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Introduction to the volume on Corporate Finance and Banking

Bruno Biais and Marco Pagano

European financial systems differ considerably from each other: banks and securities markets play widely different roles, in some countries universal banks are dominant intermediaries and in others they hardly exist, and the pace of financial innovation is equally uneven. This startling diversity of experiences may partly explain why European research on the design of financial markets and contracts is particularly lively, in some cases posing novel questions and in others offering novel answers to old questions in corporate finance and banking. The collection of papers in this volume offers a sample of this research and of the various paths that it is treading. While on surface the papers may seem quite disparate and disconnected from each other, upon careful consideration they are not. Few important common themes and questions run across them, and similar methodologies are used in approaching them.

One of these common questions is why security markets have such different roles and importance relative to banks in different countries. A related issue is whether these different financial arrangements matter for the functioning of the real economy. Several studies approach these issues by focusing on the functioning of the primary equity market, or the process through which companies “go public”, which marks the transition from complete reliance on bank financing to partial reliance on security markets. Other studies approach the issue at a “systemic” level, attempting to identify the comparative advantages of banks and security markets in solving the information problems involved in financing companies.

Another group of papers shares another concern: explaining the variety in the design of contracts and institutions observed in credit markets. Why do some companies borrow from a single bank and others from several banks, or from a multitude of investors via bond markets? Why do some banks share information about their customers? Finally, two papers consider whether credit market imperfections produce different real outcomes. Does the functioning of the credit market have independent effects on the ability of companies to compete and survive? And how does it affect the cyclical behaviour of the economy?

At a more fundamental level, all the studies in this book are bound together by the common idea that information and enforcement problems are the key obstacles to the provision of external finance to companies, and they all employ contract-theoretic tools to frame these problems and guide empirical work.

I) Going public

Several papers in this volume focus on the process through which companies list their shares on public equity markets. Understanding the motivations and design of initial public offerings (IPOs) is an important step towards answering the wider question of what is the function of the stock market. One of the main differences between the market-oriented financial system of Anglo-Saxon countries and the bank-based system of continental Europe lies precisely in the proportion of companies listed on the stock exchange. But even in Great Britain and in the United States some large companies are not public. So the decision to go public cannot be considered simply a “natural” stage in the growth process of a company. These cross-country and cross-sectional differences indicate that going public is a *choice*.

Why companies go public: Pagano, Panetta and Zingales (1998)

The paper by Pagano, Panetta and Zingales inquires what are the determinants of this choice, using data on accounting variables, interest rates and bank loans for a large panel of Italian companies, a subset of which went public during the sample period. These data are used to analyze the determinants of IPOs as well as the consequences of this decision on the companies’ investment, profitability, financial policies, ownership structure and control.

They find that the main determinants of the probability of an IPO are the size of the company and the market-to-book price ratio in the relevant industry. The role of company size may indicate the presence of sizable fixed listing costs or may proxy for company age and the associated reputation. The positive relationship with the market-to-book ratio may reflect a higher value of investment opportunities in the sector or rather these companies’ ability in timing the market. The finding that investment, growth and profitability decrease after the IPO lends credibility to the “market timing” story. The new capital raised upon listing is not used to finance subsequent investment and growth, but rather to reduce leverage.

On the whole, these results suggest that in the Italian case the stock market has not catered mainly to small, young, and capital-thirsty companies, but to large and mature companies attempting to time the market and reduce leverage. The typical Italian IPO is 8 times as large and 6 times as old as the typical IPO in the United States. This applies to most other European countries as well: the average age of firms going public in Continental Europe is 40 years (Rydquist and Hogholm, 1995), in contrast with the United States, where most IPOs are used to fund the early growth stages of start-up companies. This begs the question of why the stock market plays such different roles in Continental Europe and the United States, an issue on which the essays by Boot and Thakor on financial system design shed some light.

Another empirical finding reported by Pagano et al. (1998) is that going public permanently reduces the cost of bank credit. This effect is not fully explained by the reduction in leverage at the time of the IPO. It may partly reflect the improved quality of the accounting information concerning public companies and partly their greater bargaining power with banks. So another function of public equity markets in Europe may be to disenfranchise relatively mature companies from banks. This suggests that banks are unlikely to favor companies' access to public markets, a point again echoed in the essays by Boot and Thakor.

Finally, IPOs are associated with some equity sales by controlling shareholders and by more frequent turnover of control than private companies. So also the desire to divest from the company plays a role in IPOs. The next three studies in this volume show that changes of share ownership and corporate control concerns crucially affect also the incentives to go public as well as the design of IPOs.

The role of ownership and control: Brennan and Franks (1997), Mello and Parsons (1998) and Bulow, Huang and Klemperer (1999), and Habib and Ljungqvist (2001)

The decision to go public is taken by the existing directors of the company. Therefore identifying their objective and incentives is a prerequisite to understand the decision to go public as well as the pricing and design of IPOs. For the existing directors of the company, the IPO is a key opportunity to design the subsequent share ownership structure and control allocation. How will they exploit this opportunity? To the extent that they enjoy considerable private benefits of control, they will not want to be severely limited by the monitoring activity

of large outside shareholders and to expose their control benefits to the risk of a post-IPO takeover raid.

To protect their private benefits of control, the initial owner-manager will typically want a certain degree of dispersion, as shown by Pagano and Röell (1998). If he sells a minority stake (to finance new investment or to allow other owners to divest), he will not sell the entire stake to a single shareholder, for fear of being “excessively” monitored. If the desired degree of share-ownership dispersion is sufficiently large, going public is preferable to obtaining finance from many private shareholders. Until the company stays private, each additional private shareholder must bear non-negligible costs to collect information about the company and trade its shares (due to the absence of a public market price), so that the company’s cost of capital is increasing in the number of shareholders. Above a critical number of shareholders, it becomes preferable to pay the fixed listing cost and go public, thus avoiding altogether excessive monitoring by other shareholders. The incentive to go public is stronger, the larger the initial amount of external funding to be raised and the stricter are disclosure rules for public relative to private companies.

The incentive to disperse share ownership at the IPO stage is compounded by the danger of a post-IPO hostile takeover. This danger is greatly increased if an outside shareholder is allowed to accumulate a non-negligible toehold in the company. The paper by Bulow, Huang and Klemperer (1999) in this book shows that toeholds can have an enormous impact in takeover battles, such as those between two financial bidders. This is because a takeover contest can be seen as a “common-value” auction. In this situation, the bidder who has a toehold can win very cheaply, because he has the incentive to bid aggressively: his bids do not just raise the price of the remaining shares but also the value of his own holdings. Expecting the toeholder to bid aggressively increases the other bidders’ winner’s curse and makes them less aggressive, which in turn reinforces the aggressiveness of the toeholder.

The empirical evidence confirms that a toehold greatly enhances its owner’s chance of winning the control of a company and reduces the resistance of the incumbent management (Walkling, 1985; Betton and Eckbo, 1997; Jennings and Mazzeo, 1993; Stultz, Walkling and Song, 1990). Conversely, a dispersed share ownership has two related benefits for incumbent management. On one hand, it avoids the danger of a future hostile takeover by a toeholder. On the other, it allows controlling shareholders to retain effective control via a stake considerably below 50 percent, as the only company’s toeholders.

Even if the initial controlling shareholders want to surrender control, it is efficient for them to sell the controlling stake separately after the IPO, as argued by Zingales (1995) and Mello and Parsons (1998). This two-stage sale allows the sale of the controlling stake at a different price, reflecting the private benefits (and costs) of control. In addition, as pointed out by Mello and Parsons, the IPO has a price discovery function, in that it enables the seller to elicit valuable information about the company's value and use it to set the terms for the sale of the controlling stake to a new controlling shareholder.

These theoretical predictions are supported by the evidence reported by Brennan and Franks (1997) in this volume. Using data from 69 IPOs in Great Britain, they show that the IPO shares are underpriced in order to ensure oversubscription and allow existing directors of the company to discriminate among applicants for shares and disperse the shareholdings among a large number of investors. Rationing shares at the IPO enables directors to discriminate against investors who apply for large blocks, even at the cost of large underpricing (which in fact appears to be positively related to subsequent share ownership dispersion). This allows incumbent management to enjoy the private benefits of control without the hindrance of excessive monitoring by large non-controlling shareholders (as predicted by Pagano and Röell) or the danger of an hostile bid by a toeholder capable of taking control over the company (as highlighted by Bulow, Huang and Klemperer). In fact, incumbent managers slept easily for many years after the IPO: Brennan and Franks report only 3 hostile takeover bids out of 43 companies surviving up to 10 years after the IPO, only 1 of which was successful.

One may object that, through IPO underpricing, controlling shareholders themselves pay part of the cost associated with dispersion of non-controlling stake. But Brennan and Franks point out that controlling shareholders bear only a minor fraction of the cost of underpricing, since they sell very few shares at the IPO – most shares being sold by non-directors.

The same idea – that the distribution of the wealth losses associated with underpricing is central to the IPO design – is at the core of the study by Habib and Ljungqvist (2001) in this volume. They reckon that the initial shareholders' desire to avoid underpricing is crucially related to how many shares they plan to sell at the IPO stage: the more they sell, the less they want to underprice. But, Habib and Ljungqvist add, they can do so because they have another policy instrument to play with, beside underpricing. If they wish to limit underpricing, initial shareholders can spend more resources in promotion activities, such as hiring high-quality

financial advisers or advertising the IPO. These promotion activities raise the demand by uninformed investors and thereby allow the initial shareholders to get a better price for their shares, other things being equal. Since at the margin promotion activities are more efficient for initial shareholders who plan to sell a large amount of shares, one would expect to see more promotion expenses and less underpricing when larger inside stakes are sold. These predictions are supported by evidence based on a large sample of U.S. IPOs floated on NASDAQ between 1991 and 1995.

II) Financial system architecture

One of the reasons why companies go public is that banks and security markets are apt at solving different informational problems, and these problems typically change as company characteristics change, as pointed out by Boot and Thakor in their two essays in this volume. Companies perceived as low-quality on the basis of public information typically benefit by borrowing from banks, since bank monitoring is especially suited at solving the moral hazard problems arising from borrowers' opportunistic behaviour. Companies that are perceived as high-quality, instead, gain more from accessing security markets, since the latter aggregate investors' diverse information and convey it to companies via prices. Security markets are not good monitors, but this matters less for companies of proved quality.

At early stages of economic development, Boot and Thakor (1997a) argue, most firms tend to have low observable quality and therefore need to rely on bank finance and monitoring. As the financial system develops, successful borrowers acquire a better reputation and graduate to security-market financing, as in Diamond (1991). The attending improvement in the average quality of companies makes investment in security markets more attractive, so that a greater fraction of resources in the financial system is endogenously reallocated from bank lending and monitoring to investment and trade on security markets.

In this view of financial development, security markets tend to grow at the expense of bank financing. Therefore, to the extent that banks can collectively create some institutional impediment to the growth of financial markets, they will tend to do so. There is a collective action problem in doing so, however: unless banks coordinate their actions, they cannot defer or prevent the development of security markets. Such coordination will typically be more difficult if banks are competitive than in a credit market dominated by a few large players.

This insight is further refined in Boot and Thakor (1997b), who show that the development of security markets does not depend only on the degree of banking competition but also on the degree of functional separation between commercial and investment banking. In this study they distinguish between commercial banks, that specialise in lending and monitoring, and investment banks, that specialise in financial innovation via security design. Investment banks hold the key to security markets access by companies, and thereby can reduce the scope of commercial banks' activity. Accordingly, commercial banks have all the incentives to restrain the activity of investment banks. They can do so by integrating them in their structure, if regulation allows the establishment of "universal banks". So the model predicts that in countries where universal banks dominate financial markets, financial innovation is less intense than in countries where commercial and investment banking cannot be folded within the same institution.

III) Design of credit contracts and institutions

Given the persistent prevalence of banks in financial intermediation (especially in Europe and Japan), it is natural to ask which is the economic function of the various contracts and institutions that appear to rule actual credit relationships. Some papers in this volume illustrate this line of research, showing that the design of credit contracts and institutions can be regarded as an endogenous response to informational and incentive constraints.

Optimal credit contract design: Bolton and Scharfstein (1996)

In some countries, companies tend to rely primarily on a single bank. In others, credit seekers apply simultaneously for credit from several lenders and often manage to get loans and lines of credit from several institutions. As reported by Ongena and Smith (2000), in Norway, Sweden, Switzerland and the United Kingdom, the median number of bank relationships is relatively low at less than three, and between three and four in Austria, Denmark, Finland, Ireland, Hungary, the Netherlands, Poland. But it can be much larger in other countries: in France, Italy and Portugal the median number is 9 or more.

The paper by Bolton and Scharfstein in this volume analyzes the choice of the number of a company's creditors as the result of an optimal contract. The starting point of the analysis,

which is based on the theory of incomplete contracts, is that borrowers can default because of liquidity reasons or as a result of opportunistic behavior by the borrower. To avoid or reduce the occurrence of the latter, debt contracts must penalize default by entitling creditors of insolvent borrowers to liquidate the company's assets. But, to the extent that this right is enforced also when default is due to a liquidity shock, liquidation will occur inefficiently. The optimal contract will have to balance the disciplinary role of liquidation with the inefficiency ensuing from excessive liquidation of the company's assets.

The number of creditors is a key ingredient in designing the optimal contract, since it affects the ex-post liquidation incentives of creditors. Bolton and Scharfstein show that with multiple creditors, the borrower ends up paying more than he would pay to a single creditor, in that the liquidation value of his assets is lower. Therefore, liquidation becomes more effective in penalising strategic default, but also more costly in case of a liquidity default. Accordingly, multiple creditors should be preferred when liquidity default is unlikely, and a single creditor when the risk of liquidity default is high. By the same token, a single creditor is preferable when the firm's assets are worth substantially more together than apart: the higher asset complementarity, the greater the cost of excessive liquidation.

Of course, borrowing from several creditors has also other costs and benefits beside those analyzed by Bolton and Scharfstein. Multiple bank relationships discourage each bank from monitoring the borrower closely (since lenders free-ride on each others' monitoring efforts) and prevent the intertemporal sharing of rent surplus that would be possible within an exclusive bank-firm relationship (Petersen and Rajan, 1994). On the other hand, borrowing from several creditors may entail several additional benefits beside its disciplinary role against strategic default. First, it may help reduce the cost of credit by forcing lenders to compete. Second, by lending a small amount to each client, creditors can diversify their loan portfolios more than they would under exclusive lending. This can reduce interest rates by lowering the risk premium required by each lender. Third, a borrower who can obtain credit from several lenders is insured against the risk of having a loan or credit line withdrawn if a single lender suffers a liquidity shock (Detragiache, Garella and Guiso, 2000).

Information sharing arrangements: Pagano and Jappelli (1993), Padilla and Pagano (1997)

Credit market performance is not only affected by the design of credit contracts but also

by the design of institutions that shape information flows within the market, such as voluntary information sharing mechanisms (“credit bureaus”) or mandatory ones (“public credit registers”). The paper by Pagano and Jappelli is the first to document the presence of information sharing agreements among lenders in the consumer credit market, and their differing importance across countries and over time.¹ The paper proposes an explanation for why lenders may find it worthwhile to share information about their customers. In the context of an adverse selection model, information sharing allows banks to target and price their loans more accurately, and thereby increase their profits – provided these are dissipated away by competition, and the costs of the information sharing mechanism are not too high.

In the model, each bank has private information about the creditworthiness of credit applicants who reside in its market area but has no information about credit applicants who have recently moved into its market area (“movers”). Therefore, banks face an adverse selection problem when lending to movers. However, another bank may have information about them. If they borrowed before moving, banks at their former location may know their creditworthiness. If all banks exchange private information about their clients, they can identify which of the movers who seek credit are creditworthy and can lend to them as safely as they do with long-standing clients. As a result, the default rate decreases.

The effect on lending, however, is ambiguous, however. The volume of lending may increase or decrease, because when banks exchange information about borrowers, the implied increase in lending to safe borrowers may fail to compensate for the reduction in lending to high-risk applicants. Banking competition strengthens the positive effect of information sharing on lending. When credit markets are contestable, information sharing reduces informational rents and increases banking competition, which in turn leads to greater lending.

The model also explores lenders’ incentives to create a credit bureau. Lenders have a greater incentive to share information when the mobility of credit seekers is high and the potential demand for loans is large. Technical innovations that reduce the cost of filing, organizing and distributing information should foster credit bureaus’ activity. Banking competition, in contrast, may inhibit the appearance of credit bureaus; with free entry, a bank that supplies information about its customers to a credit bureau is in effect helping other lenders to compete more aggressively.

¹ Jappelli and Pagano (2001) document the pervasiveness of information sharing arrangements also in other credit markets and for a larger set of countries.

The exchange of information between banks can also increase borrowers' incentives to perform. Padilla and Pagano (1997) show that information sharing can generate this incentive effect by reducing the informational rents that banks can extract from their clients within lending relationships. They make this point in the context of a two-period model in which banks are endowed with private information about their borrowers. This informational advantage offers banks some market power over their customers and thereby generates a hold-up problem: anticipating that banks will charge predatory rates in the future, borrowers exert little effort to perform. This leads to high default and interest rates, and possibly to a collapse of the credit market.

If they commit to exchanging information about borrowers, however, banks restrain their own future ability to extract informational rents, and commit to leave a larger portion of the surplus generated by the financed projects to entrepreneurs. As a result, these borrowers will have a greater incentive to ensure the success of their projects. This reduces the probability of default on their loans. The interest rate that banks charge will decline in step with the default rate, and total lending will be larger than in a regime without information sharing.

Exchanging information about borrowers can have other effects beside those analyzed in these two studies. It can discipline borrowers by affecting his reputation: every borrower knows that if he defaults his reputation with all other potential lenders is damaged, and credit will become harder to get or more expensive for him. This disciplinary effect of information sharing has been analyzed by Padilla and Pagano (2000). Moreover, borrowers have the incentive to become overindebted if they can draw credit simultaneously from many banks without them realizing it. Information sharing mechanisms disclose to lenders the overall indebtedness of borrowers, thereby eliminating this incentive and the implied inefficiency in the provision of credit (Bennardo and Pagano, 2001).

IV) Credit market imperfections and economic activity

The last two papers in this volume show that the same informational frictions that explain the design of credit contracts and institutions can also affect real economic activity.

Credit market imperfections and firm survival: Zingales (1998)

When credit markets are imperfect, firms may be forced out of the market due to lack of liquidity, even though they are efficient. This applies particularly to firms that are already deeply in debt (though solvent), since these are most likely to be cut off from credit and forced to liquidate. The paper by Zingales (1998) tests this hypothesis by focussing on a “natural experiment”: the survival of trucking firms after the Carter deregulation of the U.S. trucking industry. If capital markets were perfect, the deregulation should have led to the exit of the least efficient firms, while the level of indebtedness should have played no role in firms’ survival.

Instead, Zingales finds that highly leveraged trucking firms were less likely to survive the deregulation, even after controlling for various measures of efficiency and for the ex-ante risk of default. Under the pressure of indebtedness, these firms had to curtail investment and cut their prices more aggressively in order to generate the necessary liquidity, and therefore fewer of them managed to survive than deep-pocket (and possibly inefficient) firms. The effect of leverage on the prices charged by carriers during the price war induced by the deregulation is entirely concentrated in the imperfectly competitive segment of the industry. Accordingly, it is in this segment that the overall impact of leverage on subsequent survival is largest.

Credit market imperfections and the business cycle: Suarez and Sussman (1997)

Besides generating inefficiencies in the selection of firms and investments, credit market imperfections can have a role in macroeconomic fluctuations. There is a considerable literature in this area, both at the theoretical and the empirical level. Most of the theoretical work in this area, such as Bernanke and Gertler (1989) and Kiyotaki and Moore (1997), shows that credit market imperfections are a propagation mechanism. Given a real shock, they amplify its impact on the economy and in many cases generate an oscillatory reaction of real economic activity to the shock. The paper by Suarez and Sussman (1997) in this book, instead, presents a model where financial market imperfections create a pure reversion mechanism, in that they are capable of generating a two-period equilibrium cycle. They do so by extending the well-known Stiglitz-Weiss model of lending under moral hazard to a dynamic setting.

The moral hazard problem confers a central role to the liquidity position of entrepreneurs: the higher their liquidity, the less dependent they are on external finance and therefore the larger

their effort and probability of success. But this increases the quantity produced in the subsequent period, and decreases prices and profits, and therefore the liquidity position of entrepreneurs. This generates two-period cobweb-like dynamics in production, prices, profits and liquidity. This cycle can arise and persist even in the absence of any external shock, and is entirely driven by the moral hazard problem in the provision of external finance: it disappears if this problem is absent. Interestingly, while in Bernanke and Gertler (1989) and Kiyotaki and Moore (1997) external shocks are not anticipated, in the model by Suarez and Sussman agents anticipate future prices perfectly and can stipulate complete contracts, that is, they can make them contingent on all relevant information. Therefore, the sole imperfection present in the model is the informational asymmetry in the credit market.

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