The impact of institutional investors on equity markets and their liquidity
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Chapter 4

Institutional investors and capital market (liquidity)

4.1 Introduction

The growing presence of institutional investors in financial markets is one of the forces that influences the way in which market liquidity is provided and sustained. For this reason, we devote this chapter to institutional investors and the implications of their presence in the capital markets. We discuss the following issues: What are the main differences between institutional investors and individual investors? How does the trading behavior of institutional investors affect capital markets, and equity markets in particular? How do institutions behave as shareholders? What consequences does this have for their impact on the liquidity of equity markets? Most of our attention is devoted to equity markets as they are also the subject of our empirical research. The aim of the chapter is twofold. First, to illustrate the most important properties of institutional investors. Second, to present some empirical evidence on the impact of institutional investors on capital markets and their liquidity.

Institutional investors have probably represented one of the most dynamic parts of the global financial services industry in the last decade.¹ We observe a substantial and increasing flow of funds into almost all types of institutions.² Institutional investors are specialized financial institutions that collect savings and manage them on behalf of individual investors. Institutional investors operate as pooled-investment vehicles and allow individual investors to participate jointly in the pool of investments without directly par-

¹See Davis (1996), Gruber (1996), Vittas (1998) and Walter (1999), among others, for a discussion of the recent growth of institutional investors and their future role within the financial system.
Statistics show that the degree of financial intermediation undertaken by institutional investors rose sharply over the last three decades. The average annual growth rate of financial assets of institutional investors in the OECD area exceeded 10% in the period 1990-1996. In almost half of the OECD countries, the financial assets of institutional investors already represent more than 80% of their annual GDP. Part of the increased level of financial intermediation by institutional investors probably occurred at the expense of banks, whose share in financial intermediation has been declining. Institutional investors became close competitors of banks in most of the services that banks traditionally provided. For example, money market funds entered the liability side of banking business by attracting deposits from investors. They also perform some functions in clearing and settlement of payments. At the same time, the high-growth asset management industry also attracts competition from universal, commercial and investment banks.

The increased importance of institutional investors is also reflected in academic research. Many aspects of institutional investors' presence in the capital markets have become the subject of empirical investigation: their investment horizon, their herding, their impact on share prices and market volatility, their performance etc. The theory of ownership structure provides indirect implications for the impact of institutional and other large investors on capital markets by studying the free-rider problem (Schleifer and Vishny (1986)), and the effect of large shareholder activism on the value of firms (Huddart (1993), Burkart et al. (1997)). However, studies of the impact of institutions on market liquidity are scarce. In this chapter we review the literature that is relevant for the study of the relationship between institutions and market liquidity.

The chapter is organized as follows. In Section 2 we define the functions of institutional investors, we review their main types and we look at how they are organized. We also discuss the differences between institutional and individual investors. We review the empirical evidence on the impact of institutional investors on the liquidity of equity markets in Section 3. We look at the implications of institutional trading and institutional ownership on market liquidity. We also discuss the implications of the increased institutional ownership for the corporate governance of the firms. Section 4 concludes.

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4For example, during the 1950-1993 period, the share of US financial assets held by commercial banks decreased from 51% to 25%, while the share of mutual funds alone increased from 1% to 9% (Swamy et al. (1996)).
4.2 Types of institutional investors and their organization

In this section we briefly describe the most important features of the main types of institutional investors. We emphasize the common elements in their behavior and contrast them with individual investors. We focus on the non-depositary institutional investors. We discuss mutual funds in more detail, for they are central in the empirical analysis set out in Chapters 6 and 7.

Institutional investors are financial intermediaries: they issue securities based on the savings they collect from individuals and invest the proceeds in financial assets. They buy securities in the primary and secondary public markets, or purchase large blocks of securities directly from the issuers in the private placements. For individual investors, institutions provide a form of risk pooling on the one hand, and risk diversification on the other. In addition, institutional investors perform maturity intermediation, transfer financial resources and process price information.

The investment behavior and objectives of institutional investors depend primarily on the nature of their liabilities. While institutions are exposed to the same types of risks when they invest in financial assets, the nature of their liabilities differs and dictates their investment strategies (along with regulatory considerations). Liabilities of institutional investors in general differ with respect to the uncertainty of the timing of cash outlays, and the amounts of cash outlays. The nature of liabilities determines the type of an institutional investor.

4.2.1 Types of institutional investors

Institutional investors encompass depositary institutions, insurance companies, pension funds, investment companies and endowment funds. In this dissertation, we are only interested in the non-depositary ones. With respect to the transparency of an institution's assets and liabilities, we can distinguish more opaque institutions such as insurance companies and pension funds, and more transparent institutions like mutual funds (Ross (1989)).

Institutional investors come in different shapes and sizes so that they can target specific
Chapter 4. Institutional investors and capital market (liquidity)

Investor clienteles with specific preferences, and liquidity needs. Figure 4.1 illustrates the main types of non-depositary institutional investors and the organization of their asset management functions (excluding insurance companies). It also shows how retail and private clients can access the capital market via mutual and pension funds or by employing the financial advisors, respectively. As we can see from the figure, institutional investors do not necessarily perform asset management in house. Just like private clients, institutions can employ outside managers, consultants and advisors to assist them in asset management.

We briefly characterize the three main types of institutional investors, i.e. insurance companies, pension funds and investment companies below.

Figure 4.1: Asset management functions of institutional investors. Source: Walter (1999).

Insurance companies are financial intermediaries that pool risks. For a price they will make a payment to the beneficiary if a certain event occurs. There are two main types of insurance companies: life insurance companies and casualty and property insurance.

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7 See, for example, Coffee (1991) and Walter (1999) for an overview of different types of institutional investors and their differences across countries.

8 This subsection builds on Fabozzi (1999).
companies. Their key difference is in the difficulty of projecting the payoff and magnitude of a policy.

Pension funds are established for the payment of retirement benefits. They are financed by the contributions of the employers and/or the employees. They can be sponsored by corporations, governments, and labor unions. Two types of pension funds are widely in use: defined contribution plans and defined benefit plans. Hybrid plans gained some support recently. Pension funds can be managed by the plan sponsors themselves, or by external asset managers. Among the latter, insurance companies and mutual funds are not uncommon. The portfolio structure of pension funds is regulated. Their regulation differs between the types of plans, their sponsors and between countries.

Investment companies sell their shares to the public and invest the proceeds in securities. Each share that they sell bears the proportionate interest in the fund’s diversified portfolio. The choice of securities can be restricted to specific types of assets such as shares, bonds, money market instruments etc. Investment companies follow a variety of investment strategies, depending on the pre-stated objectives. We can distinguish three types of investment companies: open-end funds, closed-end funds and unit trusts. The first two are often referred to as mutual funds. Unit trusts issue a fixed number of ownership shares called unit certificates that are sold and purchased only by the issuing company. They typically invest in bonds and they are not very actively managed. We look at mutual funds in more detail.

**Mutual funds**

Mutual funds have designed a variety of portfolio structures, fee arrangements and distribution channels (see Walter (1999)). In general, we distinguish among open-end and closed-end mutual funds. With respect to the characteristics of the shares that their fund managers invest in, mutual funds can further be characterized according to a number of investment styles like ‘growth funds’, ‘value fund’, ‘large caps fund’, ‘small caps funds’ etc. Open-end funds are under continual pressure as their investors may redeem their shares and take the money elsewhere at any point in time. Furthermore, they are continually ready to sell or purchase their shares at their net asset value. Trading by open-end mutual funds most directly depends on the liquidity needs of their investors, who withdraw assets directly from the fund. Because mutual funds typically have to sell and buy assets whenever they face redemptions or purchases of fund units, they are usually characterized as ‘noise-traders’. Such trading results in a disproportionate contribution of institutions and, in particular, mutual funds to market liquidity. Open-end funds are required to report the net asset value per unit on a daily basis. The net asset value of a unit of fund is calculated as the market value of the fund’s portfolio, less the fund’s liabilities, divided by the number of outstanding units.
Closed-end funds sell shares like any other corporation. Shares of closed-end funds are sold either on an organized exchange, or in the over-the-counter (OTC) market. The price of a closed-end fund’s share is determined by the demand and supply. The closed-end form protects the funds from liquidity shocks that their investors are subject to. Holders of shares of closed-end funds can only sell their shares in the organized market, like the stock exchange or OTC market. However, the closed-end form lacks the built-in monitoring mechanism that prevents fund managers from engaging in trading and other activities that are not beneficial to the fund’s owners.

The observed differences in the growth of mutual funds across countries are strongly correlated with the relative importance of equity mutual funds and the performance of national stock markets. Countries with the highest growth of mutual fund assets also experience high growth of equity funds and have the most developed stock markets. In the US, for example, equity mutual funds held 18% of all US equities at the end of 1999 (Nanda et al. (2000)), and the total mutual fund assets accounted for over half of market capitalization in the US. There are important differences between countries, but the use of mutual funds for retirement savings increased their importance in the US, as well as in Europe and Japan (Walter (1999)).

4.2.2 The contrast between institutional and individual investors

Institutional investors can be distinguished from individual investors in particular with respect to size, access to information and trading behavior. First, due to the size of institutional assets, the swings in institutional demand can have larger effects on market prices than the swings in individual investors’ demand. Because of the economies of scale and scope, institutions may be more able to undertake innovative transactions and monitoring arrangements, and more willing to get into the broader scope of investment activities than individuals. Due to the size of their ownership stakes, institutional investors are also more likely to engage in monitoring and other costly control activities than individual investors. Large shareholdings provide enough incentive for institutions, like pension funds, to undertake monitoring activities. It is more likely that their increased return from monitoring provides sufficient compensation for the associated costs. Gillan and Starks (2000) find evidence that institutional investors (more specifically, pension funds in their case) are more successful in their activism than individuals.

Second, institutional investors are likely to be better informed than individuals and in a better position to evaluate fundamentals about the companies. They are usually exposed to more news, reports, analyses and information. Better access to information and investment expertise enhances the asset-picking abilities of professional institutional asset managers relative to individual investors. Empirical evidence supports the notion that institutional asset managers may have superior abilities, but these abilities do not seem to be persistent
Third, individuals also differ from institutional investors with respect to their trading behavior. First, there is evidence that institutional investors more frequently turn their portfolios over than do small investors. It depends on the type of institution, however. Mutual funds, for example, require high liquidity and simultaneously help sustain it through their frequent trading. Consequently, they have higher asset turnover. In addition, institutions are able to take greater advantage of liquid markets than individual investors. They typically bear lower transaction costs, they can take advantage of tax-exemptions, and can negotiate commission rates.

Fourth, unlike individuals, institutional investors can affect capital markets and their size by issuing and listing their own securities. The market for institutional shares may become a very active segment of the stock exchange, for example. Because the shares of institutional investors become substitutes for investing in multiple assets, the increasing ownership stakes of institutional investors in other exchange-listed companies may undermine the liquidity of the shares of these companies. However, as long as the trading by institutions grows faster than their ownership stakes their positive impact on market liquidity is likely to prevail (Bhide (1993)).

Finally, institutional investors are closely followed by thousands of financial analysts who are tracing and evaluating their performance. This often means that they are evaluated against a particular benchmark. To be able to have a good performance record and be viewed as active, institutional investors may have to trade a lot. However, their trading volumes may not always be socially optimal. Much of their demand for liquidity may, for example, reflect the desires of fund managers rather than the actual liquidity needs of institutions. Empirical research can help us analyze the behavior of institutional investors and their impact on the capital market.

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9 The persistence in the stock-selection skills of mutual funds is a controversial issue in the literature. The empirical evidence is mixed. Hendricks et al. (1993), for example, find evidence that funds possess persistent stock-selection skills. Carhart (1997), on the other hand, argues that factors like momentum in stock returns better explain the hot-hands effect of funds than persistent skills.

10 See Black and Coffee (1994), for example.

11 See, for example, Bhide (1993) and Jones and Lipson (1999).

12 Asset managers are the agents (employees) of the management corporation who manage assets on behalf of individual investors. Individual investors are the owners of mutual or pension funds, but they usually have little (or no voice) in their management. This structure might lead to agency problems.

13 Dow and Gorton (1997) give an explanation for why a lot of ‘unnecessary’ trading by institutional investors occurs. Although trading may provide additional liquidity to the market it is not economically justified. They show that the delegated portfolio managers sometimes fail to discover profitable trading opportunities, but trade nevertheless. Given the incentives provided in their contracts, they have to trade. The problem is that their clients cannot distinguish between their ‘actively doing nothing’ from ‘doing nothing’. However, such trading cannot represent appropriate means for sustaining liquid capital markets.
4.3 The impact of institutional investors on equity market liquidity

We can identify at least two ways in which institutional investors affect the liquidity of equity markets. First, institutions have a direct influence on market liquidity through their trading which can be induced by the arrival of new information, the redemptions of fund units or the inflows of money. Second, institutions also affect market liquidity indirectly by holding ownership stakes in individual companies.

There is substantial literature that emphasizes the temporary and permanent effects of institutional trading on the prices and returns of individual shares (see Lakonishok, Schleifer and Vishny (1992), Wermers (1999), Gompers and Metrick (1998a), among others). In this section we discuss only that part of the literature on the trading patterns and behavior of institutions that has implications for liquidity. Studies of the impact of institutional trades on the overall level of share prices and returns (see Edelen and Warner (1999) among others) are part of this literature. In addition, we discuss the empirical evidence on the impact of institutional ownership on market liquidity.

The most recent empirical studies have focused on the relationship between institutional ownership and returns. A strong positive relationship between changes in institutional ownership and returns over the same period is typically found. The positive correlation can be a result of: i) the price pressures due to trading by institutional investors; ii) institutional investors being short-term momentum investors; or iii) institutions having information that allows them to time their trades. Price pressure can arise for liquidity reasons or because market participants can infer information from institutional trades (Sias et al. (2000)). This recent strand of literature combines the studies of the price impact of institutional trading with the studies of the effects of institutional ownership, which we discuss separately in this section.

4.3.1 Institutional trading

The growing weight of institutional investors in the financial markets is revealed in their increasing trading volumes, as well as in their impact on market prices and their volatility. In this subsection we will first look at the trading preferences and trading patterns of institutional investors as traders. Then we will discuss the recent evidence on the aggregate impact of money flows to institutional investors on market prices of shares. Note that extant studies consider mutual funds only. This is reflected in our discussion.

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14 See Sias et al. (2000) for a review of empirical evidence.
i) Trading preferences of institutional investors

Due to their size and performance pressures, institutional investors are forced to trade in markets characterized by a high degree of liquidity, low transaction costs, a high level of transparency, a broad product range, a uniform accounting and legal infrastructure and with a major equities component of capital markets (Walter (1999)). Nevertheless, institutions are not a homogenous group of investors. They differ in terms of liquidity needs and preferences, among others. Institutional preferences for liquidity may be determined by the functions that institutional investors perform, by the legal environment (Black (1992a)) and by other institutional factors that are responsible for the differences between institutional investors between countries.

Empirical evidence suggests that institutional investors prefer to hold the most liquid shares of the larger and well-known firms, shares with relatively high book-to-market ratios and shares with low past returns (Gompers and Metrick (1998a,b)). Mutual funds show a strong preference for shares with high visibility and low transaction costs. They are averse to shares with low idiosyncratic volatility and low price (Falkenstein (1996)). Existing financial regulation provides mutual funds with substantial latitude in their choice of portfolio investments compared to other institutions. For example, DelGuercio (1996) finds evidence that mutual fund managers do not necessarily tend to tilt their portfolios toward high-quality, prudent sectors of the equity market. Bushee and Noe (1999) show that firms with improved disclosure present an attractive investment for institutional investors with high portfolio turnover and highly diversified holdings. Institutional preferences seem to be relatively stable over time.

While most empirical findings suggest that institutions help sustain markets for the most liquid securities, Amihud and Mendelson (1986) show otherwise. They find that shares with higher spreads (and hence lower liquidity) are typically held by investors with longer holding periods. Because large institutional investors, like public or corporate pension funds, on average have longer investment horizons than individual investors, institutions should be the ones holding the high bid-ask spread shares. Investor clienteles are therefore important for understanding the price formation of the assets they trade. In particular, the institutional preferences for large and liquid shares, which materialize in increased demand for such shares, may lead to higher share prices and returns. We look at some additional aspects of the impact of institutional investors on share prices next.

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15 See, for example, Black and Coffee (1994) and Del Guercio and Tkac (1999) for detailed comparisons of different types of institutional investors.

16 Due to the nature of their liabilities, pension funds probably need the least liquidity, and mutual funds the most.

17 Cross-country differences have been widely acknowledged in the literature (see e.g. Prowse (1990), Black and Coffee (1994), Mayer (1998), Boot and Macey (1999), Otten and Schweitzer (1999)).

18 Bushee and Noe (1999) also report that increased ownership stakes of these institutions lead to a subsequent increase in the volatility of the stock prices of such firms.
ii) Trading patterns of institutional investors

Although institutional investors are not a homogenous group of investors they exhibit some common, and also dependant, trading patterns. They seem to have a tendency to buy shares based on their past returns and they tend to buy and sell the same shares at about the same time (see e.g. Lakonishok, Schleifer and Vishny (1992), Wermers (1999)).

Several explanations have been suggested for why institutional investors tend to trade together and why this may still be rational. Cross-sectional correlation in private signals or cash flows, strategic trading, uninformed institutions following the informed in order to signal their clients that they are also informed (Scharfstein and Stein (1990), Grinblatt et al. (1995)), short-term performance evaluations by their sponsors (Lakonishok et al. (1994)), and aversion towards shares with the same characteristics (Falkenstein (1996)) are among the most plausible explanations.

Correlated trading patterns of institutional investors contribute to a significant serial correlation in daily stock and portfolio returns (Sias and Starks (1999)). There is extant empirical evidence that the correlated trading of institutional investors affects share prices, their volatility and the overall stability of share and bond markets. Friedman (1996) argues that the increasing concentration of decision-making in the form of institutional investors exposes market prices to each investor's idiosyncratic shocks, which could translate into increased volatility. Sias (1996) finds empirical evidence of the positive relationship between the fraction of shares held by institutional investors and the volatility of share returns. This contrasts the literature which suggests that, due to prudential reasons, superior information on the companies in their portfolios, and the rationality of institutional asset managers, there should be a negative relationship between institutional ownership and the volatility of share prices.

Herding by institutional investors adds to their already disproportionate impact on capital market liquidity. They can depress it when it is already low and increase it when it is already high. However, the relationship between institutional ownership and market liquidity is not straightforward. We study this relationship in more detail in Chapter 5.

iii) The aggregate price impact of flow-driven trading by institutions

The impact of aggregate flows of money to institutional investors on market prices can serve as an indication of market liquidity. If institutional trading is not induced by information,

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19 Grinblatt et al. (1995) show that this tendency can be highly correlated with fund performance.
4.3. Institutions and market liquidity

we can use aggregate fund flows to study the overall price effects of institutional trading.\textsuperscript{22} If the net flows of money to institutional investors are positively cross-correlated, this indicates that they are probably affected by common factors (Edelen (1999)).

One of the pioneering studies of the aggregate price impact of mutual fund flows is that by Warther (1995). He finds a significant positive relationship between monthly aggregate mutual fund flows and market returns. Similarly, Mosebach and Najand (1999) find a positive long-run relationship between net mutual fund flows and the stock market index S&P500. The resulting positive relationship between aggregate flows and market returns (or prices) can be due to the arrival of new information that drives both money flows and stock market returns. At the same time, market returns could drive money flows to mutual funds. Controlling for this, Edelen (1999) finds a measurable price impact of daily fund flows. However, the variation in daily fund flows only explains part of the variation in daily stock market returns.

4.3.2 Institutional ownership

Increasing institutional ownership does not necessarily go hand in hand with liquid equity markets. Indeed, liquid markets require a certain level of ownership dispersion. It has been found that having a large number of shareholders is associated with lower bid-ask spreads (Benston and Hagerman (1974)). It is the number of small individual investors, not institutions, that has this particular effect (see Amihud et al. (1999)). If most shares are tied in blocks, liquidity may suffer. And what does the empirical evidence show?

The earlier empirical literature on the impact of institutional ownership on the liquidity of listed shares is inconclusive. Tinic (1972), Hamilton (1978) and Jennings et al. (1995)) find a negative relationship between bid-ask spreads and institutional ownership, while Kothare and Laux (1995), for example, find a positive relationship between the two.

Empirical studies that followed also provided mixed results. Sarin et al. (1996) find that the level of institutional ownership increases the bid-ask spread and decreases the quoted depth of a sample of AMEX and NYSE listed shares. They assign this result to adverse selection, not to the cost of asymmetrical information. Institutions do not seem to possess superior information and trade on it. Instead, Sarin et al. (1996) argue that the higher inventory costs of specialists who are required to maintain larger inventories when institutions are trading explain the relationship they find. In contrast, Jennings et al. (1997) find for a sample of NASDAQ shares that those with higher institutional ownership have narrower spreads and a smaller adverse selection component. They conclude that institutional ownership ameliorates informational asymmetries and improves liquidity. Most recently,\textsuperscript{22} Information-driven trading by institutions might have a different impact on prices than flow-driven trading.

\textsuperscript{22}Information-driven trading by institutions might have a different impact on prices than flow-driven trading.
Chapter 4. Institutional investors and capital market (liquidity)

Becht (1999) finds evidence that the concentration of ownership and voting power in the hands of institutional and other large investors has a negative effect on the liquidity of listed shares in Germany and Belgium. He argues that the liquidity of shares may suffer less if there are mechanisms in place that simultaneously provide sufficient ownership dispersion and voting power concentration.

Empirical evidence on the direct impact of institutional ownership on liquidity does not provide a clear answer. Institutional ownership may have a positive effect on shares that arises independently of liquidity. It may increase the value of shares if institutions engage in monitoring and become active as shareholders. We consider this effect next.

Institutional ownership and corporate governance

Institutional investors were traditionally viewed as large yet passive shareholders. The growing role of professionally managed institutional asset pools and the increasing ownership of institutional investors in the corporate sector have changed the role of institutions as shareholders. A shift towards more institutional activism has been observed in the last fifteen years. It has been marked by an increased role of public pension funds in the US. One explanation for the recent pension fund activism in the US is that many of the pension fund portfolios there are indexed (Gillan and Starks (2000)). The indexing strategy prevents many pension funds from disposing of badly performing shares, which leaves the more active interference in the management of the companies as an alternative way to increase their value.

It has been argued that, due to free-rider problems, large shareholders (institutions or individuals) have the strongest incentives to become active and engage in costly monitoring. Although all shareholders benefit from monitoring, the large ones are most likely to recover the costs of such activism through the increased return from monitoring. In the search for increasing returns on their assets, institutional investors started monitoring the performance of managers more closely. Their long-term focus is expected to prevent managers from harmful short-sighted actions. However, the efficiency of institutional activism has been questioned for at least two reasons. First, it is not clear whether (pension) fund managers have the required expertise to advise corporate managers. Second, the primary role of pension funds is managing assets for pension beneficiaries (see Gillan and Starks (2000)).

Empirical studies of the corporate governance activities of institutional investors show that

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23 Note that the separation of voting power and share ownership matters for the incentives of shareholders to take actions and monitor the management of firms.

24 See Gillan and Starks (2000), for example, for an overview of institutional activism in the US over the last two decades.

25 See e.g. Shleifer and Vishny (1986), Huddart (1993), Admati et al. (1994).
In this chapter we have presented different aspects of the presence of institutional investors in the capital markets. We have focused primarily on the implications of increased institutional presence for the liquidity of equity markets. For this purpose we looked at the characteristics of institutions in their role as traders and as active shareholders. We saw that institutional investors have a noticeable effect on share prices, returns, and their volatility. They tend to imitate each other’s trading behavior which can further amplify their impact on the capital market. They prefer to hold the most liquid shares of the larger and well-known firms among their assets while the less liquid shares of smaller and less known firms are not really attractive to them. Empirical evidence suggests that the effectiveness of institutional investors acting as shareholders has been rather limited so far.

While increased institutional presence in the capital markets is supposed to enhance their liquidity, numerous empirical studies suggest otherwise. Although mostly limited to US shares, there is enough evidence that suggests that institutional investors may hamper the liquidity of equity markets. We analyze the theoretical aspects of the relationship between institutional investors and liquidity in more detail in the next chapter.

27 See Maug (1998) and Bolton and von Thadden (1998), for example.
Chapter 4: Institutional Investors and Capital Market Regulation

In the last decade, the role of institutional investors in the corporate governance landscape has become more significant.

One explanation for the recent increase in the influence of institutional investors on corporate governance is the rise of the

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