

**ECB-CFS RESEARCH NETWORK ON “CAPITAL MARKETS AND  
FINANCIAL INTEGRATION IN EUROPE”:**

**A ROAD MAP**



EUROPEAN CENTRAL BANK



## TABLE OF CONTENT

<u>EXECUTIVE SUMMARY</u> .....	3
2 <u>THE STRUCTURE OF THE “ROAD MAP”</u> .....	7
3 <u>SPECIFIC ISSUES OF THE NETWORK</u> .....	9
3.1 <u>European financial integration and financial linkages with the United States and Japan</u> ...9	
The geographical scope of banking and lending relationships .....	9
The optimal degree and implications of bank competition.....	10
Determinants of bank mergers.....	10
Implications of bank consolidation.....	11
International portfolio choices of institutional investors/determinants of international portfolio flows .....	11
Asset price and volatility linkages across countries and their changes/contagion and crisis linkages .....	12
Determinants of market returns/determinants of inflation, liquidity and default risk premia ..	12
Liquidity in secondary markets/substitutability of government bonds from different sovereign issuers .....	13
Restructuring of settlement infrastructures.....	13
Consolidation of stock exchanges.....	14
Foreign stock listings and the role of depository receipts.....	14
Integration of repo markets/substitutability of government bonds from different sovereign issuers .....	15
Capital flows and exchange rates.....	15
Determinants of country investment portfolios and the home bias phenomenon.....	16
Globalisation and the increasing role of capital flows/synchronisation of international business cycles .....	16
Goods market and financial integration.....	17
3.2 <u>Financial system structures in Europe</u> .....	17
Bank versus market financing .....	17
The resiliency of the financial system .....	17
The efficiency of European banks .....	18
Insolvency regimes .....	18
Technology and financial services.....	19
The importance and determinants of the breadth and completeness of financial markets/financial innovation .....	19
Market microstructures/the role of electronic trading platforms .....	20
The organisation of primary markets/equity versus debt financing/private versus public equity markets/start-up financing .....	21

Corporate governance and control/ownership structures of financial intermediaries.....	21
Transparency and accounting rules/accounting conventions and market volatility .....	22
The selection of benchmark bonds and yield curves .....	22
Market expectations and the predictability of monetary policy.....	22
The size and development of corporate bond markets/which liabilities are replaced by corporate bond growth? .....	23
The market microstructure and exchange rates .....	23
Determinants of the cost of capital and economic growth.....	23
Financial indicators of underlying economic variables .....	24
4 <u>MAIN PRIORITIES</u> .....	25

## 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 “road map” 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 “road map”, 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 “road map” 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**<sup>\*</sup>

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 5 establish a “road map” 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 “road map” 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 “road map”, thereby defining the scope of the network. Section 3 provides brief descriptions of the specific research topics from the “road map”. Finally, section 4 defines a small number of priority areas, which will feature as special themes in the network workshops.

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<sup>\*</sup> 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, Vitor Gaspar, Reint Gropp, Hanna Hempell, Heinz Herrmann, Peter Hördahl, Cornelia Holthausen, Harry Huizinga, Stephane Kerjean, Stefanie Kleimeier, Jan-Pieter Krahen, Philip Lane, Guillaume Leclercq, Angela Maddaloni, Simone Manganeli, Arnaud Mehl, Christina Metz, Cyril Monnet, Per Nymand-Andersen, Steven Ongena, Charlotte Ostergaard, Marco Pagano, Chryssa Papathanassiou, Enrico Perotti, Harald Sander, Joao Santos, Martin Scheicher, Sandrine Scheller, Giancarlo Spagnolo, Mikael Stenstrom, Evangelos Tabakis, Jens Tapking, Christian Upper and Jukka Vesala.

Main research areas →		EUROPEAN FINANCIAL INTEGRATION AND FINANCIAL LINKAGES WITH THE UNITED STATES AND JAPAN		FINANCIAL SYSTEM STRUCTURES IN EUROPE	
Financial system segments ↓					
<b>FINANCIAL INTERMEDIARIES</b>	<b>Banks</b>	<ul style="list-style-type: none"> <li>Geographical scope of banking and lending relationships</li> <li>The optimal degree and implications of bank competition</li> <li>Determinants of bank mergers (in particular cross-border)</li> <li>Implications of bank consolidation (e.g. for credit and interbank markets)</li> <li>International portfolio choices of institutional investors (mutual funds, pension funds, re-insurance companies, etc.)</li> </ul>		<ul style="list-style-type: none"> <li><b>Description and measurement</b> of: <ul style="list-style-type: none"> <li>price linkages,</li> <li>the geographical scope of lending and investment, and</li> <li>the relative importance of funding sources.</li> </ul> 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</li> <li><b>Driving factors</b> are: <ul style="list-style-type: none"> <li>competition,</li> <li>co-operation and</li> <li>public action</li> </ul> as well as interactions between them. <b>(What is the role of the euro?)</b></li> <li><b>Obstacles</b> are, e.g.: <ul style="list-style-type: none"> <li>different legal and tax systems,</li> <li>heterogeneous regulatory approaches,</li> <li>incompatible industry standards (e.g. accounting and disclosure) and</li> <li>cultural and language barriers.</li> </ul> </li> <li><b>Policy implications</b> Effects on efficiency, financial stability, growth and welfare.</li> </ul>	<ul style="list-style-type: none"> <li>Bank vs. market financing</li> <li>Resiliency of the financial system</li> <li>Risk-sharing with bank intermediation</li> <li>Specialisation vs. universal banking</li> <li>Efficiency of European banks</li> <li>Ownership structures of financial intermediaries</li> <li>Insolvency regimes</li> <li>Transparency and accounting rules</li> <li>Technology and financial services (internet banking, financial e-commerce, etc.)</li> </ul>
	<b>Securities firms</b>				
	<b>Insurance companies</b>				
<b>FINANCIAL MARKETS</b>	<b>Equity</b>	<ul style="list-style-type: none"> <li>Asset price and volatility linkages across countries and their changes</li> <li>Determinants of market returns (country-specific vs. euro area wide, domestic vs. external)</li> <li>Contagion and crisis linkages</li> <li>Determinants of international portfolio flows</li> <li>Restructuring of settlement infrastructures (fragmentation and potential reform of the securities settlement industry, determinants and role of cross-border settlement costs)</li> </ul>	<ul style="list-style-type: none"> <li>Consolidation of stock exchanges</li> <li>Foreign listings and the role of depository receipts</li> <li>Relative importance of sector and country effects</li> </ul>	<ul style="list-style-type: none"> <li>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.)</li> <li>Role of legal systems</li> <li>Liquidity in secondary markets</li> <li>Market micro-structures</li> <li>Role of electronic market trading platforms</li> <li>Organisation of primary markets</li> </ul>	<ul style="list-style-type: none"> <li>Private vs. public equity</li> <li>Equity vs. debt financing</li> <li>Corporate governance and control (forms of corporate control, board turn-over, shareholder rights)</li> <li>Accounting conventions and market volatility</li> <li>Selection of benchmark bonds/yield curves</li> <li>Market expectations and the predictability of monetary policy</li> <li>Size and development of corporate bond markets</li> <li>Which liabilities replaced by corporate bond growth?</li> <li>Market microstructure and exchange rates</li> <li>Optimal securities settlement system structures (e.g. concentration)</li> </ul>
	<b>Fixed income (money and bond markets)</b>	<ul style="list-style-type: none"> <li>Determinants of inflation, liquidity and default risk premia</li> <li>Substitutability of government bonds from different sovereign issuers</li> <li>Integration of repo markets</li> </ul>	<ul style="list-style-type: none"> <li>Capital flows and exchange rates</li> </ul>		
	<b>Foreign exchange</b>				
	<b>Clearing and settlement infrastructure</b>				
<b>FINANCE AND THE ECONOMY</b>	<ul style="list-style-type: none"> <li>Determinants of country investment portfolios (including households) and the home bias phenomenon</li> <li>Goods market and financial integration</li> <li>Globalisation and the increasing role of capital flows</li> <li>Synchronisation of international business cycles</li> </ul>				<ul style="list-style-type: none"> <li>Determinants of the cost of capital and economic growth</li> <li>Start-up financing</li> <li>Financial indicators of economic growth and other underlying economic variables</li> </ul>

Table – Summary of the “road map”. Entries in colour refer to the priorities defined in section 4.

## **2 THE STRUCTURE OF THE “ROAD MAP”**

The “road map” is summarised in the table on page 5, 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 “road map” 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 “road map” is geared towards applied and policy-relevant questions, both empirical and theoretical research are important and welcomed.

### **3 SPECIFIC ISSUES OF THE NETWORK**

The “road map” 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 **b**- and **s**-convergence (borrowed from growth theory) seem (at least in part) to point in this direction (**b**-convergence refers to the speed of convergence of prices of the same asset in different locations, and **s**-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 2 is rather long. Although hints were 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 “road map”, 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.