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Abstract

The project has analysed whether the widespread privatisation process has helped the development of financial markets, the integration of European financial markets, and the stabilisation of economies, in particular in transition countries and in financially stressed Western economies. The results provide new theories and empirical evidence, filling a crucial gap in the existing literature in economics and finance.

In the theoretical analysis, privatisation is shown to have important welfare and financial implications. First of all, it increases risk sharing opportunities, encouraging an increase in the supply of private assets. Moreover, financial markets development and privatisation may also facilitate intertemporal choices such as saving and investment. The empirical analyses of both European and transition countries point out that privatisation has helped the development of financial markets. In particular, the joint work has focussed on market liquidity showing how a sustained privatisation program implemented through share issues on public equity markets is shown to be key in boosting liquidity. Moreover, the privatisation of different firms may have a different impact on market development: Privatisation in energy, telecom and utility industries have a strong impact, and the same is true of also privatisation associated with foreign listings.

As for the attitude by Governments to sell privatised firms through foreign markets as well, the theoretical results stress that Government maximising privatisation revenues will often resort to double listings in their national market as well as in the relevant international market. Governments mainly concerned in minimising the price volatility of privatised stocks, however, will generally just do the opposite choices. They will prefer single listings to double listings and, under plausible parameter constellations, listings in the home market to international ones. The reason is that informational efficiency associated to double listing unambiguously enhances price volatility and associated risks. This can partially explain the statistically significant differences in listing choices between private and privatised firms and to show that unambiguously governments' objectives when floating companies are different to those of private companies.

Important work has been carried out to analyse provide the price and volume patterns of double listed stocks of some transition countries, in order to test market integration for the largest stocks of those countries. Interestingly, an enormous amounts of mispricing is found in the early 1990s, while towards the end of the millennium mispricing has been somewhat reduced; this shows that market efficiency improves and that integration proceeds over time. However, privatisation *per se* does not seem to have substantially contributed to reduce market fragmentation in the short run, while its long run effects are at the moment difficult to quantify.

Finally, the project has addressed the role of privatisation in achieving the stabilisation of the financial system. The main result of this part is that privatisation indeed represents an important element of financial stabilisation via the reduction in country and policy risk. A simple model has been set forth to show how sustained reform policies (specifically, privatisation policy) progressively build up on confidence. Empirical results from a large panel study indicate that (1) sustained privatisation resolves policy uncertainty and (2) this confidence building sustains capital market development and stabilisation. It is shown that steady privatisation sale programs should improve the perceived policy risk of the country. Such progress should be gradual (and potentially subject to reversals in countries which alter the sale program), but a decrease in the perceived policy risk increases the attractiveness of equity investments and therefore leads to stock market growth and deepening. The economic impact on market development appears to be large.

1. Background and objectives of the project.

2.1 Rationale and objectives

The basic idea of our research is to investigate the privatisation process and its impact on financial markets. The starting point is the recognition that privatisation is a major trend in Europe, emerging countries as well as transition economies. From 1977 to 2001, 4753 privatisation transactions are reported in more than 100 countries, with approximately US$ 1251 bn of revenues (Source: *Privatisation International*). According to the World Bank, during this period the percentage ratio between the value added produced by State-owned enterprise (SOE) and income (GDP) in privatising countries decreased on average from 9% to 6%. In July 1998, the largest publicly-traded privatised firms featured a market capitalisation worth US$ 1.5 trn, representing 20.1% of the total capitalisation of the non-US companies on the combined *Business Week* "Global 1000" and Top 100 Emerging Market Companies lists. (Megginson and Netter 1999)

Governments privatise to achieve several objectives, one of which - present in almost all privatisation plans - is the development of financial markets. Our research aimed at analysing to what extent privatisation can actually achieve a goal of this kind, and what effects privatisation can have on:

1. financial markets development

2. financial markets integration

3. stabilisation of financial systems

These relatively generic labels can be further specified as research objectives, as follows.

a) Privatisation and financial markets development

To tackle the issue of financial markets **development**, it seemed necessary to define objective measures of financial development and establish a methodology to evaluate empirically the impact of sales of privatised firms in this respect. Privatisation obviously increases market capitalisation, but the point is whether privatisation improves market "quality", which we define as a combination of market *liquidity* - a notion that lends itself to several meanings - and its *efficiency*, with significant effects on other listed companies. The definition of a common methodology is itself a crucial step of the analysis, and its development should be based on the more recent achievements of the theoretical literature.

One of the objectives of privatisation is to develop securities markets and modify prevailing ownership structures. British sell-offs for instance were explicitly designed to target this objective; sales have therefore been implemented by large public offerings at prices below "normal" equilibrium levels (underpricing). Many other countries followed the British path: France and Italy in Europe, China, Japan and Indonesia in the Far East, Egypt in Africa - just to mention a few countries - have opted for public offerings in the majority of the placements.

In this respect, the British privatisation program has probably been successful, but overall evidence seemed to be mixed: it was not difficult to find examples of countries where massive privatisation did not cause significant improvements in market breadth and liquidity, or major changes in prevailing ownership structures.

Against this background, the first objective of the research project was to provide answers to the following question:

- How did privatisation influence domestic financial market development of the European Union (EU) and of Central and Eastern European Countries (CEEC)?

At least two streams of literature were relevant. The first one deals with the decision to go public, while the second one analyses the determinants and effects of market liquidity.

On the first point, while there are numerous theoretical reasons to go public, even some of the most careful empirical analyses on the topic provided only partial support to the theory. For instance, Röell, (1996) stresses how information dissemination, liquidity of the stock and increasing competition are advantages of stock market listing. However, the analysis by Pagano *et al.* (1998) on the Italian case indicates how many theoretically relevant indicators are not empirically significant, while a higher market-to-book ratio – a parameter whose interpretation is not obvious – is a key determinant of the probability to go public. Furthermore, striking cross-country differences still remained.

A second relevant stream of literature tries to assess causes and consequences of financial markets development. One first difficulty was that the concept of financial market development is ambiguous; there are numerous possible indicators, and the causes of development can be various. Pagano (1989), for instance, emphasised the nature of stock markets as markets where co-ordination between firms is crucial to determine market quality and liquidity; furthermore, market thinness and volatility are strictly correlated, with the existence of network externalities as a key factor.

From the theoretical viewpoint, the issue to be analysed could fit quite well with part of the existing literature. For instance, the existence of multiple equilibria naturally leads to the question of equilibrium selection. A privatisation plan aimed at increasing market capitalisation and turnover will probably drive towards "good" equilibria, inducing more firms to list and more investors to enter the market. However, flooding the market is also a possibility, and the trade-off between the two tendencies should be analysed.

Another aspect that seemed to deserve attention is that the development of financial markets particularly in transition economies has sometimes been slowed down by an insufficient development of the regulatory structure (the Czech Republic was a clear example of this type of problem). The process of liberalisation and privatisation in some transition countries had not been supported by sufficient market-oriented institutional reforms, causing market distortions and weaknesses of these economies. The legal underpinnings of sound finance have been pointed out by the literature on the theory of corporate governance (La Porta et al. 1997, 1998; Modigliani and Perotti, 1999), which starts from the straightforward remark that the law governs financial markets, ensures investors protection and the transparency and fairness of transactions.

b) Privatisation, cross-listing and financial markets integration

Turning to financial markets **integration**, the process of integration of stock markets around Europe is very advanced, and it was considered interesting to see to what extent privatisation – that often entails selling the firm directly on foreign stock markets – could help or hinder such process, depending on its actual development. Since the mid Eighties, a massive wave of privatisation by international equity offerings greatly contributed to the globalisation of security markets (Asher, 1996). Among the 650 major public offerings of the same period, about 150 involved an equity issue on non-domestic markets; aggregate government revenue from international placements was approximately US$ 52 bn at the privatisation date.

This raised a second objective of the research project, i.e. to answer the following questions:

• Which are the causes of the cross-listing of privatised stock? Did privatisation via cross-listing favour financial markets integration in Europe?

The theoretical background for this part hinges on the limited literature on stock market competition and on the one on cross-listing.

Gehrig, Stahl and Vives (1996) argue that localised information may continue to fragment portfolio investment decisions and hence the derived trading in information sensitive securities (stocks and their derivatives) as long as transaction costs (market access) in trading are significant. Moreover, typically the single exchange equilibrium may not even be Pareto-optimal (typically, multiple equilibria arise). Furthermore, the industry shows features of vertically differentiated markets, which implies a rather strong tendency towards concentration with one dominant high quality exchange and a number of regional exchanges.

Gehrig (1999) argues that technological progress may ease foreign access to standardised information (balance sheets, prices) about national stocks and trading. On the other hand, demand for complex local information can also be stimulated: intermediaries selling this information respond by increasing their (costly) networks of international representatives. A reduction of transaction costs might lead markets closer to the frictionless paradigm and hence render differences in information and access costs irrelevant. Probably, this argument only applies to the limit and the more interesting issues arise for small but discernible frictions.

Cross-listing had been typically analysed as a way to explicitly connect competing markets. Huddart *et al.* (1998) and Fuerst (1998) analyse cross-listing to examine how disclosure requirements – defined as precision of information – affect listing decisions. The main – rather optimistic – result is that cross-listing induces exchanges to engage in a "race for the top" in which disclosure requirement increase and trading costs fall.

From an empirical viewpoint, the inception of trading on the London SEAQ International section of Italian stocks actually increased the trading volume of the Milan stock exchange (Pagano and Steil 1996), and similar results were found for Belgium by Anderson and Tychon (1993). This is a crucial issue, in that cross listing of firms is also an important way in which a country can borrow the reputation of more developed stock

markets; whether competition between stock markets helps, or whether some co-ordination is preferable is an open issue that we wanted to address.

Evidence on the effects of cross-listing was mixed, and indicated that foreign firms listing in the US seem to benefit from this decision, and this benefit seems to be "proportional" to the gap between the two markets in terms of regulatory strictness; on the other hand, US firms do not enjoy the same result. This apparent asymmetry against European market appeared as a potentially crucial point of the analysis.

Cross-listing was also seen as a potential determinant of a win-win solution, causing indirectly an improvement in the efficiency of domestic financial markets. Cross-listing could therefore be an important tool in the transitional phase, fostering stock market development and integration. Our project proposed to study how privatisation fits in the analysis, both in theory and empirically. If one of the objectives of privatisation is the development of domestic financial markets, the resort to cross-listing appears to be puzzling, since a proportion (often large) of the issue will be traded abroad. There are nevertheless several arguments to reconcile this choice with the general objectives of a privatisation package.

(i) due to various reasons, the absorption capacity of the domestic market may be limited; if governments are forced to sell by financial constraints or by the urge of structural adjustment, they may opt to issue a fraction of the stock abroad.

(ii) if foreign investors are considered valuable but they are reluctant to step in, cross-listing allows to by-pass that reluctance and attract foreign investment.

(iii) as previously shown, both in terms of revenue maximisation at the IPO stage and at seasoned offers, but also for efficiency reasons, it is generally better to have shares traded in liquid markets; the cross-listing of shares is certainly a possible strategy in that direction.

(iv) when markets differ in their regulatory environment, regulatory strictness may enable foreign governments owning high profitable firms to credibly convey the information concerning their future prospects. It has been shown theoretically that this increased exposure might be more than offset by higher prices. (Fuerst, 1988)

On the other hand, it was recognised that the path towards financial integration is maybe inherently "rocky" because:

(i) the level of transparency – and as a consequence financial markets development – is endogenous with respect to the identity of the "dominant" investor, which in turn determines prevailing corporate governance structures.

(ii) the identity of the dominant investor (bank v. institutional investors v. individual investors) greatly varies across European countries. Indeed, we find bank-dominated systems, systems where markets play a greater role, along with mixed situations, in which markets are infant, but with a great potential for growth. European legislation will be therefore influenced by the political power of non homogenous national interest groups.

c) Privatisation and financial sector stabilisation

As for **stabilisation**, several analyses stress that one of the main determinants of privatisation is the desire to tackle problems of fiscal imbalances. Privatisation has been indicated as a key way to signal the market that an inflation-prone Government wants to pursue a more market-oriented policy, to reduce public intervention and to favour fiscal and financial stabilisation. Privatisation has been widely used both to tackle problems of public budgets and hence to help policies of macroeconomic stabilisation. This has been true in several EU countries (Italy in particular) but seems particularly crucial in Central and Eastern European Countries, whose transition towards a market economy and possibly an enlarged European Union requires both the strengthening of the private sector and the financial stabilisation of the macroeconomic system.

An objective of the proposed research project was thus to explain how privatisation – especially in CEEC – can help the effort to achieve macroeconomic and financial stabilisation. This problem has been raised – for instance – by the 1998 Transition report of the EBRD, which stresses how several transition economies still have significantly underdeveloped financial sectors that are failing to deliver crucial services to the real economy. The privatisation of banks – and of financial institutions – is a crucial step in the transition. On the one hand, since systemic risks associated with bank failures forces governments to intervene in bail-outs, it is necessary to implement ownership changes that help to provide bank manager incentives not to indulge in too risky activities. On the other hand, as indicated by EBRD, bank privatisation limits the discretion of governments in the allocation of credit, providing a framework for better investment decisions and making regulatory oversight more credible. Furthermore, privatisation is also expected to improve productivity at the level of individual bank with the introduction of better monitoring.

The key aspect is the relationship between privatisation and policy credibility. Privatisation – whether or not directly related to financial institutions – reduces the ability of a Government to directly affect economic system. This may thus affect the credibility of a Government's commitment not to intervene in the economy at a later date. This effect on credibility – under the conditions explored in the theoretical analysis – can also be tested, regressing appropriate indices of political risk on variables measuring the progress in the privatisation process. On the basis of the previous comparison (and parallel to it) we aimed at comparing policies pursued in EU countries with the strategy of CEEC, in order to identify common factors and peculiarities.

2.2 Reorientation

The progress of the work pointed out that there was very little need of re-orientation of our initial research project. The main point worth mentioning is the following.

The original project stressed quite a bit the debate between bank-oriented and stock-market-oriented systems, and the crucial role of bank privatisation in the process of transition to the market by economies previously based on central planning. The more recent development of the process in our view has indicated that

a) many of these economies have very rapidly accepted a more market oriented approach, apparently converging towards a mixed model where both the banking system and the stock market play a role

b) the attempt of these economies to enter the EU has largely shaped their policy, changing their overall approach and reorienting the policy debate.

The result is that the financial development of transition countries has become less "typical", leaving policy credibility as the main remaining issue. Political uncertainties and cycles in the implementation of the declared policies have become more central, and this is the reason why our focus on the last point decidedly shifted towards the politico-economic determinants of credibility creation (and destruction).

2. Scientific description of the project results and methodology

The PFM project has been articulated in six work packages (WP):

1. **Privatisation and domestic financial market development: theory**
2. **Privatisation and domestic financial market development: evidence**
3. **Privatisation and financial market integration: theory**
4. **Privatisation and financial market integration: evidence**
5. **Privatisation and financial sector stabilisation: theory**
6. **Privatisation and financial sector stabilisation: evidence**

WP1 Privatisation and domestic financial market development: theory

The first work package (WP1) aimed at: (i) providing the theoretical foundations of the empirical analysis; (ii) establishing the more appropriate measures of financial market development; (iii) modelling the channels through which privatisation could affect these measures. To achieve this objective, it has been subdivided in three main tasks.

TASK 1. Theoretical foundations of the analysis

The rapidly growing literature on privatisation has addressed many key questions, such as the improvement of the economic and financial performance of divested firms. More generally, privatisation programs are known for their direct implications on incentives, productive efficiency and industrial organisation. The theoretical contribution of this part of the project is particularly original, because it shows that, even if privatisation had none of these direct implications, it would not be neutral because of indirect general equilibrium considerations, which emerge when the interdependence between different economic agents and between different markets is duly accounted for. As a consequence, unlike most of the existing literature, the theoretical contributions of this part of the project do not initially impose assumptions on a lower productivity of the public sector to justify the transfer of assets from the public sector to the private one (this assumption would make a proof of the efficiency of privatisation "too easy"). Besides, State-owned firms often have to show that they are competitive before being sold to private agents; that is another reason why we will assume that they act competitively and have reached the same technology as private firms.

Within this framework, several original theories have been developed, tackling the effect of privatisation on risk diversification, both from the investors point of view and

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from the Government's point of view, adopting complementary approaches which consider intertemporal choice issues as well.

1.1 Risk-sharing and optimal privatisation design

This section aims at explaining why and how privatisation may have an effect on risk-sharing. The simplest way to tackle this issue is to quote the famous proverb saying that nobody should keep all its eggs in one basket: the investors' view is that privatisation may be considered as a new « basket »; symmetrically, the governments view is that privatisation revenues may be considered as new « eggs ». In more economic terms, because different assets have different distributions of returns, privatisation is a way of allocating risks across members of the economy. The paper by Bosi, Girmens, and Guillard (2001) illustrates this intuition, thanks to a theoretical model.

A first basic financial mechanism is a diversification effect (the « basket story »): if the returns of the stocks of newly privatised firms are imperfectly correlated with pre-existing ones, individuals (who dislike risk, by assumption) will be interested in this new diversification opportunity; other things equal, they decrease their demand for all pre-existing private assets (including their own), to increase their demand for privatised assets.

If, thanks to the privatisation revenue, the government acquires a diversified portfolio of assets (as we will see, such a policy allows to insure future public spending), the diversification effect is supplemented by a demand effect (the « eggs story »): the demands expressed by the government for a diversified portfolio mechanically increase the price of private assets and thereby their supply.

In some cases, these financial mechanisms may have real consequences, in the sense that privatisation may have an effect on variables such as consumption levels or welfare measures. Suppose for instance that - initially - future public good provision is not perfectly insured, that the size of the public sector is initially too high compared to the desired amount of public good, and that there is no tax system at all. This is of course an extreme assumption, but it helps to understand what happens in countries where the tax system is distortionary or known to exhibit some inefficiencies.

In this context, there is always an *optimal* privatisation mix, optimal in the sense that it allows the economy to reach the most favourable state, in terms of welfare. What is the composition of this optimal privatisation mix? First, *some distribution of free shares* of the privatised assets allows to adjust the size of the public sector to the desired amount of public good. Second, *some share issue Privatisation* (SIP), whose revenues are invested in a diversified portfolio, allows to secure future public good provision. In other words, this part of the optimal policy consists in a government's portfolio reallocation: without efficient taxation, the government itself should not keep all its « eggs » in one « basket ».

The simultaneity of voucher privatisation and SIP is not unrealistic. Both types of privatisation have been implemented in some countries, for instance in Poland, Hungary, Slovakia and Romania. The investment of privatisation revenues in a diversified portfolio of private assets is also realistic. For instance in France, receipts from the savings banks privatisation and from the privatisation of spectrum rights (sale of licenses for mobile

phone) are directed to retirement reserve funds. The debate is still open, but the government recognises that the need of better returns diverts these funds towards the stock market. The US and Canada are also equipped with such retirement reserve funds, which are partially invested in the stock exchange.

1.2 Privatisation and crowding-out effect

In the previous section, we have presented a channel through which privatisation may affect financial market development. This channel is based on the single role of financial markets in providing insurance opportunities for risk averse agents. But financial markets also facilitate such inter-temporal choices as saving and investing. In this respect, this section will explicitly take into account saving and investment decisions.

In this respect, the paper by Girmens and Guillard (2002) proposes a new theoretical model, in order to connect privatisation, private investment and financial market development, still in a context of incomplete risk diversification. So, taking explicitly into account consumption-saving and investment decisions, we should be able to answer the following questions: (i) how does privatisation influence financial markets, taking into account both insurance and intertemporal issues; (ii) does privatisation lead to a decrease or an increase in private investment? The answer will depend both on intertemporal substitutability and on risk aversion, two distinct aspects of preferences. The level of intertemporal substitutability is a measure of the desired "consumption smoothing" across different dates, whereas the level of risk aversion is a measure of the desired consumption smoothing across different uncertain, risky states, at a given date.

With risk neutrality (agents only interested in expected consumption, not in consumption smoothing across alternative states) but imperfect intertemporal elasticity of substitution (agents interested in intertemporal smoothing), privatisation leads to an increase in interest rates, itself reducing capital accumulation by private firms. This is basically a crowding-out effect: an increase in the supply of public assets on financial markets (in this case, an increase in risky public assets, through the increase in privatisation), leads not surprisingly to an increase in interest rates, thereby reducing private investment.

This is an interesting result, because the crowding-out effect is a well-known phenomenon when an increase in public spending occurs through public borrowing: this leads to a decrease in private investment, because of an increase in interest rates. Public and private needs are indeed competing on a financial market whose capacity is limited; an increase in interest rates allows the adjustment; as a result, because interest rates represent the cost of capital for private firms, private investment decreases.

In other words, if crowding-out effects have been extensively studied in the case of public borrowing (an increase in the supply of risk-less assets), we emphasise it here in the case of SIP (an increase in the supply of risky public assets).

However, this result is established in the case where the appearance of the crowding-out effect seems most likely, i.e., when the revenue of privatisation is devoted to present public spending. What happens if privatisation revenue is used to reduce public debt in

this context (risk neutrality and some intertemporal complementarity)? The answer is straightforward: without risk aversion, if an increase in the supply of risky public assets (i.e. an increase in privatisation) compensates a decrease in the supply of public risk-less assets (i.e. a decrease in public debt), the crowding-out effect simply disappears!

In contrast, with risk aversion but perfect intertemporal substitutability a pure diversification effect appears, and private investment is increasing in the privatisation extent. Finally, when there is at the same time some risk aversion and some complementarity between present and future consumption, both crowding-out and diversification effects, as described above, will play. The question is: which one of these two effects dominates the other one, and under which condition(s)? In this case, crowding-out effects are likely to be more than compensated by diversification effects, simply if risk aversion is sufficiently high (relatively, i.e. compared to intertemporal complementarity). Vice-versa, the crowding-out effect dominates if risk aversion is relatively low.

At this point, the case where privatisation is used to reduce public debt (a case without crowding-out effect) has to be investigated in greater detail.

1.3 Privatising the production of investment goods

Finally, in order to complement our study of the link between privatisation and financial markets viewed as a way to facilitate intertemporal choices, a paper by Bosi and Nourry (2001) proposes a different framework, where the investment good is jointly provided by the Government and some private firms. Suppose for simplicity that there are two sectors in the economy, one producing a consumption good, another one producing an investment good, and that there are two kinds of firms producing the investment good, a proportion P being private, whereas a proportion 1-P is State-owned.

This situation is interesting, because the case where the Government controls the vast majority of investment good purchased in a country is not unrealistic. There are number of examples where governments restrict imports of investment goods and then make state-owned enterprises produce them domestically. Egypt, but also India and Turkey are characteristic of such a policy. Nevertheless, there is not much research examining the aggregate consequences of production by state-owned enterprises.

The underlying theoretical model is relatively complicated, but a basic intuition is the following. As justified in the introduction of this note, suppose that both private and public firms use the same technology. In this configuration, the only effect of a modification in the privatisation level lies in the use of the dividends of these firms. We can indeed reasonably assume that the government uses dividends allocation as a particular instrument for economic policy. For instance, dividends can be distributed by the Government in a way that encourages private savings, resulting in a higher level of savings than in a pure market allocation.

Generalising this, remembering that capital accumulation (investment) is the counterpart of private savings, we can have a situation where the level of the aggregate capital stock decreases (and the interest rate increases) as the proportion of investment firms owned by private agents increases. Moreover, suppose that we are in a case where the capital stock is

initially below its optimal level. In this context, privatisation has a negative impact on the welfare level of the individuals, because the capital level goes away from its optimal level when the level of public ownership is decreased. This striking example simply shows that if governments use state-owned enterprises dividends in a way that drives private savings and thereby the capital stock towards its optimal level, privatisation is not necessarily an appropriate policy.

In other words, if the firms partly owned by government are as efficient as private firms, and the government really cares about agents' welfare, it can implement policies that improve this welfare level, without resorting to privatisation. Thus, the general idea about the improvement of the welfare through privatisation is actually linked to the fact that firms where government is a partial owner are less efficient, or to the goal aimed by the State.

In this respect, within this line of research, it is of great interest to study the effects of privatisation for different dividend redistribution policies the Government could choose, to investigate whether a debt financing policy would give different results, and to compare our analyses to the case where government owns shares of the sector producing the consumption good.

TASK 2. Measuring financial market development

One reason for governmental support of privatisation programs has been stock market development. But which is the most appropriate way to measure it? Several indicators have been set forth in the literature, such as the increase in the number of listed companies, in market capitalisation and in *market liquidity*.

The research group felt that liquidity is a key measure for three interrelated reasons. First, investors care about market liquidity rather than size, because it has a direct impact on their trading profits. For instance, sell orders in a thin markets decrease both asset price and the sellers' revenues. As a consequence, companies also care about liquidity rather than size of the secondary market because liquidity affects the cost of raising equity capital. Investors are willing to pay a higher price for a stock issue if they expect a more liquid market, where prices are less volatile and/or orders are easier to execute. Second, some theories link the size of a stock market to its liquidity, which is modelled as a public good, which subject to the usual underprovision problem (i.e., equilibrium production of public goods usually lies below its optimal level). Therefore a welfare improving increase in stock market size obtains when liquidity increases. Finally, economic welfare and growth are often related to the informativeness of stock market prices, i.e. to their ability to convey correct information about firms' future profitability. This, in turn, is associated to market liquidity rather than size because financial analysts' profit are too small in a thin market.

There are several notions of market liquidity (or its opposite, illiquidity), which are summarised for instance in Kyle (1985). However the most widely used in theoretical

work are market depth – measure by the absolute price variation which one observes in response to an infinitesimal amount of "noise trading" - and the effective bid-ask spread. Market depth is related in a simple way to excess returns over the risk free-rate. These two notions are associated with different trading structures, market depth relating to auctions (Grossman and Stiglitz, 1980; Kyle, 1985) and the bid-ask spread to dealer markets (Biais, 1993; Dennert, 1993). The determinants of illiquidity are however very similar and relatively independent of the way we measure it, and we explain them below.

The first one is order processing costs that are associated to the trading mechanism, which is in turn related to trading technology. Recent innovations have made possible internet trading with remarkable savings in such costs.

Another component of liquidity reflects non-diversifiable risk which is borne by speculators and dealers, that is to say by the counterparts of the "noise traders". The former are profit maximisers who buy when the expected future asset value exceeds the current price - taking risk in due account. Dealers also fill excess demand and supply, if they act as market makers. On the contrary, noise traders submit orders for reasons relating to portfolio re-balancing, life-cycle needs, stop-loss strategies etc. Their buy orders are not necessarily associated with an asset that is expected to appreciate, and vice versa. They are ready to pay a premium to other investors in exchange for liquidity provision, because this amounts to taking on more risk. The higher the variability of future asset value conditional on available information, the higher the premium charged by risk-averse speculators and by market intermediaries in order to satisfy the liquidity needs of noise traders. Such premium is therefore affected by publicly available information, which helps reducing the conditional variability of asset payoff. Risk is priced only if it is non-diversifiable, and its price is proportional to the riskiness of the market portfolio, as taught by CAPM. It follows that changes in the composition of the market portfolio translating in improved diversification opportunities increase market depth.

A third component of illiquidity has to do with the likelihood of information trading (Glosten and Milgrom, 1985, Kyle, 1985). The higher such likelihood is, the higher the premium that the less informed speculators (or dealers) charge to noise trading for participating in the trade. The reason is that they anticipate to lose on trades with the better informed investors, and therefore transfer such losses onto the noise traders whose demand/supply of stocks is assumed to be relatively inelastic. Both analysts and insiders are better informed traders. Enforcement of insider trading regulation may reduce the adverse selection component of the spread, provided that the information produced by analysts is not a substitute of the insiders' foreknowledge.

Finally, liquidity is affected by competition among stock exchange intermediaries. As the number of dealers increases, the premium charged to liquidity traders falls because each dealer tries to undercut the others (Biais, 1993). If there is asymmetric information in the market, however, this need not be the case because informed speculators better mask their trades by splitting up orders among the intermediaries, who become more exposed to adverse selection losses and charge higher costs to noise traders (Dennert, 1993). In the limit, competition may lead to a market breakdown (Glosten, 1989).

The above mentioned papers consider the number of investors and risk-sharing opportunities as exogenously given. In Pagano (1989) liquidity is instead linked to the endogenous number of investors who decide to enter the stock market. Having uncorrelated liquidity needs, they could provide insurance to each other against adverse price movements associated to waves of sell orders. These adverse price movements are in turn associated to higher risk bearing by those who buy. However, the number of investors and the consequent liquidity can be lower than optimal in equilibrium because each trader generates a positive externality for other investors by decreasing stock price volatility, which in turn attracts more traders. However, if one investor expects low volume of trade she will abstain from entering the stock market. Thus the market may be trapped in a low liquidity state.

A similar story can be told from a supply- side perspective (Pagano, 1993). Initial public offerings generate an externality because they increase diversification opportunities for market participants. However, IPOs may be lower than optimal because each entrepreneur bears the full listing costs but does not internalise all the diversification benefits. In such cases a reduction in listing costs may be liquidity and welfare improving, with a multiplicative effect on stock market size.

Market participation may be limited not only by co-ordination problems but by pure informational problems as well, because investors may be willing to trade in the markets of stocks they know about, for example because they are able to evaluate asset risk (Merton, 1987). Home-bias and market segmentation are prominent examples of limited market participation by foreign investors.

The larger the number of participants in the market of any given stock, the better risk sharing may be and the lower the cost of raising capital in the primary market that firms must bear. Indeed, a larger number of market participants reduces the *per capita* risk to be borne, since the stock is shared among a larger number of investors. Therefore, the overall risk premium to be paid to for the stock to be absorbed by the market is lower, and consequently the cost of raising capital is decreased.

Another desirable feature of financial markets, besides market liquidity, is efficiency in stock markets, a theme which has attracted considerable attention. Urga (2000) provides an extensive survey of the literature on this topic.

The Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT) are theories that allegedly describe the structure of financial assets. They tell us how one should expect prices and expected rates of return on securities to differ when the securities differ with respect to their risk characteristics. In contrast, the concept of an efficient capital market, which has dominated the literature on financial economics since the 1960s, is more concerned with the precision with which the market prices securities in relation to its structure, whatever that structure may be.

Eugene Fama (1991, II) takes the market efficiency hypothesis to be the simple statement that security prices should fully reflect all available information. Sufficient conditions for capital market efficiency under the above definition are that: (i) there are no transaction costs in trading securities; (ii) all available information is costlessly available to market participants; (iii) all traders agree on the implications of current information for the current price and distributions of future prices of each security.

However, a frictionless market in which all information is freely available and investors agree on its implications is not a plausible description of existing markets in practice. Therefore, Fama (1991, II) employs a weaker and economically more sensible version of the efficiency hypothesis – first put forward by Jensen (1976) – which says that prices reflect information until the marginal costs of obtaining information and trading no longer exceed the marginal benefit.

The above definition of efficiency is valid because the three conditions, even though sufficient for market efficiency, are not necessary (though they render the extreme version of the market efficiency hypothesis false). As long as traders take account of all available information, even large transaction costs that inhibit the flow of transactions do not themselves imply that when transactions do take place, prices will not "fully reflect" available information; the market may be efficient if "sufficient numbers" of investors have ready access to available information. Therefore, transaction costs are not necessarily sources of market inefficiency, even though they are potential sources.

Instead, the main obstacle to inferences about market efficiency is that the hypothesis per se is not testable (Fama, 1991). It must be tested jointly with some model of equilibrium, an asset-pricing model. Thus, when anomalous evidence on the behaviour of returns is found, one cannot in general be sure of how much is due to attribute to market inefficiency or to a bad model of market equilibrium.

TASK 3. How does privatisation affect stock market development?

3.1 Privatisation externalities

The ground for theoretical research on the relationship between privatisation and stock market development is the idea that - besides the direct effects - privatisation share issues have on the deepening and broadening of securities markets, there exists some *indirect* influence (an "externality") that contributes to the development of those markets to a large extent. The existence of this externality is justified by the fact that the immense increase in market capitalisation in many emerging economies, that happened in the same period as the privatisation process, substantially exceeded the raise of stock market capital from privatisation issues.

One possible intuition for this fact is the following. New entries into the stock market may provide investors better possibilities for portfolio diversification and thereby have a qualitative impact on the opportunities provided by the stock market; this in turn has a positive effect on the size of the market. The development or stagnation of stock markets can arise as a result of a co-ordination success or failure among agents that might enter as investors or issuers. Following this idea, privatisation can be a means for the government to induce new entries to the stock market thereby enhancing its development.

Pagano (1989 and 1993) formalises this type externality argument in a model where participation externalities might give rise to co-ordination failure among investors or firms issuing equity. On the one hand, there is a feedback from stock market volatility and liquidity to investors' expectations and entry decisions. Thin stock markets described with high risk and a small number of participants might remain thin and highly volatile in the

future because of self-fulfilling expectations of potential entrants, formed on the basis of previous history of the market. On the other hand, the number of firms floating shares on the stock market has an indirect effect on other firms' decisions about going public. Expectations will influence the behaviour of potential entrants to a large extent. When only few firms are expected to seek floatation, diversification possibilities and therefore the demand for stocks remain limited, which implies that floatation will be unattractive for others. Under certain circumstances, these feedback mechanisms can produce multiple equilibria in strategic decision making by potential investors/issuer companies. Participation in the different equilibria is positively correlated with market depth (market size, stability of prices, risk sharing opportunities).

In the model describing investors' behaviour (Pagano 1989), every additional trader in the stock market generates a positive externality for other traders to enter by decreasing market volatility. A raise in the number of investors results in increasing prices and lower expected returns, which induces firms to issue more equity and brings about an increase in market size. In the presence of transaction costs, however, the existence of this positive feedback becomes ambiguous: individual investors might have no incentive to enter even though as a group they would benefit from doing that.

In the presence of transaction costs, the interaction between thinness and price volatility might produce *multiple equilibria*: some equilibria can be characterised by a small number of transactions and high volatility while some others display a larger number of trades and very little volatility. Which equilibrium occurs in a particular market, depends on agents' expectations: in the presence of transaction costs, when expectations are self-fulfilling type, high liquidation costs will keep agents out of thin markets, which preserves market thinness and high volatility. If the ground for expectation formation is not past history, many traders may decide to enter into a small size market and consequently, the high trade and low volatility equilibrium might arise.

From the social welfare point of view, the "high-trade" equilibrium is clearly superior to the "low-trade" one. Incentives can be created to shift the economy to the more efficient equilibrium, but the adjustment process would be such that investors entering the stock market early might suffer losses. Government intervention is therefore necessary to implement those incentives.

In the model describing the flotation of companies on the stock market (Pagano 1993), the externality arises because every additional new listing enhances risk sharing opportunities. If there exist imperfections in the capital markets (borrowing constraints or flotation costs), besides each participant gains from further risk sharing as a consequence of an additional entry, each has an incentive to go public. Under such circumstances, each additional listing affects incentives of potential entrants. Therefore, the positive externality gives rise to the potential of multiple equilibria: depending on agents' expectations about the behaviour of others, several equilibria might arise with different number of floatation. In a thin market, if expectations are based on past history, only few new listings will occur and the market will be trapped in stagnation. If agents believe that a large number of new listings will occur, they will benefit from floatation themselves.

As in the previous case, the resulting equilibria can be ranked, the higher number of public issues being Pareto-superior. Government intervention might create incentives to

adjust expectations of potential issuers such that the superior outcome prevails, market capitalisation expands and more trades take place.

Where stock markets are at their low level of development, privatisation might serve as a means for the Government to prevent that sub-optimal equilibria occur. Through a sustained privatisation program, the government can ensure appropriate number of issues such that every potential investor and each firm that might go public expect a large number of other participants to enter the stock market, as a consequence of which an equilibrium with high number of trades and many-listings can arise.

There are two more additional potential channels for privatisation to affect market liquidity: (i) enhanced participation by foreign investors, and (ii) enhanced participation of domestic investors.

As to (i), we shall argue that privatisation, particularly of companies whose technology is subject to innovation processes which are developed internationally (like, telecommunications and public utilities), contribute to stock market development by fostering foreign investors participation:

a) in the market of the security backed by the privatised company; and possibly

b) in the markets of other securities (i.e. backed by firms other than the privatised company).

Clearly, if b) occurs then necessarily firms' cost of raising capital decreases. Indeed, b) translates into mitigation of home bias with the direct effect of attaining better sharing of the risk originated by domestic firms. But can b) occur?

Successful privatisation will be those that are priced in order to provide incentives to costly information acquisition, so that it is incentive compatible for investors to acquire the information needed to evaluate risk and hence buy the security in constructing portfolios. Information externalities stemming from the fact that firms belonging to any given country are subject to common risk factors, will induce market participation according to both a) and b). Clearly, the lower the cost of information acquisition, the more likely that this occurs. This should then be particularly true for telecommunications and public utilities and more generally for companies whose technology is subject to internationally developed innovation processes and as such (at least, partly) known by the international business community. Basically, for these companies, the *a priori* unknown element is country risk and the knowledge of this facilitates participation in the markets of other securities (i.e. backed by firms other than the privatised company).

But even if the effect of privatisation is to foster foreign investors participation only in the market of the security backed by the privatised company, there will be a reduction in the cost of raising capital also of those firms whose securities are used only by domestic investors (domestically owned companies). This result follows because foreign participation in the market of the security backed by the privatised company, reduces the per capita risk to be borne by domestic investors, the demand for risky assets backed by firms whose investors' base is domestic then shifts upwards, the price of these securities increases and hence the cost of raising capital falls. One should observe a positive correlation between the stock price of domestically owned firms and that of privatised companies around events that foster foreign

investors' participation (e.g. a formerly State-owned company entering an international stock index, or being marketed abroad).

As to (ii), namely enhanced participation of domestic investors, the benefit accruing to an investor from market participation is higher the larger the variety of assets that can be traded. If market participation is costly, an investor will choose to participate if benefits exceed costs. Then, the larger the variety of assets that can be traded, the higher the number of market participants, the higher the equilibrium assets' prices and the lower is firms' cost of capital.

When the company is State-owned, domestic investors are the ultimate holders of the firm and its risk is ultimately borne entirely by them, but it cannot be traded. By contrast, when the firm is privatised, such claims can be traded, the risk allocation is determined by value-maximising choices and the benefits of (costly) market participation increase. Privatisation will then enhance market participation, whenever this is costly, at least for a subset of agents.

3.2 The role of financial regulation

Another aspect that deserves attention is that the development of financial markets (particularly in transition economies) has sometimes been slowed down by an insufficient development of the regulatory structure. Countries that have balanced privatisation and liberalisation with deep institutional reforms have been more resilient to recent global pressures. But the rapid progress of liberalisation and privatisation has not been supported by sufficient market-oriented institutional reforms, causing market distortions and imbalances which have created vulnerability and made a turmoil more likely. As professor Nick Stern, Chief Economist at the EBRD, pointed out, the stability and growth of an economy require markets with competition and financial discipline and require private ownership protected by effective corporate governance and the rule-of-law.

The legal underpinnings of sound finance have been forcefully pointed out by the recent literature on the theory of corporate governance (La Porta *et al*. 1997, 1998; Modigliani and Perotti, 1999), which starts from the straightforward remark that the law governs the practices of financial institutions and markets, ensures the protection of corporate investors and the transparency and fairness of transactions. In this direction, the project also aims at collecting information about the core principles of financial law and how they are implemented in different jurisdiction, with the aim to find possible causality relations between the legal underpinnings of financial systems and the outcomes of privatisation.

Bagheri and Nakajima (2002a) have addressed these issues combining the liberalisation of financial markets and the emergence of a co-operative framework for regulation of global financial markets. As part of financial markets developments the optimal level of regulation and regulatory reform seem to be an undisputed objective in the face of more privatisation and liberalisation. However, in the context of financial regulation there are differences and disagreements over the optimal level of disclosure of information and capital adequacy standards. In this paper, instead of offering a substantive solution, the authors argue for an international competitive process through which the optimal level of disclosure of information and capital adequacy standards are likely to emerge. The solution, which they suggest, consists of an international framework combining competition and co-operation

among national regulatory regimes. They identify WTO/GATS as such a framework, which facilitates both regulatory competition and regulatory co-operation. The ultimate outcome of this integrated process, which simultaneously emphasises liberalisation and regulation of financial markets is the emergence of an optimal level of financial regulation.

WP2 Privatisation and domestic financial market development: evidence

The second work package (WP2) aimed at: (i) constructing datasets on privatisation and financial market development indicators; (ii) verifying empirically the implications of the models developed in WP1 in a large cross section of countries; (iii) implementing country studies to evaluate the fit our results in national economies. To achieve this objective, it has been subdivided in three main tasks.

TASK 1. Data collection

Our main source for privatisation data is *IFR Platinum* of Thomson Financial Corporation, a leading global provider of information services to the financial and corporate sectors. Our data. This source reports qualitative and quantitative information about all major privatisation deals occurred from 1977 to date in all main areas of the world (more than 150 countries).

Our main source for financial data has been Primark Datastream, also from Thomson Corporation. From these sources, the following series have been retrieved:

Daily series of the prices, capitalisation, and volumes of trades of Datastream Index for all more developed economies (OECD) from 1985 to 2000.

Daily series of prices, capitalisation, and volumes of trades for all privatised companies in all more developed economies (OECD) from 1985 to 2000.

By crossing the two data sets, we have constructed the following aggregate series based on daily data at the country level:

Variable	Definition
AMIHUD INDEX	Absolute change in price to trading volume
TURNOVER	Ratio of total value of trades to total market capitalisation
NONPRIV_AMIHUD	Absolute change in price to trading volume of non privatised companies
NONPRIV_TURNOVER	Ratio of total value of trades to total market capitalisation of non privatised companies
PRIVANUM	Ratio of the number of privatised firms to the total number of firms quoted on the market.
PRIVAFLOAT	The value of the free float of privatised firms scaled by total market capitalisation

PRIVABROAD	Sum of the capitalisation of privatised companies listed at home and in one or more than one foreign exchange, scaled by total market capitalisation
PRIVATLC	The sum of the capitalisation of privatised companies in the telecommunications,
PRIVAENR	The sum of the capitalisation of privatised companies in the oil and gas, electricity generation sectors
PRIVAUTL	The sum of the capitalisation of privatised companies in the utility (gas and electricity distribution, transports, water and sewerage)
PRIVASECT	PRIVATLC + PRIVAENR + PRIVAUTL
VOLATILITY	Monthly average absolute return
CAP	(US dollar) total market value
EU92	Dummy variable taking the value 1 from 1-1-1992 onwards, and zero otherwise, for EU countries.
POLITICAL RISK	Country risk rating
INSIDER	Dummy taking the value one starting from the date of one country's first prosecution of insider trading

The datasets which have been constructed have been used by researchers from different country teams to perform joint work and empirical analyses, which are summarised below.

TASK 2. Privatisation and market liquidity: empirical analyses

The most important finding of this research task is that privatisation issues have a statistically significant *direct* effect on market liquidity besides the indirect effects associated with an increase in market capitalisation. Bortolotti *et al* (2002) have found that the Amihud illiquidity measure and the turnover ratio are significantly affected by the total value of the free float of privatised companies (PRIVAFLOAT): an increase in free float decreases illiquidity. A sustained privatisation program based on the floating of shares through a sequence of both IPOs and seasoned offerings appears to be a successful policy to increase the efficiency of the home market.

Increases in the capitalisation of privatised companies in the telecom, energy and utility sectors (PRIVASECT) also contribute to liquidity and to turnover. This effect should stem from improved investors' diversification opportunities. Industries characterised by large economies of scale were typically under state ownership before privatisation, so that privatisation enlarges the trading strategies and risk sharing opportunities available to investors.

When the telecom, utility and energy industries are separately considered in the estimations, the liquidity enhancing effect is associated only to telecommunications (PRIVATLC), while the effect of Privatisation in the utility (PRIVAUTL) and energy sectors (PRIVAENR) remains insignificant. Privatisation in telecommunication sector stand out for being critical in boosting liquidity measured by the Amihud index. The variable PRIVATLC (i.e. the share of the capitalisation of privatised TLCs) shows a highly statistically significant coefficient, which is also the highest in absolute value. There are three candidate explanations for this remarkable effect. First, a typically state-owned sector enters the market for the first time when Privatisation occurs, improving investors' diversification opportunities. Second, telecom SIPs in several countries have been explicitly designed to spread share ownership in the population. France Telecom and Telefonica are the typical example. Third, telecom firms are truly global stocks featuring listings in at least three continents. This lowers informational barriers and domestic risk bearing.

Bortolotti *et al* (2002) also study the liquidity effect of privatisation combined with foreign listings. The variable PRIVABROAD is strongly and significantly associated with illiquidity but not with turnover. This evidence again suggests that investments by foreign investors reduce risk bearing by domestic investors and the associated required risk premium- without affecting domestic trading volume.

The free float (PRIVAFLOAT) and Privatisation in the main sectors (PRIVASECT) have significant estimates in both turnover and illiquidity regressions. An increase in the number of privatised firms (PRIVANUM) – which captures the effect of Privatisation IPOs - affects turnover, but not illiquidity. Thus a sustained Privatisation policy based on IPOs appears successful in fostering market activity only. However, we are not able to find a rationale for the missing impact on the risk premium.

The control variables yield some interesting results. The effect of lagged volatility on ILLIQ is very strong, the elasticity being close to 2, with a *t*-statistic of 8 or higher. The estimates show a positive relation between volatility and illiquidity. A possible explanation for this correlation is suggested by the literature on market microstructure. More uncertain estimates of future returns command a higher risk premium for investors, thus translating in a stronger price impact of trade due to frictions such as inventory control and asymmetries of information. Turnover is also positively affected by volatility, confirming the well-known positive correlation between volatility and trading volume (Karpoff, 1987).

The size of the equity market, measured by the beginning-of-month market capitalisation in dollars (CAP), is an important determinant of liquidity for both the Amihud and turnover indices (with reverse signs). The estimates with the market value to GDP ratio give similar results. Notice that this is a time series effect: we measure the improvement in liquidity as the own market's capitalisation increases. This control variable captures the indirect effect that past Privatisation exert on liquidity by increasing beginning-of-month capitalisation.

Bekaert and Harvey (2000) and Henry (2000) argue that financial liberalisation leads to a lower cost of capital. A lower cost of capital can be associated with higher liquidity. In our regression analysis, the dummy variable for European countries after 1992 (EU92)

significantly affects both liquidity and turnover. This dummy may capture the combined effect of European capital market integration and the reforms taking place on capital markets. It suggests that enhanced competition leads to a significant improvement in stock market conditions.

The effects of the privatisation variables are robust to including the political risk measure. In the reported estimates we do not include the ICRG political risk measure itself but rather an orthogonalised measure, that we obtain as the residual of a regression of POLRISK on two privatisation variables (PRIVANUM and PRIVAFLOAT). With this transformation – aimed at avoiding collinearity among regressors - the estimated coefficient of the Privatisation variables includes the indirect effect of Privatisation on liquidity via an associated increase in the political risk measure. The political risk itself has a positive effect on illiquidity, and is significant at the 10% level. The significance of the political risk variable is in line with the findings of Perotti and van Oijen (2001). However, they also report that the direct effect of the privatisation variables on market development of emerging economies disappears when the control for political risk is included. In contrast, we still find an important and strongly significant direct effect of privatisation in our sample of developed economies, even when controlling for political risk. However, one has should consider that the two empirical models are hardly comparable, as we use stock variables, while Perotti and van Oijen instead flow variables.

Among the other institutional variables, only the enforcement of insider trading rules is significant at (or around) the 10% level. In line with the results of Bhattacharya and Daouk (2002) we find that enforcement of insider trading rules fosters market development, here measured by liquidity.

So far, we focused on the liquidity of the market as a whole. One may argue, however, that the increase in liquidity associated with Privatisation is simply a consequence of the higher liquidity of privatised firms. But does the effect of Privatisation on liquidity survive when only non privatised companies are considered? In other words, do we observe a significant spillover effect on the liquidity of private companies? This task addresses also this important question is described below.

Liquidity of non-privatised firms is measured as follows. The daily market value and trading volume of the non-privatised firms are obtained by subtracting the market value (trading volume) of the privatised firms from the total market value (total trading volume). This procedure is slightly inaccurate, because the total market value and turnover series refer to the constituents of the Datastream index, which does not always include all companies listed in the domestic market. On the other hand, privatised companies – which are often the largest and more actively traded companies in the market - are typically included in the index. We may then 'overcorrect' the total market value and total trading volume, ending up with too low values for the non-privatised firms. However, this possible bias would distort our empirical results against the hypothesis of a positive spillover effect. We therefore believe that the data available are suitable for this further empirical inquiry.

Using the newly created data, we construct daily return and turnover series, and from these we calculate monthly volatility, average turnover and Amihud's index, using the same definitions as before. We then estimate the regressions where the explanatory

variables are the same as before, but the dependent variables (NONPRIV_ILLIQ and NONPRIV_TURNOVER) now refer to the non-privatised firms.

Results show a strong spillover effect on the new Amihud index. The same privatisation variables and control variables matter, with coefficients that are of the same magnitude as the ones in the regression on aggregate liquidity. The only exception is the EU dummy, which loses instead explanatory power. We had previously interpreted this dummy as capturing the combined effect of liberalisation and financial market reforms. The current result casts doubts on this interpretation, because the effect should appear also on non-privatised companies. It suggests that market liquidity is especially affected by privatisation in EU countries because privatised companies in the EU were especially liquid themselves.

We find a weaker spillover effect of privatisation on turnover, with one regressor only - PRIVAFLOAT - maintaining a statistical significant coefficient. Thus privatisation seems to have a more marked effect on price impact rather than trading volume of non-privatised companies. The EU dummy does not again contribute to turnover, while the enforcement of insider trading appears especially important for increasing trading volume in non-privatised firms.

We conclude that our main hypothesis, i.e. that privatisation enhances market liquidity, is confirmed not only for the market as a whole, but also for the subset of non-privatised firms. Privatisation therefore has a strong spillover effect on the liquidity of other stocks. Higher post Privatisation liquidity is not simply driven by the higher liquidity of privatised stocks, but also by the structural changes occurring in the domestic market in the course of a sustained large scale Privatisation program. These empirical result are robust as they do not appear to be driven by reverse causality or affected by non-stationarity of the data.

TASK 3. Privatisation and financial market development: a case study on Greece

The empirical results that have been summarised in the previous section are extremely valuable as they are performed with the support of a very large dataset with more than 60.000 datapoints. However, the research group perceived as certainly important to complement this evidence with case studies. Indeed, cross country analyses have the advantage of comparing different situation, trying to draw lessons form the largest possible database; however, analyses of that type inevitably concentrate on "the big picture", leaving a lot of potentially important country specific details. In this direction, Greece has been selected as a particularly important country to check whether – considering all available national data – privatisation has been instrumental to foster financial development in a country with a relatively small stock market pre-privatisation.

Within this task, a complete Data Base of Greek stock market and privatisation data has been produced. This includes a full list of all the stock market indicators, data which is mainly provided by the Athens Stock Exchange and published in its annual and monthly statistical bulletin. This list was complemented by Privatisation data from Privatisation International. The two datasets provide input for the empirical work conducted for this project in order to evaluate the impact of Privatisation on the development of the domestic stock market and on other variables.

A descriptive report on the Greek stock market has been produced, providing a description of the institutional framework and the historical development of the domestic stock market, as well as a list of all major events that hit the Greek stock market from the date of the first privatisation. The aim was to obtain information on country–specific features and events that may impact financial market development and thus should be included in the relevant empirical analyses.

A large number of indicators and a descriptive statistical analysis for the Greek Stock Market and the privatisation process have been provided. Descriptive statistics were calculated for variables such as the general price index, the value of transactions, the market value of listed companies, volatility, traded volume, market capitalisation, the turnover ratio and the traded ratio.

Using these data, Likoyanni (2002) first reviewed quite extensively the theoretical literature on the issues related to the privatisation of network utilities, concentrating on the work of microeconomic theorists, and of empirical work of the impact of privatisations of telecommunications' network utilities (the case studies presented concern the privatisation of British Telecom, Compania de Telefonos de Chile, and Telefonos de Mexico).

Then, it describes the process of privatisation of public enterprises in Greece with particular emphasis on the most important of these, that of OTE (the largest Greek corporation in terms of assets and stock market value). An econometric model measuring the impact of the privatisation of OTE on the Greek financial market development was then estimated. The elasticity of T-TR (the mean of Turnover Ratio and Traded Ratio) which is used as an index of stock market development with respect to OTE Market Capitalisation equals 1.607423. This means that a 1% increase of OTE Market

Capitalisation will increase T-TR by almost 1.61%. The main result is that there is a positive and statistically significant impact of the changes of OTE Market Capitalisation. Also, this coefficient shows that T-TR increases more than proportionately as HTO Market Capitalisation increases. However the coefficient of the OTE - market capitalisation, whilst remaining positive, is not greater than one in all model specifications used.

WP3 Privatisation and domestic financial market integration: theory

The third work package (WP3) aimed at exploring theoretically the international dimension of privatisation, with special reference to (i) the causes of cross-listing of privatised stocks, and its consequences in terms of financial integration; (ii) privatisation and international asset trade; (iii) the role of financial regulation in achieving market integration. To achieve this objective, it has been subdivided in three main tasks.

TASK 1. Privatisation and foreign listings

With the integration of capital markets a trend towards multiple listings of securities in geographically separate markets can be witnessed world wide (Pagano, Roell, Zechner, 2000). In particular, an increasing number of non-US companies seem to acquire a New York listing. Likewise recently privatised companies, especially in the so-called transition countries, typically, seek a London or another European listing. Moreover, stock exchanges compete aggressively for domestic and foreign listings (Gehrig, Stahl, Vives, 1996), thus, fostering the integration of global financial markets.

It seems that the large scale of privatisation efforts did play an important role in improving the integration of global financial markets. The recent privatisation wave is characterised by a large and even increasing share of global share offerings. Bortolotti, Fantini and Scarpa (2000) find that in 1989 about one third of the initial offerings of privatised firms were global offerings with the ratio increasing to above 50 percent by 1997. Since 1989 the total number of global offerings of privatised stocks strictly exceeded the number of total offerings of such stocks in the prior period from 1977-1989.

But why may governments want to sell stocks in different geographic markets? Do governments actually want to issues stocks globally rather than purely domestically, and if so, under what conditions does this happen? Clearly, the general trend towards international cross-listings is a strong empirical evidence about the relevance of trading frictions in international markets. Accordingly, governments may want to reduce the impact by such frictions by global listings, or reap the role of frictions by concentrating their offerings to the domestic market. Therefore, international public offerings could be viewed as a driving force towards market integration in global financial markets alongside the reform of trading systems, the liberalisation of cross-border transactions and the harmonisation of global supervision.

Our research task has provided a theoretical framework to understand better the determinants of cross-listings of stocks and the contribution of cross-listings to international market integration. The main findings are summarised below

According to Bortolotti, Fantini and Scarpa (2000) between 30 and 50 percent of privatisations after 1989 have been international equity offerings. Why do we observe such a large number of international offerings? Why, on the other hand, do we also observe purely national offerings? From a theoretical perspective we first need to understand the differences in performance between single-listed and cross-listed stocks. How do these different listing modes affect price discovery, trading volume, and ultimately privatisation revenues for privatised stocks?

Along these lines Gehrig (2002) and Foucault and Gehrig (2002) argue that the listing decision does affect information aggregation in frictional (international) equity markets. While Gehrig (2002) argues that segmentation may be a natural reason for cross-listings, Foucault and Gehrig (2002) argue that cross-listings may even occur in the absence of segmentation because of strategic considerations of the companies' (prior) owners.

In the framework of Gehrig (2002), typically, investors with diverse pieces of information will enter only a limited number of markets. Due to the costs of information production and due to possibly very small market access costs, specialist investors do access only a limited set of markets. In consequence, companies can rely on the expertise of such investors only when listing their stock in those markets. So, for example, information about local cost conditions may well be aggregated in national markets, while information about global demand conditions may be best aggregated in international markets. Under these conditions double listings are a mechanism to benefit from the different informational properties of several market places, when those markets are highly integrated and communication of information is instant. Hence, in general in multiple listings will reduce the cost of capital and increase sale and/or privatisation revenues in integrated financial markets.

On the other hand, informational efficiency increases volume and price volatility. Because arbitrage occurs instantly, domestic stock prices react quickly on international news and potential developments. In this sense foreign listings will necessarily import international stock market volatility into national stock markets. Attempts to limit volatility will also reduce informational efficiency and, thus, if anticipated by investors privatisation revenues, which after all is the major motivation for cross-listings.

Governments maximising privatisation revenues select that (international) market for a listing that will aggregate most payoff relevant private information of the privatised stock. To the extent that international markets are informationally linked those governments will even prefer double listings in their national market as well as in the relevant international market. A national listing will help to aggregate some local factors that can be credibly communicated to global investors in informationally linked markets.

Stabilisation oriented governments, on the other hand, may want to just do the opposite. The tend to prefer single listings to double listings and, under plausible parameter constellations, national listings to international ones. The reason is that informational efficiency unambiguously enhances price volatility and associated risks.

Based on his theory, Gehrig (2002) can partially explain the statistically significant differences in listing choices between private and privatised firms, as observed by Pagano, Roell and Zechner (2001) among others. Apparently, governments objectives are different to those of private companies. Moreover, governments do not always seem to maximise privatisation revenues.

While Gehrig (2002) relies on ex-ante market segmentation, Foucault and Gehrig (2002) endogenously derive market segmentation as the result of strategic choices of the firms' owners. As in Gehrig (2002) the basic advantage of multiple listings consists in the heterogeneity of information aggregation in different markets. While Gehrig (2002) builds on exogenous government objective functions, this work tries to model management choices endogenously as an optimal organisational design by the firms' owners resp. The government. Both in the case of private as well as in the case of privatised firms this is not a fully trivial exercise because of the well known difficulty in defining "shareholder-value" in incomplete markets. Nevertheless, in the case of privatised firms one might view the management being subject to political-economic pressure, which simplifies the analysis to some extent.

In contrast to Gehrig (2002) Foucault and Gehrig (2002) argue that firms' owners may want to strategically fragment markets. When markets are informationally segmented, a cross-listing is costly, because it results in the fragmentation of the order flow between different markets. This fragmentation decreases market liquidity and it raises trading costs of investors who must trade for liquidity reasons but cannot engage in multimarket trading. Fragmentation has a negative impact on the proceeds obtained from the equity offering since investors discount the price they are willing to pay for the firm by their trading costs. However, market fragmentation induces informed traders to trade larger quantities overall. It follows that market data such as prices quoted in each exchange and the aggregate order flow constitute a more precise signal of the private information possessed by informed traders when the firm is cross-listed. This is valuable for the firm since this information can be used to make more efficient investment decisions. Foucault and Gehrig show that the owner (government) decides to cross-list, when the benefit of more efficient investment decisions is large enough to compensate the liquidity costs of market fragmentation.

Moreover they characterise the optimal ownership structure. Entrepreneurs must fine tune the ownership structure in order to reap the maximal benefits from cross-listing. First, stocks need to be placed on all markets. Second, in order to render signals more informative a larger amount of stocks should be placed among liquidity traders and only a small amount with institutional traders who are more likely to be information producers.

Finally, in truly integrated markets the incentives to cross-list vanish. Hence, in truly integrated markets the transactional costs of cross-listings can be saved. However, stock exchanges do not have incentives to harmonise trading systems completely. They also can sustain positive revenues only as long as markets are not perfectly integrated. Therefore, it seems that the incentives to cross-list should always be positive as long as exchanges are heterogeneous and independent organisations.

In summary, both analyses suggest that cross-listings are an instrument to raise the proceeds from privatisation in frictional markets. Cross-listings tend to improve the

aggregation and production of information, and, thus the quality of entrepreneurial investment decisions. Hence, governments interested in the privatisation proceeds and the efficiency of private investments would tend to place their initial offerings internationally, while governments interested to cater for special interest groups might prefer domestic listings to international ones.

TASK 2. Privatisation and international asset trade

The basic idea of this section is related to the one developed in TASK 1 of WP1, that privatisation increases risk diversification opportunities for agents who do not like risk. However, the papers in that part described mostly real privatisation effects in a closed economy. This part is instead focuses on the financial effects in an open economy. In this respect, Girmens (2001) takes now into account the fact that the process of integration of stock markets around the world (in particular, around Europe) is quite advanced. Tackling the interaction between privatisation and financial market integration, this theoretical paper evaluates the impact of privatisation on the development of capital markets, in a two-country framework, adopting a general equilibrium approach, i.e. taking into account interdependence between different economic agents and between different markets. It draws particular attention to two divestment techniques: (i) voucher privatisation (more precisely: distribution of free shares of the privatised assets), in the case of transition economies; (ii) privatisation and purchase of a diversified portfolio by the government, in the case of developed market systems.

Of course, most governments actually use privatisation without letting market mechanisms determine the price of the privatised asset. They "underprice" share offerings (i.e., offer them at a price below the company's true value) and then use targeted share allocations to favour domestic over foreign investors. Similarly, in the case of voucher privatisation, domestic agents do not always receive shares of the privatised assets for free. More generally, in a voucher privatisation program, eligible citizens can utilise vouchers, distributed free or at a nominal cost, to bid for shares of state-owned enterprises and of other assets that are being privatised. But the analysis of our two polar cases (distribution of free shares and marketed privatisation) helps to understand what happens in intermediate situations.

A first result is that, in an open economy, even a non-marketed privatisation (free distribution of public assets to domestic private individuals) has market-effects, by altering portfolio choices of both domestic and foreign agents. In other words, in integrated financial markets, the « basket story » works for voucher privatisation: with voucher distribution only targeted to domestic agents, foreign ones will be interested in this new diversification opportunity, as long as the returns of the new stocks are imperfectly correlated with pre-existing ones.

This result is interesting because voucher privatisation is often thought to be less relevant than share issue privatisation in terms of financial effects, whereas free distribution of public assets to private individuals was the common way to implement the transfer of assets from the public sector to the private sector in several Eastern European

economies, where there was neither pre-existing private sector nor pre-existing financial markets, and where voucher privatisation has brought about fundamental changes in the ownership of business assets. In a closed economy, Bosi, Girmens, and Guillard (2001) show that voucher privatisation has real effects (by altering the size of the public sector), but is financially neutral, as the new stocks issued, if uniformly distributed among identical agents (same endowments, same preferences), should not be exchanged. In contrast, by considering the context of financial integration introduces some heterogeneity, as voucher distribution occurs only to domestic agents: as stated above, foreign agents may be interested in this new diversification opportunity. Thus, even though public assets are not directly sold on the financial market, privatisation has substantial financial effects.

Among other results, this diversification effect helps to understand secondary market activity after voucher privatisation, and, more generally, portfolio reallocations due to privatisation, even in the case of « marginal » privatisations in developed market systems: in terms of international asset allocation strategies, all investors (both from the privatising country and from abroad) are encouraged to invest relatively more in the country where privatisation has been implemented.

The underlying theoretical framework can be easily expanded to take into account an imperfect integration, i.e. the fact that there are various costs to buy (or equivalently, to sell) assets to foreign agents, such as financial intermediation, exchange rate transaction costs, information costs and asymmetries, as well as political, legal, regulatory, reputation or institutional factors. Taking all these trading costs into consideration helps to be more consistent with empirical analyses. Taking trading costs into account, the results briefly presented above are not dramatically inverted, but simply toned down as costs increase; finally, under very high costs, we simply tend to the closed-economy case: with free distribution of public assets, if uniformly distributed, property rights are not traded and privatisation has no financial effects, neither in the country where it has been implemented, nor abroad. With SIP, there may be financial effects, as described in section 2 (the « basket story » and the « eggs story »), but they would simply concentrated in the country where privatisation has been implemented.

TASK 3 Legal and regulatory issues in financial regulation

The role of regulation in achieving stock market integration has been studied by Bagheri and Nakajima (2002b), who tackled the issue of competition and fragmentation of financial markets, i.e. European securities markets. The liberalisation of securities markets and the disappearance of technical barriers have broken down the monopoly of the national stock exchanges. These developments have led to a consolidation and integration trend among exchanges. Economies of scale and scope have particularly contributed to the strength of few large exchanges. In this paper, the authors discuss the conflicting trends of segmentation and integration as reflected on the principles of competition and economies of scale and scope. In a further attempt we discuss the tension between the principles of competition and prudence. As much as privatisation and liberalisation fuel the developments of financial services, it could also raise questions over the anti-competitive

effects of such integration. The regulatory objectives in securities markets could clash as the applicability of competition principles to the securities markets could be counterbalanced by principles of prudence. The unique characteristics of such markets do not allow the absolute application of competition principles. Free competition in the exchange business does not necessarily work as it does in other sectors.

Privatisation in general and liberalisation of financial services has greatly contributed to the integration of financial markets. It is in the spirit of free trade in financial services in Europe and beyond that integration of financial services could take place. The privatisation without liberalisation of financial services could not produce optimal results. privatisation and development of financial markets are mutually helping each other. A successful privatisation depends on mature and developed financial markets and a mature and developed financial market nourishes on privatisation. This dialectical interaction and dynamism, either in Europe or world wide, can succeeded only within a legal framework such as GATS and EU Directives which allows the optimality of both privatisation and developments of financial markets in a global context. The international flow of capital, a vital factor for this process, is crucially dependent on a co-operative and competitive framework which optimises the comparative advantage between capital importing and capital exporting countries. The developments of European financial markets in terms of different phases of fragmentation, competition and integration have to be evaluated vis-à-vis both internal structure of European markets and global forces.

Bagheri, M. and C. Nakajima (2002c) addresses these structural and legal issues and alongside the two other papers forms a triangle in which issues of free trade in financial services, competition and integration, regulation, GATS, Single European Financial Market and integration of European stock exchanges are discussed.

WP4 Privatisation and domestic financial market integration: evidence

The fourth work package (WP4) explored empirically the international dimension of privatisation. In this direction, the project aimed at: (i) collecting systematically data about the international dimension of privatisation and performing empirical analyses about the determinants of cross-listing at the privatisation stage; (ii) providing evidence about the development of market integration in Europe and the transition countries. To achieve this objective, it has been subdivided in two main tasks.

TASK 1. The geography of share issue privatisation

Governments often specifically target foreign investors or launch the privatised company into foreign stock markets. Fifteen of the 21 largest common stock issues in history (which have all been privatisations) featured the listing of shares in more than one national exchange. Among the 650 major privatisation deals of the last ten years reported in the *Privatisation International* dataset, around 150 involved an equity issue on non-

domestic markets, and the *tranches* sold abroad raised revenues worth approximately US$52bn. Furthermore, privatisation abroad – i.e. the sale of shares of privatised companies to foreign investors - displays a definite trend, which has grown steadily during the Nineties.

While causes and consequences of divestiture are relatively well understood, the international profile of privatisation is still an unexplored field in empirical research. The limited evidence on the issue is provided by Pagano *et al*. (1999), where privatised companies are found to be particularly eager to seek a foreign listing. Indeed, being a recently privatised company emerges as one of the most relevant factors in explaining the cross-listing in European and in US stock markets.

Is privatisation abroad really a common practice? What political and economic incentives determine the choice between privatisations on the domestic stock markets and international offerings? Why do some governments decide to reserve significant amounts of shares for foreign investors?

Bortolotti Fantini and Scarpa (2000) shed some light on these issues, claiming that the answers to these questions can be traced back to the political and economic objectives of privatisation, and to the way governments balance these objectives in the design of privatisation.

The extant literature has identified a trade-off in selling or not selling privatised firms abroad. Floating companies on a liquid foreign market allows governments to generate higher privatisation revenues. Moreover, large shareholdings by foreigners may discipline managers, forcing them to enhance the efficiency and profitability of firms. However, this choice entails political and economic costs; first, by selling firms abroad, governments lose a powerful instrument for redistribution, i.e. selling underpriced shares to domestic voters. Second, by privatising abroad, governments may waste an opportunity to foster domestic equity markets, a key ingredient of sustained economic growth.

In order to test which elements of this trade-off prevail, we have analyzed 233 share issue privatisations (SIPs) in 20 OECD countries from 1977 to 1998Q1, including virtually all the major deals which took place in industrialised economies in this period. Within this sample, we distinguish between international SIPs, characterised by the existence of a *tranche* earmarked to foreign markets and investors, and domestic SIPs, defined as SIPs where all shares are sold at home. Then we implement a two-stage empirical test to estimate: (i) the probability of a privatisation abroad and (ii) the number of shares sold abroad as a percentage of total shares sold. As for the choice between selling at home or abroad, we find robust evidence that a government's redistributive concern and the need to develop domestic stock markets play a major role.

First, market-oriented governments typically privatise at home, floating companies on domestic markets, as predicted by Biais and Perotti (2000). In fact, these "right-wing" governments aim at creating a large number of small capitalists interested in the performance of the stock market and supporting free-market policies. Second, governments opt for domestic issues especially when home equity markets are illiquid and inefficient, seeking to foster domestic financial markets by increasing their capitalisation through a sequence of large issues.

Revenue generation certainly matters at the first stage, but it seems to be even more relevant in determining how many shares to sell, once the decision to allocate shares abroad or not is taken. In this respect, looking at the percentage of shares sold, we find that large fiscal deficits increase the stake sold abroad, suggesting that governments in financial distress are eager to tap foreign investors, possibly in order to get a better price for shares. Second, more shares are sold abroad if investor protection in the home market is poor. By floating a big stake in countries affording extensive legal protection to minority investors, governments may credibly signal a commitment not to expropriate them, and investors will be willing to pay more for a less risky asset.

The paper is mainly related to the literature on privatisation methods –which seldom tackles the issue of where to sell a firm – and to some strands of the corporate finance literature. Within the empirical literature on privatisation (see Megginson and Netter (2000) for a survey), Megginson *et al.* (2000) study the Governments' choice of selling the company in the form of a private placement vs. flotation on public equity markets, finding that the frequency of share offerings is positively related to the size of the firm. On the other hand, private sales are more likely when government credibility is high. Bortolotti, Fantini and Scarpa (2000) confirm the importance of budget constraints in the decision of governments to opt for a direct sale, also finding a political determinant in the choice of the privatisation method: right-wing governments are associated with privatisation on public equity markets. Jones *et al.* (1999) in a comprehensive analysis of share issue privatisations provide descriptive evidence about the percentage of shares allocated to foreign investors. They find foreign allocation of shares in 60 per cent of the 505 initial offers reported for the 1977-97 period, with an average percentage of stock of 30 per cent. They use these percentages to try and explain underpricing, finding little significance. Although our samples of SIPs partially overlap, they do not examine the determinants of the allocation of shares to foreign investors.

In the international finance literature, the paper is similar in spirit to some recent work on the determinants of cross-listing decisions by private companies. Blass and Yafeh (2000) show that Israeli companies listing in the US are young and high-tech oriented, arguing that listing abroad is an effective screening device for high-quality firms. The aforementioned paper by Pagano *et al.* (1999) also shows that the probability of a cross-listing by a European company is positively related to the size of the company, and identify different reasons why these companies cross-list shares in Europe or in the US. The paper is also related to the law and finance literature, which has shown that the legal protection of investors affects corporate ownership and external finance around the world (La Porta *et al.* (1997), (1998)). Indeed, legal institutions also seem to shape the international profile of privatisation.

TASK 2. Privatisation and financial market integration

To the extent that large scale privatisation efforts do increase market liquidity of the underlying stocks they contribute to overall market integration. In this line Bortolotti, Fantini and Scarpa (2000) indeed find a positive correlation between privatisation

indicators and a measure of overall market liquidity of national stock markets. Their analysis concentrates on OECD-countries with established financial markets. Because of data limitations, and because of the different nature of the privatisation processes in transition countries, this analysis explicitly excludes transition countries such as Poland, Slovenia, Hungary, the Czech Republic as well as Russia.

An alternative approach to measure market integration consists in the analysis of price determination of cross-listed stocks. By analysing high-frequency price quotes and transaction volumes in two (or even more) markets, arbitrage opportunities between those markets and the direction of information flows can be determined, which provide some information about the degree of integration of those markets. This approach has the virtue that it can be applied to individual stocks. For the case of stocks cross-listed in Germany and France it has been applied by Biais and Martinez (1999). These authors find that those stock markets seem to be highly integrated. Their finding is in line with the empirical observation that international trading of stocks reduces domestic pricing errors (see e.g. Yamori, 1998).

Jung and Trost (2002) provide an application to stocks of recently privatised companies from transition countries, the Czech Republic, Hungary, Slovenia, Poland and to Russia. They are particularly interested in testing market integration for the largest stocks of those countries. Interestingly, they find enormous amounts of mispricing in the early 1990s. It seems that towards the end of the millennium mispricing has been reduced only slightly.

Moreover, they seem to find very little information production in the foreign (i.e. European) markets, leaving most aggregation of information to local markets. Should this finding prove robust, it would rule out certain informational explanations of international listings and favour other explanations of foreign listings. On the basis of their finding, in the transition countries analysed the privatisation processes per se do not seem to have substantially contributed to reduce market fragmentation in the short run. They may, however, have initiated a long run effect that at this stage is difficult to quantify because of the limited availability of data in many cases.

The data have been collected on Primark-Datastream in summer/autumn 2001. Unfortunately, they are of limited quality, and the data cannot be used for advanced statistical analyses (such as Granger causality tests and test for co-integration) for all available stocks. It would certainly be worthwhile to try and acquire more pricing information from stock exchanges directly. Due to the low trading activity in most stocks the availability of real time pricing data would presumably not change the findings in a dramatic way.

Moreover, unfortunately, Primark-Datastream does not provide pricing information about stocks traded at the London Stock Exchange, which would be important information if most of the information about global market conditions for those companies is aggregated in the London market. In this case, on the basis of their findings the Frankfurt market acts as a satellite market, which actually adds to market fragmentation rather than integration.

The analysis of Jung and Trost (2002) contrasts strongly to the result of Bortolotti et al. (2002). Their finding seems to corroborate the conjecture of Bortolotti Fantini and Scarpa (2000), that the institutional differences in the privatisation processes in OECD and

transition countries would generate quite different results. It seems clear that at least the Frankfurt market does not play an important role for the trading of transition economy stocks.

Summarising this analysis, it seems fair to conclude that privatisation appear to affect liquidity positively in advanced stock markets. Those market are highly integrated and informational integration is high. In contrast, in the case of transition economy stocks informational integration across markets remains rather low even after a substantial period of potential adjustment. Apparently, in those markets complementary institutions are not sufficiently well established and insider information still carries a high premium.

A somewhat different approach to measure market integration tries to relate the benefits from international capital market participation to a measure of consumer welfare, i.e. per capita consumption. As markets integrate the gains from risk sharing and from inter-temporal consumption smoothing should be traced down in the behaviour of per-capita consumption. For example, improved risk sharing opportunities across markets should render per-capita consumption across countries more alike.

On the basis of typical representative consumer models one might even expect that consumption correlations should exceed the correlations of per capita income across countries. Surprisingly, however, the data for OECD-countries exhibit the opposite property, income correlations seem to exceed consumption correlations. This is the main point of a famous study by Backus, Kehoe and Kydland (1992) on the so-called "Consumption Correlation Puzzle". The consumption correlation puzzle is widely viewed as evidence against integration of financial markets.

Flotho (2002) has taken up this lead and analysed changes in market integration among OECD-countries. He further tried to extend the analysis to include transition countries. Flotho (2000) verifies a reduction in the amount of „excess income correlation" for the EU-countries, albeit a small reduction, which he interprets as evidence for increasing integration. Redoing the same analysis to include transition countries does not seem to reveal any increase in integration within the last decade among those countries and negligible increase in the degree of integration with European countries. So his preliminary answer concerning the increasing consumption correlations is negative for the transition countries but positive for the European Union.

At this stage these results especially concerning the transition countries are still very preliminary and their robustness has to be checked. Moreover, since again the data quality (IFS-tape of the IMF) and availability for most of the transition countries is rather poor, attempts are under way to improve the statistical basis. It still has to be seen to what extent this analysis can be extended to relate the increase in overall market integration to particular events, such as privatisation. Obviously, on the basis of currently available data such analyses can only performed for the EU-countries, where it is difficult to separate the effects of microstructure reform from privatisation processes, which took place at almost the same time.

How can we explain the puzzling fact that apparently on average consumers do not enjoy the benefits from increased risk sharing? Possibly those gains do accrue only to a small fraction of the population in each country with only a small contribution to per-capita consumption. It could well be that the organisation of national pension systems (e.g.

unfunded pay-as-you-go systems) prevent the exploitation of risk-sharing opportunities even in highly integrated capital markets. It is a challenging task for further research to assess the relative scope for improvements in market integration versus improvements in the operation of national pension systems.

Within this task, an alternative approach to evaluate the impact of privatisation on the efficiency and integration of a market has been developed by Bellini and Urga (2002a,b). From the early 1980s, many developing and industrialised countries launched macroeconomic reforms (macroeconomic stabilisation, market liberalisation, privatisation plans, easing of change control, etc.) In these papers, the authors propose an extension of the Rockinger and Urga (2001) model, suitable to test whether an emerging market becomes more efficient and more integrated with the already established markets, after an economic reform. The model is based on Kalman Filter framework, that allows for time-varying parameters, latent factor and a general GARCH-M (1,1) structure for the residuals. The latent factor plays a very important role, because it controls for the effects of economics reforms, which took place from the early 1980s and which we not consider in the analysis.

Finally, in order to verify if it really exists an empirical relation between the change in degree of market efficiency and integration and the privatisation project, the authors regress the change in the time-varying parameters on two proxies for privatisation In particular, they have analysed the impact of the privatisation plans on the Mexican stock market, by using data at daily frequency running from 8 November 1995 to November 8th 2000. A latent factor captures macroeconomic factors and qualitative expectations. As for integration, it appears that privatisation plans have increased the importance of the shocks from USA over the sample period. With regard to market predictability, the results do not display a significant increment of the degree of market efficiency over the period. Probably if reliable data over a longer interval of time were available, including the whole privatisation process, a significant positive impact of the economic plan on the degree of market efficiency could be found, but this conjecture may not be tested given the data available.

WP5 Privatisation and real and financial sector stabilisation: theory

The fifth work package (WP5) aims at providing new theoretical insights about the following issues: (i) the role of privatisation in promoting domestic financial stability. (ii) the role of privatisation to promote stability in the real sector. To achieve this objective, it has been subdivided in two main tasks.

TASK 1. Privatisation, confidence building , and policy risk

As the impact of financial liberalisation on emerging capital markets already has been established (Henry, 2000), the research focused more on the effect of privatisation in

promoting confidence building. Privatisation offers direct benefits in terms of firm profitability and may add directly to market capitalisation via new public listings. Privatisation may also produce indirect benefits for local stock markets if new listings have substantial impact on local liquidity, and offer opportunities for local investors to diversify their portfolios (Pagano 1989 and 1993b). Yet such market deepening and broadening could be the result of new private listings as well. In this paper we seek to understand the specific role of privatisation sales on investor confidence, and market stabilisation.

Privatisation is a powerful test of policy risk because politicians were used to have broad discretionary control over a state-owned firm's activities; privatisation sharply curtails their capacity to reallocate resources to their preferred constituencies. Precisely in this shift of control rights to private owners lies the main cause of improved performance of firms under private ownership. Yet no sovereign government can credibly commit not to alter its policy after a sale. Moreover, "selective enforcement" of legal rights can favour some investors relative to others. Therefore, only a sustained and consistent privatisation policy can provide a credible signal of policy commitment, as a commitment to market oriented policies may be politically costly to maintain; over time, privatisation can thus credibly establish investors' confidence. The process of learning about political commitment for reform policies is described as *confidence building*.

The definition of policy risk that our research has adopted is more specific than the traditional terms "political risk" or "country risk", which focus on shifts in political regime or macroeconomic policy. We define policy risk as any post-investment reduction in the scope of contractual and decision rights enjoyed by private individuals vis-a-vis the state, as well as any reallocation of such rights to other private individuals, which reduces the returns expected by the original investors. Such changes may be the outcome of revised regulations, new legislation, new administrative procedures which may result in delays, uncertainties or reallocation of previously established rights, or of the general failure of legal enforcement of property and contractual rights. This notion of policy risk includes the earlier notion of expropriation risk in Eaton and Gersowitz (1984), the notion of policy capture in the privatisation and regulation literature, and the notion of protection of investors rights implicit in the work by La Porta et al. (1997, 1998). All these risk factors are represented in our proxy for policy risk.

Policy risk exists and persists even in developed economies; in general, most traditional analyses of policy credibility were based on examples of anti-inflationary policies in Western countries. The same concern applies to the issue of privatisation, in that the temptation to reverse policy after privatisation is particularly strong for many areas of traditional public ownership such as telecommunications, utilities and infrastructure. Yet policy risk represents a particular dilemma for investors in emerging markets or transition economies, where contractual and institutional uncertainty is greater, due to less established market institutions, more problematic political stability and greater state interference.

The original contribution of this part of the project is the theoretical paper by Laeven and Perotti (2001) presenting a simple, dynamic model of policy risk resolution. In this model, stock prices rise gradually with sustained privatisation sales, in parallel with

investor confidence. The model may also be interpreted as describing financial liberalisation, which leads to gradual capital inflows which may be captured by a policy reversal. As a result, share price enjoy excess returns as compensation for the risk of a large capital loss.

The empirical implications are as follows. First, steady privatisation sale programs should improve the perceived policy risk of the country both in absolute terms and relatively to other comparable non-privatising countries. Second, such progress should be gradual. Third, improvements in perceived policy risk make equity investments more attractive and should therefore lead to stock market growth and deepening. Fourth, stock markets in countries which pursued consistent privatisation policies would exhibit excess stock returns, earning an ex post "peso premium" during the confidence building process as a result of the favourable information on policy commitment.

TASK 2. Privatisation and the stabilisation of the real economy

Besides concentrating on policy risk and confidence building, the analysis has focused on more traditional macroeconomic facets, with a study which however represents a significant contribution to an understanding of the effects of privatisation. The literature on privatisation has emphasised the microeconomic aspects of privatisation, and in particular the efficiency gains. On the other hand, there is less work devoted to analyses of the fiscal and more general macroeconomic impact of privatisation. Katsoulacos and Likoyanni (2002) make a step forward in that direction, investigating the fiscal stabilisation impact of privatisation, as well as its impact on some macroeconomic variables.

They start their analysis pointing out that the main objectives often pursued by privatisation schemes are: (i) achieving gains in economic efficiency, since public enterprises often lag behind in terms of economic performance, while the efforts of reforms of such enterprises were often of limited success, and (ii) financing fiscal deficits with the privatisation proceeds, in cases of governments facing serious liquidity constraints.

The effects of a fiscal expansion financed with privatisation proceeds depend, to a great extent, on the source of these proceeds (i.e. whether the source is domestic or foreign), the degree of capital mobility and the exchange regime. In particular, if the privatisation proceeds have domestic origin, the excess demand for money, resulting from the purchase of the asset by the private sector, would be expected to lead to capital inflows, which will be similar to inflows of privatisation proceeds from abroad, given that there are well-functioning domestic financial markets. On the other hand, if the proceeds come from abroad, the effect would be similar to a foreign-financed increase in the fiscal deficit and are also possible to lead to pressure leading to the real appreciation of the currency.

The fiscal impact of privatisation reflects both the amount and the use of privatisation proceeds and the impact of such proceeds on the financial flows of the budget – taxes, transfers, and dividends. The net benefit of governments due to privatisation is not straightforward, since the effects of privatisation have long-term implications. In general,

to the extent that private sector ownership leads to increased efficiency, there may be a net benefit for the government.

If the rate of return of an asset in the public sector equals that of the same asset after it has been sold in the private sector, then the government receives financial assets and losses net future earnings on the assets. In this case, privatisation amounts to a change in the composition of the government's assets with no effects on its net worth, which means that there is no effect in the intertemporal budget constraint. However, in this case, the conditions that should hold are rather restrictive:

a. markets should be efficient,

b. both public and private sector should use the same discount rate,

c. the profitability of the firm should not change significantly after the privatisation, and

d. the environment under which the firm will operate should be the same before and after the privatisation.

It seems that it is not safe to assume that all above conditions are met – for example, for condition *b.* to hold, we should assume that, among other things, there are no informational asymmetries.

On the other hand, if the private sector is expected to run the enterprise more effectively than the state, the net worth of the government would increase, provided that the government can privatise and tax efficiently. In this case, privatisation would result in a permanent, positive effect on public finances. However, we should also mention that if a government faces liquidity constraints, then it might be willing to sell its assets at a price less than their economic value in order to finance its expenditures.

The decision on the use of privatisation proceeds reflect the impact on both fiscal policy and macroeconomic aggregates. As mentioned above, these effects may differ depending on the source of privatisation receipts, the degree of capital mobility, and the exchange rate regime.

An increase in the deficit through higher spending or lower taxes, financed by privatisation proceeds would have similar effects to those resulting from a fiscal expansion financed by an increase in public debt (see McKenzie, 1998): it would increase domestic demand, affecting, among other things, inflation and the external current account. These effects depend on the initial macroeconomic position of the economy as well as the composition of the increased spending in terms of imported and domestic goods and services.

The scope of a case study compiled on behalf of IMF (2000) was to test whether privatisation proceeds, transferred to the budget, are used to finance a larger deficit or to reduce other sources of financing. The results of this case study indicate that *privatisation receipts are not used to finance a larger deficit;* additionally, it is also shown that *the fiscal situation tends to benefit from privatisation.*

The fiscal accounts may be affected by privatisation in several ways: directly, through its effect on financial flows to and from the privatised firms, indirectly, through the influence on macroeconomic environment; as a result of the decision on the use of the proceeds.

Taxes paid by privatised firms will, among other things, reflect changes in efficiency. At the microeconomic level, there is evidence that privatised firms have paid higher taxes compared to the pre-privatisation period. In many countries, *gross budgetary transfers* to the public enterprise sector have tended to decline with privatisation, while privatisation receipts are also found to be used for *debt* reduction.

In particular, there is evidence of a positive and lasting impact of privatisation on tax revenue for non-transition economies. The empirical results are consistent with the hypothesis that privatisation proceeds are not used to finance larger deficit. privatisation receipts are also found to be strongly correlated with a lasting improvement in macroeconomic-performance indicators (higher growth and lower unemployment).

WP6 Privatisation and real and financial sector stabilisation: evidence

The sixth work package (WP6) tested empirically the theoretical hypotheses set forth in the WP5. In this direction, the project aimed at: (i) collecting systematically data about country and political risk measures, and to test the role of privatisation of confidence building and financial sector stabilisation; (ii) providing evidence about the fiscal and other macroeconomic effects of privatisation. To achieve this objective, it has been subdivided in two main tasks.

TASK 1. Privatisation and confidence building

In order to test the empirical prediction developed in the theoretical part, Laeven and Perotti (2001) create a panel sample of all countries classified by the IFC as having an emerging stock market, and for which there are data available in the Emerging Stock Markets Factbook from at least 1988 onwards. This leads to a sample of 31 countries.

Then, a first step is to establish how policy risk is related to privatisation over the medium term. From the sample of 31 countries, countries that have been engaged in substantial privatisation sales for at least four years in the period 1988-1995 have been selected. Using this criterion, there are 22 countries that can be classified as having a significant privatisation policy. Note that the requirement of a sufficient history of privatisation sales leads to a sample of countries with a fairly sustained privatisation program. Such countries are more likely to be successful privatisers. However, rather than judging subjectively the quality of each country's privatisation policy, we use measured changes in their perceived policy risk. While on average the programs in the sample were deemed successful, the sample does include countries for which the privatisation process was delayed or slowed down due to political backlash, in which policy risk has risen again

after an initial fall. The final sample consists of a panel of 22 countries that were classified as "privatising" and 9 additional developing countries

The second step has been to test to what extent changes in policy risk during the privatisation process have contributed to domestic stock market development. To this goal, the stock market development in all 31 countries in the sample is related to changes in their perceived policy risks. The variable used are the yearly growth in market capitalisation over GNP, yearly growth in traded value over GNP, and yearly excess stock returns as direct measures of stock market development. Data are obtained from the IFC's emerging markets database. Excess returns are calculated as a yearly average of monthly returns, where each monthly return is adjusted for the return of the Morgan Stanley Capital International-world index. We control for stock market liberalisation, shown by Henry (2000) amongst others to have a direct effect on stock market development.

In order to assess the timing of the resolution of policy risk, four different stages in the privatisation process are distinguished. (1) The *pre-privatisation* period is defined as the two years before the announcement period. It is used so as to measure announcement effects and as a benchmark for the privatisation period; (2) the *announcement* period includes the two years preceding the first actual sales, to capture the announcement and preparation of privatisation; (3) the *early privatisation* period is defined as the years of actual start of sales up to the year before the peak in privatisation sales takes place; and (4) the *late privatisation* period includes the year of the peak in privatisation revenues as well as all following years, as long as a significant volume of privatisation sales continues.

As proxy for policy risk the Country Credit Rating (CCR) risk indicator constructed by the *Institutional Investor* has been adopted. The CCR indicator is based on information provided by leading international banks and is published twice a year. Bankers are surveyed to grade each country on a scale of zero to 100, where 100 represents the least chance of default. The survey is held every 6 months. The CCR seems to provide a useful proxy for policy risk, as the factor "Political Outlook" is ranked high on the list of factors. Since the ratings relate to chances of default we expect bankers to be forward looking. The survey results are published in March and September. The March survey is based on interviews gathered starting in November and thus reflects the general opinion prevailing around the end of the year preceding the publication.

The empirical analysis shows that the resolution of policy risk through sustained privatisation and liberalisation policy has been an important source for the recent growth in emerging stock markets. Confidence building is shown to be a gradual process: privatisation, just as financial liberalisation, accelerates the resolution of policy risk and contributes significantly to stock market stabilisation.

Sustained privatisation seems to gradually strengthen the institutional framework by forcing a resolution of policy and legal uncertainties which had till then hindered equity market development, leading to increase in investor confidence. On average, this process seems to take place gradually as privatisation proceeds, with much of the resolution taking place during actual privatisation, as opposed to the announcement and preparation period. We also confirm earlier results that the process of liberalisation has a positive impact on return and market capitalisation. The greater significance of policy risk measures is consistent with the notion that both privatisation and liberalisation

initiate a process of confidence building which requires consistency in the announced policies.

We view our approach as an attempt to investigate the dynamics of required returns on investments. There is by now a general consensus in finance that required returns on equity evolve over time. We have indicated some evidence of such dynamics for country risk, particularly in emerging markets. The confidence building model also suggests that major reforms such as privatisation and liberalisation may have a delayed rather than immediate effect on market development, and can thus explain the so called "return to integration": in countries which liberalised and maintained their policy, investors have been able to capture excess returns during the process on all domestic assets, as their ultimate payoff and risk profile depends on the actual degree of protection of property rights. Other more direct benefits of privatisation, such as improved risk sharing and liquidity as a result of new listings, would be immediately incorporated in market prices and volumes.

Market oriented policy reforms such as privatisation require legislation to reduce regulatory and legal uncertainty, greater protection of investors, removing restrictions on foreign ownership and competitive entry, and a reduction in the bias historically favorable to public sector borrowing. The real test is of course the proper enforcement of such rules. While there may be resistance from established interests to improvements in such rules, the necessity to attract investors often leads to more reliable supervision, the promotion of better accounting standards and transparent disclosure rules, the support of procedures to contest managerial decisions.

A final but important point is that it is possible that privatisation can by itself resolve policy risk by helping to overcome political resistance to market reforms and their effect, perhaps because it establishes a broader-based ownership. Biais and Perotti (2001) explain how a large privatisation program may be designed so as to reduce policy risk of future policy reversals. A market-oriented party may increase the probability of being re-elected by implementing a series of underpriced sales, where excess demand is rationed so as to ensure a broad diffusion of shareholding and to reward long term holdings. A wide diffusion of shares may then shift the voting preferences of the middle class, creates political support for market reforms and reduces policy risk and the equity risk premium.

TASK 2. Privatisation and stabilisation of the real sector

Katsoulacos and Likoyanni (2002) study the fiscal and macroeconomic impact of privatisation containing a review of the work undertaken in this area as well as an econometric analysis extending the existing empirical work that also involves comparing Greece and other Southern European countries to the rest of EU and/or OECD countries.

More specifically the paper examines the impact of privatisation on public deficit, the impact on public debt and the impact on other macroeconomic variables (employment and growth) using country level panel data of 23 OECD countries for the period 1990 – 2000. Existing empirical work (by Jeronimo *et al.*) using data from 1990-1997 had examined

whether privatisation receipts have been used as a means of reducing government deficit in Spain, Greece, Italy and Portugal. Their results indicate that there is a negative and statistically significant relationship between receipts from privatisation and deficit for the 1990 – 97 period for the four southern states.

Now, according to the estimation results of Katsoulacos and Likoyanni, privatisation receipts are not found to be significantly correlated with budget deficit neither for the whole OECD sample, nor for the four southern countries, in contrast to Jeronimo *et al.*. Thus the results of the latter do not seem to be robust to an extension of the period under examination (from 1997 to 2000). As it is expected, the estimations of Katsoulacos and Likoyanni also indicate that there exist a (statistically significant) negative relationship between privatisation receipts and public debt for the whole OECD sample, while this does not seem to be the case for the three countries with the higher debt over GDP rates (namely, Belgium, Greece and Italy).

One of the most interesting results of the Katsoulacos and Likoyanni empirical analysis is that current privatisation receipts have statistically significant and negative effect on the current unemployment rate and positive effect on previous period's unemployment rate. Considering this result we can note that when privatisation is *announced* the accompanied restructuring, which urges firms to operate more efficiently, can cause job losses, and, thus, increase the unemployment rate (justifying the positive effect of privatisation on previous period's unemployment rate). On the other hand, when privatisation is *implemented,* new entry in the market occurs, increasing the demand for labour and, thus, decreasing unemployment rate (explaining the negative effect of privatisation receipts on current period's unemployment rate). Finally, Katsoulacos and Likoyanni find, rather surprisingly, that the relationships between GDP growth and current or past period's privatisation receipts are statistically insignificant for the whole OECD sample.

3. Conclusions and policy implications

3.1 The main results

The project has provided new theories and produced considerable new empirical evidence on the role of privatisation in financial market development. We believe that the original contributions developed by this European consortium of researchers substantially helps to fill a crucial gap in the existing literature in economics and finance.

The benefit of such analyses is a clearer understanding of one of the main processes taking place in European financial markets, i.e. the transfer of ownership and control rights of State-owned companies from national governments to private shareholders. Particularly, financial market development is key in the effectiveness of the whole privatisation process, both in terms of fiscal stabilisation (as revenues depends on the price investors pay for shares of privatised companies) and of efficiency improvements (as the new governance structure after privatisation will determine performance). Therefore, a deeper understanding of the financial aspects of privatisation is crucial for every single European economy, for the European Union as a whole, and especially for transition countries in the perspective of the enlargement of the European Union.

The theoretical part of the project – focusing on the effects of privatisation on domestic financial market development – showed that, even if privatisation had no direct implication in terms of productive efficiency and industrial organisation, it would be not neutral because of indirect "**general equilibrium**" considerations. More precisely, privatisation has welfare and financial implications when one analyses the issue in a general equilibrium model which duly considers that markets are incomplete and agents use financial markets for the purpose of risk sharing.

The basic result of this part is that privatisation increases risk sharing opportunities for risk-averse agents. In particular, this new diversification possibility in turn encourages an increase in the supply of private assets. The model, based on diversification effects, helps to understand also secondary market activity after voucher privatisation, and, more generally, portfolio reallocations due to privatisation, and shows how different privatisation methods can have an impact, by diversification effects, on the supply and demands for assets, market capitalisation and international asset allocation strategies.

Important methodological steps have been taken going beyond static equilibrium framework, by developing a complementary approach which takes into account intertemporal allocation issues. Particularly, the theoretical research identified the role of financial markets in providing insurance for risk-averse agents, showing the possible contribution of privatisation in that respect. Moreover, the intertemporal analysis indicates that privatisation – via financial markets development – may also make crucial intertemporal choices such as saving and investment more efficient.

The issue is addressed by relaxing the hypothesis of exogenous fixed-size projects by endogenous investment decisions (with, simultaneously, a consumption-saving decision to

make). This new assumption allows one to link privatisation, private investment and financial market development, in a context of incomplete risk diversification. Taking explicitly into account consumption-saving and investment decisions, this research provides answers to the following important questions: (*i*) how does privatisation influence financial markets, taking into account both insurance and intertemporal issues; (*ii*) does privatisation leads to an increase in private investment? The answer will depend both on intertemporal substitution and on risk aversion.

Different combination of the assumptions help to single out different crucial effects. Risk neutrality and imperfect intertemporal substitutability make investment decreasing in privatisation (a crowding-out effect), whereas risk aversion and perfect intertemporal substitutability (diversification effect) point towards the opposite direction. Finally, with risk aversion and imperfect intertemporal substitutability, crowding-out effects are more than compensated by diversification effects if and only if risk aversion is sufficiently high. First these results are established when the revenues of privatisation are allocated to present public consumption, which represents the most favourable case for the dominance of the crowding-out effect. Then, a public riskless asset is introduced, in order to investigate the case where privatisation revenues are allocated to reduce public debt. The simultaneity of an increase in the supply of *risky* public assets (i.e. an increase in privatisation), compensating a decrease in the supply of public *riskless* assets (i.e. a decrease in public debt) affects some of the results described above, in particular the crowding-out effect.

We can conclude that from this viewpoint privatisation may harm private investment (crowding out) when agents need little additional diversification of their portfolios, be it for their limited risk aversion or other factors.

An additional facet of the problem comes from the distinction between short-term and long-term effects of privatisation. To this end, overlapping generation models have been developed to study intergenerational issues and the effects on growth. As a first step the very special case where the government owns all, or a part, of the investment sector is considered, and wants to increase the capital stock of the economy. The capital stock of the economy is increased if the level gets closer the golden rule value. To implement such a policy, the state uses the dividends from investment firms to offer first-period transfers to agents. When dividends are positive, then young agents receive positive transfers. But when they are negative, agents are then taxed. This last case corresponds to an over-accumulation: government decreases the first-period income of agents and thus their saving. When the capital stock is lower than the golden rule value, then young agents receive additional lump-sum transfers allowing them to consume and save more.

Adding the assumption that public firms supply a part of the investment good, the existence of steady state equilibria and the dynamical behaviour near these stationary states is completely characterised. Necessary and sufficient conditions are established for the existence of indeterminate equilibria. The research proved that, when several steady state equilibria exist, some of them can be locally indeterminate. If the steady state equilibrium is unique, then, for a proportion of public firms in the investment good sector which is not "too large", perfect foresight equilibria are determinate. The proportion of public production that allows the existence of endogenous fluctuation depends on the saving

behaviour of private agents. The existence of State-owned firms in a two-sector model introduces then a drastic modification of the dynamical behaviour involved since we obtain indeterminacy even when the technology is the same in both sector.

The lack of economic stability is interpreted in two different ways. On the one hand the equilibrium multiplicity allows the expectation-driven stochastic fluctuations. On the other hand the slowness of convergence to a stationary state after a shock, even in the case of unique equilibrium path, can be viewed as a form of economic instability.

The first (apparently, counterintuitive) result we obtain is thus that, when the steady state is unique, the economic system can be destabilised when the government owns a large part of the investment sector, because there is room for a multiplicity of transition equilibria and stochastic fluctuations. However, according to our second interpretation of economic instability, we are able to show within a plausible example, that privatisation has a destabilising impact on the economic system because as the proportion of private ownership increases, the speed of convergence after a shock on the degree of privatisation or on other fundamental parameters, decreases. It is thus more and more costly, in terms of instability, to absorb real shocks when the government is leaving the sector.

Some caution on the timing of privatisation and the feasibility of "shock therapies" seems thus fully justified.

Important theoretical contributions have been developed also in a **partial equilibrium** analysis. Some models have been developed in order to obtain empirically testable hypotheses in a context where privatisation plans affect technology, the market price of risk, potential for information trading, the number of investors, and number of Initial Public Offering (IPO). However, private IPOs or seasoned equity offerings may have a similar effect. In order to claim that market development is indeed spurred by privatisation, features which are privatisation-specific are identified. The following features should *a priori* foster financial market development: privatisation of telecommunications and public utilities, because of improved diversification opportunities: state-owned companies are often natural monopolies, hence large firms belonging to specific sectors (public utilities, telecommunications). privatisation in these sectors may imply that investors' diversification opportunities improve, leading to a lower market price for risk. This may be true if diversification opportunities abroad are not exploited due to the home bias, and/or the riskiness of the world market portfolio is reduced. The positive impact of privatisation occurring in such industries should be discernible on other companies' liquidity, but possibly not for those which operate in the same sector -- because their beta increases.

Moreover, initial SIPs should have a larger effect than subsequent seasoned equity offerings because of the reduced need for diversification. Improved diversification opportunities could in turn prompt the listing of new companies. Privatisation that use marketing techniques aimed at increasing the number of investors and those that are marketed abroad are also key, because they improve diversification opportunities and increase the participation by foreign investors.

The **empirical results** are a fundamental part of the project in that (i) they emerge from the testing of the theoretical prediction developed within the research consortium and (ii) they allow to provide normative prescriptions on the issues at stake

Joint teams of researchers have carried out an analysis based on monthly data for 19 OECD economies which tested the empirical implication of the theoretical models summarised above. First, daily data about the market indexes, turnover, and capitalisation has been gathered from Datastream. Then, data about the number of share issue privatisations, the sectors involved, the percentages of capital sold by government, and the foreign listings, was collected mainly from privatisation International IFR-Platinum Dataset. Finally, a large number of data for the construction of control variables (such as country risk indicators, volatility, dummies for liberalisation events and insider trading regulation). From this bulk of data with more the 60.000 observations, a data set with monthly observations for 19 countries has been assembled. Second, the data set was used to implement a panel data empirical analysis.

Following other cross-country empirical studies, financial market development is proxied by the level of *liquidity*. Liquidity in turn is measured by the turnover ratio, i.e. the ratio of trading volume to capitalisation and by the Amihud index, the average ratio of absolute return to dollar volume. This measure has recently been proposed as a proxy for the price impact, which is the conventional notion of illiquidity in stock market models. The price impact coincides with the price response associated with a unit trade in auction markets and with the bid-ask spread in dealer markets. These two liquidity measures are used as dependent variables in a panel econometric model controlling for fixed effects, serial correlation of residuals, and endogeneity.

Our results confirm the positive role of privatisation in (domestic) market development that was identified by the theoretical papers developed within the project**.** A sustained privatisation program implemented through share issues on public equity markets is shown to be key in boosting liquidity**.** Particularly, a higher free float of privatised companies as a percentage of total market capitalisation is strongly and significantly associated with an improvement in the liquidity of the home market. A higher cumulative number of privatisation IPOs is also strongly and significantly associated with an improvement in the value of shares traded relative to total market capitalisation.

Some features of privatisation appear particularly relevant. Privatisation in energy, telecom and utility industries have a strong impact, and also privatisation associated with foreign listings. This evidence is consistent with the theoretical results showing the improved diversification opportunities and risk bearing associated with privatisation in previously non-traded sectors (such as utilities) and with privatisation on foreign markets.

The research consortium has concentrated research efforts on the **role of cross listings** (i.e. the floating of shares on multiple international markets) for market integration, both theoretically and empirically. While this work is centred on market microstructure analysis of equity markets, a somewhat independent research line has evaluated the degree of market integration from a somewhat more "macro" economic perspective.

Theoretical contributions have shown that the listing decision affects information aggregation in international equity markets, because typically diverse pieces of information are aggregated in different markets. So information about local cost conditions may well be aggregated in national markets, while information about global demand conditions may be best aggregated in international markets. Double listings are a mechanism to benefit

from the different informational properties of several market places. Hence, in general multiple listings will reduce the cost of capital and increase privatisation revenues.

Governments maximising privatisation revenues will select that (international) market for a listing that will aggregate most payoff relevant private information of the privatised stock. To the extent that international markets are informationally linked those governments will even prefer double listings in their national market as well as in the relevant international market. A national listing will help to aggregate some local factors that can be credibly communicated to global investors in informationally linked markets.

Stabilisation oriented Governments (i.e. interested in minimising the price volatility of privatised stocks), however, will generally just do the opposite choices. They will prefer single listings to double listings and, under plausible parameter constellations, national listings to international ones. The reason is that informational efficiency unambiguously enhances price volatility and associated risks. This theory can partially explain the statistically significant differences in listing choices between private and privatised firms and to show that unambiguously governments' objectives when floating companies are different to those of private companies.

Important work has been carried out to analyse provide the price and volume patterns of double listed stocks. In particular, they analyse daily price and volume data of stocks of transition countries (Poland, Slovenia, Czech republic, Hungary) plus Russia. The idea was to **testing market integration** for the largest stocks of those countries. Interestingly, an enormous amounts of mispricing is found in the early 1990s, while towards the end of the millennium mispricing has been somewhat reduced.

Moreover, the research has found very little information production in the foreign (i.e. European) markets, leaving most aggregation of information to local markets. Should this finding prove robust, it would rule out certain informational explanations of international listings and favour other explanations of foreign listings. On the basis of this finding, privatisation per se do not seem to have substantially contributed to reduce market fragmentation in the short run. They may, however, be a long run effect, which at this stage is difficult to quantify because of the short availability of data in many cases.

Finally, the project has addressed the role of privatisation in achieving the **stabilisation of the financial system**. The main result of this part is that it can be formally shown that privatisation represents indeed an important element of financial stabilisation via reduction in country and policy risk.

A simple model has been set forth to show how sustained reform policies (specifically, privatisation policy) progressively build up on confidence. Empirical results from a large panel study indicate that (1) sustained privatisation resolves policy uncertainty and (2) this confidence building sustains capital market development and stabilisation. The basic feature of the model is that a government's commitment to market-oriented reforms is not fully known to investors. A government that has initiated market-oriented reforms, having gained an initial investment boost, may be tempted to reverse them (for instance, to regain political control over companies or markets). In this context, a stable policy of protecting property rights of investors in privatised firms represent a strong test of government commitment. A sustained reform policy results in a progressive updating of investor beliefs on policy commitment and thus in the resolution of policy risk. As a result, stock

prices rises over time, as market participants learn about the government's policy commitment.

Privatisation yields direct benefits in terms of firm profitability and may add directly to market capitalisation via new public listings. Privatisation may also produce indirect benefits for local stock markets if new listings have substantial impact on local liquidity, and offer opportunities for local investors to diversify their portfolios. Yet such market deepening and broadening could be the result of new private listings as well. In this project, we seek to understand the specific role of privatisation sales on investor confidence, integration and market development.

In a dynamic model of policy risk resolution, we have found that stock prices rise gradually with sustained privatisation sales, in parallel with investor confidence. The model may also be interpreted as describing financial liberalisation, which leads to gradual capital inflows that may be captured by a policy reversal. As a result, share price enjoy excess returns as compensation for the risk of a large capital loss.

The empirical implications of the model are considered next. First, steady privatisation sale programs should improve the perceived policy risk of the country both in absolute terms and relatively to other comparable non-privatising countries. Second, such progress should be gradual (and potentially subject to reversals in countries which alter the sale program). Third, changes in perceived policy risk affect the attractiveness of equity investments (which bears most residual income risk) and therefore lead to stock market growth and deepening. Fourth, stock markets in countries which pursued consistent privatisation policies would exhibit excess stock returns, earning an ex post "peso premium" during the confidence building process as a result of the favorable (i.e. better than expected) information on policy commitment.

The research has first documented how policy risk has developed over the different stages of the privatisation programs of 22 emerging economies which have privatised extensively over a number of years after 1987, and contrast the evolution of their stock markets with a control sample of non-privatising countries. In a large panel sample of privatisers and non-privatisers in which around 40% of the observations are from years in which no substantial privatisation took place, privatisation programs are found to start often at a time of declining credibility. Policy risk improves more in privatising countries during the course of the sale program. In fact, much risk resolution seems to take place as privatisation proceeds to its later stage; this is consistent with the view that a sustained privatisation policy, just as a liberalisation policy, represents a major political test, and contributes to resolve investor uncertainty. Then, the evolution of various measures of market development and stabilisation is analysed. Changes in policy risk are strongly associated with growth in stock market capitalisation, traded value and excess returns, even after controlling for an immediate or delayed impact of financial liberalisation. These results, controlled for any endogeneity problem, are consistent with causality running from policy risk resolution associated with privatisation and liberalisation to stock market development. The economic impact on market development appears to be large.

3.2 The European dimension of the project has been key for implementation

The research output summarised above resulted from a European collaborative effort at various levels. First, research methodologies have been established through team work leveraging on the competitive advantage and expertise of researchers from different country teams. Second, a high level of co-ordination and integration have been achieved among the various stages of the project. Fourth, several projects involved the interaction of young and more senior researchers from different country teams, boosting the training potential and fostering human capital mobility within European member states.

3.3 Policy implications

The results obtained by the project have strong normative implications, which we summarise here. Drawing policy implications is particularly important as they may be useful in the practical implementation of privatisation in member states and accession countries.

First and foremost, share issue privatisation – i.e. privatisation in public equity markets – improves agents' diversification opportunities, allowing public and private investor to structure better diversified portfolios. Improved diversification opportunities have important consequences in terms of financial market deepening and efficiency. As a result, larger and importantly more liquid domestic stock market stem from a sustained privatisation program based on the floating of shares of state-owned enterprises in the domestic market. Therefore, privatisation is indeed a sensible tool to foster domestic **financial market development**: a privatisation program finds full legitimacy in this perspective.

Moreover, even if Governments do not consider domestic financial market development as a worthy objective *per se*, they should bear in mind that financial market development has important spill-overs to the real sector of the economic system. First, a deep and liquid stock market allows the efficient mobilisation of domestic savings, with direct implications on capital accumulation, and economic growth. Second, it is a key factor to provide a stable funding for pension systems, which is becoming a priority for many European countries. Indeed, the availability of a large number of listed companies with a wide percentage of capital floating in the market is a prerequisite for the construction of well diversified portfolios by financial institutions such as pension funds. Third, financial market development matters for corporate performance. A liquid stock market provides incentives for information acquisition by financial analysts. Their private signals are in turn aggregated and partially mirrored in stock prices. This positively affects corporate performance and growth because it makes possible to design stock-based managerial incentive schemes. Furthermore, a well developed stock market allows for a more intense M&A (i.e. Mergers and Acquisitions) activity, facilitating corporate aggregation and importantly forcing managers to pursue value maximising policies to avoid the threat of a take-over.

An additional policy implication is the following. A government interested in pursuing social welfare and economic growth should privatise its stakes in state-owned enterprise. Clearly, the privatisation method is crucial in this respect, as only share issue privatisation

(the floating of companies in the stock market) allows to garner at most the benefits from improved diversification opportunities and risk sharing.

The policy implication stated above holds in mature European economies, with some degree of financial market development pre-privatisation. The case of post communist countries of Central and Eastern Europe is different as several trade-offs exist in the process of transition to a market economy. One of those is the potential trade-off between privatisation and the reduction in social welfare: absent a reasonable financial market to start with, privatisation may be welfare-reducing at least in the short run. The construction of efficient ownership structures may bring along a substantial increase in unemployment, a reduction in social benefits, and thus a decrease in welfare. At the same time, different objectives of the privatisation process itself (such as the creation of incentive mechanisms, fairness, fast privatisation, etc.) are conflicting and involve trade-offs.

Therefore, the policy implication is to fine tune the privatisation mechanisms to the primary goals to be achieved. These may be free share distribution, temporary government ownership, set up of holding companies, insider privatisation or sales to outsiders. In this context, an important policy implication arises from politicians' interests regarding the privatisation process. Being able to manipulate the basic trade-off between the costs of restructuring the economy and efficient privatisation, politicians might obtain private benefits from hindering privatisation. Bargaining models of privatisation suggest that in order to achieve efficient privatisation, corruption should be avoided as much as possible and hard budget constraints should be imposed on firms.

Expectations play an particularly important role in transition economies. When agents expect that large stakes will be given to private ownership at early stages (i.e. when the government still owns a large fraction of assets in the economy), privatisation will be successful with great probability, and a "full" privatisation equilibrium arises. This implies that governments in transition should aim at privatisation to the largest possible extent, even at an early transition stage.

Since people know that politicians are interested to reallocate value after privatisation, benevolent governments seeking efficiency need to build up credibility. Public sales of companies at a discounted price at initial public offerings (IPO) can serve as signals of commitment. When obtaining high revenues from privatisation is a primary objective, gradual sales of equity (with a large initial retention) can substitute underpricing and signal commitment at the same time. Therefore, credible privatisation through the stock market should be gradual. Besides obtaining credibility by offering underpriced shares, the government also induces the liquidity and thus the development of the stock market. Indeed, privatisation has an indirect effect on stock market development: both through the positive feedback provided by each new entry to market size and liquidity, and through the resolution of political risk.

The nature of the privatisation processes in advanced and in transition economies are quite different, both from a theoretical and from a policy perspective, also in terms of **financial market integration**. While privatisation with international equity offerings tend to enhance market integration in advanced economies with well established financial markets, on the contrary in transition economies with less developed financial systems international equity offerings seem to increase market fragmentation. Accordingly,

international equity offerings tend to improve domestic market integration in advanced economies, while institutional reform such as accounting, insider and take-over legislation and enforcement seem more urgent than international placements in the case of transition economies.

However, the analysis of the policy choice of privatising in international versus domestic markets yields the following indication: governments maximising privatisation revenues should select that (international) market for a listing that will aggregate most relevant private information on the privatised stock. To the extent that international markets are informationally linked those governments will even prefer double listings in their national market as well as in the relevant international market. A national listing will help to aggregate some local factors that can be credibly communicated to global investors. Stabilisation oriented governments, on the other hand, may want to just do the opposite. They should opt for single listings to double listings and, under plausible parameter constellations, domestic listings to international ones. The reason is that informational efficiency unambiguously enhances price volatility and associated risks.

Last, and somewhat surprisingly, the global process of integration of the financial systems world wide does not seem to generate large measurable gains in terms of per-capita consumption and improved risk sharing. According to these findings integration of global financial markets still has to go a long way. The potential for further privatisation and reduction of ownership concentration still seems large. On the other hand, pension reform and the liberalisation of hitherto nationally organised pension systems will also be crucial for consumers to be ultimately able enjoy the gains from improved risk sharing in international capital markets.

Privatisation – especially in emerging economies – plays a strong potential in stabilising the financial sector. Particularly, the resolution of policy risk through sustained privatisation and liberalisation policy – a process that we define *confidence building* - has been an important source for the recent growth in emerging stock markets. Confidence building must be gradual, with privatisation, just as financial liberalisation, being the engine of the process, contributing to the resolution of policy risk and significantly to stock market development and stabilisation. Sustained privatisation seems to gradually strengthen the institutional framework by forcing a resolution of policy and legal uncertainties which had till then hindered equity market development, leading to increase in investor confidence. On average, this process takes place gradually as privatisation proceeds, with much of the resolution taking place during actual privatisation, as opposed to the announcement and preparation period. The greater significance of policy risk measures is consistent with the notion that both privatisation and liberalisation initiate a process of confidence building which requires consistency in the announced policies.

These policy conclusions are well grounded as the stem from an attempt to investigate the dynamics of required returns on investments. There is by now a general consensus in finance that required returns on equity evolve over time. We have indicated some evidence of such dynamics for country risk, particularly in emerging markets. The confidence building model yields another important policy prescription, suggesting that major reforms such as privatisation and liberalisation may have a *delayed* rather than

immediate effect on market development, and can thus explain the so called "return to integration": in countries which liberalised and maintained their policy, investors have been able to capture excess returns during the process on all domestic assets, as their ultimate payoff and risk profile depends on the actual degree of protection of property rights. Other more direct benefits of privatisation, such as improved risk sharing and liquidity as a result of new listings, would be instead immediately incorporated in market prices and volumes.

Market oriented policy reforms such as privatisation require legislation to reduce regulatory and legal uncertainty, greater protection of investors, removing restrictions on foreign ownership and competitive entry, and a reduction in the bias historically favourable to public sector borrowing. The real test is of course the proper enforcement of such rules. While there may be resistance from established interests to improvements in such rules, the necessity to attract investors often leads to more reliable supervision, the promotion of better accounting standards and transparent disclosure rules, the support of procedures to contest managerial decisions.

A related important point is that it is possible that privatisation can by itself resolve policy risk by helping to overcome political resistance to market reforms and their effect, perhaps because it establishes a broader-based ownership. Indeed, a large privatisation program may be designed so as to reduce policy risk of future policy reversals. A market-oriented party may increase the probability of being re-elected by implementing a series of underpriced sales, where excess demand is rationed so as to ensure a broad diffusion of shareholding and to reward long term holdings. A wide diffusion of shares may then shift the voting preferences of the middle class, creates political support for market reforms and reduces policy risk and the equity risk premium.

Finally, as to the impact of privatisation on the stabilisation of the real sector, we have shown that there exist a statistically significant and negative relation between privatisation receipts and public debt. This empirical results yields an important policy prescription: financially distresses governments should privatise the revenues are useful to improve fiscal conditions. Interestingly, privatisation has a statistically significant and negative effect on the current unemployment rate and a positive effect on previous period's unemployment rate. This result may also be of interest for policy makers: when privatisation is *announced*, the accompanied restructuring, which urges firms to operate more efficiently, can cause job losses, and, thus, increase the unemployment rate (justifying the positive effect of privatisation on previous period's unemployment rate). On the other hand, when privatisation is *implemented,* new entry in the market occurs, increasing the demand for labour and, thus, decreasing unemployment rate (explaining the negative effect of privatisation receipts on current period's unemployment rate).

4. Dissemination and/or exploitation of results

This section should include the strategy for dissemination that has been adopted during the life-time of the project and the follow-up of results foreseen by each partner after the completion of the project (new analyses, concepts, methodologies, indicators, tools, frameworks; databases, publications, conferences, etc.). A table should be included indicating the title of the result, the name of the partners involved and the exploitation intention. (2/3 pages)

The dissemination of the results has been performed through the following outlets:

1. Papers. 26 academic papers have been produced. The complete list is reported in the Table below

Authors	Title	Team	Status
Bagheri, M. and C. Nakajima (2002a)	"Optimal level of financial regulation under the GATS: a regulatory competition and co-operation framework for capital adequacy and disclose of information"	CUBS	Mimeo
Bagheri, M. and C. Nakajima (2002b)	"Competition, convergence and reform in European stock Exchanges"	CUBS	Mimeo
Bagheri, M. and C. Nakajima (2002c)	"The Capita Flow between Capital Importing and Capital Exporting Countries: Comparative Advantage and GATS (or EU) as Co-operative and Competitive Frameworks"	CUBS	Mimeo
Bellini, F. and G., Urga (2002a)	"Privatisation and implications for market predictability and financial integration with an application to the case of Mexico"	CUBS	Working paper
Bellini, F. and G., Urga (2002b)	"Testing for predictability and integration in the Latin American stock markets: a time-varying parameter approach"	CUBS	Mimeo
Bellini, F. and G., Urga (2002c)	"Alternative models to evaluate the impact of privatisation for market predictability and financial integration. With some empirical applications"	CUBS	Mimeo
Bellini, F., Scarpa, C. and G. Urga (2002)	"Privatisation and financial market development: the impact of some liquidity measures"	CUBS, FEEM	Mimeo
Bortolotti, B., Scarpa, C., Fantini M. (2000)	"Why do Governments privatize abroad?"	FEEM	Working paper, submitted for publication
Bortolotti, B., De Jong, F., Nicodano, G., Schindele, I.	"Privatisation and Market Liquidity"	FEEM, CIFRA	Working paper, submitted for

(2002)			publication
Bosi, S., and C. Nourry (2001)	"Financial Effects of Privatizing the Production of Investment Goods"	EVRY	Working paper
Bosi, S., G. Girmens, and M. Guillard (2001)	"Optimal privatisation design and financial markets"	EVRY	Working paper
Chiesa, G., and Nicodano, G. (2000)	"Privatisation and financial market development: theoretical issues"	FEEM	Working paper
Flotho, Teja-Dither (2002)	"Did privatisations increase consumption correlations?"	FREIBURG	Mimeo
Foucault, T., and, Gehrig, T. (2001)	"Cross-Listings and the Geography of Firms' Ownership"		Mimeo
Gehrig, T. (2002)	"Privatisations and Foreign Listings"	FREIBURG	Working paper
Girmens, G. (2001)	"Privatisation, international asset trade and financial markets"	EVRY	Working paper
Girmens, G., and M. Guillard (2002)	" Privatisation and investment : Crowding-out effect vs financial diversification"	EVRY	Working paper
Jung, Philip and Michael Trost (2002)	"The Contribution of the Frankfurt Stock Market to Price Discovery of Cross-Listed Transition Economy Stocks"	FREIBURG	Mimeo
Katsoulakos, Y,, Likoyanni, E. (2002)	"Fiscal and other macroeconomic effects of privatisation"	CERES	Working paper
Laeven, L., and Perotti, E. (2001)	"Confidence Building in Emerging Stock Markets"	CIFRA	Working paper, submitted to journal
Likoyanni, E. (2001)	"The privatisation of the Hellenic Telecommunications Organization (OTE) and its Impact on the Greek Financial Market Development – a Case Study for Greece"	CERES	Mimeo
Perotti, E. and van Oijen, P. (2001)	"Privatisation, Market Development and Political Risk in Emerging Economies"	CIFRA	Published
Reyes, V. and G. Urga (2002)	"The impact of financial liberalization in the economic growth of emerging markets"	CUBS	Mimeo
Schindele, I., and. Perotti, E. (2001)	Pricing IPOs in Premature Capital Markets: the Case of Hungary"	CIFRA	Mimeo
Schindele, I. (2000)	"Theory of Privatisation in Eastern Europe: A Literature Review"	CIFRA	Working paper
Urga (2000)	"Financial markets developments. Testing for efficiency and integration: a survey and some empirical issues"		Mimeo

Most of the papers are in the mimeo form. Some of them have been published as FEEM Note di Lavoro. The FEEM series is one most popular working paper series world wide.

They are downloadable from the website of the Fondazione (www.feem.it) and from the electronic library of Social Science Research Nertwork (www.ssrn.com/link/feem.html). Since June 2001 FEEM Working papers has also been available as an Economics Research Institutes Papers Series on ERN, the Economics Research Network of SSRN. Downloads of the papers from both the FEEM and SSRN websites are free of charge, also to non subscribers. This enhances the dissemination of research work.

2. Databases. 3 databases have been produced covering the 1985-2000 period: (i) a privatisation data base, reporting information on all major privatisation transactions in OECD economies (offer date, total proceeds, percentage of capital sold, foreign listings, source IFR-Thomson Financial). (ii) a financial database, with daily data on market prices, capitalisation, and volumes traded of the index of 23 OECD economies. (iii) a financial database with market data of individual privatised companies (prices, capitalisation, and traded volumes).

3. Website. The website for restricted use (www.feem.it/pfm/ghost) has been developed for the member of the research consortium to exchange data, preliminary draft of the papers, and relevant information concerning the status of the project.

4. Workshops. A kick-off meeting and 5 intermediate workshops have been held during the lifetime of the project in the various locations. During these workshops, research methodologies have been defines and preliminary results presented and discussed.

City	Location	Date
Milano	FEEM	07-8 Apr-00
Amsterdam	CIFRA	8/10-Sett-00
London	CUBS	1/2-Dic-00
Brussels	DG Research	05-Ott-01
Paris	EVRY	18/19-Jan-02
Athens	CERES	26/27-Apr-02

5. Final conference. The final conference has been one the main deliverable of the PFM project, and ensured a wide dissemination of the research output. The conference was entitled "Privatisation, Corporate Governance, and Financial Market Development", and was held in Milan on July 12-13, 2002. The objective of the conference was to present the best results produced by the PFM project to a large audience of academic, practitioners, and policy makers. In order to enhance the scientific impact and visibility of the conference, a Program Committee made of leading academics in the field has been established. Members of the committee have been:

Thomas Gehrig   (University of Freiburg and CEPR)
Francesco Giavazzi   (Università Bocconi and CEPR)
William Megginson   (University of Oklahoma)
Enrico Perotti   (University of Amsterdam and CEPR)
Gérard Roland   (University of Berkeley and CEPR)
Carlo Scarpa   (Università di Brescia and FEEM)
Domenico Siniscalco   (The Italian Treasury, CESifo, and FEEM)

The local organiser of the conference has been Bernardo Bortolotti (University of Turin and FEEM). A conference announcement and call for papers has also been produced and widely disseminated, using also the Social Science Research Network web site in order to select the best papers produces by the international academic community. Due to the high quality of papers presented and the number of participants (65) , the PFM conference has widely been considered one of the major events in the area of privatisation research of the year 2002.

Conference Program

July 12, 2002

Session 1. REAL EFFECTS OF PRIVATIZATION

Chair: William Megginson (University of Oklahoma)

9.15-10.00 Privatization and labor force downsizing around the world: does targeting matter?

Alberto Chong (Inter-American Development Bank and Georgetown University)
Florencio López de Silanes (Yale University, and NBER)

Discussant: Alexander Dyck (Harvard University)

10.00-10.45 Ringing in the 20th century: the effects of state monopolies, private ownership, and and operating licenses on telecommunications in Europe, 1892-1914

Scott Wallsten (World Bank)

Discussant: Carlo Scarpa (Università di Brescia, and FEEM)

10.45-11.00 Coffee break

Session 2. OWNERSHIP AND CONTROL IN STATE-OWNED VS PRIVATE CORPORATIONS

Chair: Bernardo Bortolotti (University of Turin, Italy, and FEEM)

11.00-11.45 Selling company shares to reluctant employees: France Telecom's experience

François Degeorge (HEC School of Management, and CEPR)
Dirk Jenter (Harvard University)

Alberto Moel (Monitor Corporate Finance, Monitor Group)
Peter Tufano (Harvard Business School and NBER)

Discussant: Thomas Gehrig (University of Freiburg and CEPR)

11.45-12.30 Private benefits of control: an international comparison
Alexander Dyck (Harvard University)
Luigi Zingales (Chicago University, and NBER)

Discussant: Giovanna Nicodano (University of Turin, Italy, and FEEM)

13.00-14.00 Lunch

14.30-15.15 Post-privatization corporate governance: the role of ownership structure and investor protection

Narjess Boubakri (Ecole des Hautes Etudes Commerciales, Montreal, P.Q., Canada
Universite Laval, Quebec, P.Q., Canada
Jean-Claude Cosset (Universite Laval, Quebec, P.Q., Canada)
Omrane Guedhami (Universite Laval, Quebec, P.Q., Canada)

Discussant: Nandini Gupta (The William Davidson Institute at the University of Michigan Buiness School)

SESSION 3. CORPORATE GOVERNANCE IN TRANSITION

Chair: Jean-Claude Cosset (Universite Laval, Quebec, P.Q., Canada)

15.15-16.00 Privatization revisited: the effects of foreign and domestic owners on corporate performance

Lízal Lubomír (CERGE-EI, Prague, and The William Davidson Institute at the University of Michigan Buiness School)

Jan Svejnar (CERGE-EI, Prague, and The William Davidson Institute at the University of Michigan Buiness School)

Discussant: Alessandro Sembenelli, University of Turin

16.00-16.15 Coffee break

16.15-17.00 Excessive IPO underpricing, private benefit, and the Chinese government

George Lihui Tian (London Business School, and the University of Michigan Business School)

Discussant: William Megginson (University of Oklahoma)

17.00-17.30 Invited lecture

PRIVATIZATION AND PUBLIC PENSION REFORM

Eytan Sheshinski (Princeton University)

July 13, 2002

Session 4. PRIVATIZATION AND INTERNATIONAL FINANCE

Chair: Enrico C. Perotti (University of Amsterdam, the Netherlands, and CEPR)

9.15-10.00 Privatization and foreign listings

Thomas Gehrig (Universität Freiburg, and CEPR)

Discussant: Stefano Bosi (EPEE, Université d'Evry-Val d'Essonne, France)

10.00-10.45 Privatization and stock market liquidity

Bernardo Bortolotti (University of Turin, Italy, and FEEM)
Frank De Jong (Finance Group, Universiteit van Amsterdam, the Netherlands)
Giovanna Nicodano (University of Turin, Italy, and FEEM)
Ibolya Schindele (Finance Group, Universiteit van Amsterdam, the Netherlands)

Discussant: Dirk Jenter (Harvard University)

10.45-11.00 Coffee break

11.00-11.45 Privatization and investment: crowding out vs financial diversification

Girmens Guillaume (EPEE, Université d'Evry-Val d'Essonne, France)
Michel Guillard (EPEE, Université d'Evry-Val d'Essonne, France)

Discussant: Gabriella Chiesa (Università di Bologna)

Session 5. PRIVATIZATION IN EMERGING MARKETS

Chair: Thomas Gehrig (University of Freiburg and CEPR)

11.45-12.30 Confidence building in emerging stock markets

Enrico C. Perotti (University of Amsterdam, the Netherlands, and CEPR)

Luc Laeven (World Bank)

Discussant: George Lihui Tian (London Business School, and the University of Michigan Business School)

13.00-14.00 Lunch

14.30-15.15 Partial privatization and firm performance: evidence from India

Nandini Gupta (The William Davidson Institute at the University of Michigan Business School)

Discussant: Scott Wallsten (World Bank)

15.15-16.00 Privatization and implications for stock market predictability and financial integration

Francesca Bellini (Università della Svizzera Italiana, Lugano and University of Bergamo, Italy)
Giovanni Urga (City University Business School, London UK, and University of Bergamo, Italy)

Discussant: Frank De Jong (Finance Group, Universiteit van Amsterdam, the Netherlands)

16.00-16.15 Coffee break

16.15-17.00 Intra-industry effects of privatization announcements: evidence from developed and developing countries

Isaac Otchere (University of Melbourne, Australia)

Discussant:
François Degeorge (HEC School of Management, and CEPR)

17.00-18.30

PRIVATIZATION POLICY IN EUROPE: ISSUES AND AGENDA

William Megginson   (University of Oklahoma)

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