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The Role of Institutional Investors in Corporate Finance

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ABSTRACT

This paper argues that institutional investors may have a positive effect on stock prices. This effect realizes through different mechanisms: institutional investors reduce information asymmetries between firms and (other) investors, contribute to the liquidity of the company's stock and improve its corporate governance. We conjecture that firms, understanding the benefits of having institutional investors in their ownership, may do efforts to attract them. We apply this idea in the context of IPOs. Using data on Belgian IPOs over the period 1984-2000, we find that firms using the stock market as a financing vehicle and firms less likely to be monitored by corporate blockholders are more likely to pre-allocate shares to institutional investors at IPO-time. Finally, pre-allocating shares to institutional investors is shown to reduce underpricing and enhance post-IPO liquidity.

I. INTRODUCTION

Institutional investors – such as investment companies, mutual funds, brokerages, insurance companies, pension funds, investment banks and endowment funds – are entities with large amounts to invest. While these investors have been prominently present in Anglo-Saxon countries since a long time, we provide evidence that their importance in Continental Europe has increased dramatically, especially since the second half of the nineties. Specifically, we show an upsurge in the amount of funds that they manage since 1991, which becomes especially striking as of 1995. Simultaneously, institutional investors in Continental Europe on average exhibit a larger appetite for investments in the equity of listed companies during the second half of the nineties.

Different studies have investigated the impact of having institutional investors involved in a company's ownership. Usually, institutional investors are considered to have a positive effect on the stock prices of the firms in which they invest. This effect materializes through different mechanisms: institutional investors reduce information asymmetries between the firm and (other) investors, contribute to the liquidity of the company's stock and improve the firm's corporate governance. Nevertheless, the literature has pointed out that some new problems may arise after involving institutional investors in a company's ownership, such as larger variability in stock prices. Also, specific conflicts of interest may arise between the firm and small shareholders on the one hand and institutional investors on the other.

If firms fully understand the positive influences of institutional investors and if benefits are larger than costs, they may do efforts to involve these professional investors in their ownership. In particular, firms that can benefit from the functions performed by institutional investors may wish to attract institutional interest. We apply these ideas in the context of going public, using data on a sample of Belgian initial public offerings (IPOs).¹ The reason why we focus on IPOs is that at the time firms go public, information asymmetries generally are large (the firm has not yet built up a public track record), the liquidity of the firm's stock has to be assured in order to establish the firm's credibility (leave a good taste in investors' mouths) and governance structures usually have to be adjusted to take into account the new (public) ownership structure of the firm. Our results show that

firms using the stock market as a financing vehicle are more likely to pre-allocate shares to institutional investors at IPO-time. Such pre-allocation is found to reduce underpricing and enhance post-IPO stock liquidity. On the score of corporate governance, we find that firms that are less likely to be monitored by corporate blockholders are more inclined to pre-allocate shares to professionals, who are potential active monitors. As pre-allocating companies have relatively fewer outside directors in their board, we cannot conclude from our results that institutional investors actually contribute to firm monitoring and governance.

The remainder of this paper is organized as follows. Section II discusses the importance of institutional investors in financial markets. The contribution of institutional investors to reducing information asymmetries, increasing stock liquidity and improving governance is treated in Section III. Section IV presents the results of our own study on the role of institutional investors in IPOs. Finally, Section V concludes this paper.

II. THE IMPORTANCE OF INSTITUTIONAL INVESTORS IN FINANCIAL MARKETS

The amount of financial resources under the control of institutional investors and their investment in the equity of listed firms is rising in all OECD-countries. Table 1 shows the evolution for Belgium and the G-7 countries over the period 1991-2001. Data were obtained from the OECD statistical yearbook on institutional investors. For every country and year, two pieces of information are reported: the market value of total assets under institutional management as a percentage of the country's GDP (= Assets/GDP) and the value of assets invested in the stock market as a percentage of total institutional assets (= Shares/Assets).

Looking first at the importance of their assets relative to GDP, it is clear that institutional investors as a group manage very important amounts of capital, ranging from a capital stock equal to 81% of GDP in Germany to 191% in the U.S. and the U.K. in 2001. In fact, in most Anglo-Saxon countries institutional investors hold a significant position, mainly because of the pension system: instead of paying pensions through repartition as in Belgium, France, Italy, Germany and Japan, where the active population generates the pensions of the retired

(i.e. no reserves are formed), Anglo-Saxon countries have developed a capitalization system, with individuals save for their own pensions. In practice, the financial reserves that are produced this way are managed by professional investors. Nevertheless, Table 1 shows that over the studied window, Continental European countries have invested very heavily in financial assets under management of institutional investors. In these countries, the global growth rate of institutional Assets/GDP-ratio is huge and ranges between 134% (France) and 356% (Italy).

Not only are the assets under the management of institutionals more important in the U.S. and the U.K., also the fraction of total assets invested in the stock market is significantly larger. Specifically, Table 1 shows that especially U.K. institutionals are very much share capital-minded and invest around 65% of their resources in the stock market over the considered window. With an average of about 40%, stock market investments are a major part of professional portfolios in the U.S. too. Parallel to the growth in importance, in Continental European countries the portion of assets invested in equity also rises over time. In fact for Belgium and France, this portion attains a level similar to the one in the U.S. in 2001. Probably, the stock market boom during the second half of the nineties has played an important role in the increasing importance of institutional holdings and the shift towards equity investments. In fact, the high returns produced by shares (and the low interest rates) over that period made it particularly attractive for institutionals to invest higher portions in stock rather than in traditional interest-bearing securities. The resulting influx of capital in the stock market, next to increasing stock prices even more, obviously created opportunities for firms wishing to enter the stock market through an IPO.

In view of the combination of rising weight in the economy and increasing appetite for shares, institutionals have become an increasingly important investor group in the stock market, especially in Continental Europe. As these investors have demands, behavior and interests different from small individual shareholders, this phenomenon is likely to affect publicly quoted firms and stock markets in general. In Section III, we survey three important aspects of institutional investor behavior and investigate the consequences for firms. These aspects concern professional information collection, the demand for and the contribution to liquidity and the more important bargaining power of these institutions relative to small retail investors.

TABLE 1
Importance and investments of institutional investors

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<i>Belgium</i>											
Assets/GDP	44.6	47.4	57.3	55.5	57.9	64.3	73	88.1	101	106.1	109
Shares/Assets	19.59	18.69	19.93	21.73	21.68	22.96	26.68	31.52	37.6	41.39	40.9
<i>France</i>											
Assets/GDP	56.4	61.9	73.9	71.7	77.7	86.6	97	106.9	124.2	131.8	131.8
Shares/Assets	9.02	7.96	6.69	6.9	23.31	25.03	29.68	34.26	42.03	45.64	42.89
<i>Italy</i>											
Assets/GDP	20.6	21.8	28.2	32.2	32	39	53.9	79.6	99.5	97.8	94
Shares/Assets	10.26	8.87	10.9	14.96	14.14	12.07	14.06	15.28	22.37	23.02	18.13
<i>Germany</i>											
Assets/GDP	33.9	34	38.9	41.3	45.3	50.6	58.8	66.3	76.9	79.8	81
Shares/Assets	9.57	10.24	12.46	12.22	12.23	13.99	18.61	21.79	27.91	28.01	24.43
<i>Japan</i>											
Assets/GDP	73.3	77.7	83	81.5	88.6	88.4	86.7	89.6	98.9	97.7	94.7
Shares/Assets	23.91	21.66	21.73	18.26	19.13	16.8	15.31	15.35	18.78	17.05	15.73

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<i>Canada</i>											
Assets/GDP	64.2	69.6	79.4	81.7	84.2	93.2	101.4	110.1	111.5	113.7	115.8
Shares/Assets	22.18	22.68	22.97	23.97	25.51	26.52	27.83	27.6	26.88	26.9	25.12
<i>U.K.</i>											
Assets/GDP	116.3	130.7	162.2	143	162.8	172	194.1	202	227.7	212.8	190.9
Shares/Assets	69.53	68.3	69.73	68.51	68.37	67.24	67.99	64.98	66.59	65.48	64.92
<i>U.S.</i>											
Assets/GDP	124.2	127.2	136.3	135.9	151.8	162.9	178.4	192	207.8	198.7	191
Shares/Assets	28.91	30.34	33	33.49	38.41	42.13	46.19	48.19	51.3	48.81	44.11

III. THE FUNCTIONS OF INSTITUTIONAL INVESTORS IN CORPORATE FINANCE

In this section, we discuss the role of institutional investors in reducing information asymmetries, increasing liquidity, and improving corporate governance.

A. *Institutional investors and information asymmetries*

Since the seminal work by Akerlof (1970), it is well known that asymmetric information leads to price discounts. Using the example of the used car market, Akerlof shows that rational buyers understand that they are up against sellers that are better informed about the intrinsic quality of the cars put up for sale. As a result, they will only offer to buy at prices reflecting the fact that lower quality owners are most likely to be the ones that are prepared to sell. If asymmetric information is important, the discount may become so large that good quality sellers are driven out of the market and only the lowest quality owners remain willing to trade.

Adverse selection through asymmetric information is also a well-known phenomenon in financial markets. When stock prices are low, managers and company insiders often complain that their firm cannot issue new shares to finance its investments because the market cannot be convinced that it underestimates the true value of the firm. Convincing the market is not easy, because outside investors understand that they are up against better informed agents that have an interest in claiming that the share price is too low, even if this is not the case. Hence overall, information asymmetries tend to have a negative impact on the stock price of better quality firms. Consequently, firms may invest in reducing information asymmetries to increase their stock prices.

Different theoretical models show how this may actually arise. These models generally assign a role to institutional investors. Diamond and Verrecchia (1991) start out from the logic that a reduction in information asymmetries lowers the cost of capital and that companies that can benefit most will invest more strongly in reducing such asymmetries. In their model, the decline in the cost of capital is caused by the fact that better information attracts more large investors (such as institutional owners) as less information asymmetries enhance every-day liquidity. Clearly, the problem of information asymmetry

and liquidity – which is discussed in Section III.B. hereafter – are closely interrelated. Similarly, in a capital market with incomplete information, Merton (1987) shows that stock prices are higher the larger the number of investors aware of the company's securities. This view could explain why larger, hence most of the time also better-known firms attract more investors and institutionals in particular.

The preceding views are supported by empirical evidence. Consistent with the notion that fewer information asymmetries are associated with the presence of more institutional owners, Grullon et al. (2004) find that firms that invest in increased visibility attract more investors, and especially institutional owners. This practice results in more liquidity and higher stock prices. Interestingly, their findings also reveal that visibility may be enhanced not only by investing directly in investor relations, but also by product market advertising. Bushee and Noe (2000) find that firms ranking higher in the disclosure rankings² have more institutional ownership. Consistent with the view that attracting more investors in general enhances prices, Kadlec and McConnell (1994) find that when companies listed elsewhere announce their decision to also list in New York, their stock on average yields a positive abnormal return.

A quickly developing area of research linking reduced information asymmetries and institutional investors concerns bookbuilding. Bookbuilding is a method through which the selling price of a large block of shares is determined. Originally developed in the U.S., the method has been extensively used in Continental Europe since the mid-nineties for the marketing of shares in IPOs. In essence, it involves asking professional investors how many shares they are willing to buy and at what price. On the basis of this information, the firm and its investment bankers determine the IPO's offering price. The method uses the fact that compared to small retail investors, professionals generally are better able to evaluate the true worth of a firm. Cohen et al. (2002) find empirical support for this conjecture. Their evidence indicates that institutional investors are capable of better evaluating the informational content of cash flow news as compared to retail investors. So, in contrast to the earlier discussed studies of Diamond and Verrecchia (1991) and Merton (1987), where institutional investors benefit from reduced information asymmetries and enhanced liquidity, this stream in the literature posits that institutional investors – via the bookbuilding procedure – actually contribute to decreasing information asymmetries, thereby adding to the stock's value and liquidity.

Usually, bookbuilding is part of a two-stage procedure whereby in the first stage the offering price is determined as described above, and in a second stage retail investors are allowed to subscribe at the price determined in the first stage.³ As this subscription price reflects the value professionals are willing to pay, it should reduce the threshold to subscribe for small investors. However, for bookbuilding to work in practice, the IPO-firm needs to give professional investors an incentive to invest in information collection and then truthfully reveal their opinion. This is typically achieved by reducing the subscription price below the true worth of the firm as revealed by the bookbuilding. Subscribers then achieve a positive return as compared to buying on the first day of normal trading on the exchange (in most countries, this return to ‘underpricing’ amounts to 15% on average).⁴ Because of this reduction in price, investors usually ask more shares than are supplied by the firm so that rationing has to take place. Classically, the institutional investors that bade the highest price during the bookbuilding phase are less rationed. This logic has been developed in detail in Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), Welch (1991), Cornelli and Goldreich (2001). It is also supported empirically. Indeed, as predicted by these models, institutional investors collect valuable information and prove to be able to outperform small investors at the time of an IPO (Aggarwal et al. (2002)). Furthermore, when allocation rules change and the benefits of participating are reduced, these professionals collect less information (Ljungqvist and Wilhelm (2002); Keloharju and Torstila (2002)). Ljungqvist and Wilhelm (2002) also show that overall the indirect issuance costs caused by underpricing are reduced through the process of bookbuilding and hence benefit IPO-firms.

Preceding findings imply that through the presence of institutionals in the market, selling methods of shares can be developed that ease capital market access for firms that face important information asymmetries, i.e. hard to value stocks, like young high-growth firms. Arosio et al. (2001) and Huyghebaert and Van Hulle (2002) indeed find that since the introduction of bookbuilding in Continental Europe in the second half of the nineties, young high-tech firms with large financing needs dominate the population of firms going public. By using bookbuilding, organizing roadshows abroad and involving high-reputation foreign investment banks in the marketing process, these IPO-firms have succeeded in placing a fraction of their shares with Anglo-Saxon institutional investors also. However, notwithstanding

its merits, the method has been a source of conflicts of interest between firms and small shareholders on the one hand and the advising investment bankers and professional investors on the other hand. Specifically, Aggarwal et al. (2002) show for IPOs in the U.S. that investment bankers reward their good institutional clients with deeply underpriced issues, significantly in excess of what could be explained by a mere remuneration for the service of information gathering. In response, investment bankers argue that institutional investors are assigned shares on the basis of more criteria than only their effort in information gathering. One important additional service that these professionals may offer to the investment banker is the promise not to immediately sell shares in the aftermarket, or even buy shares if selling pressure would occur shortly after the IPO. In Continental Europe, this conflict of interest may be even more serious as many institutional investors are subsidiaries of financial institutions that render investment banking services. Consistent with this idea, Hebb and MacKinnon (2004) find that greater information asymmetry is present in the aftermarket when a commercial bank acts as underwriter in an IPO. This asymmetry resolves itself over time as the market learns more about each issue so that it becomes clear which ones may have involved a conflict of interest on the part of the commercial bank. These findings thus are consistent with the market perceiving a possible conflict of interest on the part of commercial banks.

B. Institutional investors and liquidity

Liquidity, i.e. the ease with which an asset can be converted into cash – and especially the lack of it – affects value. The reason why a deficiency in liquidity negatively affects the price of shares is threefold. First of all, if a stock is not regularly traded (in the limit not traded), uncertainty about its underlying value increases (Merton (1987)). For one of the important properties of a stock market is that, as investors assemble information and act upon it, the information becomes reflected into the stock price. Hence the less trading, the less opportunity for information to be (timely) incorporated into the price, and the more uncertainty about the stock's underlying value. Furthermore, as liquidity decreases, fewer investors are interested in the stock, so that overall information collection tends to decline. Finally, since it is more difficult to find interested buyers, an illiquid stock is more costly to turn into cash. As a consequence, the seller of an illiquid

stock will have to accept a discount on the selling price. Consequently, as uncertainty about the underlying value increases, as less investors are interested to buy it and as trading becomes more costly, the share price decreases.

Although there is no perfect agreement yet about how the precise interaction of the factors in the process described above affects value, there is consensus in the academic literature that liquidity has an impact on share prices. For example, Amihud and Mendelson (1986), Reingaum (1990), Eleswarapu and Reingaum (1993), Brennan and Subrahmanyam (1996), Brennan et al. (1998), Eckbo and Norli (2000) provide evidence that stock market liquidity is priced in asset returns. Specifically, they show that illiquid shares require higher (pre-trading cost) returns, which implies a higher cost of equity. In a more direct test of the consequences of liquidity for value, Loderer and Roth (2003) report that the least liquid stocks on Nasdaq and the Swiss Exchange suffer a discount on value of about 30%. Finally, Butler et al. (2002) show for the U.S. that companies with highly liquid shares suffer less issuance costs at the time they raise new share capital and sell these additional shares in the market.

Although research on the exact determinants of liquidity is still ongoing, there is agreement that the type of investors holding the firm's stock may affect it. Specifically, companies that count many institutional investors among their investor base tend to have more liquid shares. Of course, institutional investors have a preference for liquid shares (see for example Gompers and Metrick (1998)). Liquidity, for example, is valuable when they have to rebalance their portfolios over time. Conversely, as these investors engage in more information collection compared to the average retail investor, liquidity is likely to improve. Supporting this idea, Bennett et al. (2003) report that when changes in the preferences of institutional investors occur – e.g., a relative increase in interest for smaller firms in search for 'greener pastures' – the liquidity of these companies' stock rises over time.

However, trading by institutional investors may also induce other effects on stock prices and/or the cost of equity. Institutional investors may reduce the global tax bill paid by the company and its investors if the former function under a different tax regime. In Belgium, for example, BEVEKS pay no taxes on dividends, and tax trading by these mutual funds around the ex-dividend day is a well-known phenomenon. Furthermore, Redding (1997) shows in a theoretical model

that when professional investors pay relatively few taxes on dividends, publicly quoted firms generally pay more dividends. As indicated in Section III.C., higher cash disbursements to investors imply less opportunities for overspending by management, which may positively affect the quality of the firm's governance. On the negative side, it is sometimes claimed that institutional investors contribute to greater stock price variability because of the vast amounts of trading when these investors rebalance their portfolios. That such rebalancing indeed may have important effects can be easily observed by looking at the stock prices of firms that are moved in or out of an important stock market index. As institutional investors commonly have a preference for index stocks, inclusion in (deletion from) a stock market index induces substantial changes in ownership. Shleifer (1986) and Denis et al. (2003), among others, show that this event significantly impacts on the company's stock price. Whether or not institutional investors actually cause greater stock price variability is as yet not clear. The empirical findings of Bushee and Noe (2000) indicate that for the U.S. the presence of these professionals has not much impact on return volatility. However, some institutional investors – such as momentum traders and hedge funds⁵ – tend to trade more aggressively, and these professionals may induce more volatility. For Poland, Bohl and Brzeszczyński (2004) document that since the reform of the Polish pension system in 1999, when privately managed pension funds were established and allowed to invest in the stock market, institutionals have become a major investor group. Since then, at least for index stocks, return volatility has decreased. Also, Abarbanell et al. (2003) find that the rebalancing of institutional portfolios after a firm spins off a subsidiary does not create abnormal price movements in the firm's stock. Similarly, the findings of Welker and Sparks (2001) indicate a stabilizing trade response by institutional owners at the time corporations disclose news. However, Potter (1992) and Sias (1996) provide evidence that higher institutional ownership is associated with higher stock price volatility. The findings in Badrinath and Wahal (2002) imply that contribution to (reduction in) volatility depends on the type of trading decision: to enter a new stock, institutional investors act as momentum traders, and hence may contribute to volatility, but when they exit or make adjustments to ongoing holdings, they behave as contrarian traders. Overall, most research indicates that institutional investors positively influence liquidity. However, from the findings it is also clear that further work is needed as the type of

professional investors and their trading strategies have a diverse impact on the behavior of stock prices.

C. Institutional investors and corporate governance

Corporate governance concerns the development of performing top structures in corporate organizations. One of its major elements is the creation of effective oversight of managers. Legally, shareholders exercise such oversight by voting at the general meeting and electing the board of directors. The board, being responsible to the shareholders and to the firm as a whole, has the duty to monitor managers and their performance. If shareholders such as institutional investors become dissatisfied with the board and likely also with the firm's performance, they have three choices: 1) use the old 'Wall Street rule', i.e. simply sell their shares, 2) hold their shares and voice their dissatisfaction, 3) hold their shares and otherwise do nothing. Over the last decades, especially in the Anglo-Saxon world, the question has been raised as to whether or not institutional shareholders should be assigned a special role in corporate governance. The underlying idea is that they are in a much better position to effectively exercise oversight compared to small retail investors, given the size of their investments and the resources at their command.

To improve the quality of corporate oversight, in the Anglo-Saxon countries much attention has already been devoted to the question of designing conditions that stimulate institutional investors to exert shareholder activism, i.e. choose option 2 above. The reason is that as ownership of publicly quoted firms is dispersed, which is typical in these countries, management acquires a great deal (too much?) of power. This is the source of the famous agency problem of equity, which states that although the management is the agent of the shareholders, it typically has its own interests that it wishes to pursue. Hence unless forces of oversight stop this, managers may not spend the resources of the firm too wisely. Management derives its power from the fact that over time it builds up a vast information advantage about the goings-on in the firm relative to outside shareholders, whereas the latter – especially when being small owners – have no incentive to expend costs and effort to monitor management or board functioning. As a result, managers may even acquire an important degree of influence over the nomination and the functioning of the board instead of, as intended by the legislator, the board hiring, firing

and monitoring them. In essence, the problem is that the only shareholders that may have an incentive to actively engage in corporate oversight are large owners. The importance of their stake justifies expending the costly monitoring effort. When the ownership of large public corporations is relatively widespread, as is the case in the U.S., the owners with the most important stakes usually are professional investors. Hence, the idea to activate institutional investors. To achieve this goal, in the U.S. these professionals are obliged to be present at the general meeting and vote. Furthermore, and possibly even more important, they afterwards have to explain to their stakeholders the stance they have taken. Obviously, too easy-going behavior by institutional investors may result in lawsuits from their stakeholders.

By contrast, in non-Anglo-Saxon countries, institutional owners tend to play a far less prominent role, although, as discussed in Section II, worldwide their weight is rising quickly. Furthermore, unlike the U.S., institutional investors in non-Anglo-Saxon countries are not pushed by the legal system to actively monitor their portfolio firms. Hence, it should not come as a surprise that the latter behave more passively in corporate governance matters. Also, and likely more important, in these countries, control in publicly quoted firms is typically concentrated within the hands of a few large blockholders that usually act in concert. Such blockholders typically consist of wealthy families, holding firms, large industrial firms, banks or even the government. Their objectives are different from those of the typical institutional investor. Whereas the latter remains an outsider to the firm and only strives for diversification within its portfolio, good returns and liquidity, blockholders wish to become insiders into the firm and actively exercise control over it. Not surprisingly, the typical ownership stake of institutional investors in a listed firm normally is below 5% (often constrained by law to amount to maximally 3 to 5%), while the stake of controlling blockholders typically is much higher (usually above 25%). Furthermore, as a rule, institutional investors do not sit on boards. By contrast, controlling blockholders in many non-Anglo-Saxon countries vote themselves or their representatives into the board and take an active interest in the management of the firm. As a result, in publicly quoted non-Anglo-Saxon firms, managers hold far less power as compared to the Anglo-Saxon situation. Although the presence of such large owners largely solves the agency problem of equity, a new difficulty arises, viz. the issue of possible conflicts of interest between large and small owners. Clearly, the way corporate

governance functions differs between Anglo-Saxon and non-Anglo-Saxon countries. Hence, the possible contribution of institutional investors to it is also likely to have a somewhat different character. In particular, oversight by large blockholders may substitute for monitoring by institutionals.

Until the late nineties, there was a general satisfaction about the functioning of the corporate governance system in Anglo-Saxon countries, especially in the U.S. One felt that by a combination of stricter rules about the functioning of the board – to make it more independent from management, by appointing outside directors for example – and by increasing outside pressures through activating the shareholder base – e.g., force institutional investors to take an active role as described earlier – one had converged to a situation where on the one hand management had the leeway to take its responsibilities while on the other hand there was sufficient oversight. The accounting scandals of the early 2000's, however, show the limitations of outsiders (institutional investors and financial markets in general) once they are pitted against management with its important information advantage about the internal processes of the firm. Hence, additional measures, like the Sarbanes-Oxley Act, which aim at forcing firms to tighten their internal control systems, have been taken.

Many researchers have attempted to measure the consequences of institutional shareholder activism. However, measuring its effectiveness is quite problematic. One of the reasons is that when activism occurs, usually the firm is not doing well and, as a result, management is under mounting pressure from different sides. Debtholders, for example, may take a more active role in monitoring the firm (Lasfer et al. (1996)). Furthermore, much of the activism occurs behind the scenes, through private discussions. Not surprisingly, the empirical evidence – which virtually all concerns the U.S. – on whether institutional investors contribute to better governance through monitoring is somewhat mixed, although the majority of the research reports positive effects. Chung et al. (2002), for example, report that when institutional investors own a large fraction of outstanding shares, firms manage their earnings less opportunistically through the use of accruals. Another example on the positive role of institutionals in disciplining managers in the U.S. is provided by O'Neill and Swisher (2003). These authors build further on the results of Easley et al. (2002), who find that as the probability of trading by informed insiders increases, the required rate of return on equity goes up. O'Neill and

Swisher show for a sample of firms undertaking a self-tender offer,⁶ that such informed trading is less likely to occur the higher the number of institutional investors owning shares in the company. Furthermore, institutional investors seem to influence management in its decisions to use firm resources. As discussed earlier, one of the major concerns in Anglo-Saxon governance is the possible wasteful spending of cash flow by managers. Therefore, disgorgement of cash to shareholders through dividends instead of investing it in unprofitable projects is considered a plus in the governance literature. Most empirical studies indicate that institutional investors generally are capable of making a distinction between overspending on uninteresting projects and making valuable long-term investments. To look into this issue, several studies have examined the relation between institutional ownership and the degree of R&D spending. Most studies report that – contrary to what is often claimed by managers – the presence of these owners does not force firms to behave myopically. Rather, high institutional ownership and sizeable R&D spending prove to be positively correlated (e.g., Wahal and McConnell (2000); Bushee (1998), among others). However, a few studies conclude the reverse (e.g., Jones and Danbolt (2003)). Also, Hartzell and Starks (2003) find that professional investors help to constrain lavish remunerations of top managers in the U.S. whereas badly managed firms break more easily with their current managers under the pressure of institutional owners (Parrino et al. (2003)).

On the other hand, Pound (1988) and Brickley et al. (1988), Van Nuys (1993), Borokhovich et al. (2000), Almazan et al. (2003), among others, provide theoretical and empirical evidence that instead of monitoring, institutional investors may have an incentive to simply go along with entrenched managers, and this depending upon current and prospective business relations between the institution and the firm. As an example, the money manager of the company's pension fund is less likely to act independently vis-à-vis its management as compared to the money manager of an independent pension fund. In other words, institutional investors themselves may be confronted with important conflicts of interest, to the detriment of small retail investors. To summarize, the literature generally indicates that institutional investors play a positive role in improving governance practices in firms, especially in the Anglo-Saxon world.⁷ However, many unknowns remain. The latter conclusion is even more applicable to non-Anglo-Saxon countries.

IV. INSTITUTIONAL INVESTORS AND IPOs: AN APPLICATION TO BELGIUM

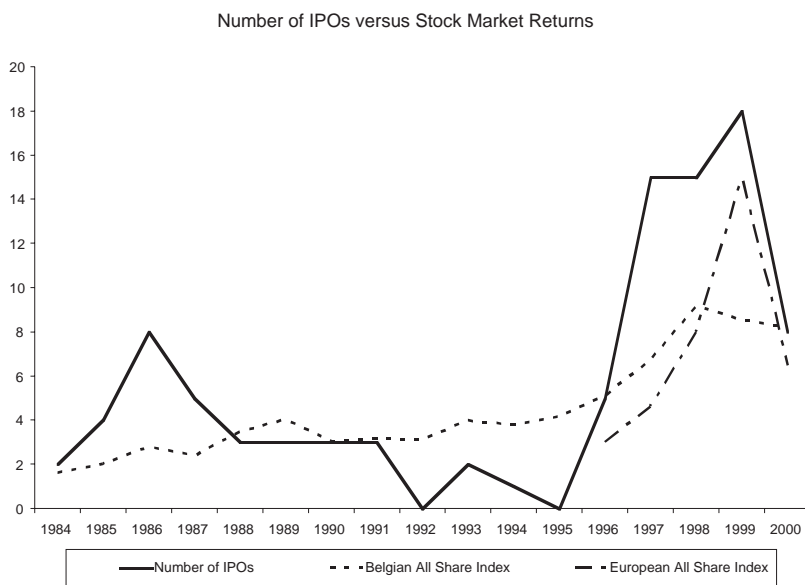
Former studies focus on the impact of institutional investors on the firms in which they own stock. However, firms, understanding the benefits of having institutional investors in their ownership structure, may undertake efforts to attract them. The fact that company policy may be an important factor influencing involvement by institutionals has been shown in Grullon et al. (2004) for the U.S. in the context of actions that increase firm visibility. We show a similar effect for Belgium in the case of firms going public. As indicated in the introduction the reason why we focus on IPOs is that at the time of the event, information asymmetries generally are large (the firm has not yet built up a public track record), the liquidity of the firm's stock has to be assured in order to establish the firm's credibility (leave a good taste in the investors' mouth) and governance structures usually have to be adjusted to take into account the new (public) ownership structure of the firm. So, when benefits are larger than costs, firms may wish to attract institutional interest for their company's stock. We start by describing our IPO-sample in Section IV.A. Then, we examine the underlying forces that drive the decision to pre-allocate shares to institutional investors at IPO-time (Section IV.B.), linking our research to the different functions of institutionals as described in Section III. Specifically, we cannot directly measure the amount IPO-firms expend on attracting institutional interest. Instead we examine whether or not IPO-firms preallocate a fraction of shares offered to these investors. Next, we investigate how share pre-allocation to institutional investors affects underpricing (Section IV.C.), post-IPO stock liquidity (Section IV.D.) and the fraction of outside directors in the board at IPO-time (Section IV.E.).

A. Sample description

Our sample covers the period 1984-2000 and includes all new listings of Belgian firms on the three main exchanges of the country, i.e. the main market of the Brussels Stock Exchange (Euronext Brussels), Euro.NM Belgium and EASDAQ (NASDAQ Europe). Our sample does not include unit offerings nor reverse LBOs. For all 95 firms in the sample, we obtained the issue prospectus (containing data on ownership structure and board composition) and have access to their consolidated financial statements as of two years before the IPO.

FIGURE 1

Number of IPOs versus stock market returns over the period 1984-2000



In addition, we collected data on the first-day closing price and trading volumes in the two years after the company became publicly quoted.

Figure 1 reveals a concentration of new listings in the periods 1986-1987 and 1996-2000. Other studies (e.g., Pagano et al. (1998); Arosio et al. (2001)) show that IPO-volume also peaks in other Continental European countries during these years. As expected, increased IPO-activity coincides with periods in which the stock market indices BASI (Euronext) and EASI (EASDAQ) are booming.

Table 1 shows the industry distribution of the 95 sample firms.⁸ Similar to Arosio et al. (2001) for Italy, financial IPOs are concentrated in the earlier years of the sampling period, while high-tech flotations mainly occur during the later years. Despite the creation of new markets, an important fraction of the high-tech firms continues to opt for the main market of Euronext. In particular, of the 29 high-tech IPOs since 1996, 14 firms (48.28%) list on the main market, whereas 9 firms (31.03%) list on EASDAQ and 6 firms (20.69%) quote on Euro-NM Belgium.

Table 2 contains some summary statistics on the IPO-firms. Given the length of the sampling period and in view of the high inflation rates during the late eighties and early nineties, all absolute statistics

TABLE 2
Industry distribution of sample firms

NACE	Sector	Number of firms
16	Production and distribution of electricity, gas, steam and hot water	1 firm
22	Production and preliminary processing of metals	1 firm
24	Manufacture of non-metallic mineral products	3 firms
25	Chemical industry	4 firms
31	Manufacture of metal articles (except for mechanical, electrical and instrument engineering and vehicles)	1 firm
32	Mechanical engineering	1 firm
34	Electrical engineering	7 firms
41/42	Food, drink and tobacco industry	9 firms
43	Textile industry	2 firms
45	Footwear and clothing industry	2 firms
46	Timber and wooden furniture industry	1 firm
47	Manufacture of paper and paper products; printing and publishing	3 firms
48	Processing of rubber and plastics	3 firms
61	Wholesale distribution (except dealing in scrap and waste materials)	5 firms
64/65	Retail distribution	2 firms
66	Hotels and catering	3 firms
75	Air transport	1 firm
79	Communication	1 firm
81	Banking and finance	14 firms
82	Insurance, except for compulsory social insurance	3 firms
83	Activities auxiliary to banking and finance and insurance; business services	20 firms
84	Renting, leasing and hiring of movables	1 firm
85	Letting of real estate by the owner	2 firms
97	Recreational services and other cultural services	5 firms
TOTAL		95 FIRMS

are corrected for inflation. 61 firms sell primary shares at IPO-time. In other words, they create new shares and sell these to the general public at their IPO. Hence, the company receives the proceeds from the sale. 71 firms offer secondary, i.e. existing shares. This implies

that existing shareholders who sell some of their own shares receive the proceeds. In our sample, 34 offerings combine primary and secondary shares. The median primary and secondary portion equals 10.50%, respectively 15%. In total, the free float amounts to 25.79% of shares outstanding post-IPO. 38 firms pre-allocate shares to institutional investors at IPO-time, i.e. pre-assign a portion of the shares for sale to professional investors. Pre-assigning became increasingly popular during the second half of the nineties, with the spreading use of bookbuilding. Since the beginning of 1996, about 60% of IPOs opted for the bookbuilding procedure; before that time, it was rarely used. Table 3 shows that on average, 24.68% of offered shares are pre-allocated to institutional investors, but the dispersion in this variable is substantial. For the firms with institutional pre-allocation, this percentage on average amounts to 60.12%.⁹ Median underpricing, after correcting for the market return, equals 5.31%. This figure is rather low compared to the underpricing reported for many other countries (e.g., Ritter (1991); Leleux (1993); Arosio et al. (2001)), but may reflect that a large majority of the sample IPOs are firm-commitment offerings (e.g., Jegadeesh et al. (1993)).¹⁰

Firm age at flotation varies between zero and 283 years, with a median of 18 years. Firm size in the year preceding the IPO is also dispersed, independent of the construct used to measure it (total assets, book value of equity or sales). The median firm has a return on assets of 14.52% and a return on sales of 12.06%, but profitability again differs widely across firms. Companies are highly levered: on average, 67.16% of total assets are debt-financed, and bank loans represent 42.53% of total debt (bank debt, leasing and current liabilities). Despite high leverage, an average coverage ratio of 22.05 indicates that firms can easily meet their debt obligations; the median coverage ratio, however, is much lower (3.09). As some firms have a leverage ratio above one and/or a negative coverage ratio, it can be concluded that not all firms are financially sound at IPO-time. The average market-to-book ratio, calculated using the offering price, is 3.94. The growth rate in total assets and sales amounts to 28.22%, respectively 21.43% in the pre-IPO year; these growth rates however vary substantially across firms.

Ownership before and after the IPO is highly concentrated. On average, there are 2.46 blockholders per firm; together, they own 93.31% of the shares before the IPO. Afterwards, their number and stake are reduced to 1.99, respectively 64.94%. In only 16% of the

TABLE 3
Summary statistics for the total sample of N = 95 IPOs

Variable	Mean	Median	Std. Dev.	Min	Max
<i>IPO TRANSACTION</i>					
PRIMARY PORTION	0.3004	0.1050	0.7790	0	6.7568
SECONDARY PORTION	0.1704	0.1500	0.1658	0	1
PERCENTAGE PLACED	0.3080	0.2579	0.1629	0.0587	1
INSTITUTIONAL STAKE	0.2468	0	0.3089	0	0.9133
UNDERPRICING	0.1395	0.0531	0.3429	-0.2153	2.7769
<i>FIRM CHARACTERISTICS</i>					
AGE	39.4421	18	53.2401	0	283
TOTAL ASSETS (€)	1,348,613,382	44,407,221	9,575,200,000	422,260	92,360,483,771
EQUITY (€)	106,708,008	11,548,860	306,170,000	-2,597,647	1,783,888,453
SALES (€)	281,596,118	44,588,670	919,420,000	0	6,194,926,469
ROA (EBITD/total assets)	0.1235	0.1452	0.2103	-0.7205	1.1063
ROS (EBITD/sales)	-0.0079	0.1206	0.6423	-3.5983	1
LEVERAGE (debt/total assets)	0.6716	0.7256	0.3421	0.0319	2.8262
DEBT MIX (bank debt/total debt)	0.4253	0.4186	0.2923	0	1
INTEREST COVERAGE (interestexpenses/EBIT)	22.0540	3.0875	78.4790	-31.8377	461.3582
MARKET/BOOK	3.9366	1.8992	0.7403	17.9444	4.8245
ASSETS GROWTH	0.5330	0.2822	0.7407	-0.1541	3.5668
SALES GROWTH	5.1747	0.2143	36.2668	-0.7128	336.4444

Variable	Mean	Median	Std. Dev.	Min	Max
<i>OWNERSHIP STRUCTURE</i>					
BLOCKHOLDERS BEFORE IPO	2.46	2	1.4718	1	7
BLOCKHOLDERS AFTER IPO	1.99	2	1.1439	1	5
CONC BEFORE IPO (%)	93.31	98.61	11.3780	33.43	100.00
CONC AFTER IPO (%)	64.94	69.10	15.9887	11.85	94.13

PRIMARY (SECONDARY) PORTION is the ratio of new (existing) shares sold to the public relative to shares outstanding before the IPO. PERCENTAGE PLACED is the number of new and existing shares sold at the IPO relative to shares outstanding after the IPO. INSTITUTIONAL is the percentage of shares that is pre-allocated to institutional investors. UNDERPRICING is initial stock return minus the corresponding market return. The variables measuring firm characteristics are self-contained. BLOCKHOLDERS BEFORE IPO is the number of shareholders whose ownership exceeds 5%. BLOCKHOLDERS AFTER IPO equals the number of initial blockholders that retain an ownership percentage above 5% after the IPO. CONC measures the percentage of shares initial blockholders hold before, respectively after the IPO.

cases, initial ownership decreases below 50 percent, but this does not need to imply that initial owners lose control once listed. Similar results have been found for Italy (Pagano et al. (1998)), Germany (Ljungqvist (1997); Goergen (1998)) and other Continental European countries.

B. Determinants of pre-allocating shares to institutional investors

In Section III, we have argued that firms with large information asymmetries, firms in need of liquidity and/or firms with less developed governance structures may benefit from having institutional investors in their ownership. To test whether or not firms actually seek to reduce the costs of asymmetric information, low liquidity and poor corporate oversight, we estimate a regression model that explains the likelihood of pre-allocating shares to institutional investors at IPO-time. Such pre-allocation increases the transparency of the IPO-procedure, guarantees institutionals at least a minimal stake¹¹ and hence, gives them incentives to gather information. Possibly, it may also enhance their long-run ownership in the firm. The dependent variable in our logit regression model, INSTITUTIONAL, is a dummy variable that equals one when a fraction of the offering is pre-allocated to institutional investors and zero otherwise. Hereafter, we first describe our measurement of explanatory variables and then discuss our results, which are presented in Table 4.

To examine the relation between information asymmetries at IPO-time and INSTITUTIONAL, we use three variables. First, several authors (e.g., Megginson and Weiss (1991); Chemmanur and Fulghieri (1999)) find adverse selection costs to be more serious for young (AGE = logarithm of the firm's age at IPO-time) and small (SIZE = logarithm of total assets) companies. The reason is that younger and smaller firms typically have a limited track record and low visibility. In addition, firms with large growth opportunities (MARKET/BOOK = number of shares outstanding pre-IPO times the offering price plus book value of debt divided by book value of total assets pre-IPO) also may suffer from severe information problems. For growth opportunities represent investment projects that still have to be converted into cash generation. So, the quality of growth opportunities is uncertain and, as argued in Section III.A., firms may find it difficult to communicate that quality. To control for the fact that in carve-outs, information asymmetries likely are less severe, we include a dummy

variable (CARVEOUT = dummy variable that is set to one when the offering is a carve-out and zero otherwise).

Second, growth firms planning to use the exchange as a source of future financing can benefit from institutional interest through an increase in stock liquidity. Huyghebaert and Van Hulle (2002) find that firms selling primary shares at IPO-time (PRIMARY = dummy variable equal to one when primary shares are sold at the IPO and zero otherwise) are more likely to raise additional equity in the after-market. Conversely, firms that do not intend to tap the stock market in the future gain far less from institutional interest and may even dislike the monitoring by these professionals (e.g., Brennan and Franks (1997)).

Third, to capture the quality of a company's governance, we include two variables in our regression model. First, Jensen (1986) claims that firms with higher debt ratios (LEVERAGE = total debt to total assets) have a smaller need for capital market disciplining as leverage forces them to regularly pay out free cash flows to meet debt-servicing payments. Second, as argued in Section III.C., firms that have large blockholders among their shareholder base (CONC AFTER IPO = the percentage of shares initial blockholders retain after the IPO) are less likely to need monitoring by institutional investors. Finally, we include industry dummy variables using the classification by Ritter (1991); the parameter estimates corresponding to these dummy variables are not reported, but can be obtained from the authors upon request.

The results in Table 4 show that the relation between information asymmetries and the likelihood of pre-allocation is not unambiguous. While we do find that carve-outs are significantly less likely to pre-allocate shares to institutional investors, we also find that larger firms are more likely to pre-allocate, which is inconsistent with our hypotheses. In addition, the variables AGE and MARKET/BOOK are not significant in explaining the pre-allocation decision. These inconclusive results may reflect that, as argued in Section III.A., institutional investors not only help to reduce information asymmetries, but generally also wish to invest in firms that face low information problems. The positive relation with firm size may also reveal that firms need to have a minimal size in order for institutional investors to become interested in the company. Simultaneously, the positive and significant coefficient for SIZE could indicate that larger, hence most of the time also better-known firms attract more investors and institutionals in particular, as argued in Section III.A.

TABLE 4
*Logit regression results:
determinants of the likelihood of pre-allocation to institutionals*

Variable	Parameter estimate	p-value
Intercept	-16.8899	0.0038
AGE	-0.2119	0.3471
SIZE	0.9006	0.0019
MARKET/BOOK	0.0410	0.6245
CARVEOUT	-2.2785	0.0158
PRIMARY	2.2494	0.0017
LEVERAGE	-0.2235	0.8168
CONC AFTER IPO	-0.0454	0.0396
Number of observations	95	
Log-likelihood	-44.8925	
AIC	113.7850	
Pseudo-R2	43.99%	

The dependent (dummy) variable INSTITUTIONAL equals one when a fraction of the shares is pre-allocated to institutional investors at IPO-time and zero otherwise. AGE (SIZE) is measured by the logarithm of firm age at the IPO (total assets post-IPO). Growth opportunities at IPO-time are measured by the firm's market-to-book ratio (MARKET/BOOK). CARVEOUT is a dummy variable that is set to one when the offering is a carve-out and zero otherwise. LEVERAGE is debt to total assets. PRIMARY is a dummy variable that equals one when primary shares are sold at IPO-time and zero otherwise. CONC AFTER IPO measures the percentage of shares initial blockholders retain after the IPO.

Consistent with our hypotheses, firms raising new equity at IPO-time are significantly more likely to pre-allocate shares to institutional investors. This finding suggests that firms using the exchange as a source of future financing can benefit greatly from the presence of professional investors, who reduce information asymmetries and help to establish stock liquidity. These actions reduce the cost of seasoned equity offerings and thus the cost of capital. Huyghebaert and Van Hulle (2002) even find that these firms position themselves to meet the requirements of an international investor audience. They show that firms create the conditions such that a liquid market in their shares can develop. Particularly, firms with a small portion of primary shares complement their offering with secondary shares to realize a sufficiently large free float.

Finally, we find some support for our conjecture that firms with less developed governance structures may benefit from having professionals among their shareholder base. On the one hand, the relation between LEVERAGE and INSTITUTIONAL has the expected negative sign, but is not significant. On the other hand, firms where a larger fraction of outstanding shares is concentrated in the hands of blockholders are less likely to pre-allocate shares to institutionals. The latter finding suggests that, as argued in Section III.C., in Continental Europe, blockholder monitoring can substitute for institutional monitoring.

C. Impact of institutional investors on underpricing

In this section, we investigate whether pre-allocating shares to institutional investors at IPO-time helps to reduce information asymmetries. Specifically, we examine its impact on IPO-underpricing, which is defined as the percentage difference between the first-day closing price and the offering price, corrected for the stock market return (BASI) of that day. Consistent with our discussion in Section III.A., we also include a dummy variable that equals one when bookbuilding was used to market the shares and zero otherwise (BOOK-BUILDING) in this model. In addition, we control for the fact that firms planning to use the stock market as a source of future financing may have an incentive to underprice the issue in order to leave a good taste in the investors' mouths (PRIMARY). As in Garfinkel (1993), Spiess and Pettway (1997), among others, we control for additional factors that are related to IPO-underpricing: firm age, firm size, investment opportunities (MARKET/BOOK), whether or not the IPO is a carve-out, a dummy variable that equals one when a high-reputation foreign investment bank is part of the underwriting committee (FOREIGN BANK), the percentage adjustment in the offering price relative to the mid-price of the initial price range (ADJ.PRICE), the historical stock market return (MARKET RETURN = the return on the Belgian All Shares Index (BASI) in the year preceding the IPO) and a measure for hot versus cold issue markets (VOLUME = the number of IPOs in the preceding year scaled by the total number of IPOs in the sample). Table 5 contains the results.

We find some evidence that firms pre-allocating shares to institutional investors underprice their shares to a smaller extent, even though the variable INSTITUTIONAL is only marginally significant at the

TABLE 5
OLS regression results: determinants of underpricing

Variable	Parameter estimate	p-value
Intercept	-0.2192	0.6412
INSTITUTIONAL	-0.1792	0.1040
BOOKBUILDING	0.2348	0.0335
PRIMARY	-0.1325	0.1379
AGE	-0.0436	0.0854
SIZE	0.0100	0.6384
MARKET/BOOK	0.0186	0.0423
CARVEOUT	-0.0864	0.3268
FOREIGN BANK	-0.2161	0.0106
ADJ.PRICE	0.9318	0.0122
MARKET RETURN	0.3514	0.0316
VOLUME	2.2340	0.0015
Number of observations	93	
Adjusted R ² +	25.59%	

The dependent variable UNDERPRICING is the percentage difference between the first-day closing price and the offering price, corrected for the stock market return (BASI) of that day. INSTITUTIONAL is a dummy variable that equals one when a fraction of the shares is pre-allocated to institutional investors at IPO-time and zero otherwise. BOOKBUILDING is a dummy variable that equals one when bookbuilding was used to market the shares and zero otherwise. PRIMARY is a dummy variable that equals one when primary shares are sold at IPO-time and zero otherwise. AGE (SIZE) is measured by the logarithm of firm age (total assets) at the IPO. Growth opportunities at IPO-time are measured by the firm's market-to-book ratio (MARKET/BOOK). CARVEOUT is a dummy variable that is set to one when the offering is a carve-out and zero otherwise. FOREIGN BANK is a dummy variable that equals one when a high-reputation foreign investment bank is part of the underwriting committee. ADJ.PRICE is the percentage adjustment in the offering price measured relative to the mid-price of the initial price range. MARKET RETURN is the stock market return (BASI) during the twelve months pre-IPO whereas VOLUME is the number of IPOs in that same period scaled by the total number of IPOs in the sample.

10% level (p -value of 0.1040). This finding is consistent with the idea that involving institutional investors in the pricing process through pre-allocating a fraction of the offering induces these investors to invest in information collection and truthfully reveal their opinion.

Surprisingly, the results show that using bookbuilding generally leads to higher underpricing, *ceteris paribus*. The positive sign of BOOK-BUILDING is inconsistent with the results of other studies that largely use data on U.S. IPOs (e.g., Cornelli and Goldreich (2001); Aggarwal et al. (2002); Ljungqvist and Wilhelm (2002)). While we have hinted at possible conflicts of interest between firms going public and their investment bankers in Continental Europe, we believe that further research is needed to examine the driving forces behind the positive relation in our study. The hypothesis that firms likely to tap the stock market in the future may have an incentive to underprice their offering to a larger extent is not supported by our model.

While firm size and the dummy for the IPO being a carve-out do not explain IPO-underpricing, we find that all other variables are statistically significant, with the expected sign. In particular, we find that younger firms with more investment opportunities realize higher first-day returns, *ceteris paribus*. When a high-reputation foreign investment bank is part of the underwriting committee, IPOs are underpriced to a smaller extent. A larger percentage adjustment of the final offering price relative to the mid-price of the initial price range, which in the literature is considered to capture the uncertainty in determining the final price, is associated with higher IPO-underpricing. Finally, when the historical stock market return is large or the IPO takes place in a hot issue market, offerings are underpriced more. Interestingly, when the latter two variables are removed from the model, its explanatory power reduces drastically: the adjusted R² drops from 25.59% to 16.08%. Overall, these results thus stress the importance of market conditions in explaining IPO-underpricing.

D. Impact of institutional investors on stock liquidity

In this section, we wish to investigate whether post-IPO liquidity is higher in firms that pre-allocated a fraction of their offering to institutional investors at IPO-time. Post-IPO stock liquidity is hereby defined as the number of shares traded during a horizon of one, respectively two years starting one month after the IPO divided by the number of shares outstanding after the IPO (see also Eckbo and Norli, 2000). The first post-IPO month is disregarded to correct for the fact that early liquidity may be affected by the adopted distribution rules.

To test our main hypothesis, we investigate the relation between INSTITUTIONAL and post-IPO liquidity. In addition, we include the

variable PRIMARY, which is highly related to INSTITUTIONAL, to control for the fact that firms planning to use the stock market as a financing vehicle structure their IPO also in other ways such that a liquid market in their shares can develop (e.g., Huyghebaert and Van Hulle (2002)). To control for firm age and size, the log of firm age at the IPO, respectively total assets post-IPO are included. As in Brennan and Subrahmanyam (1995), Chordia et al. (2001) and others, we control for additional factors that may affect stock liquidity: investment opportunities (MARKET/BOOK), a dummy that equals one when the firm lists on a market for innovative growth companies, i.e. EASDAQ or Euro.NM Belgium (MARKET TYPE), a dummy that equals one when at least one market maker is appointed (MARKET MAKER), the historical stock market return (MARKET RETURN) and a measure for hot versus cold issue markets (VOLUME). Finally, we include industry dummy variables using Ritter's (1991) classification. The results are presented in Table 6.

We find that INSTITUTIONAL is significantly positively related to post-IPO liquidity, independent of the time horizon considered. So, pre-allocating shares to institutional investors significantly positively affects a stock's liquidity. This relation confirms the idea that firms may have incentives to involve institutional investors in their ownership so as to help establish liquidity. While firms may also use other mechanisms to develop a liquid market in their shares, we find that PRIMARY is not significantly related to post-IPO liquidity. This finding stresses that pre-allocation to institutional investors is the main channel through which firms planning to use the exchange as a financing vehicle assure the liquidity of their stock. Firm age, firm size and investment opportunities, as captured by the market-to-book ratio, are not significant.

However, we do find evidence of different levels of stock liquidity depending upon the exchange on which the firm lists. In particular, EASDAQ and Euro.NM Belgium, which were established for listing innovative growth companies, have more depth, *ceteris paribus*. Hence, as pointed out by Corwin and Harris (2001), the selection of the appropriate stock market is an important consideration for IPO-candidates. Appointing a market maker also significantly increases liquidity, especially over longer horizons. The latter result is not surprising as the task of a market maker mainly consists of guaranteeing market liquidity. Historical stock market performance affects post-IPO liquidity positively. Also, there is some evidence of reduced liquidity

TABLE 6
*OLS regression results:
determinants of one- and two-year post-IPO stock liquidity*

Variable	One-year liquidity		Two-year liquidity	
	Parameter estimate	p-value	Parameter estimate	p-value
Intercept	0.6964	0.0738	-0.0443	0.8474
INSTITUTIONAL	0.2052	0.0222	0.1574	0.0023
PRIMARY	-0.0002	0.9984	-0.0088	0.8381
AGE	-0.0241	0.3926	0.0142	0.3633
SIZE (post-IPO)	-0.0204	0.2262	0.0062	0.5230
MARKET/BOOK	0.0124	0.1779	0.0057	0.2844
MARKET TYPE	0.1984	0.1163	0.1730	0.0166
MARKET MAKER	0.0756	0.3789	0.0948	0.0621
MARKET RETURN	0.4688	0.0077	0.2182	0.0303
VOLUME	-0.9621	0.1763	-1.4741	0.0003
Number of observations	92		77	
Adjusted R ²	37.09%		52.00%	

The dependent variable ONE-(TWO-)YEAR LIQUIDITY in column one (two) is the number of shares traded over a window of one (two) year(s) following the IPO divided by the number of shares outstanding post-IPO. INSTITUTIONAL is a dummy variable that equals one when a fraction of the shares is pre-allocated to institutional investors at IPO-time and zero otherwise. PRIMARY is a dummy variable that equals one when primary shares are sold at IPO-time and zero otherwise. AGE (SIZE) is measured by the logarithm of firm age at the IPO (total assets post-IPO). Growth opportunities at IPO-time are measured by the firm's market-to-book ratio (MARKET/BOOK). MARKET TYPE is equal to one if the firm lists on a market for innovative growth firms and zero otherwise. MARKET MAKER equals one if at least one market maker is appointed and is zero otherwise. MARKET RETURN is the stock market return (BASI) during the twelve months pre-IPO whereas VOLUME is the number of IPOs in that same period scaled by the total number of IPOs in the sample.

following periods of high IPO-volume, especially during the two-year window. Finally, a comparison of the adjusted R² of the models in Table 6 indicates that it is easier to explain liquidity over the longer horizon. The reason may be that the trade of shares in the first post-IPO year still is subject to some random factors, for instance

distribution rules or support activities by the investment banker, which fade out over time.

E. Impact of institutional investors on board composition

Finally, we investigate whether or not pre-allocation to institutional investors affects the number of independent directors on the IPO-firm's board. Specifically, in Belgium much of the governance debate during our sampling period was centered on increasing the number of outside directors on boards. Attenuating conflicts of interest between controlling blockholders and small shareholders was considered to be a major part of their task. Consequently we check whether or not companies that involve institutionals in their ownership at IPO-time also have more independent directors on their boards, *ceteris paribus*. Hence, the dependent variable in this section is the number of outside directors relative to the total number of directors at IPO-time (variable BOARD COMPOSITION). In addition to the variable INSTITUTIONAL, we include our variable capturing whether or not firms intend to use the stock market as a source of future financing (PRIMARY), firm age, firm size (measured post-IPO), growth opportunities, the dummy for carve-outs, the firm's debt ratio (post-IPO) and the percentage initial blockholders retain after the IPO (CONC AFTER IPO). Table 7 contains the results.

Firms that pre-allocate a fraction of their offering to institutional investors have a significantly lower fraction of outside directors. This finding is surprising when taking into account that institutional investors, who usually do not sit on boards, likely prefer outside directors to make sure that blockholders do not expropriate small minority shareholders. Yet, our finding could indicate that the information produced at the time of the IPO by pre-allocating shares to institutional investors has significantly reduced information asymmetries (which is indeed supported by the lower underpricing) such that the need for independent monitoring at (and shortly after) the IPO is less urgent. In that case, institutional information production may be considered as a substitute for outside directors. Earlier, in Section IV.B., we already found that ownership concentration and institutional involvement could be substitutes. Clearly, although our model only considers a limited aspect of the interaction between institutional ownership and governance structure, it indicates that this relation is intricate, which offers scope for additional research.

TABLE 7
OLS regression results: determinants of board composition

Variable	Parameter estimate	p-value
Intercept	0.5804	0.0969
INSTITUTIONAL	-0.1037	0.0493
PRIMARY	0.1555	0.0107
AGE	-0.0179	0.3119
SIZE (post-IPO)	-0.0339	0.0050
MARKET/BOOK	-0.0028	0.6744
CARVEOUT	-0.1053	0.0878
LEVERAGE (post-IPO)	0.0750	0.4479
CONC AFTER IPO	0.5523	0.0107
Number of observations	92	
Adjusted R ²	28.43%	

The dependent variable BOARD COMPOSITION is the number of outside directors relative to the total number of directors at IPO-time. INSTITUTIONAL is a dummy variable that equals one when a fraction of the shares is pre-allocated to institutional investors at IPO-time and zero otherwise. PRIMARY is a dummy variable that equals one when primary shares are sold at IPO-time and zero otherwise. AGE (SIZE) is measured by the logarithm of firm age at the IPO (total assets post-IPO). Growth opportunities at IPO-time are measured by the firm's market-to-book ratio (MARKET/BOOK). CARVEOUT is a dummy variable that is set to one when the offering is a carve-out and zero otherwise. LEVERAGE is debt to total assets post-IPO. CONC AFTER IPO measures the percentage of shares initial blockholders retain after the IPO.

Next, we find that firms likely to use the stock market as a financing vehicle have a larger fraction of outside directors, *ceteris paribus*. Consistent with earlier findings that these firms try to meet the requirements of an international investor audience by guaranteeing a minimum free float, involving outside directors in their board is likely to improve their standing. The latter is particularly important when they are compared to their (high-tech) peers in stock markets worldwide. Indeed, as argued in Section III.A., over time IPO-firms have succeeded in also placing a fraction of their shares with Anglo-Saxon institutional investors. Next, larger firms and carve-outs have a smaller fraction of outside directors. The negative sign for SIZE is consistent with the findings of Van Der Elst (2002), who concludes that large

listed companies in Belgium have a larger number of executive board members relative to total board size. Finally, the variable capturing blockholder ownership has a significantly positive impact on the fraction of outside directors. Apparently, when control is centered in the hands of a limited number of blockholders, the latter may wish to convince the stock market that they will not expropriate minority shareholders by appointing a larger fraction of outside directors. Alternatively, as the number of different blockholders – each wishing to have its own representative(s) on the board – decreases, there may be more room for outside directors.

V. CONCLUSIONS

This paper considers the question whether or not institutional investors have a role different from that of other owners in publicly quoted firms, like controlling blockholders or small private investors. An overview of the literature shows that institutionals indeed may take up such a special place. In fact, previous research indicates that the latter investors play a positive role in decreasing harmful information asymmetries, thereby offering firms opportunities to decrease their cost of capital. Similarly, these investors, although they require liquidity, also contribute to it. In turn, this limits the illiquidity discount on share value. Finally, compared to small retail investors, professionals have large amounts of money to invest and more resources available to monitor company decision making and performance. Consequently, institutional investors are also in a good position to contribute to the quality of corporate oversight, i.e. governance in listed firms.

After reviewing the literature on institutional investors, we examine for Belgium whether or not these professionals indeed play the roles attributed to them by academic research. To that end, we investigate the possible impact of these investors on the IPO-process. IPOs are particularly interesting for this kind of research. The reason is that at the time of the event information asymmetries are generally large, the liquidity of the firm's stock still has to be established and governance structures often need adjustment. If IPO-companies recognize the possible beneficial impact of institutional investors on reducing information problems, increasing liquidity and improving governance, they may do efforts to attract them. In view of the limited data availability on the latter issue, we cannot directly measure the amount of

effort IPO-firms spend on establishing an institutional shareholder base. Rather, we examine whether or not IPO-firms assign these professionals an important role in the offering process by checking whether or not they pre-allocate a fraction of their shares to institutionals at IPO-time.

Controlling for other effects, we find that companies using the stock market as a financing vehicle are more likely to pre-allocate shares to institutional investors. Furthermore, pre-allocation tends to be associated with less underpricing while stock liquidity in the years after the IPO is significantly larger. These findings indicate that institutional investors indeed help to decrease information problems, contribute to liquidity, and that mainly firms that can gain most from these advantages, i.e. companies planning to actively tap the stock market in the future, seek to attract institutional investors in their ownership structure.

With respect to the contribution of institutionals to corporate governance, the evidence is less clear. On the one hand, firms less likely to be monitored by corporate blockholders are more likely to pre-allocate shares to institutionals at IPO-time. On the other hand, companies that pre-allocate shares to institutional investors have a significantly lower fraction of outside directors in their board. In view of the fact that, at least when compared to the U.S., in Belgium (and other Continental European countries) these investors play a less active role in corporate oversight, our inconclusive findings are not surprising. Notwithstanding the limited scope of our research on this topic, the data reveal that interesting interactions exist between ownership concentration, the relative number of independent directors and firms wishing to attract institutional investors.

NOTES

1. An IPO is a transaction whereby private firms become publicly quoted by selling part of their shares to the public at large.
2. Especially in Anglo-Saxon countries, it has become popular to rank firms based on the quality of their information disclosure. Typically, such rankings include an evaluation of the quality, completeness and clarity of the annual report, the timeliness and completeness of intermediate news reports, the effort spend by the firm on organizing meetings with financial analysts and institutional investors, etc.
3. These two stages can occur sequentially (in the U.S., for example) or simultaneously, which is often the case in Belgium. In the latter case, retail investors do not know at what price they will buy shares; they only know that the price will be in a pre-determined price range. In case the price that institutional investors are willing to pay exceeds the maximum of this price range, retail investors are allowed to cancel their bids.

4. Alternative explanations have been put forward in the literature to explain IPO underpricing. For an overview of the main theories explaining underpricing, see Jenkinson and Ljungqvist (2000).
5. A hedge fund is a fund that is allowed to use aggressive trading strategies that are unavailable to mutual funds, including short selling, leverage, program trading, swaps, arbitrage, and derivatives. Hedge funds are exempt from many of the rules and regulations governing other mutual funds, which allows them to accomplish aggressive investing goals.
6. A self-tender offer is a transaction whereby the company tenders for its own shares, i.e. a stock repurchase.
7. For a recent overview of the literature on institutional investors and corporate governance, see Gillian and Starks (2003).
8. As in Pagano et al. (1998), holding companies that concentrate 75% of their assets in a single industrial company are reclassified as belonging to the corresponding industrial sector. Financial firms are kept in the sample as in Belgium, and many other European countries, these firms represent a relatively important subgroup. However, as financial firms may differ from the other sample firms, we have tested the robustness of our results by removing them from the sample. These results, which show that our conclusions are unaffected, can be obtained upon request.
9. For the 40 firms on which we have effective share allocation data, we find that on average 49.43% (median of 58.68%) of the shares placed in public are owned by institutional investors.
10. Firm-commitment IPOs are transactions where the investment banker guarantees the issuing firm that it will purchase all shares of the offering that remain unsold at a price as determined in the firm-commitment contract.
11. IPO-allocation mechanisms in Belgium also regularly include a 'claw back' clause. This implies that if the offering is highly successful in attracting small retail investors, the portion of shares allocated to the latter may increase to the detriment of institutionals.

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