

Mariassunta Giannetti (Stockholm School of Economics*), Investor Protection and Equity-holdings: An Explanation of Two Puzzles?* (with Yrjo Koskinen, Stockholm School of Economics)

Leo Kaas (University of Vienna) *Financial Market Integration and Loan Competition: When is Entry Deregulation Socially Beneficial?*

Cyril Monnet (European Central Bank) *Guess What: It's the Settlements!* (with Thor Koeppl, European Central Bank)

12:30-12:45 Discussant: **Hans Degryse** (University of Leuven and CentER)

12:45-13:00 Open discussion

13:00-14:30	Lunch **P. Thomopoulos** (Deputy Governor of the Bank of Greece) *Lunch Speech on Financial Liberalisation, The Greek Experience*
14:30-15:15	**Marco Da Rin** (University of Turin, ECGI, and IGIER) *Key Lecture on European Venture Capital*
15:15-15:30	Discussion
15:30-16:00	Coffee Break

16:00-18:00

Parallel sessions

Session 2.1: Corporate bond financing and the cost of capital

Chair: **Joseph Bisignano** (Bank for International Settlements)

John J. Puthenpurackal (Ohio University), *Security Fungibility and the Cost of Capital: Evidence from Global Bonds* (with Darius P. Miller, Indiana University)

Yigal Newman (Stanford University*), Illiquidity Spillovers: Theory and Evidence from European Telecom Bond Issuance* (with Michael Rierson, CitiGroup)

João Santos (Federal Reserve Bank of New York), *Why Firm Access to the Bond Market Differs Over the Business Cycle: A Theory and Some Evidence*

17:30-17:45 Discussant: **Arnaud Mares** (European Central Bank)

17:45-18:00 Open discussion

Session 2.2: IPOs in new markets

Chair: **Vicente Pons** (Yale University)

Armin Schwienbacher (University of Amsterdam*) Liquidity of Exit Markets and Venture Capital Finance* (with Grant Fleming, Australian National University and Douglas Cumming, University of Alberta)

Tereza Tykvova (ZEW) *Are IPOs of Different VCs Different?* (with Uwe Walz, University of Frankfurt and CFS)

Vicente Pons (Yale University), *Who Benefits from IPO Underpricing? Evidence from Hybrid Bookbuilding Offerings*

17:30-17:45 Discussant: **Wolfgang Bessler** (Giessen University)

17:45-18:00 Open discussion

Day 2 (Friday November 21, 2003)

8:30-9 :00 Coffee

9:00-11:00 **Parallel sessions**

Session 3.1: Securities settlement systems

Chair: **Vítor Gaspar** (European Central Bank)

Jens Tapking (European Central Bank), *Raising Rival's Costs in the Securities Settlement Industry* (with Cornelia Holthausen, European Central Bank)

Karlo Kauko (Bank of Finland), *Interlinking Securities Settlement Systems: A Strategic Commitment?*

Heiko Schmiedel (European Central Bank), *Economies of Scale and Technological Developments in Securities Depository and Settlement Systems* (with Markku Malkamaki, Bank of Finland and Juha Tarkka, Bank of Finland)

10:30-10:45 Discussant: **Charles Kahn** (University of Illinois)

10:45-11:00 Open discussion

Session 3.2: The determinants of VC invesments

Chair: **Jan-Pieter Krahnen** (CFS)

Douglas Cumming (University of Alberta), *The Legal Road to Replicating Silicon Valley* (with John Armour, University of Cambridge)

Tuomas Takalo (Bank of Finland), *Investor Protection and Business Creation* (with Ari Hyytinen, University of California, Berkeley)

Giovanna Nicodano (University of Turin), *What Drives the Structure of Private Equity Investment?* (with Marco Da Rin, University of Turin, ECGI, and IGIER and Alessandro Sembenello, University of Turin)

10:30-10:45 Discussant: **Heather Gibson** (Bank of Greece)

10:45-11:00 Open discussion

11:00-11:30 Coffee Break

11:30-13:00 **Policy Panel: European securities settlement systems**
Moderator: **Alberto Giovanninni** (Unifortune)

Kenneth Garbade (Federal Reserve Bank of New York)

Randy Kroszner (University of Chicago)

Joël Mérère (CEO, Euroclear France)

Gertrude Tumpel-Gugerell (Member of the Executive Board of the European Central Bank)

13:00-13:15 Concluding remarks

13:15-14:15 Lunch

INTRODUCTION

On 29-30 April 2002, the **European Central Bank** (ECB) and the **Center for Financial Studies** (CFS) hosted a workshop at the ECB to launch their network initiative aiming at promoting research on "Capital Markets and Financial Integration in Europe". The research network aims at co-ordinating and stimulating top-level policy-oriented research that significantly contributes to the ECB's understanding of developments in European financial structure and the linkages between European financial systems and those in the United States and Japan. The format is a network of people and its key feature is a strong interaction between researchers in academia, the ECB, other Eurosystem central banks and other official institutions. On the basis of the discussions held during the Launching workshop regarding the areas where research is needed, five top priorities areas have been selected: (1) bank competition and the geographical scope of banking activities; (2) international portfolio choices and asset market linkages between Europe, the United States and Japan; (3) European bond markets; (4) European securities settlement systems; and (5) the emergence and evolution of new markets in Europe (in particular start-up financing markets). Subsequent workshops were designed to cover these different areas.

The third workshop of the network was hosted by the Bank of Greece in Athens on 20-21 November 2003. The main priority areas analysed in the course of the workshop were (3) European bond markets; (4) European securities settlement systems; and (5) Start-up financing and new markets. The workshop combined research key lectures, research paper presentations, and a plenary panel discussion on "European Securities Settlement Systems", that included Kenneth D. Garbade (Federal Reserve Bank of New York), Randy Kroszner (University of Chicago), Anso Thirè (Euroclear France), and Gertrude Tumpel-Gugerell (Member of the Executive Board of the European Central Bank). This document summarises the third workshop of the Network.

DAY 1

Nicholas Tsaveas (Bank of Greece) welcomed workshop participants with some opening remarks on the three main topics of the workshop, (1) venture capital finance, (2) securities settlement systems and (3) European bond markets. Regarding venture capital he acknowledged appropriate timing of the workshop, since it corresponds with the closure of the EU's Risk and Capital Action Plan that aims at promoting precisely this form of financing. In his views, Europe needs venture capital firms for at least two reasons. First, the application of the Basle II accord will erode bank's appetite for high risky high returns investments. Second, with the forthcoming boom in retirements, pension funds will also become less and less willing to invest in these types of investments. To promote venture capital, he asked whether Europe should aim for a pan-European market to list new firms or whether venture capital is better served by national or regional stock exchanges.

Regarding securities clearing and settlement systems, Tsaveas wondered about the best form of integration in this industry, calling for a form of organisation that would leave some space for competition and provide sufficient incentives for service enhancements and lower costs. To assess alternative models, he proposed that concepts of interoperability and harmonisation of procedures of the existing infrastructures should be the guiding principles. He finally warned about the potential danger of reaching too high a level of concentration, which although promoting efficiency could also cause systemic risk problems, and called for adequate supervisory procedures.

Tsaveas then expressed his views on the European bond markets. He first recalled that bond markets are crucial for central banks' monetary policy operations. However he pointed out to some shortcomings of current bond markets. First, bond markets are very close substitutes for bank lending when things go well: they enhance liquidity and improve the monitoring of financial institutions by allowing to "mark to market" their assets. However, when things go badly, it may become extremely difficult to raise funds in the bond markets. Second, with new bond derivatives, it is increasingly difficult to tell where bonds end and equities start. This of course creates difficulties for investors to pin down the risk involved in each investment. Following these few remarks and before starting the workshop's session, Tsaveas invited workshop participants to a tour of the exhibition for the 75th anniversary of the Bank of Greece.

SESSION 1.1 GOVERNMENT BOND MARKET MICROSTRUCTURES; LIQUIDITY AND SPILLOVERS

The session was chaired by **Eli Remolona** (Bank for International Settlements). The first speaker **Avanidhar Subramahnyam** (UCLA), presented the paper "*An empirical analysis of stock and bond market liquidity*" (co-authored with Goizueta Tarun Chordia, Emory University and Arsani Sarkar, Federal Reserve Bank of New York). Recent financial crisis suggest that in difficult market conditions, liquidity can decline or disappear. To understand the determinants of market liquidity, the authors consider the joint dynamics of liquidity, returns, and volatility in stock and Treasury bond markets. The objective of the paper is to identify primitive factors that induce correlated movements in liquidity, such as the monetary stance of the Fed or the flow of funds into stock and bond markets. The authors use data from GovPX and TAQ/ISSM in a 7 years window (1991-1998) to measure quoted spreads, depths and order flows in each of the two markets. To analyse the data, they perform a vector autoregression with liquidity, order flow, returns and volatility. They find that stock and bond liquidity possess similarities such as common calendar regularities. Furthermore, there are cross-market dynamics flowing from volatility to liquidity. The authors also report that liquidity and volatility shocks are positively and significantly correlated across stock and bond markets at daily horizons, indicating that

liquidity and volatility shocks are often of a systematic nature. Finally, the authors find that an unexpected loosening of monetary policy, as measured by a decrease in net borrowed reserves, is associated with a contemporaneous increase in stock market liquidity.

Yui Chung Cheung (University of Amsterdam) presented the paper "*Trading European sovereign bonds: The microstructure of the MTS trading platforms*", with Frank de Jong (University of Amsterdam) and Barbara Rindi (Bocconi University). This paper investigates the microstructure of the MTS Global Market System, the most important European interdealer sovereign bond trading systems. The institutional environment of the market for sovereign bonds can be divided in 2 sectors. The primary sector decides on the finance policy based upon the funding requirement of each government. This sector acts as the ultimate provider of liquidity. The secondary market decides on the trading environment: it determines the structure of payments and settlements and the trading facilities offered by brokers and market makers. The MTS system operates on the secondary markets. The MTS platform is constituted of local platforms in each country member of MTS and a pan-european platform, EuroMTS. Participants in the MTS trading platform are mainly investment banks, with a large variety of banks. All trades are anonymous. The authors used a detailed data set covering every transaction of Italian, French, German and Belgian government bonds being traded on the MTS platforms from January 2001 until May 2002. They find that the spreads are smallest for the most actively traded issues. The MTS domestic trading platforms offer slightly better spreads than EuroMTS. The authors also analyse the price impact of trades and trading duration (the time elapsed between two trades). They find that trading intensity plays a role: a higher price impact of trades after long durations, and lower price impacts when trading activity is high.

The third paper of the session "*Heat waves, meteor showers and trading volume: an analysis of volatility spillovers in the U.S. Treasury Market*" by **Michael J. Fleming** (Federal Reserve Bank of New York) and Jose A. Lopez (Federal Reserve Bank of San Francisco) analysed the possibility for heat waves and meteor showers across London, New York and Tokyo's U.S. Treasury markets. Heat waves' refer to the fact that volatility has only location specific autocorrelation, while meteor showers' refer to a situation when volatility spills over from one centre to another. The authors test for volatility spillovers in the U.S. Treasury Markets using yields data from GovPX, from a sample period running from March 1992 to August 1994. They calculate the change in intraday yield for each trading centre and use a GARCH model to test for some form of heteroskedasticity within centres. Assuming no conditional mean dynamics in yield change and applying the Engel, Ito and Lin (1990) method, they examine whether information from other trading centres impacts intra-market variance and test whether lagged volume helps explain volatility. They find that price discovery occurs in all three trading centres. Also, volatility persists in each of them. They find evidence that the meteor shower hypothesis holds for Tokyo and London while New York is better characterised by heat wave hypothesis.

Albert Menkveld (Vrije Universiteit Amsterdam), 2003 ECB Lamfalussy fellow, acted as discussant and started by pointing out that there is much to learn from the microstructure of government bond markets. He questioned Fleming and Lopez's assumption that prices reflect efficient pricing in all trading locations on the basis that London's and Tokyo's market are much thinner than New York's. He encouraged the authors to decompose prices to take into account temporary effects on London's and Tokyo's markets. On the paper of Chordia, Sarkar and Subramahnyam, he remarked that the use of order imbalance (dollar value of buys minus dollar value of sells) scaled by the total value of

buys and sells is uncommon in microstructure. He encouraged instead the author to use the absolute value of imbalance as a driver of liquidity. Finally regarding the paper by Cheung, de Jong and Rindi, Menkveld was puzzled by the fact that high intensity of trading is associated with a smaller price impact and larger persistence in order flow, while the opposite is true in equity markets. Menkveld suggested to take a more integrative approach to the study of government bond markets in Europe by decomposing national yield changes into a European benchmark yield level, yield spread for the various countries relative to the benchmark and countries specific innovations. The study of the effect of countries' order imbalance on yields would then be possible.

Subramahnyam replied that scaling imbalances take care of trading volume effects. Also, he acknowledged the collinearity of absolute imbalance and volatility and found similar results when replacing volatility for absolute imbalance. From the floor, Subramahnyam was questioned on alternative measures of liquidity such as yield maturity differential between on the run and off the run bonds, and how these would relate to the bid-ask spread. He replied that although a very valid and insightful comment, the problem would be to find an analogue in the stock market. **Giovanna Nicodano** (University of Turin) criticised Subramahnyam's paper on the ground that a driving force of liquidity is information and although the authors exploit innovations in returns in their paper, the analysis still remains incomplete as they do not differentiate the type of information (e.g. macro news). Subramahnyam answered that this concern is partly taken care of by including dummies in the estimation process. Cheung answered to Menkveld's comment by using the example of low trade intensity. In this case, traders know that if a trade occurs, it is more likely that it is followed by even more trades. Hence, in order to capture gains from trade, the price will be set as highly as possible, thus increasing the bid-ask spread which in turn materialises in a high price impact. Fleming replied that it would indeed be a good idea to remove temporary effects from prices. Menkveld further asked why previous day volume would affect current innovations and volatility. Fleming recognised that the measure of volatility based on closing yield may be too crude, in the sense that it does not take into account changes that occur within the day.

SESSION 1.2 TOPICS IN THE GOVERNANCE AND INTEGRATION OF EUROPEAN FINANCIAL MARKETS

Charles Kahn (University of Illinois) chaired the session on "Topics in the Governance and Integration of European Financial Markets". **Mariassunta Giannetti** (Stockholm School of Economics) presented the first paper "*Investor protection and equity-holdings: An explanation of two puzzles*" (joint with Yrjö Koskinen, Stockholm School of Economics). The authors develop a theoretical model to simultaneously explain two well documented puzzles in portfolio theory, limited stock market participation and home-equity bias. The model consists of two countries where investors face a portfolio choice problem between risky and risk-free assets in both, the home and the foreign country. Participation in both markets for risky assets is subject to the same fixed cost, but offers benefits from diversification. Investors have the possibility to acquire a controlling stake in the domestic risky asset which allows them – depending on the quality of investor protection – to extract private benefits to the detriment of minority investors. Investment behaviour is driven by the investor protection and wealth inequality. The degree of investor protection determines the attractiveness of participating in a market. Unevenly distributed wealth enables investors to acquire a controlling stake in the domestic asset, which is the more profitable the weaker investor protection. The interaction between the effects of the degree of investor protection and of wealth inequality drives the following results. First, limited domestic stock market participation arises if wealth in a country is

sufficiently unevenly distributed and investor protection is poor. Second, home-country bias in equity investment arises due to two facts. Bad investor protection gives incentives to obtain a controlling stake in the domestic risky asset. Furthermore, domestic investors participate in the domestic market if investor protection is sufficiently good. Third, when investors face relatively poor protection at home they are more likely to access the foreign market (good country bias). The paper concludes by providing new empirical evidence for the latter two results. In their sample, they find a positive correlation between stock market participation and shareholder rights measured by the antidirector rights index constructed by La Porta et al. (1998). Also they find the mean level of foreign equity shares is lower in countries with high level of investor protection. The analysis shows that the full integration of European markets will necessitate a convergence in investor protection.

The second paper, "*Financial market integration and loan competition: when is entry deregulation socially beneficial*" was given by the 2003 ECB Lamfalussy fellow **Leo Kaas** (University of Vienna). This paper addresses the consequences of entry deregulation in a closed banking sector on competition, bank stability and economic welfare. In Kaas' model, banks compete for borrowers that differ in their quality. In order to reduce their risk, banks screen borrowers, but are nevertheless exposed to failure, as screening yields imperfect information and default probabilities are subject to aggregate risk. Banks incur a fixed cost of operation and screening is costly. The paper assumes that potential entrants are more efficient in screening than incumbent banks. Finally, capital requirements can secure banks against failure. Kaas presented first the benchmark of an equilibrium where entry cannot take place and no failures occur. Bank failures are ruled out as long as screening costs are high (strong market power), screening is relatively efficient and capital requirements are high. After deregulation, entry occurs with or without crowding out incumbent banks provided the screening advantage is large enough and capital requirements are not too high. Welfare effects depend on whether entry causes incumbents to fail. If there is no failure of incumbents, entrants cannot reap all benefits from their ability to screen better. Then, there is too little entry resulting in an inefficient market share for new banks. This result can be reversed if entry causes incumbent banks to fail. In this case, incumbents charge higher rates, thus driving too many new banks into the market. Finally, Kaas expressed the view that, by limiting incumbents failure, capital requirements may be detrimental to overall welfare. However, deregulating access to a closed banking sector is always beneficial.

Cyril Monnet (ECB) presented the last paper, "*Guess what: It's the settlements*!" (joint with Thorsten Koeppl, ECB). The paper analyses the role of vertical silos in securities market organisation for efficient horizontal consolidation between components of the silo, i.e. exchanges and back-office operations such as clearing and settlement. Monnet briefly described the integration process among stock exchanges and settlement structures in the euro area. All mergers between exchanges were accompanied by breaking up silos and followed by consolidating clearing and settling within a single entity independent of the exchange. Starting from these facts the authors outline a model where two firms that operate a silo can realise gains from a merger. These gains arise from increases in overall demand as well as cost savings. Here, the authors assume that the costs for settling transactions potentially differ across firms and are private information. Using tools from mechanism design, the paper shows that it is impossible to achieve an efficient merger, i.e. a merger where after the merger settlement takes place at the lowest cost. This is due to the fact that it is too costly to induce the firms to truthfully reveal their settlement costs. The second part of the paper presents two solutions to this impossibility result. First, a sufficiently high subsidy can realise all

benefits from lower settlement costs, but is costly itself. Second, the authors offer a less costly market solution. They show that firms can achieve an efficient merger by each outsourcing their own settlement operations to an agent. Competition between the agents for settling all trades of the merged exchange reveals then the true cost of settlement. Hence, they argue that fostering competition and open access to securities settlement systems may be required to enhance the efficiency of securities markets.

The discussant, **Hans Degryse** (University of Leuven and CentER), stressed the commonality of the three papers. All papers discuss different problems associated with financial integration, ultimately giving a rationale for some form of public intervention. For the first paper, Degryse emphasised that the model is novel in jointly explaining two well-known phenomena: home-equity bias and limited stock market participation. The model itself, however, seemed too much contrived by the assumptions. He, therefore, suggested to relax some assumptions, in particular the impossibility to take controlling stakes in foreign stocks. Finally, he expressed interest in a dynamic version of the model to study the interaction of changes in investor protection and wealth. For Kaas' paper, the discussant highlighted the result that increased competition leads to too little entry, which runs counter to similar models of competition with entry. He conjectured that this result is driven by the fact that incumbents take all their decisions before entry occurs. He also stressed that – empirically – switching costs are more relevant than efficiency differences between banks. The final paper was criticised by Degryse as too stylised, not taking into account the full range of possible ways to consolidate fragmented infrastructures in securities markets. Furthermore, he suggested that the authors should put more emphasis on the advantages of vertical integration when discussion splitting silos to achieve horizontal consolidation. Monnet replied that the paper's main focus was not on reasons why exchanges wish to consolidate but rather on the reasons why consolidation is difficult to achieve.

LUNCHEON ADDRESS

Panayotis Thomopoulos (Deputy Governor of the Bank of Greece) delivered a luncheon address on "*Financial liberalisation, the Greek experience*".

KEY NOTE LECTURE ON EUROPEAN VENTURE CAPITAL

Vítor Gaspar (ECB) introduced **Marco Da Rin** (University of Turin) who lectured about "*European venture capital*". The author first defined venture capital firms as a specialised form of financial intermediation whereby small local partnerships finance new ventures via equity-like instruments. Venture capital firms usually offer, as a package, funds, advice and mentoring. The author then pointed to some key facts of venture capital in Europe, using as a proxy for the number of VC firms, the memberships in the European Venture Capital Association (EVCA). In terms of venture capital fundraising over the 1990s, it seems that European venture capital firms are catching up with the U.S. However Da Rin pointed out that this might be an illusion as during the same period the level of investment is at most 50% of the one of the U.S. The difference is due to the fact that fundraising for Europe also accounts for non-venture private equity, which is not the case for investment. Within Europe, there is a high heterogeneity in terms of market size and intensity – a measure of how important VCs are within an economy – and Nordic countries have the most intense venture capital industry. In other words, the industry is not represented or active in all countries.

Then Da Rin moved on to describe key issues in the European venture capital industry. (1) Based on a sample of 1200 VC-backed companies, Da Rin finds that the European landscape of VC firms is highly captive, with

an important presence of bank subsidiaries, corporate VC firms and public VCs. This is an important fact, as these types of VC firms invest less in the early stages of projects and in high-tech projects, provide less soft support to private companies, and do not tend to monitor companies actively, as they sit less frequently on the board of companies relative to individual VCs. (2) Da Rin then pointed to exit strategies for VCs in Europe. In theory, exit strategies are crucial for VCs, as additional exit opportunities create further incentives for VCs to invest. There is indeed evidence that European VCs aim at selling their firms as approximately a quarter of VC firms have been involved in firms listed on the “New Markets”. There is also evidence that the existence of New Markets fostered the creation of VC firms. (3) Based on a sample of 538 companies listed on Europe’s New Markets, Da Rin then reported findings that – contrary to what theory predicts – European VC might actually not make a difference for the companies they are financing. While VC-backed companies raise more capital at IPOs, they do not tend to grow faster than others. However, the author also pointed to a difference in the quality of the VC firms, as some do better than others. (4) Finally, Da Rin addressed the link between human capital and venture capital in Europe. As predicted by theory, and controlling for the type of VC firms, more experienced partners provide more support to companies, partners with higher university degrees invest in earlier stages of companies, and high-tech investments are more often carried out by partners graduated in sciences.

Da Rin then moved on to the state of financial integration in the European VC industry. He reported that this industry is not integrated across borders. VC firms are investing very locally and with very few exceptions have less than 10% of their partners from foreign countries. Also, the cross borders investment of VC firms is very low (less than 2% of total investment). Finally, less than a third of funds originate from foreign investors. Most foreign investors are from the US and are concentrated in only a small number of firms. Da Rin argued that this may be explained by the nature of the VC industry, which is quite different from that of other financial intermediaries: VC firms make localised and undiversified investments; VC is based on human rather than financial capital; and VC has a small number of investors. However Da Rin expects financial integration to indirectly restructure the VC industry through its effect on the allocation of funds and through changes in the economic structures of EU countries, notably on the listing ability of new firms. In this regard, financial integration may improve exit channels for VC and reallocate talent and human capital.

Gaspar then opened the floor for questions. **Joseph Bisignano** (BIS) asked Da Rin about the effects of pension funds as sources for VC, which is not present in Europe but very much so in the US, following the advent of the “prudent man” rule. He also wondered about the future of European VCs given the closure of the German Neue Markt and asked whether VCs could survive in a bank dominated environment. Then the issue of the use of fiscal policies to stimulate VCs was raised from the floor. Da Rin reckoned the importance of pension funds in having a larger pool of investors going into VC. However, he argued that letting pension funds invest is rather a regulatory decision than an economic one. He then stated that exit is crucial for VCs and that there is definitely a need in Europe for infrastructures allowing proper exit, whether national or pan-european. He also elaborated on fiscal issues, arguing that European fiscal policies should be designed to foster an entrepreneurial spirit by giving the right incentives to start projects, as there are too few good firms in which VCs can invest. Finally, he did not believe that bank VCs are a necessarily desirable outcome, as they have very different incentives from private VCs. However he argued that Europe is only in a transitory stage and might mature to a different VC industry at some point.

SESSION 2.1 CORPORATE BOND FINANCING AND THE COST OF CAPITAL

Joseph Bisignano (Bank for International Settlements) chaired the session. **John Puthenpurackal** (Ohio University) was supposed to present his *paper* "*Security fungibility and the cost of capital: evidence from global bonds*", co-authored with Darius P. Miller (Indiana University), but he was unable to travel to Athens due to visa issues. This paper was therefore presented by the discussant, **Arnaud Mares** (ECB). Global bonds have several characteristics. First, a global bond can be traded in multiple markets (such as the euro and dollar markets) without restrictions. Second, they are sold simultaneously at the same offer price. Third, they have extremely large supply, in multiple tranches of different size and maturity. Finally, trading and settlement systems for global bonds, are set up to encourage cross-market trades. In particular, clearing and settlement systems are integrated for global bonds, so that cross-border transactions can occur more cost efficiently. Using 87 global bonds issued by U.S. firms in 1996-2001, the authors find that issuing globally tradable securities brings economically significant benefits. In particular, the borrowing costs – as measured by the yield to maturity in excess of treasury bonds with the same maturity – is 15 basis points lower than on comparable U.S. domestic bonds. Moreover, issuing costs of global bonds – as measured by underwriting spreads – are 0.13% lower than U.S. domestic bonds. Therefore, global bonds reduce the cost of debt capital. Furthermore, stock price reactions to the announcement of global bond issuance are positive and significant. The evidence that global bonds lowers the cost of capital suggests that consolidation and integration of securities clearing and settlement systems and the creation of a global clearing and settlement solution would benefit firms' capital raising activities.

Yigal Newman (Stanford University), 2003 ECB Lamfalussy fellow, presented his paper "*Illiquidity spillovers: theory and evidence from European Telecom bond issuance*", co-authored with Michael Rierson (CitiGroup). Using data from 347 bond issues in the European telecom industry between October 1, 1999, and July 15, 2001, the authors document that a firm's new issues of corporate bonds can temporarily raise the yield spreads of other bonds in the issuing firm's sector. Their analysis is based on a measure of risk-adjusted issuance, which consists of multiplying the market value of the issuance by its duration. They show that the yield spreads of other bonds increases on average by 8 basis point on the day of the issuance and then slowly decays over time. Furthermore, the increase in yield spreads begins well before the issuance date. Their result is robust to the riskiness of outstanding bonds and to the currency of the new issuance. The temporary nature of the effect and the fact that it picks up at the date of issuance rather than at its announcement are evidence that this effect is not due to new fundamental information about the issuer that may be revealed during the issuance process. The authors also present a theoretical model to explain this finding. In the model risk-averse intermediaries need to absorb some of the newly issued bonds, while holding other positively correlated bonds. As intermediaries are risk-averse, their incentive to hold all bonds falls when their inventory is high, so that they sell some of the already held bonds. As a consequence, the price of these bonds declines. Furthermore, this decline precedes the scheduled issuance date by anticipation.

João Santos (Federal Reserve Bank of New York) presented his paper "*Why firm access to the bond market differs over the business cycle: A theory and some evidence*". The author argues that the cost to access the bond market varies over the business cycle and that the impact of recessions is not uniform across firms, as access costs increase most for mid-credit quality firms. He first presented a model where rating agencies have to evaluate low, medium and high firms that are subject to an adverse selection problem. These agencies are

assumed to be more likely to announce a split rating for mid-credit firms than for either high or low credit quality firms. Also, when firms issue in recessions, it is assumed that they are at least as likely to get a split rating than when they do so in expansions. If firms do not use rating agencies, investors are not able to distinguish their quality and they charge the same average interest rate to each type of firm. This asymmetry of information obviously benefits the low type firms but makes other firms worse off. This asymmetry can be partially solved by hiring rating agencies. However, as ratings become increasingly uncertain in recessions, the information becomes more asymmetric thus affecting the cost of access to capital. Furthermore, low quality firms will benefit from the additional asymmetry, while mid-credit quality firms will suffer most. The author then tests his theory using data between 1982 and 2002 on corporate bonds issued since 1970 in the U.S. by American non financial companies. The results of the analysis confirm the validity of the two assumptions in the model. Furthermore, the author finds that split ratings – the proxy for increased asymmetric information – increase the cost of bond financing in recessions. Also, this impact of recessions on credit spreads is not uniform across firms.

Arnaud Marès (ECB) acted as discussant. On the first paper, he argued that underwriting fees are lower for global bonds simply because competition in the underwriting business in Europe is fierce. Furthermore, he regretted that the costs of maintaining a client relationship, which are not small, are not taken into account in the analysis. Finally, he argued that while liquidity is higher, firms issuing global bonds seem to value the larger customer base in overlapping trading hours between Europe and the U.S., while they do not value so much the relatively longer trading hours. On Newman's paper, Marès wondered whether there would not be a significant change in perception regarding the liquidity risk of a firm issuing long term debt to refinance short term debt. Finally, he speculated that Santos's paper could be interpreted as an explicit criticism of rating agencies.

Bisignano then opened the floor for question. Regarding Miller and Puthenpurackal's paper, he argued that 15 basis points may not be so large a decrease in borrowing costs for global bonds. **Alberto Giovannini** (Unifortune) shared his experience with the first issue of global bonds in Italy in fall 1993. He explained that the benefits of issuing global bonds was not so much the increased liquidity than the perception that accessing the U.S. domestic market increases the value of the issuance. On Newman's paper, **Albert Menkveld** (Vrije Universteit Amsterdam) wondered why liquidity providers were entering the market with positive inventories of positively correlated bonds. Newman replied that this assumption could probably be relaxed without affecting the results of the model, as the change in incentives to hold bonds is what matters. On Santos' paper it was argued from the floor that asymmetric information may decrease in bad times, as bad firms are less able to sustain shocks. Furthermore, it was argued that some assumptions are probably stronger than necessary. In particular, it is most likely that the result is robust to the assumption that rating agencies can both agree on the wrong assessment. However, the assumption that split ratings are obtained randomly was questioned. **Vítor Gaspar** (ECB) then suggested that the author refers to the importance of moral hazard in his interpretation of the result, as the absence of rating agencies would probably increase it. Santos replied that the data was dictating the choice of assumptions. He also argued that there is no doubt that rating agencies are improving information in the model, while also affecting the cost of access to capital for firms.

SESSION 2.2 IPOS IN NEW MARKETS

Vicente Pons (Yale University) chaired the session and introduced the first speaker, **Armin Schwienbacher** (University of Amsterdam) who presented the paper "*Liquidity of exit markets and Venture Capital*

finance", co-authored with Grant Fleming (Australian National University) and Douglas Cumming (University of Alberta). The topic of the paper is the effect of exit opportunities on strategic investment behaviour of venture capitalists. Indeed, in venture capital investments, liquidity risk represents the risk of not being able to sell the shares after a few years and thus being forced either to remain much longer in the venture or to sell the shares at a high discount. Using data of VentureXpert, a dataset of Venture Economics, the authors randomly selected investments from 1985 to 2001, including three stages of investments. They used the number of IPOs per year as a proxy for liquidity. Controlling for industry-specific risk, they found a positive relation between liquidity of exit markets and the likelihood of investing in new projects, as compared to follow-up projects. However, they also documented a negative relation between liquidity and investments in new early-stage projects. In the author's words, "when liquidity is high, they rush to exit by investing more in new later-stage projects". Finally, they reported a decrease in syndicate size when liquidity of exit markets is high. In such circumstances, the investment is less risky and thus there is less need for syndication of deals. Similarly, when liquidity is low, venture capitalists may prefer to syndicate more in order to increase the screening of projects by investing only if other also join after having done their own screening of the proposal.

Tereza Tykvová (ZEW) presented the paper "*Are IPOs of different VCs different*", co-authored with Uwe Walz (University of Frankfurt). The paper analyses the impact of different types of VCs on the performance of their portfolio firms around and after IPOs. Performance is measured in terms of long-run returns, volatility and under-pricing. The analysis is based on a hand-collected data base including all IPOs on the Neuer Markt during the period 1997-2002, which means public VCs as well as independent and corporate VCs, German and non-German VCs. The authors reported that firms backed by bank-dependent and public VCs have significantly lower market value. Also, firms backed by bank-dependent VCs have significantly higher book-to-market ratios, while firms backed by independent VCs have significantly lower book-to-market ratios. Independent VCs also implies significantly larger average abnormal returns for firms, where abnormal returns are defined as the difference between individual returns and market returns. This is in contrast with firms backed by public VCs who enjoy negative abnormal returns. Finally, the authors report that independent VCs hold firms for a longer period before the IPO relative to bank-dependent and public VCs. Post IPO performance of VC-backed firms are even more striking. Firms backed by independent VCs perform significantly better than the firms of other VCs or non venture-backed ones. They also have less risk, i.e. they display a lower return volatility. As such differences were not expected by market participants, the authors suspect that these results can be due to the rather young and immature aspect of the Neuer Markt.

The third paper of the session, "*Who benefits from IPO underpricing? Evidence from hybrid bookbuilding offerings*" was presented by **Vicente Pons** (Yale University). In this empirical paper, the author uses a sample of 175 equity offerings, 137 IPOs and 38 secondary equity offerings, that took place in Spain from 1985 to 2002. An important feature of the Spanish IPO market is that the distribution of the IPO between class of investors – retail, local institutional and foreign institutions investors – is stated in the preliminary prospectus. That is the underwriter assigns the issue to class of investors before any investors is allowed to submit applications for IPOs shares. Pons' analysis concludes that institutions receive nearly 75% of the profits in underpriced issues, while they have to bear only 56% of the losses in overpriced offerings. Since superior information regarding first day underpricing cannot completely explain the abnormal profits for institutions, he argued that underwriters are better informed about the

companies they take public and use this information to favour their long term clients. However, he finds that the preferential treatment of institutions does not come at the expense of retail investors, as they earn positive profits from participating in the new issues market. In fact, retail investors subscribe more heavily to underpriced issues, consistent with individuals being partially informed. In particular, there is no evidence of a winner's curse on retail investors in the sense that informed investors demand larger allocations of hot offerings and smaller allocations of those issues identified as overpriced.

Wolfgang Bessler (Giessen University) acted as discussant. On the paper of Cumming, Fleming and Schwienbacher, he first wondered about the optimal investment strategies for VC firms when the value of the exit market and the firm valuation are high. He pointed out that VCs may prefer investing in later stage projects in order to avoid overvalued early ones and benefit from good exit conditions. In his view, VCs should care more about the valuation of the stock market than about its liquidity. He also wondered whether there exists a trade-off between the choice of technology and exit risk. Regarding the paper by Tykvová and Walz, he first pointed out that it is recommendable to control for industry effects. Then he wondered whether analysing firms' performance 2 years after the IPO is not too long, as VCs influence at Neue Markt is of limited duration (approximately 6 months). Finally, he pointed out that the results should be carefully interpreted, since there are only few public VC-backed firms in the sample the authors consider. Then, on the paper by Pons, Bessler wondered whether underwriters are able to recognise underpriced and overpriced IPOs. He also asked why preferential allocations concerned primarily foreign institutional investors and not local investors? Finally, he pointed out that high initial returns on the market may be a possible explanation for why retail investors did not suffer losses. Tykvová replied that a sector decomposition was not possible at this stage due to lack of data. She also recalled that only long-run performance was of interest to them.

SESSION 3.1 SECURITIES SETTLEMENT SYSTEMS

Vítor Gaspar (ECB) chaired the session and introduced **Jens Tapking** (ECB) who presented "*Raising rival's costs in the securities settlement industry*", joint work with Cornelia Holthausen (ECB). This theoretical paper describes a model of price competition between two settlement service providers, a national CSD and a custodian bank. The CSD sets two prices, customers have to pay a price q for having a securities account with the CSD and another price p for settling a transaction on such an account. The custodian bank does the same. There are many other banks that have to trade a security issued into the CSD. Each of these "investor banks" trades once. To settle its transaction, each investor bank needs to have a security either with the CSD directly or with the custodian bank. Which of the two service providers an investor bank chooses depends on the prices and on the preferences of the investor bank for the heterogeneous services offered by the CSD and the custodian bank. The custodian bank itself needs to have a securities account with the CSD to settle transactions between an investor bank with an account with the CSD and another investor bank with an account with the custodian bank. It is shown that the CSD can raise the custodian bank's costs in a subtle way: As mentioned above, each investor bank trades only once, i.e. investor banks with an account with the CSD have to pay the price q once and also the price p once to the CSD. The custodian bank also has to pay q to the CSD once. However, it has to pay the price p many times. The CSD can raise the custodian banks costs without changing the costs of its investor bank customers by increasing – and decreasing – by the same amount. It is shown that by this strategy, the CSD can achieve a higher market share than the custodian bank. However, it is also shown that this market share is not

necessarily too high from a welfare point of view. The authors concluded saying that regarding concerns about unfair practices by CSDs toward custodian banks, the ECB could discourage regulatory interventions favoring custodian banks, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

Karlo Kauko (Bank of Finland) presented the paper "*Interlinking securities settlement systems: A strategic commitment?*". This paper provides an explanation for why links between CSDs are set up, but not often used. In the first part of the paper, it is assumed that a CSD first sets a price for settling primary market transactions. Then investors and issuers agree on primary market transactions and these transactions are settled. Next, the CSD sets a price for settling secondary market transactions. Finally, secondary market transactions are agreed upon and settled. It is assumed that primary market transactions and secondary market transactions are complementary goods, i.e. there is little benefit from primary market transactions without secondary market transactions. Knowing this, the CSD will set a relatively high price for secondary market transactions. In expectation of this, the investors and issuers trade on the primary market only if the primary market settlement price is very low. In the second part of the paper, it is assumed that the CSD can set up a link to another CSD so that secondary market transactions can also be settled in the other CSD. In other words, if the issuer CSD chooses a very high secondary market price, settlement will take place in the other CSD. Hence, the issuer CSD can commit on lower secondary market prices by setting up the link. It now can choose a relatively high primary market price and increase its profit. However, the link is hardly used.

The last paper of the session was "*Economies of scale and technological developments in securities depository and settlement systems*", by Markku Malkamaki (Bank of Finland), Juhu Tarkka (Bank of Finland) and **Heiko Schmiedel** (ECB). This paper investigates the existence and extent of economies of scale in depository and settlement systems. The authors show that settlement in Europe is 33% more costly than in the US, as the average cost per settled transaction is $3.86 in Europe and only $2.90 in the US. This difference is partly explained by the segmentation in the European market as the average cost for operating an international Central Security Depository in Europe is $40.54, relative to $3.11 for a domestic one, while it is only $2.90 in the US. However, looking at the exploitation of economies of scale in Europe and the US, they also show that the latter is operating at a much more efficient level. The European settlement infrastructures show a strong potential for cost saving: cost will raise by a factor of only 0.68 when the number of instructions increases by 1 – while the same measure for the US is 0.944. Hence, Europe has a lot to gain from further consolidation. However, given the level of complexity in EU international securities settlement systems, the effectiveness of settlement industry infrastructure may benefit from further regulations simplifying the procedure for cross-border settlement as for instance advocated in the second Giovannini report (2002).

Charles Kahn (University of Illinois) acted as discussant. In the discussion of Holthausen and Tapking's paper, he emphasised that if costs of settlements are mostly fixed costs (or cost by account or transaction) then CSDs should be restrained from limiting rivals' size, as there would be no networking externalities. He also suggested to calibrate the different cost structures to pin down the extent of the network externalities, which in turn would make the policy implications of the paper more precise. The major point in the discussion of Kauko's paper was the question of whether the primary market really plays an important role in the pricing process, given that primary market volumes are much lower than secondary market volumes. In particular, Kahn questioned the assumption that CSDs make most of their profit from the primary issue of securities and,

for this, are willing to trade-off their profit on the secondary market. Finally, on the last paper, Kahn stressed the high quality of the analysis carried out, despite data limitations. He wondered whether conditioning on the type of institutions owning the settlement infrastructures could have affected the result. Finally, other types of robustness checks were proposed, such as dropping ICSDs from the sample or measuring the output of CSDs using the number of securities they handle.

Gaspar suggested Malkamaki, Tarkka and Schmiedel to consider whether there is economies of scope inherent in securities settlement activities, which would make this industry a natural monopoly. He warned that for such an exercise the output would have to be carefully defined. He further commented on the first two papers that it would be interesting to distinguish the importance of the interaction of the primary and secondary markets. **Albert Menkveld** (Vrije Universiteit Amsterdam) then asked about the relative importance of securities settlement costs relative to other costs of issuing a security, such as bid-ask spreads, broker commissions, etc. From the floor, comments were made on the level of competition in the settlement industry, which provides a service to brokers, and on the competition from international CSDs. In this respect, the question of the value-added of internalisation was raised. On the last paper, the audience also asked for clarification as to whether fixed or variable costs are important for economies of scale.

Related to the issue of competition, Tapking replied that if there is more than one custodian bank, the equilibrium market share of the CSD might be too small from a welfare point of view. In response to Kahn, he suggested that in reality the variable costs of settlement might not be as low as suggested by Kahn, as there are several million transactions per year. However, if these variable costs are assumed to be zero, then the market share of the CSD will be higher than socially optimal. He also replied that endogenising behaviour on the primary market would not affect their results. Finally he noted that settlement prices can indeed matter, especially when CSDs are profit maximisers. Then Kauko commented that it is not clear that CSDs' strategy would be modified if they were user owned, rather than for profit institutions. Also, he clarified that investors always have the choice whether to participate or not. Therefore, issuers have to offer an interesting enough deal to investors. Finally, Schmiedel reckoned that GDP per capita was a very rough proxy for inputs, but had to be used due to limited data availability. He also took note of the propositions for other output proxies.

SESSION 3.2 THE DETERMINANTS OF VC INVESTMENTS

Jan-Pieter Krahnen (CFS) chaired the session and introduced **Douglas Cumming** (University of Alberta) who presented the paper "*The legal road to replicating Silicon Valley*", joint with John Armour (University of Cambridge). The authors consider whether legal reforms can make a significant difference in the structure of the VC industry. To carry out the analysis, they use 13 years (1990-2002) of data from the European Venture Capital Association (EVCA), Venture Economics and the Canadian Venture Capital Association, regarding private equity investment from 15 developed countries, with 195 overall observations. In order to test for how law matters for the supply of VC finance, the authors use an index of legal and fiscal variables – such as the tax transparency for domestic investors, or the ability to avoid paying VAT – set out by the EVCA. Using this index, they find that favourable tax and legal environments increase the supply of venture capital and facilitate the creation of VC firms. Furthermore the authors study the impact of personal bankruptcy laws on the demand for VC finance. They find that severe personal bankruptcy laws discourage early stage entrepreneurs and therefore significantly reduces the demand for VC finance. Finally, Douglas Cumming reported that government programs in favour of early stage projects crowd out venture capital and

private equity investment by significantly reducing overall industry profits per GDP. He concluded that the road to establishing an active private equity market is paved with favourable tax laws and legal structures favourable to VCs, appropriate bankruptcy laws and only very small direct government investments programs.

Tuomas Takalo (Bank of Finland) then presented the paper "*Investor protection and business creation*" (with Ari Hyytinen, University of California, Berkeley). The objective of this theoretical paper is to study the effects of investor protection on the creation of start-ups. More precisely, the authors study the existence of a trade-off between investors protection and business creation. The source of the trade-off is that investor protection, while increasing the willingness of investors to lend, potentially reduces the incentives of entrepreneurs to set up firms. To make this point clear, the authors use a theoretical model of search with moral hazard. Search frictions can delay financing of projects. There are two types of moral hazard: entrepreneurs can choose between a project yielding only private benefits with certainty and a project yielding transferable benefits with some probability; also, in case entrepreneurs chose the latter, they can misrepresent the outcome of this project. Investors possess an audit technology at a cost to monitor the result of the project. Audit costs and private benefits are both declining in the degree of investors protection chosen by the government. By increasing investor protection, entrepreneurs have diminished incentives to enter the search market to set up a firm, thus reducing the creation of companies. However, investor protection favours a reduction in the cost of finance, as audit costs are lowered. Tuomas Takalo concluded stating that reforms improving investors' position can have very different consequences depending on whether they imply a reduction in audit costs or a limitation in the choice of projects. In this regard, the authors proposed that small companies be liberated from many of the investor protection regulations, but perhaps not from transparency regulation.

Giovanna Nicodano (University of Turin) presented the last paper of this session, "*What drives the structure of private equity investment?*" co-authored with Marco Da Rin (University of Turin, ECGI and IGIER) and Alessandro Sembenelli (University of Turin). The paper studies the determinant of the structure of private equity investments. The authors provide first a model where demand and supply factors affect the distribution of financing between venture capital and non-venture private equity, and between early stage and late stage venture capital investments. The model consists of a moral hazard problem *à la* Holmstrom and Tirole (1997), where entrepreneurs can either invest in a good project or a bad project that yields them private benefits. Entrepreneurs have collateral they can pledge and they can ask two types of investors for funds. Uninformed investors and investors that have access to an audit technology at a cost. The authors associate the latter type of investors with private equity investors. They prove that the private equity ratios fall in response to a reduction of both project returns and private equity funds, when the supply of uninformed capital is infinitely elastic. Also, an increase in the supply of private equity funds, when there is excess supply of private equity, affects neither aggregate nor private equity investments, nor the private equity ratios. Using data from EVCA for 17 Europeans countries for 14 years (1988-2001), the authors find evidence that was the possibility of an excess supply of venture capital funds in Europe in the 1990s. Also, they find that the opening of New Markets in some countries in the mid 1990s helps explain the increase in the share of early stage and high-tech venture capital investments. Finally, they find that public expenditure in R&D is significantly positively related to the share of high-tech investments.

Heather Gibson (Bank of Greece) acted as discussant. On the paper by Takalo and

Hyytinen, she wondered to what extent the principal-agent problem exists between entrepreneurs and venture capitalists who have a more “hands on” approach. She argued that the information asymmetry could be more stringent at the search stage, where VCs have to identify the quality of the project before they invest funds. On the paper by Armour and Cumming, she noticed that the EVCA legal index was only from 2003 and therefore no time series analysis was possible. She wondered whether this would matter given the recent various initiatives, e.g. from the European Commission. She also asked the authors to clarify their interpretation that government funds crowd out private investors because the latter have to commit to projects before they know how much public funds will become available in the market. Finally, she wondered whether results of the effect of the legal environment and government finance on the industry profit would differ if instead of evaluating profit through stock market returns, profit was evaluated using accounting data, as in the M&A literature. On the last paper, Gibson wondered to what extent the results are driven by the period of interest which is characterised by a rising stock market. She also noted that no variables was capturing changes in the legal environment that occurred during the sample period. Finally, she asked Nicodano about survey evidence pointing to the lack of funds as being the problem rather than to the lack of good projects.

Krahnen then opened the floor for further questions. He started by asking Nicodano for a possible explanation for the positive effects of government funds, which contrasts with the result of Cumming. Regarding the first paper, it was asked from the floor whether local factors could explain the phenomenon observed in the Silicon Valley. Then Nicodano asked Cumming to what extent measuring private equity returns using stock market returns affect the results.

Takalo acknowledged Gibson’s comment and argued that information asymmetries related to entrepreneurs’ behaviour could still persist ex-post. Cumming argued that a time series analysis on the basis of the legal index would be quite involving as they would have to compute the index for 15 countries across 13 years. As far as returns are concerned, he explained that using alternative measures of returns does not significantly affect the results. Interestingly, he finds that the effect of returns matter much for different stages of project development. Finally, he explained that the data are aggregated at such a level that it is not possible to compare VC industries at the regional level. Nicodano confirmed that they controlled for the effect of the market bubble and therefore would reject the claim that the results on excess supply is driven by the bubble. She reckoned that institutions have been varying through time but explained that they could not find any index capturing such changes. She explained the claim that the government subsidies reduce the supply of funds: in equilibrium the supply of funds is not observed, hence, this claim can be understood as the government subsidies reducing the equilibrium investment level.

PLENARY PANEL SESSION

Alberto Giovannini (Unifortune) chaired the Policy Panel of the workshop and made a few introductory remarks. First he noted a change in attitudes of policy makers and market participants with regard to financial integration, which is not any more considered as a threat to domestic financial systems. However he noted that legislation put into place to protect local providers are now working in favour of large global providers, emptying out local regions of financial intermediaries that are needed to foster progress there. Hence he remarked a move toward legal harmonisation that would allow equal access to capital across all regions. Giovannini then recalled the three European Commission’s objective in reforming post-trading in Europe: (1) to maximise the benefits of scale by creating one single post-trading area, (2) to insure that the gains from scales are

available to all and (3) to maximise the risk-benefits of scale by designing the most efficient structure resilient to systemic risk. He warned that while governments are taking initiatives, it is also the responsibility of private players to achieve a market solution consistent with the three objectives. He then introduced the four panel participants.

Kenneth Garbade (Federal Reserve Bank of New York) asked whether financial market reforms are only undertaken as a response to crisis, elaborating on the case of the US Treasury markets. He underlined three episodes of failures that concentrated the attention of policy makers on settlement issues and prompted policy reforms in two of these instances. (1) He mentioned first a back-office crisis in the late 1960s caused by an unforeseen increase in trading volume and settlement processes based on settlement of trade with physical delivery of bonds. Dealers were reluctant to make trades with same day settlement which threatened the execution of U.S. monetary policy. As a response the Fed created a security holding facility and expanded its book entry system. (2) The second episode is the destruction of several inter-dealer brokers and the temporary loss of a settlement system during the events of 09.11. In his view, these events highlighted the importance of back up facilities in dispersed locations. Also, the loss of information on anonymous trade commitments created the need to maintain this information in an electronic format that could be disseminated rapidly. Most of the disrupted settlement during these events where repurchase agreements, illustrating the significance of the market for Treasury securities. In addition, failures can spread when investors do not lend securities any more. The reluctance to lend on the run issues to dealers that needed them to cure settlement failures was only solved when the Treasury re-opened the on the run 10 year notes in early October, thus demonstrating its willingness to take un-precedent actions to solve the problem. (3) He finally mentioned a problem involving the 10 year note auction of May 2003. The demand to borrow the note to deliver against short sales rose dramatically in late June, when investors realised that the Fed was unlikely to pursue any effort to reduce future long term interest rate. The special collateral repo rate for the May 10 year note fell rapidly near zero, thus giving little incentive for sellers to borrow the note to avoid failure. Increasing failures left investors reluctant to lend the note. The problem here originated from the equilibrium dynamics of the market and not from an exogenous shock. The better solution would then seem to be a change in the market structure than an action from the Treasury.

Randy Kroszner (University of Chicago) focused his remarks on the trade-off between fragmentation or consolidation of securities settlement systems and the resiliency of the system. Fragmentation can provide sources of diversification and competition as well as redundancy in case of unforeseen events, while consolidation can exploit economies of scale but also can lead to a monopoly. With respect to this trade-off, he emphasised that future attempts to articulate or integrate Asian, European and North American systems will create important challenges for regulators. However, Kroszner stressed that market forces should not be underestimated in coming up with solutions. To make his point, he took the example of the early Chicago derivatives market where the clearing house played an important role in ensuring consistency of contract terms and homogeneity in credit risk in being the counterparty to all traders. Also, market participants set up a regulatory structure such as requiring capital minima. To conclude, he pointed out that while regulatory, fiscal and legal uncertainty barriers should be brought down, it might not be desirable to force excess uniformity from regulators as the optimal solution might vary with time.

Anso Thiré (Euroclear) who replaced Joel Mérère commented on the fragmentation of the European securities infrastructures. He recalled that the total cost of CSD and ICSD for

Europe represents 1.5 billion euros in operating expenses, i.e. 1.3 times the cost of DTCC in the U.S. This proves that significant scale economies can be realised. However, he pointed out that it is difficult to implement such gains, as most stock exchanges and CSDs are monopolies in their own markets. Obviously, costs could be brought down via further competition. However Thiré said that most of cross-border settlements take place in books of a few large banks that operate for profit and that CSDs are not active in this market. As a consequence, he argued that a common platform accessible by all could be a solution. The drawback of this solution is that nobody could force CSDs to participate in such a platform. In the absence of competition, some form of price regulation would be needed to prevent service providers (including large custodians) from abusing potentially dominant positions. Finally, Mr Thiré highlighted some positive features of user-owned governance structures which, in his view, ensure that the users' needs are taken into account fairly well.

Gertrude Tumpel-Gugerell (ECB) first recalled the lack of integration in European securities infrastructure. This is at the source of many costs, such as linking different settlement systems, that further consolidation and/or more competition could reduce if not eliminate. In her view, a process of reshaping the current state of European infrastructure is inevitable. In this regard, she argued that public action may be warranted to foster the process of integration in this industry. She claimed that while it is clear that the elimination of the barriers identified by the Giovannini group is a necessary condition for an efficient infrastructure to emerge, it is may not be sufficient. Market failures can prevent market forces to freely develop and an efficient market infrastructure to emerge. For instance, Ms. Tumpel-Gugerell pointed to the difficulty in allocating the overall benefits that can be reaped from the shift to a consolidated infrastructure, or the vested interests of custodian banks to maintain fragmentation. She then recalled the ECB's view that market forces should drive the process of consolidation. In this respect, she mentioned that the ECB has been active as a catalyst for improvement by encouraging discussions among the relevant players, on harmonising central banks procedures and operations, on setting standards and co-operating with the Committee of European Securities Regulators to ensure an integrated regulatory and oversight framework. She finally called for further research on several topics, such as findings evidence of market power, or determining the level of competition in the European securities infrastructures.

Vítor Gaspar (ECB) asked the panel participants to elaborate further on the balance between the prospects for market failure and the prospects for public intervention failure, which could arise from e.g. information constraints. He also wondered whether the multiplicity of authorities with overlapping competencies in Europe is a relevant problem. **Kroszner** replied that characterising the trade-off is an impossible task. He argued that this is the reason for promoting flexibility as neither the market nor the government have enough information to design the exact solution. **Tumpel-Gugerell** then intervened on the issue of multiple regulators in Europe. She argued that the problem is about the speed with which decisions are taken and would favour public accountability related to the decision process. On the public intervention failure, she mentioned that one problem is the actual enforcement of regulations rather than regulations. However she stressed the need for harmonisation of regulations. On the regulatory aspects, **Thiré** took the case of Euroclear that has five subsidiaries in each of the member countries, facing five different regulators. Since there is no Europeans regulator, national regulators sign a memorandum of understanding, which relies on the sharing of information. **Arnaud Marès** (ECB) then asked whether there could be ways to lower costs, such as user ownership. **Giovannini** explained that advocating a particular market model would appear

premature at this stage, although the Giovannini Group developed three interesting different scenarios. He also argued that giving the right incentives to managers to reduce costs is possible without a for profit structure. **Thiré** recalled that markets have a private agenda and regulators might have difficulties to have the correct feedback on how the industry really works. Related to this topic, **Giovannini** proposed that a more formal and systematic procedure of consultation between the regulator and market participants be used. **Kroszner** then advocated that incentives to managers can be and must be set up right whether in a corporation or a user owned structure. Then **Thiré** reported that the bonuses granted to managers in his company are determined on the basis of a variety of factors, out of which profit is only one element and not even the most important one. More important are factors such as customer satisfaction, timely and effective implementation of projects, staff turnover etc. **Jan-Pieter Krahnen** (CFS) then asked the panel participants their views on the tension between competition and consolidation and why customers could not choose between two clearing systems. **Thiré** replied that the answer lies in cost savings for banks only, where one provider suffices to settle. Regarding competition, he argued that opening up clearing and settlement systems will create more costs for customers as netting possibilities will be reduced and collateral requirements increased. Related to the US clearing situation where two big banks cleared internally trades prior to the 09.11 events, **Joseph Bisignano** (BIS) asked Ken Garbade whether these events constituted a test to determine which of these two banks were best – given that one of this bank fared poorly in its trading activities. Garbade replied that one back-up facility indeed failed, but none of the dealers that cleared through this bank switched to the other bank. He also elaborated on competition arguing that it does not appear as price competition in this sector.

CLOSING REMARKS

Vítor Gaspar (ECB) closed the workshop with some remarks. He first reviewed some of the important findings of the papers presented in the workshop in the three main areas on the program, namely (1) European securities settlement systems, (2) Start-up financing and new markets and (3) European bond markets. He mentioned that further consolidation is warranted by the evidence of significant economies of scale in this industry, noting the fact that vertical integration can prevent the efficient consolidation of trading and settlement platforms as a striking result. He singled out Marco Da Rin's claim that there is very little integration of the European venture capital industry and wished that further efforts be made in this direction. Finally, on corporate bond markets he highlighted the differing access of firms to the bond markets over the business cycle, and the effects of monetary policy on the liquidity of (government) bond markets, as particularly relevant for central bankers.

He then announced the Network will conclude its first 2 years of existence with a final symposium in Frankfurt on 10th and 11th of May 2004, covering all the three main areas of interest to the Network, namely (1) the implications of European financial integration, especially for banking, the development of important financial market segments, their regulation and infrastructures, (2) Financial system structures in Europe, in particular asset securitisation, corporate governance and control, and economic performance, and (3) Financial linkages between Europe, the US and Japan. The best papers presented at the final symposium will be invited for submission to a special issue of the "Review of Finance".

Vítor Gaspar also announced that the next phase of the workshop is already under preparation. In this next phase, more attention will be geared toward financial system modernisation and its impact on economic growth in Europe. Also, the Network will seek

to foster research on the relationship between financial integration and financial stability. Finally, the development of the financial systems of countries acceding to the euro area will be of particular interest.

Finally, he thanked the local organisers, George Tavlas, Panayotis Thomopoulos, Nicholas Tsaveas, Heather Gibson and Tina Kourkoutsaki for having hosted the workshop.

ANNEX F PROGRAM AND SUMMARY OF THE SYMPOSIUM

HELD AT THE ECB IN FRANKFURT, MAY 10-11, 2004

Day 1 (Monday 10 May, 2004)

8:30-9:00 Registration

8:45-9:15 Welcoming coffee

9:15-9:30 **Vítor Gaspar** (European Central Bank)
Opening Remarks

9:30-10:15 **Alexandre Lamfalussy** (Université Catholique de Louvain)
Keynote Speech on European Bond Markets

10:15-10:30 Discussion

10:30-11:00 Coffee break

11:00-13:00 **Parallel sessions**
Session 1.1: European government bond market microstructure
Chair: **Ignazio Angeloni** (European Central Bank)

Bruno Biais (University of Toulouse) *Liquidity and the cost of funds in the European treasury market* (with Antoine Renucci and Gilles Saint-Paul, University of Toulouse)

Marco Pagano (University of Salerno) *Valuation, liquidity and risk in government bond markets* (with Carlo Favero, Università Commerciale Luigi Bocconi and Ernst-Ludwig von Thadden, University of Lausanne)

Albert J. Menkveld (Vrije Universiteit Amsterdam) *Euro-area sovereign yield dynamics: The role of order imbalance* (with Yiu C. Cheung and Frank de Jong, University of Amsterdam)

12:30-12:45 Discussant: **Eli Remolona** (Bank for International Settlements)

12:45-13:00 Open discussion

Session 1.2: Bank competition and its implications
Chair: **Nicholas Tsaveas** (Bank of Greece)

Steven Ongena (Tilburg University) *The impact of competition on bank orientation and specialization* (with Hans Degryse, Tilburg University)

Elena Carletti (University of Mannheim and Center for Financial Studies) *Multi-bank lending: diversification and free-riding in monitoring* (with Vittoria Cerasi, Università degli Studi di Milano Bicocca, and Sonja Daltung, Sveriges Riksbank)

Stefan Arping (University of Amsterdam) *Playing hardball: relationship banking in the age of credit derivatives*

12:30-12:45 Discussant: **Bruno Parigi** (University of Padova)

12:45-13:00 Open discussion

13:00-14:30 Lunch

14:30-16:30 **Parallel sessions**

Session 2.1: International financial linkages – capital flows

Chair: **Holger Wolf** (Georgetown University)

Rui Albuquerque (University of Rochester) *International equity flows and returns: A quantitative equilibrium approach* (with Gregory H. Bauer, University of Rochester and Martin Schneider, New York University)

Jonas Vlachos (University of Chicago) *Does regulatory harmonization increase bilateral asset holdings?*

Michael Halling (University of Vienna) *Where is the market? Evidence from cross-listings* (with Marco Pagano, University of Salerno, Otto Randl, University of Vienna and Josef Zechner, University of Vienna)

16:00-16:15 Discussant: **Philip Lane** (University of Dublin, Trinity College)

16:15-16:30 Open discussion

Session 2.2: Financial structures, competition and growth

Chair: Luigi Guiso (University of Sassari)

Stijn Claessens (University of Amsterdam) *Competition in the financial sector and growth: A cross-country perspective* (with Luc Laeven, World Bank)

Solomon Tadesse (University of South Carolina) *Financial architecture and technology*

Enisse Kharroubi (DELTA and Banque de France) *Financial integration: For whom can it be a wrong medicine?*

16:00-16:15 Discussant: **Yrjö Koskinen** (Stockholm School of Economics)

16:15-16:30 Open discussion

16:30-17:00 Coffee break

17:00-17:30 **Measures of financial integration** (Lieven Baele, Ghent University, Annalisa Ferrando, Peter Hoerdahl, Elizaveta Krylova and Cyril Monnet, European Central Bank)

17:30-17:45 Discussant: **Michael Melvin** (Arizona State University)

17:45-18:00 Open discussion

19:30 Dinner
Otmar Issing (European Central Bank)
Dinner Speech on Asset Prices and Monetary Policy

Day 2 (Tuesday May 11, 2004)

8:15-8:45 Registration

8:30-9:00 Coffee

9:00-9:45 **Robert Flood** (International Monetary Fund)
Key Lecture on New Approaches to Assess Financial Integration

9:45-10:00 Discussion

10:00-10:30 Coffee break

10:30-12:30 **Parallel sessions**
Session 3.1: Topics in financial integration
Chair: **Francesco Drudi** (European Central Bank)

Mark Carey (Federal Reserve Board) *Is the corporate loan market globally integrated? A pricing puzzle* (with Greg Nini, Federal Reserve Board)

Thomas Harr (University of Copenhagen) *Branch or subsidiary? Capital regulations of multinational banks* (with Thomas Roende, University of Copenhagen)

Jens Tapking (European Central Bank) *Horizontal and vertical integration in securities trading and settlement* (with Jing Yang, Bank of England)

12:00-12:15 Discussant: **Harry Huizinga** (Tilburg University)

12:15-12:30 Open discussion

	Session 3.2: International financial linkages – comovements **Chair**: **Michael Binder** (University of Frankfurt and Center for Financial Studies)
	Clara Vega (University of Rochester) *Real-time price discovery in stock, bond and foreign exchange markets* (with Torben G. Andersen, Northwestern University, Tim Bollerslev, Duke University and Francis X. Diebold, University of Pennsylvania)
	Robert Connolly (University of North Carolina – Chapel Hill) *Commonality in the time-variation of stock-bond and stock-stock return co-movements* (with Chris Stiversm, University of Georgia and Licheng Sun, Penn State Erie)
	Philipp Hartmann (European Central Bank) *The breadth of currency crises* (with Stefan Straetmans, Maastricht Universiy and C.G. de Vries, Erasmus University of Rotterdam)
	12:00-12:15 Discussant: **Paolo Pasquariello** (University of Michigan)
	12:15-12:30 Open discussion
12:30-13:45	Lunch
13:45-15:15	**Policy Panel: Drivers of european financial integration – markets or policy?** **Moderator**: **Tommaso Padoa-Schioppa** (European Central Bank)
	Mario Draghi (Goldman Sachs) **Alexander Schaub** (European Commission) **Jens Thomsen** (Danmarks Nationalbank)
15:15-15:45	**Gertrude Tumpel-Gugerell** (European Central Bank) Speech on The Role of the ECB in Financial Integration
15:45-16:15	Coffee Break
16:15-18:15	Parallel sessions **Session 4.1: Firm financing and corporate governance** **Chair**: **Jan-Pieter Krahnen** (University of Frankfurt and Center for Financial Studies)
	Mihir Desai (Harvard University) *Institutions, capital constraints and entrepreneurial firm dynamics: evidence from Europe* (with Paul Gompers and Josh Lerner, both Harvard University)

Renée Adams (Stockholm School of Economics) *A theory of friendly boards* (with Daniel Ferreira, SITE, Stockholm School of Economics)

João A. C. Santos (Federal Reserve Bank of New York) *Identifying the effect of managerial control on firm performance* (with Renée Adams, Stockholm School of Economics)

17:45-18:00 Discussant: **Giancarlo Spagnolo** (Sveriges Riksbank and University of Mannheim)

18:00-18:15 Open discussion

Session 4.2: Systemic risk

Chair: **Garry Schinasi** (International Monetary Fund)

Reint Gropp (European Central Bank) *Bank contagion in Europe* (with Jukka Vesala, European Central Bank)

Grégory Nguyen (National Bank of Belgium) *Interbank exposures: An empirical examination of systemic risk in the Belgian banking system* (with Hans Degryse, Tilburg University)

Giulia Iori (Kings College, London) *An analysis of liquidity and systemic risk in alternative securities settlement architectures*

17:45-18:00 Discussant: **Kostas Tsatsaronis** (Bank for International Settlements)

18:00-18:15 Open discussion

INTRODUCTION

On 29-30 April 2002, the **European Central Bank** (ECB) and the **Center for Financial Studies** (CFS) hosted a workshop at the ECB to launch their network initiative aiming at promoting research on "Capital Markets and Financial Integration in Europe". The research network aims at co-ordinating and stimulating top-level policy-oriented research that significantly contributes to the ECB's understanding of developments in European financial structure and the linkages between European financial systems and those in the United States and Japan. The format is a network of people and its key feature is a strong interaction between researchers in academia, the ECB, other Eurosystem central banks and other official institutions. On the basis of the discussions held during the Launching workshop regarding the areas where research is needed, five top priorities areas have been selected: (1) bank competition and the geographical scope of banking activities; (2) international portfolio choices and asset market linkages between Europe, the United States and Japan; (3) European bond markets; (4) European securities settlement systems; and (5) the emergence and evolution of new markets in Europe (in particular start-up financing markets). Subsequent workshops were designed to cover these different areas.

The Symposium took place at the ECB in Frankfurt on 10 and 11 May 2004, and aimed to conclude two years of work under the network. It combined research key lectures, research paper presentations on the five priority areas, and a plenary panel discussion on "Drivers of financial integration: market or policy", which was chaired by Tommaso Padoa-Schioppa (European Central Bank) and included Mario Draghi (Goldman Sachs), Alexander Schaub (European Commission) and Jens Thomsen (Danmarks Nationalbank) as panellists. This document summarises the network Symposium.

DAY I

Vítor Gaspar (ECB) opened the Symposium with some brief remarks. He first recalled that the original idea of the ECB-CFS Research network was to form a coherent group of researchers with different backgrounds, linked by their interest in the integration of European financial markets. He noted that in his view this had been achieved. He also noted that a major achievement of the network was to kick-start new research in the area of securities settlement systems. He then went on to describe the role of the euro in fostering financial integration. It forced national governments to adopt economic policies geared toward price stability and balanced fiscal positions. This led to a general convergence of the economies of the euro area, which was clearly reflected in the impressive convergence of bond and money market yields in the run-up to EMU. With the introduction of the euro, a euro-wide money market was created almost instantaneously. Country spreads in the overnight interbank rate became negligible and were driven to zero shortly afterwards. He recalled that similar developments occurred in the government bond markets, although significant cross-country differences remain. The elimination of currency risks and the accompanying harmonisation of financial regulations have led at the same time to a drastic reduction in transaction costs across euro area financial markets. Also, he mentioned that the increase in the number of potential investors and the reduction in underwriting costs led to a substantial increase in the amount of corporate bond net issues.

He continued with the role of banks in the European financial system. The traditional function of intermediation between deposits and loans has diminished, given the increased importance of investment funds, pension funds and insurance companies. For investment banks, geographical national boundaries that once limited their scope of activities have lost meaning. Mergers and acquisitions, instead, have been used to gain access to the retail sector of foreign countries. Finally, he concluded that the euro was a major force fostering the development of European financial markets, and that these profound transformations have important real implications in terms of growth.

Gaspar then introduced **Alexandre Lamfalussy** (Université Catholique de Louvain) who delivered a keynote Speech on *the European Bond Markets*.

Mr. Lamfalussy tackled three problems in his key lecture: (1) the impediments to further integration and efficiency of the euro denominated bond markets; (2) the evolving regulatory structures in the European securities markets; and (3) the existing co-movements between US and euro area long-term interest rates.

Regarding the first topic, Mr. Lamfalussy first recalled that while the unsecured overnight interbank market is almost perfectly integrated, equity markets suffered the most from a lack of integration, the euro denominated government debt markets, lying in between these two extremes. Despite the progress toward financial integration, he mentioned two barriers to further integration of the government bond markets: the segmentation in post trading arrangements and the difficulty of creating a single issuer instrument for government bonds. On the first impediment, Mr. Lamfalussy evoked the work of the Giovannini group, mentioning tax and legal structures as a barrier to further integration of securities clearing and settlement systems. According to him, this calls for further government action, as the market cannot act upon these issues. He also expressed his reluctance to adopt a model of integration that would lead to a single CCP and a single settlement platform in Europe. The removal of legal barriers would be too lengthy a process and full centralisation is not necessary to achieve the full benefits of consolidation, as techniques to interface the different systems are now available. He would rather favour the interconnection of the different settlement

systems *in real time*. Although a difficult endeavours, he would first recommend spreading the techniques of electronic trading platforms.

On the second impediment, Mr. Lamfalussy recalled that a single issuer instrument for government bonds would enhance the efficiency of the government bond markets by guaranteeing a much better liquidity than is now the case. However he admits that a single issuer for medium to long-term bonds is neither feasible nor desirable, as there may be substantial differences between countries. However, he noticed that there are no rating differences in the short-term end of the market between countries. As a result, short-term government bonds could be merged into a single instrument. According to Mr. Lamfalussy, this would substantially increase liquidity and enhance the overall efficiency of the government bond market.

Mr. Lamfalussy then moved onto describing the evolving regulatory structure in European securities market. He recalled that the Committee of Wise Men advised to adopt an open-ended solution on the issue of a European regulator. This choice was driven by two factors: first proposing a single regulator would have slowed down the European integration process, as some countries would have opposed it strongly. Second, there was no core European legislation in 2000-2001 on which the action of a single regulator could be based. However, things are now evolving fast. The implementation of the FSAP will almost certainly be completed in 2005 and will thus provide a body of Europe-wide core legislation providing the basic framework for the functioning of financial markets.

However Mr. Lamfalussy recalled the uncertainty surrounding the implementation of the FSAP measures at the national level. The successful implementation of the FSAP now depends on CESR. He recalled that CESR (Committee of European Securities Regulators) worked out the implementation details when dealing with the FSAP and will now be in charge of overseeing the national implementation. However, CESR will have to overcome very heterogeneous regulatory and supervisory practices at the national level, which will complicate its work as much coordination among supervisors and regulators will be needed.

Nonetheless, he noticed that reforms of the regulatory structures at the national levels have been taking place recently. New developments are tackling the issue whether all financial industry regulators should work on the same roof or be separated, and the power that should be granted to these bodies. Reforms reveal national differences and create difficulties, as they are not all going in the same direction. Finally, Mr. Lamfalussy noted that the ECOFIN extended the four level regulatory process to banking and insurance. However, further difficulties may appear, as in banking and insurance prudential issues are key for regulations while they are not so important for securities. This raises the issue of micro versus macro prudential policies, where crisis prevention stops and crisis solution begins. Difficulties may also be created by the different roles of National Central Banks in this process, as some are full macro-prudential regulators while others are not. The basic question is therefore: who should be in charge and in what area? Regarding integration, he recalled that better functioning markets bring more growth but also tend to be less stable. He would therefore encourage discussions on a single regulator.

Finally, Mr. Lamfalussy tackled the question of co-movements between US and euro area long-term interest rates. Recent studies show evidence that these long-term interest rates are co-varying. He saw two possible explanations for this phenomenon: 1) financial integration at the world level and 2) an increased correlation of the real economies and the lead of the US economy over Europe's. Mr. Lamfalussy

expressed the views that inflation expectation triggered by much broader developments such as oil prices may explain this phenomenon.

Gaspar then opened the floor for questions. **Christian Upper** (Deutsche Bundesbank) commented that a single issuer might cause problems when or if the ratings for short-term bonds, which are for the moment similar across countries, diverge. Vítor Gaspar followed up on this issue, questioning the ability of markets to discriminate sovereign borrowers in terms of credit risk. **Marco Pagano** (University of Naples) pointed out that a way to monitor individual countries in case a single issuer is in place is to require them to issue T-bills in parallel to the common issuance. In case the ratings of the individual country issue decrease, then the single issuer could choose whether to keep this country in the common issuance. **Bruno Biais** (University of Toulouse) remarked that it was not even necessary to have a parallel issue for short-term instruments as long-term instruments could as well be used as monitoring device. **Garry Schinasi** (IMF) asked what is the role of central banks in crisis prevention and resolution. He also asked whether central banks have a natural role in ensuring financial stability. Mr. Lamfalussy answered that neither is there little doubt that the ECB should play a role in case of a systemically important event, nor is there many questions about its responsibility in ensuring the proper functioning of the payment system. However, he pointed out two difficulties that may emerge in crisis prevention/resolution. First, information needs to flow without constraint from national supervisory authorities (if any) to National Central Banks to the ECB, for appropriate measures to be taken. Second, crisis resolution may require specific lending to take place, thus requiring the involvement of governments. In a world with multinational banks, proper and speedy co-operation of governments may therefore be needed.

Jing Jang (Bank of England) wondered whether a fully integrated securities settlement system always brings more systemic risk, and whether a pure delivery versus payment system would not to a large extent take care of this risk. Mr. Lamfalussy underlined that to make a system systemic-risk-proof is just a matter of working out the details of the functioning of the system. Rather, the reason why it looks riskier is that it becomes *the* system, which may require stronger security arrangements.

One question from the floor related to consolidation in the European banking sector. Mr. Lamfalussy is of the view that much progress on consolidation has been made at the domestic level in some countries, and there is now an increasing potential for cross-border initiatives. However these initiatives might be discouraged if there is regulatory uncertainty. Finally, related to a question on the lead supervisor, he mentioned that this is a difficult topic as the lead supervisor has an immediate consequence on central banking assistance and government involvement, for instance in terms of deposit guarantees.

SESSION 1.1 EUROPEAN BOND MARKET MICROSTRUCTURE

Eli Remolona (Bank for International Settlements) chaired the session. He introduced the first paper of the session "*Liquidity and the cost of funds in the European treasury bills market*" by **Bruno Biais**, Antoine Renucci and Gilles Saint-Paul (all IDEI, University of Toulouse). Using data on yields and the amounts issued for Treasury auctions in Belgium, France, Germany, Greece, Italy, Portugal and Spain between 2001 and 2003, the authors study how differences in market microstructure across countries and through time affect short-term yields in government treasury auctions, and thus the cost of funds for governments. To study their impact on yields, they use macroeconomic variables, such as the volatility of the stock market before the auction and the ratio of public debt ratio. They find that these variables have a significant impact on yields. In particular, large public deficit raise yields. Also, high

volatility in the stock market before the auction reduces yields, thus allowing governments to sell Treasury bills at relatively high price. They also find that market microstructure affects yields. For example, regularly issuing bills significantly reduces yields. Also, when bills are traded on a centralised, transparent electronic limit order book such as MTS, their liquidity rises and the yields significantly decline. However, the authors find no support for the hypothesis that the amount of bills outstanding matters for yields. The main policy implication of the paper is that governments could enhance liquidity and reduce yields and the costs of their funds by efficiently designing the Treasury markets and securities. More precisely, improving the microstructure of the Treasury market – by using regular issuance and a limit order book – increases yield spreads relative to Euribor (from 2.9% to 6.2% for the 3 months maturity, for instance). This implies that governments would raise euro 350.19 million more at the time of the auction.

Marco Pagano (University of Naples) presented the paper "*Valuation, liquidity and risk in government bond markets*" joint with Carlo Favero (University of Bocconi) and Ernst-Ludwig von Thadden (University of Lausanne). This paper aims to explore the determinants of observed yield differentials between long-term sovereign bonds in the euro area. The authors use daily data from Euro MTS Group's European Benchmark Market trading platform for 5-year and 10-year maturities for the period January 1992 to December 2003. They show that there is a strong co-movement among countries' yield differentials between sovereign bonds and German bonds. This common trend appears to be highly correlated with the differential between high-risk U.S. corporate bonds and U.S. government bonds at the corresponding maturity, a measure of the international risk factor. In contrast, liquidity differentials – as proxied by bid-ask spread difference between the local and the German relevant spread – display sizeable heterogeneity and no common factor. This suggests that liquidity is unlikely to have a direct impact on yield differentials, while it may have an impact through its interaction with risk. The authors present a model in which yield differentials should increase in both liquidity and risk, with an interaction term whose magnitude and sign depends on the size of the liquidity differential with respect to the reference country. Testing these predictions, they find that the international risk factor is consistently priced, especially for high-yield countries and for longer maturities. However, liquidity differentials are priced only for a subset of five countries (out of a total of eight) and their interaction with the risk factor is crucial to detect their effect.

Albert J. Menkveld (Free University of Amsterdam) then presented his paper "*Euro-area sovereign yield dynamics: the role of order imbalance*", joint with Yiu C. Cheung and Frank de Jong (both University of Amsterdam). The project addresses the behaviour of yields in the government bond markets of Germany, France, Italy and Belgium. Using data from Euro MTS, they study daily changes in euro-area ten-year sovereign yields by decomposing them into benchmark (German) yield changes, common yield spread changes, country-specific changes, and temporary changes. They find that none of the national order imbalances influences benchmark yield innovations. However, common yield spread innovations are only driven by Italian imbalances. The authors argue that dealers across Europe offset any common yield spread exposure through the highly liquid Italian market.

The discussant, **Eli Remolona** (Bank for International Settlements) started with an overview of the three papers, proceeding in reverse order. On the paper by Menkveld, he noted the striking result that order imbalances have no effects on the benchmark yield innovation. He also asked the author to elaborate further on the role of information for yield changes. In particular, how are yield changes affected by the arrival of public information? In particular, he mentioned the

well known reaction of European yields to US announcements. Also, for order imbalances to have a permanent effect, they must contain information on fundamentals. Remolona therefore concluded that it would be interesting to know which fundamentals are driving the Italian, Belgian and French imbalances. On the paper presented by Pagano, the discussant noted that the concept of liquidity used in the model is not risky. He therefore suggested to endogenise market liquidity by introducing market makers in the model. Finally, on the first paper, Remolona wondered whether the design of the auction itself mattered for the amount of funds that can be raised by governments. He mentioned in particular the case of the auction performed by 'Google'. Contrary to the usual practice of relying on discriminatory auctions (where the winner pays what she bids), they used a Dutch auction (where the winner pays the cut-off bid). Finally, he asked whether bank risk matters. To control for market conditions, the authors used the percentage spread against the Euribor, which is an unsecured interbank rate. Most banks in this market are AA rated banks, which involves some risk in the long term. Hence, controlling for bank risk may be advisable.

Eli Remolona then opened the floor for questions. **Clara Vega** (University of Rochester) remarked that in the paper by Pagano, the authors only look at country specific risk and asked whether using a common factor analysis to look at the systematic liquidity risk would modify the results. On the same paper, **Christian Upper** (Deutsche Bundesbank) wondered whether the empirical implementation of the model would be robust having a risky instead of a risk-free benchmark bond. Finally, on the paper presented by Menkveld, the result that Italian order imbalances are important was questioned. In particular, it was argued that Belgian imbalances should have a more prominent effect as this market is relatively less liquid than the Italian one. Pagano replied that the model and the results would generalise to an environment with a risky benchmark because the predictions are about the impact of changes in relative risk. Menkveld acknowledged the importance of public information and reported that adding dummies on announcements by the ECB did not change the result.

SESSION 1.2 BANK COMPETITION AND ITS IMPLICATIONS

Nicholas Tsaveas (Bank of Greece) introduced the first paper of the session "*The impact of competition on bank orientation and specialisation*" by Hans Degryse (K.U. Leuven) and **Steven Ongena** (Tilburg University). Using a data set containing bank loans to over 13,000 Belgian firms, comprising the entire loan portfolio of an important bank in Belgium, the authors investigate the effect of bank competition on bank branch orientation and specialisation. Around 83% of the firms in the portfolio are single-person business and most borrowers obtain just one, relatively small loan from this bank. To carry though the analysis, the authors define relationship banking as the situation where the bank is the main bank of the firm (i.e. it has a monthly turnover on its current account of at least €2500 and it possesses at least two products from the bank) and the relationship has been ongoing for at least one year. Competition in a given zone is proxied by the Herfindahl-Hirschman Index (the summed squares of bank markets shares divided by the number of branches in each zone of interest). The authors find that an increase in the banks' concentration index from 0.06 to 0.5 decreases the probability of observing relationship banking by almost 10%. Hence they find that bank branches facing stiff local competition engage relatively more in relationship-based lending. The effect of competition on industry specialisation is much less pronounced, as the authors conclude that branches of the bank engage somewhat fewer borrowers in the same industry if local market concentration decreases. The effects appear rather modest, both in statistical significance and economic relevance. Finally, the authors report that the

probability of observing relationship banking decreases significantly with the distance separating the borrower from the lender.

Elena Carletti (University of Mannheim and CFS) presented the paper "*Multiple-bank lending: diversification and free-riding in monitoring*" with Vittoria Cerasi (Università degli Studi di Milano Biocca) and Sonja Daltung (Sveriges Riksbank). The paper analyses theoretically banks' choice between lending to firms in exclusive relationships and sharing financing with other banks in a context where both firms are subject to moral hazard problems and bank monitoring is essential for financing to take place. Firms need funds to undertake projects and can decide whether to exert effort and increase project success probabilities. Banks can improve firms' moral hazard problem via costly and non-observable monitoring. Banks cannot commit to monitor. Their incentives to monitor depend on whether they lend exclusively or share financing with other banks. Multiple-bank lending entails two effects. First it improves banks' monitoring incentives by allowing banks to finance more projects and therefore achieve greater diversification. Second, it entails free-riding problems and duplication of efforts, thus reducing banks' incentives. Multiple-lending is optimal whenever the first effect dominates the second. The authors find that multiple-lending is more attractive as the cost of monitoring increases and less attractive for large amounts of inside equity and project profitability. Thus the model predicts a greater use of multiple-bank lending when banks are small relative to the projects they finance, when firms are less profitable and when poor financial integration, strict regulation and inefficient judicial systems make monitoring more costly.

Stefan Arping (University of Amsterdam) presented the paper "*Playing hardball: relationship banking in the age of credit derivatives*". Credit derivatives may reduce the incentive for banks to monitor firms they finance, as it reduces banks' exposure to risky ventures. In this paper, the author provides a theory for the widespread use of credit derivatives. He argues that credit derivatives allow banks to improve on their oversight duties by giving them an exit option, thereby making it less costly to penalise misbehaving borrowers by letting them fail. Therefore credit derivatives strengthens banks' commitment to engage in timely intervention, thus giving borrowers the proper incentives ex-ante. In addition, he shows that by taking derivatives that expire before loan maturity, banks provide a termination threat. However, this threat is only credible for those banks that are highly capitalised as they are most able to sustain losses. In this context, credit derivatives facilitate the optimal dynamic management of client relationships in banks' core loan business, thereby promoting value creation in the real sector. In his setting, the introduction of a viable credit derivatives market can create value on purely incentive related relationship management grounds that are unrelated to capital or financial constraints at the bank level.

Bruno Parigi (University of Padua) discussed the three papers. On the first paper, he noted that the sample was formed of very small firms with relatively few alternatives to relationship banking. An interpretation of the results could therefore be that when competition increases, the bank seeks to retain customers by strengthening its relationship with them. He regretted that loan rates were unavailable, as an adjustment in loan rates would be expected from an increase in competition. However, research from the authors (Distance, lending relationships and competition) suggests that an increase in distance or competition decreases loan rates. Together with the result that relationship lending suffers from increasing distance, one could surprisingly conclude that relationship lending is associated with higher loan rates.

On the second paper, Parigi noticed that banks were modeled as being risk neutral, which appears at odds with the interpretation of the

results in terms of diversification. He further suggested making capital constraints and other factors that might generate concavity in banks' objective functions explicit. Finally, he also pointed out that one implication of the model may be that more leveraged banks may be safer. In particular, bank's lending was limited by the introduction of capital constraints. By decreasing this constraint, banks are able to finance more projects and become more leveraged. More leveraged banks are more likely to enter into multiple lending and as a consequence become more diversified and safer. Simulations with different levels of capital constraints were therefore encouraged.

On the third paper, Parigi noted that the model assumed the payment of a fixed cost by the bank to observe fully the effort level, so that the proper incentive on effort can be provided at no marginal cost. As a consequence, banks and firms form a coalition at no cost. He therefore asked whether a richer framework allowing firms to choose riskier projects with higher returns would modify the bank-firm coalition choice of effort. In particular, he stressed that a bank protected by credit derivatives may prefer the firm to choose a riskier project. More generally, he argued that, as shown in Arping's paper, credit risk transfer modifies problems of asymmetric information between borrowers and lenders in a way that deserves more attention. Parigi concluded his discussion by commenting on the recent scandals from Enron and Parmalat. According to him, these events point to pervasive conflicts of interest from relationship banking, which are not yet fully understood.

SESSION 2.1 INTERNATIONAL FINANCIAL LINKAGES – CAPITAL FLOWS

The session was chaired by **Holger Wolf** (Georgetown University). **Rui Albuquerque** (University of Rochester) presented the paper, "*International equity flows and returns: A quantitative equilibrium approach*", co-authored with Gregory Bauer (University of Rochester) and Martin Schneider (New York University). The paper tries to explain three stylised facts typically observed in equity markets. The *flow momentum*, according to which a net capital inflow into a country anticipates a net future inflow. The *burst and gross trading activity*, which amounts to a positive contemporaneous correlation between gross purchases and sales. The *return chasing*, i.e. if prices increase, the average foreign investor buys shares from the average local investor. They show that investors heterogeneity is crucial in order to explain the data on international portfolio choices. They propose a model of international portfolio choice with heterogeneous investors both within country and cross-country. Their main finding is that within country heterogeneity is much more important than cross-country heterogeneity as a model that match the data well must have the property that cross-country differences between average trades are much smaller than within-country differences between trades of sophisticated and unsophisticated investors.

The paper, "*Does regulatory harmonisation increase bilateral asset holdings?*", was presented by **Jonas Vlachos** (The Research Institute of Industrial Economics, Stockholm). The study explores the importance of differences in securities regulation on asset market integration. The estimation of an empirical gravity model, where data recently made available by the IMF are used, reveals that cross-border asset holdings do increase substantially with the harmonisation of securities regulation. More precisely, the authors construct an index of regulatory differences, building on the work of Laporta, Lopez-de-Silanes, Schleifer (2003). The size of the coefficient multiplying an index measuring the improvement of domestic securities regulation suggests that an increase in this index by one standard deviation (3.77 points) will increase foreign portfolio holdings by about 40 percent. Also a country that improves its regulation *and* moves its securities regulations by one standard deviation towards all other countries'

regulatory framework would experience another 150 percent increase in foreign asset holdings. Although institutional or cultural differences have negative impacts on bilateral asset holdings, results for regulatory differences are robust even after taking these effects into account. Moreover, it seems that regulation is used to protect domestic markets.

Michael Halling (University of Vienna) presented the paper "*Where is the market? Evidence from cross-listings*", co-authored with Marco Pagano (University of Naples Federico II), Otto Randl and Josef Zechner (both University of Vienna). Conventional wisdom says that the integration of capital markets has been steadily increasing over time. However, this is inconsistent with the growing number of companies listing their shares not only in their domestic stock exchange but also on foreign exchanges. The study investigates whether frictions such as trading costs, informational barriers or regulatory obstacles encourage cross listing. The research finds that cross listing initially raises trading volume in foreign markets, but a trend decline follows (the so-called "flow-back" phenomenon). Although this would suggest a return to the dominance of the domestic market, for certain companies the decline of foreign trading tends to be quite slow. Foreign trade volume turns out to be higher for export-oriented companies and for companies which cross-list into foreign exchanges with lower trading costs and better insider trading protection. Also small, high-growth and high-tech firms tend to have relatively higher foreign trading activity. Finally, the presence of strong inertia in trading is also detected.

The discussant, **Philip Lane** (University of Dublin, Trinity College) stressed that the common denominator of the three papers was the recognition of the limited degree of international financial integration. The first and third study paid special attention to investor behaviour. Lane evidenced that the first paper provides an interesting theoretical underpinning, but the determination of asset prices is entirely left to domestic investors, while foreign investors are not influential. In fact, national security prices are affected by international factors. Moreover, the model could incorporate the national differences in private opportunity, consumption pattern, labour income risks, and tax system. As for the second paper, the discussant pointed out that although it tackles the harmonisation of regulations in a novel way, when measuring harmonisation it applies weights to neither individual regulation, nor to other control variables. Furthermore, the role of factors such as exchange rate volatility, currency unions and tax treaties could also enter the analysis. Lane highlighted that the third paper is an important contribution to the extensive literature on cross-listed shares. He would include in the model time-zone differences, the degree of return correlation in foreign versus home markets and perhaps country fixed effects to understand why firms list their shares in foreign stock exchanges.

SESSION 2.2 FINANCIAL STRUCTURES, COMPETITION AND GROWTH

The session was chaired by **Luigi Guiso** (University of Sassari). **Stijn Claessens** (University of Amsterdam) presented the paper "*Competition in the financial sector and growth: A cross-country Perspective*" with Luc Laeven (World Bank). The authors test empirically whether competition in the banking sector is beneficial to economic growth. Banking competition affects the access to external finance, which has a positive effect on economic growth. In theory, however, it is not clear how competition affects the access to external finance. On the one hand, more competition may lead banks to offer more credit and lower lending rates. On the other hand, more competition decreases incentives for banks to invest in information acquisition or relationships with borrowers and, by doing so, it tends to limit the access to external finance. The authors use cross-country and cross-sector data. They estimate the effects of an index of the degree of competition in the

banking industry on the average industrial growth rate over the period 1980-1997 for 29 countries. They control for heterogeneity across countries and sectors and, in particular, for the degree of financial development at the country level, and for the degree of dependence on external finance at the industry level. Their results depend upon the degree of financial development. In under-developed countries, sectors that are financially dependent grow slower when the financial system is more competitive, while in developed countries more competition is associated with higher growth. More precisely, financially dependent firms will grow by 1.5 percent per annum more if the country's financial sector is more competitive. These findings support the view that market power in banking systems might be beneficial to less developed countries but not for industrial countries.

In "*Financial architecture and technology*" **Solomon Tadesse** (University of South Carolina) explores empirically the impact of financial structure (bank-based or market-based) on technological innovation. The role of financial architecture in fostering innovation and technology is theoretically controversial. On the one hand, the proponents of the bank-based system argue that banks encourage innovation by facilitating the financing of small firms and long-term projects. On the other hand, the proponents of the market-based system underscore the advantages of markets over banks in financing projects with uncertain viability. The author uses a broad cross-section of countries with a panel of industry. He estimates the effects of an index of market versus bank orientation on the rate of technological progress over the period 1980-1995 for 34 countries. He controls for heterogeneity across countries and sectors and, in particular, for the average size, age, and level of financial dependence of the firms. The findings suggest a nontrivial impact of financial architecture on industrial innovative activities. Market-based financial systems have an overall positive effect on technological progress. Regardless of their financial dependence, this effect is common to all sectors of the economy. However, the study also finds evidence that financial architecture has a heterogeneous effect across industries. In particular, industries whose small and young firms are relatively more dependent on external finance fare better in bank based financial systems. Hence, financial architecture not only matters for long-term growth of a country, but also plays an important role in shaping its industrial structure.

Enisse Kharroubi (DELTA and Banque de France) presented "*Financial integration: for whom can it be a wrong medicine?*" This paper studies theoretically how financial integration affects economic growth. The author develops a theoretical model of a small open economy, where firms can undertake either a safe or a risky project, which can be financed by local and/or foreign banks. The two main differences between these banks are that local banks can observe which project is financed but have a limited supply of funds, while foreign banks cannot observe the quality of projects but have an infinitely elastic supply of funds. The author finds that financial integration may, under some conditions, lower the growth rate of the economy. The reason is the following. Local firms undertake the safe projects when they borrow from local banks, because the latter have information about the quality of their projects. This happens as long as firms do not need to resort to foreign funds. When local firms borrow (a relatively large amount of funds) from foreign banks, however, an adverse selection problem between foreign banks and local firms arises, where firms take more risks and the external finance premium is high. In this case, local banks' assets become riskier as well, and local depositors require higher deposit rates, therefore increasing further the local lending rates and depressing economic activity. It follows that financial integration might be detrimental to growth for countries whose domestic supply of funds is too low.

Yrjö Koskinen (Stockholm School of Economics) discussed the three papers. On the

first paper, he mentioned that the degree of competition may be determined by the ease of obtaining information about firms, and therefore on firm opaqueness. He therefore suggested controlling for this effect, for instance be adding a variable on accounting standards. He also wondered how the presence of stock markets would affect the results. On the second paper, he suggested that the author goes beyond the effect of financial architecture on technology to study the interaction between financial architecture, dependence and development. He also proposed to use alternative measures of how efficient a financial system is, such as the relative number of IPOs taking place in a single year. On the paper by Kharroubi, he suggested two possible extensions to the version that was presented. First, the results may be modified if the return on projects is dependent on exchange rates. Second, as it is assumed that domestic intermediaries cannot borrow from abroad, he asked whether the results would hold if foreign borrowing was allowed.

MEASURING FINANCIAL INTEGRATION IN THE EURO AREA

Annalisa Ferrando and **Peter Hördahl** (ECB) presented the paper "*Measuring Financial Integration in the Euro Area*" (co-authored with Lieven Baele, Ghent University, Elizaveta Krylova, and Cyril Monnet, both European Central Bank), which prior to the Symposium had been released as an ECB Occasional Paper. In the presentation, it was pointed out that the purpose of the paper had been to provide a comprehensive overview of the state and evolution of financial integration in five key euro area markets, namely the money, government bond, corporate bond, bank credit, and equity markets. In order to measure the degree of integration, a careful definition of the concept "financial integration" was provided, according to which a market is considered fully integrated if all potential participants in this market faces a single set of rules, have equal access to it, and are treated equally when active in the market. In the case of integration of euro area markets, this would imply that there should be no discrimination among market participants based on their location/country.

A methodological framework for measuring financial integration was then presented, in which three types of measures were proposed: price-based measures, which include simple yield differentials and unadjusted or risk-adjusted return differentials; news-based measures, which measure the systematic response of returns to common shocks or factors; and quantity-based measures, which include e.g. flows and home-bias indicators. The first two types of measure, which make up the bulk of the analysis in the paper, rests largely on a key implication of the adopted definition of financial integration, namely the law of one price. The empirical evidence that was presented confirmed that different market sectors have attained different levels of integration. The money market enjoys near-perfect integration (even if e.g. the repo segment shows signs of being less integrated than the unsecured segment). The degree of integration in the government bond market was found to be high, but not perfect, although it was pointed out that it is difficult to distinguish between a remaining marginal lack of integration and small but systematic effects arising from differences in perceived credit risk or liquidity risk among markets in different countries. The corporate bond market was deemed to be reasonably well integrated, while the equity and bank credit markets were found to be less integrated, although improvements had taken place to some extent since the introduction of the euro.

The discussant, **Michael Melvin** (Arizona State University), started by commending the authors for providing a comprehensive and useful study of euro area financial integration. One aspect of the study that he found particularly appealing was that it used data that is not publicly available, such as interest rate transactions data reported by banks belonging to the EONIA panel. He pointed out that due to

the confidentiality of this data, studies such as this one provided an important source of information. He urged the ECB to continue work with this kind of data along the lines in the present paper. The discussant then continued by providing some questions and suggestions relating to the analysis in the paper. He first asked whether it was reasonable to place as much emphasis on the law of one price as the authors had done. He pointed out that even if markets are fully integrated, returns need not be the same across assets, and that country effects can remain due to e.g. liquidity differences, regulatory differences, or even behavioural biases. Regarding the news-based measures of integration, he called for robustness checks, in which the effect of important exogenous news (such as monetary policy announcements) could be used to measure the response in different countries, rather than relying only on asset returns of a benchmark country. Finally, he voiced the opinion that capital flows may perhaps be a more useful source of information on financial integration than price-based measures. However, in the ensuing discussion following the presentation, Bob Flood pointed out that he was sceptical of the usefulness of flow data for this purpose. The reason, he explained, was that he felt that it is very difficult to interpret flow data in terms of integration. Sometimes a very high degree of country-activity may signal that markets are integrated, while in other cases markets can be fully integrated even though such activity remains very low or even non-existent.

DAY 2

Jan-Pieter Krahnen (CFS) introduced **Robert Flood** (IMF) who gave a Key Lecture on *New approaches to assess financial integration*, based on work with Andrew Rose (University of California, Berkeley). The objective of the Lecture was to propose an intuitive measure of asset-market integration. According to the authors, financial markets are integrated when assets are priced by the same stochastic discount rate. That is, security markets are integrated if all assets on those markets are priced according to the usual pricing equation $p_t = E_t\ (MRS_{t+1}\chi_{t+1})$, where MRS stands for marginal rate of substitution and where prices of a portfolio equal to the expected income received by the owner of this portfolio weighted by the intertemporal marginal rate of substitution for income accruing in the future. According to the law of one price for assets, portfolios with the same risk and return characteristics should have the same price. This implies that the MRS for both portfolios should be the same. Therefore if two asset markets are integrated, any portfolios with the same risk/return characteristics should have the same MRS. As a consequence, a necessary condition for asset markets integration is that the two values of the first moment of the MRS used to price the two portfolios are identical. Flood and Rose propose a new test to check whether this is the case. They only concentrate on the first moment, as they argue it is rather simple to measure, and cross-market differences in estimated values of the first moment allow them to use standard risk pricing models.

Flood then described their methodology and how it compares to the usual finance approach. The asset pricing equation above can be easily rewritten as

$$\frac{x_{t+1}}{z} = \delta_t\left(\frac{p_t}{z} - COV(MRS_{t+1}, \frac{x_{t+1}}{z})\right) + \varepsilon_{t+1}\ ,$$

where $\varepsilon_{t+1} = \left(x_{t+1} - E(x_{t+1})\right)/z$ is a normalised prediction error, and $\delta_t = 1/E_t\ (MRS_{\ t+1})$. In an integrated market, δ_t is identical for all assets. The traditional finance approach uses $z = p_t$, and ads two assumptions to the resulting equation; 1) rational expectations, according to which the residual is uncorrelated with information available at time t and 2) a covariance factor model such that,

$COV\ (MRS_{\ t+1}, \frac{\chi_{t+1}}{z}) = \beta_0 + \sum_i \beta_i f_{i,t}$, where f is a vector of time varying factors. With these two assumptions, the equation can be estimated. However, currently available estimation techniques do not allow identifying both the asset-specific intercept and δ_t. Instead, the usual finance approach sets one of these two parameters to a fixed value. This is obviously unsatisfactory. Flood and Rose rather propose to set $z \neq p_t$, so as to be able to identify and estimate δ_t (for their purpose they choose $z = p_{t-1}$,). The idea is to choose something that stabilises the data and preserves the information in the current price, while still delivering moments in the covariance term that can be modelled as stable functions of a few aggregate sources of risk. Then the test of integration is simple. Estimating the equation for a set of assets J and then repeating the analysis for the same period of time with a different set of assets K gives two sets estimates of δ, a time-series sequence of estimated discount rates. These can be compared directly, using conventional statistical techniques, either one by one, or jointly.

Flood then presented results for the integration of the S&P stocks priced in the NYSE and NASDAQ, using daily data from the "US Pricing" database of Thomsen Analytics, covering April-May 1999. Using 20 constructed portfolios from the S&P, Flood and Rose built two sets of 10 portfolios each to estimate discount rates. Two striking features emerge form their analysis. First the time series variation in δ is high, which can be used to reject the hypothesis that the MRS is equal to the short t-bill rate as assumed by the finance literature. Second, the estimates of δ from the two sets of portfolios are statistically similar, consistent with the integration of the S&P. Several other periods were considered as a

robustness check, reaching the same conclusion. The same procedure was conducted for the NASDAQ, grouping data from 100 NASDAQ firms into 20 portfolios of 10 firms each. While the NASDAQ appears generally integrated, integration is rejected for October and November 1999, shortly before the collapse of the NASDAQ. Then, the authors checked whether the market for large stocks (S&P 500) is integrated with the NASDAQ, comparing the δ when estimated with twenty S&P portfolios, twenty NASDAQ portfolios and all forty portfolios pooled together. The test results are grossly inconsistent with the hypothesis that S&P and NASDAQ are two integrated markets.

Jan-Pieter Krahnen then opened the floor for questions. **Garry Schinasi** (IMF) wondered how the distribution, from which Flood was extracting moments, differs from the distribution generally used in finance. From the floor, it was remarked that the estimated δ moves a lot over time and it was asked whether the choice of daily data could generate these large movements. Flood replied that, unlike in finance, the noise is actually a good thing since it helps them to nail down precisely the δ. It was then asked whether the authors considered stocks that were traded on both NYSE and NASDAQ and whether Flood could elaborate more on the distribution that the δ is capturing, since the results are difficult to believe. **Marco Pagano** (University of Naples) wondered whether this methodology could be applied to an environment with heterogeneous investors, which would imply that the marginal investor is different for different sets of instruments. Flood replied that heterogeneity is perfectly consistent with their methodology. Although he reckoned that an important assumption is that there is no restriction in trading, so that an important first step in testing whether two markets are integrated is to check the institutional environment. He then continued explaining that these measures of integration are to be taken as an upper bound on the degree of integration two markets can achieve, as it is difficult to conceive two markets that would be more integrated than NYSE and NASDAQ. However, Flood also admitted that their methodology could not tell the difference between integration and liquidity.

SESSION 3.1 TOPICS IN FINANCIAL INTEGRATION

Francesco Drudi (ECB) chaired this session and introduced the first speaker. **Mark Carey** (Federal Reserve Board) presented the paper "*Is the corporate loan market globally integrated? A pricing puzzle*", with Greg Nini (Federal Reserve Board). This empirical paper provides evidence that prices of syndicated corporate loans differ between the European and U.S. markets. More precisely, using data from Dealogic's Loanware database from 1992 to 2002, the authors find that interest rate spreads are, on average, 30 basis points smaller in Europe than in the U.S. The authors tested several hypotheses that could explain this gap. First, different characteristics of loans and borrowers differ across the sub-samples. However, controlling for such differences, and other factors such as non-price terms of loans, asymmetric information or moral hazard, legal regime, multi-product package pricing practices and regulation, does not explain the difference fully. The puzzle subsists even after checking for potential errors in the data. However, the authors cannot reject the hypothesis that there is market inefficiency in the sense of myopic behavior by market participants. However, given the type of lenders and borrowers participating in this market, the authors disregard this possibility as being very unlikely. The conclusion from the results of the paper is that the syndicated loan markets in Europe and the US might not be fully integrated, and the authors presume that the explanation for the home bias they observe in the data may be an important factors to understand the pricing difference.

Thomas Harr (University of Copenhagen) presented a theoretical paper "*Branch or subsidiary? Capital regulations of multinational banks*" with Thomas Roende (University of Copenhagen). It looks at optimal

capital requirements for multinational banks with an information advantage over the regulator. (The bank knows better than the regulator how risky it is.) The bank can choose a branch structure or a subsidiary structure. Before the bank selects its structure, the regulator chooses a capital requirement for banks that select a branch structure and another capital requirement for banks that select the subsidiary structure. It is shown that there exists an optimal screening mechanism in which the regulator chooses a higher capital requirement for banks with a subsidiary structure. Since a subsidiary structure limits the liability of the bank and thus is preferable for riskier banks, banks with subsidiaries need to have higher capital requirements.

Jens Tapking (ECB) presented a theoretical paper "*Horizontal and vertical integration in securities trading and settlement*", joint with Jing Yang (Bank of England). It looks at welfare implications of two different types of consolidation in the securities trading and settlement industry, mergers of an exchange with a Central Security Depository (CSD) (vertical integration) and mergers of two CSDs (horizontal integration). Though the model of the paper is quite complex, the results are strikingly simple: Both types of integration increase the economic welfare compared to no consolidation, but the welfare improvement is greater in case of a horizontal merger. The presenter emphasised that this result depends on two crucial assumptions of the paper. Firstly, it is assumed that investors have strong preferences for securities issued abroad. If instead investors preferred home securities, vertical integration would outperform horizontal integration. Secondly, it is assumed that all exchanges are bound to settle in a given CSD and cannot choose among different CSDs. The results of the paper could change if this assumption was not used.

The discussant was **Harry Huizinga** (Tilburg University). On the first paper, he raised doubts that the authors really controlled for all relevant variables. For example, it was pointed out that it was not possible to control precisely for the nationality of lenders and borrowers. On the second paper, he stressed that in reality many banks have a hybrid structure with branches and subsidiaries. It may therefore be difficult to apply the results of the paper. Furthermore, he argued that larger banks are safer and it might therefore be more efficient to let the capital requirements depend on size instead of branch versus subsidiary structure. On the third paper, Harry Huizinga made two suggestions. Firstly, he asked if the high level of economic welfare achieved by a horizontal merger could also be achieved if regulators forced the CSDs to charge a price of zero for the transfer of securities through links. Secondly, he suggested that the authors analyse in their model if it can be expected that market forces lead to the optimal form of consolidation.

On relation to the Carey-Nini paper, **Jan-Pieter Krahnen** (CFS) wondered whether using only companies on which only external ratings are available could put structure on the data set that should be considered in the regression. Another explanation for the pricing puzzle might be the extent of relationship lending that is known to have effects on loan prices. Carey agreed that there might be a selection bias, since loan size is bigger in Europe than in the US but not significantly so. On relationship lending, he replied that they addressed this issue by considering both the number and nature of lenders in a syndicate, on the presumption that when there is a large number of lenders, the marginal lender in a syndicate is less likely to have relationship lending. They find that this factor is priced as well, but not enough to solve the puzzle.

SESSION 3.2 INTERNATIONAL FINANCIAL LINKAGES – COMOVEMENTS

Michael Binder (University of Frankfurt and CFS) chaired the second session on "International Financial Linkages", dedicated to asset price co-movements. **Clara Vega** (University of Rochester) talked as the first speaker about her paper *"Real-time price*

discovery in stock, bond and foreign exchange markets" (joint with Torben Andersen, Northwestern University, Tim Bollerslev, Duke University, and Francis Diebold, University of Pennsylvania). Using intraday futures data over the last 5 to 10 years, the paper estimates in the first place the effect of macroeconomic news releases on different asset prices. News releases are limited to the United States, whereas euro area, UK and US markets are covered for stocks and bonds, and the Japanese yen is also added for exchange rates. In a first step the impact effect of the surprise component of news releases on individual asset returns is assessed. In a second step, returns are estimated simultaneously as functions of contemporaneous and lagged returns of other assets and news surprises. A first result of this analysis is that by using intraday data the effects of macroeconomic variables on asset returns can be identified in a much clearer way than in the previous literature using lower-frequency data. Second, positive news on the economy can have different effects on stock market returns, depending on the stage of the business cycle. During the expansion of 1998 to 2001 "good news" tended to increase stock returns, whereas during the downturn of 2001 to 2002 they tended to decrease stock returns. The same does not apply to bond yields and dollar exchange rate returns, which unambiguously increase in response to positive news. Finally, the authors identify significant cross-country linkages between stock markets that are not explained by US macroeconomic news.

The second paper of this session on "*Commonality in the time-variation of stock-bond and stock-stock return comovements*" was presented by **Robert Connolly** (University of North Carolina). The paper, which is co-authored by Chris Stivers (University of Georgia) and Licheng Sun (Penn State Erie), discusses how cross-country stock-stock and domestic stock-bond return co-movements vary with stock market uncertainty. One approach used compares return correlations across the different quintiles of the distribution of stock market uncertainty, as indicated by implied volatilities in major stock markets (measured by the Chicago Board of Trade Option Exchange Volatility Index (VIX) and the German Option Volatility Index (VDAX)). Another approach uses a GARCH model to estimate changes in correlations. And, finally, a two-state regime-switching model is applied, in which transition probabilities between the different states can vary as a function of stock market uncertainty. The data is daily, covering Germany, the United Kingdom and the United States between 1992 to 2002. The results for cross-asset returns provide evidence in favour of flight-to-quality and flight-from-quality behaviour. When implied stock market volatility is high or increases, then stocks and bonds tend to be negatively related. When stock market uncertainty is low, then stocks and bonds are positively related. Moreover, in times of high uncertainty cross-country stock market correlations tend to be particularly strong. Overall, these asset linkages seem to be driven by global rather than domestic developments.

The last paper of the session on "*The breadth of currency crises*" focused on co-movements among industrial country exchange rates, among emerging market exchange rates and between industrial country and emerging market exchange rates. It was presented by **Philipp Hartmann** (ECB), who co-authors the paper with Stefan Straetmans (Maastricht University) and Casper de Vries (Rotterdam University). In contrast to the first two papers of the session, this paper puts all the emphasis on very extreme returns and, hence, crisis linkages. To do so, it presents a new methodology how to estimate semi-parametrically multivariate asset return co-movements based on extreme-value theory. From this methodology the authors derive, inter alia, a "contamination function" that illustrates the probability of having many markets crash, given that a specific number of markets crash. Weekly returns for 5 industrial country currencies and 10 emerging market currencies between 1987 and 2003 are

considered. One first result suggests that – contrary to conventional wisdom – the breadth of extreme currency spillovers are not greater among emerging market currencies than among industrial country currencies. (Univariately, however, emerging market currencies crash much more often than industrial country currencies.) Second, lagged extreme spillovers tend to be generally weaker than contemporaneous extreme spillovers. Third, extreme spillovers between industrial country and emerging market currencies are relatively weak. Finally, there are a number of currencies that constitute "hot spots" in the foreign exchange market, i.e., they are more often associated with widespread currency turmoil than other currencies.

The discussant, **Paolo Pasquariello** (University of Michigan), pointed out that co-movements of asset price are a very important topic in financial economics, with implications for risk management and portfolio allocations. He felt that all three papers addressed different features of this topic in a rigorous way. As all of them are primarily of an empirical nature, he threw a more theoretical perspective on international financial linkages, focusing on "excess co-movements". Based on one part of the financial contagion literature, he defined excess co-movements as a situation in which asset prices move together beyond the degree justified by their economic fundamentals. While the Vega et al. paper was identifying such excess co-movements, the Connolly et al. and the Hartmann et al. papers do not control for fundamentals. On the Vega paper the discussant cautioned that ignoring non-US news could bias the coefficients in the estimations. He also pointed out that basing the interpretation of the stock market results on only one upturn and one downturn constituted relatively limited evidence. On the Connolly paper he criticised that the implied stock market volatilities used may not be a good measure of asymmetric information, which according to the paper is one theoretical explanation for the spillovers observed. Moreover, referring to some of his own work, changes in risk aversion are not sufficient for excess co-movements in rational expectations models, and he was interested in hearing which other frictions are responsible for the correlations identified. On the Hartmann paper he challenged the association of very extreme returns with crisis situations, as a full-blown crises should also be associated with large social and economic costs. He also suggested that the authors would account for exchange rate regimes in the different currencies.

Michael Binder opened the floor for question. Hartmann made two comments on the Vega paper. First, he suggested allowing the parameters to change with the introduction of the euro, as the strength of return and news spillovers may have changed with EMU. Second, a discussion of some recent work by Carlo Favero (Bocconi University, Milan) could be useful, as this author argues that US-European stock market spillovers seem to be related to inefficient propagations of US innovations, whereas the same does not hold for bond market spillovers.

POLICY PANEL – DRIVERS OF EUROPEAN FINANCIAL INTEGRATION: MARKETS OR POLICY?

Tommaso Padoa-Schioppa (ECB) opened the panel session on "*Drivers of European Financial Integration – Markets or Policy?*" After briefly outlining the current status of financial integration, he turned to the central question to which extent markets or policy makers should determine the degree of integration of markets. In his view, this is an aspect that should be left to markets. However, the market should not face any legislative or regulatory barriers in its development towards a more integrated market. To this aim, it was essential that policy created a framework in which markets could operate towards the optimal level of integration. Mr. Padoa-Schioppa mentioned two areas in which the policy framework needed improvement. The first concerned the implementation of a common rulebook. He stressed that it was

crucial that the FSAP measures were translated efficiently into a consistent EU rulebook and enforced coherently across the EU. He criticised that so far, policy makers had placed emphasis on rule-making, but put little focus on competition policy aspects. The latter could ensure that national authorities would not try to protect national markets. The second aspect concerned the enforcement of rules. Here, Mr. Padoa-Schioppa mentioned two objectives: on the one hand, a convergence of supervisory practices, and second, a higher level of co-operation between different supervisory agencies.

Mario Draghi (Goldman-Sachs) assessed the status of integration from the perspective of a wholesale market institution. The degree of integration was very diverse in the different market segments – while equity markets showed a strong home-bias, bond markets and derivative equity markets, for instance, were basically unified. Pan-European activity was increasing, but hard to quantify (because large parts of the markets are done over-the-counter) and concentrated in very few market places such as London, Frankfurt, or Paris. Mr. Draghi pointed out the conventional wisdom that a wholesale institution already operating at a European level may be content with the segmentation of markets because of its unique potential to profit from European-wide arbitrage. However, he asserted that it was still more likely to profit from more integration because it would benefit from deeper and more liquid markets. He criticised that none of the FSAP proposals had so far been implemented at the national level. In his view, responsible for this delay was mainly the strong desire of national regulators to maintain competencies.

Alexander Schaub (European Commission) stressed that both markets and policy processes were important in the development of integration, but that market forces had been playing a more dominant role. Especially until the launch of the FSAP in 1999, policy was not the driving force, as the development of financial markets was not on the political agenda. Market forces, on the other hand, did influence policy, among other factors, because of increasing globalisation – an example was the case of Enron, which led to a reconsideration of EU rules.

Mr. Schaub then proceeded to comment on the future of the FSAP. In his view, the most important challenge was to eliminate obstacles to integration by eliminating or harmonising national rules. As examples, he mentioned a growing need for broader market access rights, to address new sources of European-wide financial risk, for consolidated supervision of conglomerates, and to address loopholes in the legislative framework. The degree of harmonisation, however, was an aspect that should not be determined ex-ante but rather develop over time. He criticised that practically none of the 42 FSAP measures had so far been effectively implemented in national rulebooks. However, the mere announcement of introducing these measures already had an effect because of the expected implementation. He asserted that the future of the FSAP would be driven further by market forces. Four working groups consisting of market players have already issued their first reports, which will be an important input for future work.

Jens Thomsen (Danmarks Nationalbank) first addressed the lack of integration in retail markets. He stressed that reasons were mainly due to differences in language and consumer's restricted knowledge of information on foreign companies. This led to a domestic attitude for many consumers. He then proceeded to the topic of market or policy driven integration. As an example for market forces leading to more integration, he mentioned the MTS electronic platform. Finally, he commented on the Second Banking Directive. He criticised that the Directive remained silent about the regulation of bank branches located in different countries. For a small country like Denmark, this topic was of great relevance since the market share of foreign banks in Denmark was extremely high – about 25% of the market being covered by the Swedish bank Nordea alone.

Mr. Padoa-Schioppa then opened the floor for question. **Garry Schinasi** (International Monetary Fund) mentioned differences between Europe and the US in the regulatory framework. In his view, the degree of political union was the main difference between the two areas. He furthermore questioned whether lack of integration was really the biggest inefficiency in EMU. Similarly, **Jesper Berg** (Danmarks Nationalbank) conjectured that large European banks might not be interested in diversifying across Europe, but rather on a global level. **Philipp Hartmann** (ECB) asked Schaub about the main messages that had emerged in the FSAP expert groups. He also inquired what may have led Nordea to announce the adoption of a branching structure. Mr. Thomson replied that most likely, Nordea has difficulties achieving scale economies when operating with subsidiaries. It was more efficient to also unify the banks' head operations. He also mentioned that this will have an impact on supervision, since consolidated supervision of the bank will now be necessary.

Mr. Padoa-Schioppa asked Mr. Schaub whether competition policy may be allowed to play a greater role. Mr. Schaub answered that pressures on the Commission from governments and lobbyists were very strong, so that that it was likely that "weak" commissioners not urging for more competition policy were put in place.

Several remarks from the floor addressed the drivers of both policy makers and market players for enhancing integration. **Jan-Pieter Krahnen** (CFS) asked Mr. Draghi whether integrated or separated markets were more profitable for an institution like Goldman-Sachs. Also, Mr. Padoa-Schioppa's was interested in the reasons why pan-European market players did not push policy makers more for removing obstacles to integration. Mr. Draghi replied that it was hard to judge whether most of these market players actually benefited from fragmentation of markets, for instance by profiting from tax arbitrage. Still, he acknowledged that if anyone profited from segmentation, it was likely to be large players.

Gertrude Tumpel-Gugerell (ECB) then closed the Policy Panel with some remarks on "*The role of the ECB in financial integration*". Ms. Tumpel-Gugerell explained that the role of the ECB in promoting European financial integration is threefold. First, it co-operates and acts as a facilitator or catalyst between several parties. Second, in fields where the mandate of the ECB applies directly, it implements structural reforms that foster financial integration. Third, it raises awareness by doing specific analysis and assessment of the current state of financial integration. She then went on explaining each role in more detail.

Regarding the first role, the ECB regards the co-operation with the European Commission as of particular importance. The ECB participated actively in the production of the two reports of the Giovannini Group, about the structure of the security settlement industry in Europe. She reported that while the ECB fully supports the conclusions of the reports, consolidation is slow and market forces may be insufficient in this sector.

Regarding the second role, Ms. Tumpel-Gugerell highlighted several examples of ECB measures that foster financial integration. Obviously, a uniform interest rate for the short term interbank market, was a major contribution of the ECB to the integration of the money and bond markets in January 1999. Also, she explained that the ECB supports a standardised and safe contractual basis that can be used in different national jurisdictions to improve the integration of the euro repo markets. In particular, the ECB will introduce a "Single List" in the collateral framework to replace the current two-tier system of eligible collateral, in order to ensure a level playing field in the euro area, to further promote equal treatment of counterparties and issuers, and to increase the overall transparency of the collateral framework. Finally, she mentioned

the next generation of the Eurosystem payment system, TARGET 2, which will contribute to further financial integration by consolidating infrastructures in the market for large-value payments and by homogenising features at the user end.

Regarding the third role of the ECB consisting of raising awareness, Ms. Tumpel-Gugerell stated that research is more than just raising awareness and welcomed the ECB-CFS Research Network on "Capital Markets and Financial Integration in Europe" as the most extensive forum through which the ECB carries out and stimulates its research work on financial integration.

She then turned to the past and future work of the ECB-CFS Research Network, and how they relate to the objectives of the ECB in terms of financial integration. She mentioned and elaborated further on three achievement of the network. First, the network successfully established itself as a "network of people". In her view, the Network provided the necessary structure to exploit synergies and cross-fertilisation between researchers from different institutions. The results of this type of repeated interaction is a higher productivity and output that goes beyond what can be expected from the simple one-off organisation of traditional seminars and workshops.

Second, the network kicked off a new research field on securities settlement systems, one of the big challenges for further financial integration in Europe.

Last, Ms. Tumpel-Gugerell mentioned that research conducted within the network improved the knowledge about European financial integration. First, regarding the European banking sector, first integration appears not to be very advanced in retail banking markets. Second, some of the inherent characteristics of traditional loan and deposit business constrain the cross-border expansion of commercial banking, even in a common currency area. Hence, the implementation of some policies to foster cross-border integration may be ineffective. There is also increasing evidence that the introduction of the euro has contributed to a reduction in the cost of capital in the euro area, for example in the form of corporate bond underwriting fees. Monetary integration therefore improved access to finance for investment and prospects for growth. Finally, on securities settlement systems, she reminded the audience of findings by the Bank of Finland, presented in the network, that securities settlement in Europe is more than 30% more costly than in the US, and highlighted two reasons to explain these numbers: market power and a lack of consolidation. With the absence of competition, there is no pressure to develop systems operating at unit costs. Beyond that, she mentioned another paper presented in the third workshop that showed that fragmentation and the still relatively limited consolidation in security settlement systems, which is a remnant of the epoch with national currencies, prevent the full exploitation of scale economies as shown in the Finnish study.

Ms. Tumpel-Gugerell then announced that the ECB Executive Board decided to continue the ECB-CFS Research Network for three more years. In this new phase, three areas will be added to the list of network priorities. 1. The relationship between financial integration and financial stability. 2. EU accession, financial development and financial integration, and 3. Financial system modernisation and economic growth in Europe. These three areas have become particularly important at the current juncture, but have not received particularly strong attention in the past two years of the network. She then completed her remarks saying that the research network will organise two workshops per year until 2007.

SESSION 4.1 FIRMS FINANCING AND CORPORATE GOVERNANCE

Jan-Pieter Krahnen (University of Frankfurt and CFS) chaired this session. The session started with **Mihir Desai** (Harvard University)

presenting the paper "*Institutions, capital constraints and entrepreneurial firm dynamics: evidence from Europe*" (joint with Paul Gompers and Josh Lerner (both Harvard University)). The paper investigates the importance of the institutional framework for entrepreneurial activity in Western and Central and Eastern Europe (CEE region). Measures of entrepreneurial activity include rates of firm entry and exit and different moments of firms' size and age distribution, such as average size, skewness and industry vintage, a size-weighted measure of firm age. Controlling for industry fixed effects and different levels of economic development, the authors identify a particular sensitivity of entrepreneurial activity to institutional factors (corruption/fairness, protection of property rights, well-functioning legal system) for countries of the CEE region. In particular, less corruption and better protection of property rights increase entry and reduce exit. While the average size of the firm decreases, there is an increase in industry vintage. Finally, descriptive statistics show for the CEE region that the firm size distribution is skewed to the left with decreasing skewness for older firms. The authors interpret their results as supporting the view that well-designed institutions foster entrepreneurial activity partly through the positive impact on relaxing capital constraints, which can potentially account for the results on the skewness of young firms.

In the second paper, "*A Theory of friendly boards*" (joint with Daniel Ferreira, Stockholm School of Economics), **Renée Adams** (Stockholm School of Economics) addressed the question why – contrary to the US – European governance structures rely on a "dual" board system. Such a system separates the monitoring and advising roles of the board of directors. The analysis is based on a model where a manager is hired to make an investment decision for a risky project from which he derives a private benefit. His ability to identify good projects is unknown to the board and even to himself. Both the board and the manager receive signals concerning the quality of the project. After receiving his signal the manager decides to reveal his information to the board in exchange of a recommendation which is based on the board's signal. Finally, before signals are received, the board chooses a probability of monitoring the manager ex-post. Monitoring enables the board to learn the manager's signal and to obtain information about the manager's ability. For a given probability of monitoring, the manager faces a trade-off for revealing his signal. Revealing information and getting advice enables the manager to make better decision, but this might increase his chances of getting fired when his information changes the board's opinion about his ability. This trade-off provides a rationale for the board to reduce its monitoring activity up-front whenever it is not too costly to induce the manager to reveal his information. The authors show further that the first-best level of monitoring can nevertheless be attained when the two roles (advice and monitoring) of the board are separated.

João Santos (Federal Reserve Bank of New York) presented the third paper of the session "*Identifying the effect of managerial control on firm performance*" (joint with Renée Adams (Stockholm School of Economics). The goal of this paper is to re-evaluate the effect of managerial control through voting rights on firm performance by focusing on voting rights rather than on share ownership of managers. Shares provide managers not only with control rights, but also cash-flow rights making it difficult to disentangle incentive effects from potentially positive effects of voting rights. The authors use data from a historic sample of large banking institutions in the US that hold their own stock – as a result of their trust activities – in the capacity of a fiduciary. This enables the authors to construct a proxy for managerial control rights to measure cleanly the effects of control, since the fiduciary has no cash-flow rights attached to the shares. The authors regress the performance of banks (as measured by Tobin's q) on the proxies for managerial control rights (and their squares) controlling for firm size, leverage, uncertainty

and historic performance. They find a negative relationship for small voting stakes, but a positive one for larger stakes, thus confirming several findings in the theoretical literature. Quantitatively, the result seems to be economically significant. A change in control equal to one standard deviation causes changes of up to a third of the standard deviation in Tobin's q.

Giancarlo Spagnolo (University of Mannheim and Sveriges Riksbank) discussed the papers of this session. For the first paper, he stressed that the analysis provides novel and interesting evidence on the importance of institutional variables for firms. Most importantly, institutions seem to matter more for transition economies than for advanced economies. He stressed, however, that the link between institutions (and other legal variables) and entrepreneurial activity is still lacking a thorough theoretical explanation, which could partly account for the partly ambiguous effect of legal variables. Moreover, given the long lags between institutional reforms and investment activities, he expressed concern that the real test of these relationships can only be assessed seriously when more data become available over the next few years. Spagnolo praised the importance of the second paper in establishing a novel trade-off when boards simultaneously advise and evaluate managers. As his main theoretical criticism he pointed out that the results could change when there is a career concern for the manager. This would add reputation into the model inducing the manager to reveal his information more readily once recognised as being of high quality. As minor points, Spagnolo pointed out that the separation of board functions might be related to specialised skills, and that preventing the flow of information might be impossible even in separated boards. For the final paper, he proposed to control for two more factors. First, large shareholders might matter, since they have more control rights than managers or fiduciaries have. Second, cash flow consideration could matter nevertheless, since the overall level of the fiduciary's cash flow rights could influence the importance of his control rights.

Jan-Pieter Krahnen then opened the floor for questions. João Santos was first asked whether they had access to firm specific performance measures, and if they tried to use this information rather than the measures of performance of the bank itself. On the second paper, the assumption that supervisory and management boards do not communicate with each other was questioned, as in reality it is not clear how these boards are synchronised. Renée Adams was then asked whether they have evidence of commitment problems from boards and whether these boards use a commitment device.

João Santos replied that they do not control for whoever is controlling the rest of the bank, as they do not have access to such data. Regarding the positive link between large voting rights and the value of the institution, Santos replied that there are two possible theoretical explanations. First, when control increases, individuals are willing to invest more human capital in the institution, which in turn increases its value. Second, in case of a hostile take-over, increased control would imply that a higher bid is asked for. Renée Adams agreed that they needed to address the point of career concerns. However, she does not think that boards generally share information. Finally, regarding the commitment technology, she mentioned soft (but not direct) evidence for cultural norms in the boardroom that managers are not asked questions on their policy.

SESSION 4.2 SYSTEMIC RISK

The session was chaired by **Gary Schinasi** (IMF). The first paper, entitled "*Bank contagion in Europe*" was presented by **Reint Gropp** (ECB). The paper analyses contagion in a sample of European banks during 1996-2003. The paper builds on the recent literature examining large movements in financial markets. The paper examines large movements of the weekly first differenced distance to

default of European banks. It estimates a two stage model: In the first stage, in a Poisson model the number of banks experiencing a large shock at the same time is explained with a set of macro and sectoral risk exposure variables. The paper shows that the sector risk exposure variables improve the fit of the model dramatically. Using the unexplained portion from this regression, the paper estimates the probability of an individual bank experiencing a large shock. This approach is intended to generate a contagion variable that is orthogonal to common shocks affecting more than one bank simultaneously. The paper finds significant domestic and cross-border contagion, although there is no cross-border contagion from the smaller banks in the sample. There is, however, significant contagion from small banks within countries. Overall, the results are consistent with a tiered interbank market structure, in which due to asymmetric information only the largest banks perform cross-border transactions. Further, the paper finds that the introduction of the euro may have reduced domestic contagion, while there is no increase in cross-border contagion.

In the second talk of the session, **Gregory Nguyen** (National Bank of Belgium) presented "*Interbank exposures: An empirical examination of systemic risk in the Belgian banking system*". The paper investigates the evolution of contagion risk for the Belgian banking system from 1993 to 2002, using detailed information on aggregate interbank exposures of individual banks and on large bilateral interbank exposures. The paper simulates the effect of the failure of one bank on defaults of other banks. Overall, the results suggest relatively little contagion. The paper finds that the structure of the Belgian banking system changed from a complete structure (in which all banks have symmetric links) to a "multiple money centre bank structure" (where the money centres are symmetrically linked to some banks, which themselves are not linked). The paper suggests that this change may have resulted in a reduction in the risk and extent of contagion. Also, the increase in foreign interbank assets and liabilities has reduced the risk of domestic contagion but potentially increased the risk of contagion from foreign banks.

The third paper of the session "*An analysis of systemic risk in alternative securities settlement architectures*" was presented by **Giulia Iori** (Kings College). The paper compares systemic risks in net and gross security settlement systems. It studies the settlement risk arising from exogenous operational delays and compares settlement failures as a function of the length of the settlement interval under different market conditions. The paper finds that settlement failures are non-monotonically related to the length of settlement cycles under both architectures and that there is no clear cut ranking of which architecture (net or gross) delivers greater financial stability.

The discussant, **Kostas Tsatsaronis** (BIS) thought that the three papers were well matched in one session, as they provided different perspectives on contagion as a source of systemic risk. He emphasised that all three papers focused on idiosyncratic shocks that generate systemic losses. Clearly, this was only one of at least four scenarios: common exposures, dynamic interaction between real and financial sectors, information contagion and inter-linkages. He doubted that the latter source, which the papers focused on, was the dominant source of systemic risk. He then proceeded to discuss the papers in reverse order. On Iori's paper, the discussant suggested that an objective function clearly specifying the trade off between output of the system and risk may be useful, but felt that overall the paper was a good first step to model the complex interaction between strategic behaviour and risk in settlement systems. Regarding Nguyen's paper, the discussant suggested that the worst case scenario used in the paper was a bit extreme and that the paper would benefit from discussing more extensively the change in the structure of the banking system that took place in 1996/97. The

discussant also thought that the paper would benefit from a better proxy for the prevalence of the money centre structure of the banking system. Finally, regarding Gropp's paper, the discussant questioned some of the interpretations of the results in the paper and argued that the weekly frequency of the data may be too high, given that many macro variables are only available at a quarterly frequency. He also wondered about the persistence of shocks in the paper.

In the general discussion, **Steven Ongena** (Tilburg University) argued that in the Gropp paper given the left censoring of the first stage dependent variable a negative binomial model may be more appropriate than the Poisson model used in the paper. He also stressed that in the set up chosen in the paper, it was difficult to be sure that all macro/common shocks had been accounted for. If they had not, the results of the paper may be biased in favour of finding contagion, especially cross-border contagion. Regarding the Nguyen paper, it was questioned whether the reduction in the risk of contagion was due to the change in market structure described in the paper or due to an increase in Tier 1 capital, which could be observed in most banks in OECD countries during the period. Further, it was argued that the presence of international exposures of banks may bias the results in favour of finding cross-border contagion. On Nguyen's paper, some participants defended the relatively high loss given default assumptions used in the paper, as even if the eventual recovery is higher, the paper is concerned with the immediate impact and not the long term consequences of a bank failure.

ANNEX G PAPERS OF THE LAMFALUSSY FELLOWS

International Equity Flows and Returns: A Quantitative Equilibrium Approach*

Rui Albuquerque   Gregory H. Bauer   Martin Schneider

November 2003

Abstract

This paper considers the role of foreign investors in developed-country equity markets. It presents a quantitative model of trading that is built around two new assumptions: (*i*) both the foreign and domestic investor populations contain investors of different sophistication, and (*ii*) investor sophistication matters for performance in both public equity and private investment opportunities. The model delivers a unified explanation for three stylized facts about US investors' international equity trades: (*i*) trading by US investors occurs in bursts of *simultaneous* buying and selling, (*ii*) Americans build and unwind foreign equity positions gradually and (*iii*) US investors increase their market share in a country when stock prices there have recently been rising. The results suggest that heterogeneity *within* the foreign investor population is much more important than heterogeneity of investors across countries.

JEL Classification: F30, G12, G14, G15.

Keywords: Asymmetric information, heterogenous investors, asset pricing, international equity flows, international equity returns.

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An analysis of liquidity and systemic risk in alternative securities settlement architectures*

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(December 9, 2003)

ABSTRACT

This paper compares securities settlement gross and netting architectures. It first focuses on liquidity risk and derives optimal liquidity requirements for each architecture under various scenarios regarding the credit provisions available to participants. It then studies settlement risk arising from exogenous operational delays and compares settlement failures between the two architectures as functions of the length of the settlement interval. While settlement failures are non-monotonically related to the length of settlement cycles under both architectures, there is no clear cut ranking of which architecture delivers greater stability.

*This paper has been prepared by the author under the Lamfalussy Fellowship Program sponsored by the European Central Bank. Any views expressed are only those of the author and do not necessarily represent the views of the ECB or the Eurosystem.

Financial Market Integration and Loan Competition: When is Entry Deregulation Socially Beneficial?*

Leo Kaas†

January 28, 2004

Abstract

The paper analyzes how the removal of barriers to entry in banking affect loan competition, bank stability and economic welfare. We consider a model of spatial loan competition where a market that is served by less efficient banks is opened to entry by banks that are more efficient in screening borrowers. It is shown that there is typically too little entry and that market shares of entrant banks are too small relative to their socially optimal level. This is because efficient banks internalize only the private but not the public benefits of their better credit assessments. Only when bank failure is very likely or very costly, socially harmful entry can occur.

JEL classification: D43; D82; G21
Keywords: Entry deregulation; Bank competition

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Euro-Area Sovereign Yield Dynamics: The Role of Order Imbalance

Albert J. Menkveld[a], Yiu C. Cheung[b], Frank de Jong[b]

February 3, 2004

Abstract

We study sovereign yield dynamics for ten-year government bonds in the largest euro-area markets: Italy, France, Belgium, and Germany. We exploit as of yet unused transaction data to explain daily yield changes. We find that these changes are caused by (i) a "benchmark" yield innovation, (ii) a common yield spread innovation, (iii) country-specific innovations, and (iv) (microstructure) noise. We relate changes in each of these factors to order imbalance and find that Italian order imbalance explains yield spread innovations, French and Belgian order imbalance explain country-specific innovations, and German order imbalance only changes yields temporarily. Order imbalance, however, does not have explanatory power for the most important factor: benchmark yield innovations.

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Illiquidity Spillovers: Theory and Evidence From European Telecom Bond Issuance

Yigal S. Newman
Michael A. Rierson

January 22, 2004

ABSTRACT

In a study of the European telecommunication-sector bond market, we find empirical evidence that a firm's new bond issue can temporarily inflate yield spreads of other bonds in its sector. We show that this effect seems unrelated to new fundamental information about the bond's issuer. Our results imply that an issuance of 15.5 billion Euros by Deutsche Telekom temporarily depressed the mark-to-market value of 100 billion Euros in outstanding European telecom debt by approximately 273 million Euros. This study is supported and motivated by a stylized model of a risk-averse liquidity-provider in which supply shocks, such as new issues, place price pressure on correlated securities.

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ANNEX H OUTLINE OF THE SPECIAL ISSUE OF THE "OXFORD REVIEW OF ECONOMIC POLICY" ON "EUROPEAN FINANCIAL INTEGRATION"

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EUROPEAN FINANCIAL INTEGRATION
(EDITED BY: XAVIER FREIXAS, PHILIPP HARTMANN, AND COLIN MAYER)

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7 Bank Regulation and Macroeconomic Fluctuations. Charles Goodhart, *London School of Economics,* Boris Hofmann, *Deutsche Bundebank*, and Miguel Segoviano, *London School of Economics*

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	Ohlerich, Christoph (2004-)	DG-Operations (Risk Management Division)
	Pronk, Carin (2002-2004)	DG-Statistics (Statistics Development and Coordination Division)
	Scheicher, Martin (2004-)	D-Financial Stability and Supervision (Financial Supervision Division)

Stenström, Mikael (2002-)	DG-Legal Services (Financial Law Division)
Tabakis, Evangelos (2002-)	DG-Market Operations (Risk Management Division)
Tapking, Jens (2002-)	DG-Payment Systems and Market Infrastructure (Securities Settlement Systems Policy Division)
Vesala, Jukka (2002-2004)	D-Financial Stability and Supervision (Financial Stability Division)

COMPOSITION OF THE NCB CONTACT GROUP

National central banks have nominated a contact person for network related matters. The composition of the NCB contact group is:

Oesterreichische Nationalbank	Martin Scheicher
Nationale Bank van België / Banque Nationale de Belgique	Marina Emiris
Suomen Pankki – Finlands Bank	Tuomas Takalo
Banque de France	Henri Pagès
Deutsche Bundesbank	Hannah Hempell
Bank of Greece	Heather Gibson
Central Bank of Ireland	John Frain
Banca d'Italia	Carmello Salleo
Banque Centrale du Luxembourg	Patrick Lunnemann
De Nederlandsche Bank	Leo de Haan
Banco de Portugal	Goncalo Ribeiro
Banco de España	Juan Ayuso