

Franks, Julian; Mayer, Colin

Working Paper

Governance as a source of managerial discipline

NBB Working Paper, No. 31

Provided in Cooperation with:

National Bank of Belgium, Brussels

Suggested Citation: Franks, Julian; Mayer, Colin (2002) : Governance as a source of managerial discipline, NBB Working Paper, No. 31, National Bank of Belgium, Brussels

This Version is available at:

<https://hdl.handle.net/10419/144245>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



NATIONAL BANK OF BELGIUM

WORKING PAPERS - RESEARCH SERIES

GOVERNANCE AS A SOURCE OF MANAGERIAL DISCIPLINE

J. Franks^(*) and C. Mayer^(**)

The views expressed in this paper are those of the authors and do not necessarily reflect the views of the National Bank of Belgium.

^(*) Professor of Finance at the London Business School.

^(**) Professor of Finance at the SAID School of Business, Oxford University.

Editorial Director

Jan Smets, Member of the Board of Directors of the National Bank of Belgium

Statement of purpose:

The purpose of these working papers is to promote the circulation of research results (Research Series) and analytical studies (Documents Series) made within the National Bank of Belgium or presented by outside economists in seminars, conferences and colloquia organised by the Bank. The aim is thereby to provide a platform for discussion. The opinions are strictly those of the authors and do not necessarily reflect the views of the National Bank of Belgium.

The Working Papers are available on the website of the Bank:

<http://www.nbb.be>

Individual copies are also available on request to:

NATIONAL BANK OF BELGIUM

Documentation Service

boulevard de Berlaimont 14

B - 1000 Brussels

Imprint: Responsibility according to the Belgian law: Jean Hilgers, Member of the Board of Directors, National Bank of Belgium.

Copyright © National Bank of Belgium

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

ISSN: 1375-680X

Editorial

On May 27-28, 2002 the National Bank of Belgium hosted a Conference on "*New views on firms' investment and finance decisions*". Papers presented at this conference are made available to a broader audience in the NBB Working Papers no 21 to 33.

Abstract

Anglo-American stock markets are much larger than their continental counterparts. Does investor protection and governance explain these differences? Using UK data, we examine four different forms of intervention which are suppose to promote good governance: takeovers, independent directors, outside shareholders, and providers of new finance. Which of these "four horses will win the race?"

Institutional shareholders remain passive in the face of poor performance. Takeovers are effective in replacing management but are not focussed on poorly performing companies. Independent directors entrench poor performers and do not discipline management; they are advisors not monitors. The only effective mechanism for replacing management of poor performers and the providers of outside finance. When a poor performer needs outside finance, only then are outside shareholders willing to impose management changes.

Is governance in Continental Europe more effective? The answer is not obviously so. Indeed in one important respect Germany looks worse. When there are major changes of ownership, the gains accruing to shareholders are much lower than in the UK or US. Moreover, those gains accrue to large German shareholders. Smaller shareholders hardly gain at all. One explanation is that restructuring German companies is more difficult and more costly than in the US or UK.

Table of contents

1. INTRODUCTION	1
2. MARKET FOR CORPORATE CONTROL.....	3
Do takeovers increase shareholder value?	3
Role of hostile takeovers in disciplining poorly performing management?	5
Are takeovers about the acquisition of under performing companies?.....	6
3. HOW ARE POORLY PERFORMING COMPANIES RESTRUCTURED IN THE UK?	9
Board turnover and performance	10
Types of ownership and concentration of ownership.....	11
High gearing and managerial change.....	13
Results of regression analysis	15
4. WHAT MIGHT EXPLAIN DIFFERENCES BETWEEN OUTCOMES IN THE US AND UK?	16
Fiduciary responsibilities of directors	17
Minority protection	18
Rights Issue Requirements	19

1. Introduction

Who governs UK companies and how well do they do it? The immediate response that most people would give is the board of directors and they operate largely in their own self-interest. Few people would see shareholders as being at the helm and even fewer would see directors as being driven by hard taskmasters. The one exception is takeovers when shareholders get the upper hand.

The difficulties of shareholder activism are illustrated by the activities of Phillips and Drew in 1998. Despite persistent poor performance, the management of some of the companies in which they had large shareholdings, stubbornly remained in place.¹ As a result, Phillips and Drew actively used their holdings to encourage hostile takeovers. In the case of Marley, the buildings and materials group, Phillips and Drew approached John Mansfield, a much smaller company than Marley, and pledged their holding of 24.9% in a forthcoming hostile bid. They also agreed to invest 1.5 million pounds in Mansfield if their bid failed. The hostile bid for Marley produced a series of competing bids, and large profits for the fund managers. What is striking about this case is (i) the inability of financial institutions to effect changes in control in manifestly poorly performing companies and (ii) that in the end Phillips and Drew had to stimulate a takeover market to achieve this.

What underlies this perception of passive governance is the highly dispersed nature of share ownership in the UK. As has been by now well documented, in comparison with virtually every Continental European country, Far Eastern and South American country, the UK has exceptionally dispersed ownership (see La Porta et al (1999)). In most countries a high proportion of companies have single majority shareholders in even the largest quoted companies. However, dispersal of ownership in the US is comparable to that in the UK. The US is therefore a particularly important country against which to compare UK governance because unlike Continental Europe and most of the rest of the world, the underlying structure of its capital markets and companies is similar.

¹ See the article in The Financial Times, The ABC of management performance, according to P&D, December, 1998.

In a paper with Luc Renneboog (2001) we document the structure of ownership of UK companies, we examine how well governance functions in rectifying management of poorly performing firms, and we draw contrasts with the US. The main observations on which we expand in the subsequent sections are:

- While ownership is dispersed in the UK in comparison with most other countries, coalitions of 5 shareholders can on average control more than 30% of outstanding equity.
- There is little evidence that shareholders in practice exercise this potential to exert control.
- The single most important holders of large blocks are insiders (directors) who use their holdings to resist outside intervention.
- Boards play a weak role in corporate governance. Non-executive directors do not in general perform a disciplinary function but separation of roles of CEO and chairman is important in disciplining CEOs of poorly performing firms.
- In addition to an active takeover market, there is a market in blocks of shares.
- Neither hostile takeovers nor markets in share blocks are associated with the disciplining of the management of poorly performing firms, with the exception of holdings held by industrial companies.

These observations stand in contrast to those reported in the US:

- Boards of directors are important in disciplining management. Non-executive directors play a key role in this process.
- Disciplinary takeovers and the market in share blocks in the US are both associated with poorly performing companies.

In the absence of active shareholder involvement, governance in the UK relies on financial constraints. We find that:

- Management is more likely to be replaced in poorly performing companies that have poor financial ratios.

- There is a high level of (distressed) new equity issues by poorly performing UK companies. These are associated with a high level of managerial changes.

What can explain these differences, notwithstanding the similar structures of the two countries' capital markets? We believe that legal rules and regulation play a key role. There are two areas where we believe that regulatory differences between the UK and US are particularly significant: fiduciary responsibilities of directors and protection of minorities, in particular in relation to takeovers and new equity issues. The former are significantly weaker and the latter significantly stronger in the UK than in the US leading to a reliance of governance in the UK on financial constraints relative to boards.

In section 2 of this paper, we describe the performance of the takeover market and the extent to which managerial changes are related to poor performance. In section 3 we describe the results of the research into UK governance mechanisms, and in section 4 we explore how governance outcomes in the US and UK might be explained in terms of differences in legal and regulatory rules.

2. Market for corporate control

In this section on the takeover market we discuss three questions:

- Do takeovers increase shareholder value?
- What role do hostile takeovers play in disciplining poorly performing management?
- Are takeovers about the acquisition of under-performing companies?

Do takeovers increase shareholder value?

In Table 1 below, we show the results of a recent paper by Loughran and Vijh (1997) for a large sample of takeovers in the US that took place over the period 1970-1989. They measure the returns from a buy and hold strategy for shareholders of the target over the announcement period of the takeover and up to 5 years subsequent to the consummation of the merger. It is assumed that the shareholders of the target purchase shares in the bidder when the offer is accepted, at a price that reflects any

bid premium. The excess returns around the announcement date, i.e. the bid premium, are about the same in mergers as in tender offers, 25.8% versus 24.5%. However, after 5 years the cumulative returns to shareholders in merging firms has hardly changed from 25.8% to about 30% i.e. there are virtually no abnormal returns over this period. In contrast, the returns in tender offers have improved dramatically from about 24.5% to 127%. All these returns are after the deduction of returns on a suitable benchmark, thereby measuring ‘excess’ or ‘abnormal’ returns.²

The authors’ explanation for the difference in tender offers and mergers is ‘that tender offers, which are often hostile to incumbent managers, may create additional value as new managers are appointed. In the case of mergers, that are friendlier and enjoy the co-operation of incumbent management, the additional value creation is less likely to occur.’ (Page 1787)³

Table 1: Cumulative excess returns of 516 US merging firms from the bid announcement date to 5 years post merger for the period 1970 to 1989: Loughran & Vijh (1997)

	Number	Bid announcement Period	Year 1	Year 2	Year 3	Year 4	Year 5
Mergers	419	25.8%	28.5%	24.0%	20.9%	30.4%	29.6%
Tender offers	97	24.5%	42.2%	48.4%	69.6%	81.6%	126.9%

Announcement period begins 2 days prior to the announcement date and ends with the effective date of the acquisition.

Table 2 provides a measure of performance for a large sample of UK takeovers by Higson and Elliot (1996) that took place over the period 1975 to 1990. The abnormal returns are calculated after deducting the returns of a benchmark consisting of a sample of non-merging companies of equivalent size to the merging companies. The bid premium to target shareholders averages 37.5%, although it is larger in hostile bids at 42.7% compared with 36.6% for friendly bids. Bidders do far less well earning

² Note that if the result is expected to hold in the future there is a profitable trading rule which suggests that investors should buy targets of successful tender offers.

³ The difference in performance is very different for mergers financed with stock and those financed with cash, -25% in the former case and almost 62% in the latter. Agrawal, Jaffe, and Mandelker (1992) in an earlier study find that tender offers are followed by close to zero abnormal returns, but mergers are followed by significant abnormal returns of -10% over a 5 year period starting after the effective date of the merger.

abnormal returns of about 0.43% or 1.3% on a value weighted basis. Thus, there are substantial gains to shareholders from takeovers but virtually all the gains accrue to the target.⁴ The long run returns of these takeovers are roughly breakeven on an equal weighted basis, although value weighted returns of 12% suggest that larger takeovers perform better.⁵

Table 2: Long term performance for a sample of 722 UK takeovers for the period 1975 to 1990 (Higson and Elliot (1996))

	Announcement month		Abnormal returns in 3 years post merger
	Bidder	Target	
Abnormal returns: equal weighted	0.43%	37.5%	0.83%
Value weighted	1.3%	33.2%	12.0%

Role of hostile takeovers in disciplining poorly performing management?

Targets of hostile bids tend to be large on the basis of equity capitalisation. Although 15% of the total sample, they comprise 40% of the largest 100 takeovers. Not only are the announcement returns i.e. the bid premium, to target shareholders higher in hostile takeovers but the long term performance of the combined company, subsequent to the merger, is better: 12.8% over 24 months compared with 1.33% for the top 100.

Franks and Mayer (1996) made a detailed study of 80 hostile takeover bids in the UK in 1985-1986. Like Higson and Elliot, they found much larger bid premiums for successful tender offers where management opposed the bid, compared with friendly bids: 29.8% compared with 18.4%.⁶ In opposed bids there was also a very high degree of management replacement after the bid. On average 90% of the target board was

⁴ Their estimates of the gains to takeovers using announcement month returns only are consistent with those found by Franks and Harris (1989) who examine more than 1900 takeovers for the period 1955-1985. They estimated one month returns to targets of 22% and 1% returns to bidders. Over the 6 months surrounding the bid announcement, returns increased to 30% for targets and 7% for bidders. Note that there are some share price studies that show different conclusions. For example, Firth (1979, 1980) show mergers at best break even (taking the bidder and target together).

⁵ Note that these long run returns do not include the bid premium.

⁶ Differences in the size of the bid premiums in the two studies can be traced to different definitions of the announcement window, and more important to different periods. In a study with a much larger sample of takeovers (i.e. 1900) over a much longer period, Franks and Harris (1989) estimated bid premiums at almost 30%, from four months prior to the bid to 1 month after. This is somewhat closer to Higson and Elliot's estimate.

replaced compared with only 50% in friendly bids. They attributed the higher bid premiums in hostile takeovers to larger merger benefits rather than to lower returns to bidders.⁷

Are takeovers about the acquisition of under performing companies?

If the market for corporate control is about the correction of managerial failure, we might expect evidence that the targets of hostile takeovers are on average under performing companies; however, UK evidence suggests little under performance prior to the bid. Measures of performance included abnormal share price returns shown in Table 3. For example, over the 5-years prior to the bid, targets of hostile takeovers appreciated by only -0.14% per year; these returns included both dividends and capital gains. The returns are virtually zero. The equivalent performance of the non-merging sample is +0.14%, again close to zero. Shorter periods show somewhat worse performance for targets of hostile bids but still not very poor performance.

Table 3: Pre- bid performance for targets of hostile bids and a sample of non-merging sample using share returns.

	Average over 5 years prior (%)	Average over 2 years prior (%)	Average over 1 year prior (%)
Successful hostile bids	-0.14%	-6.09%	-7.68%
Matching non merging sample	+0.14%	+2.26%	+7.90%

Using another benchmark consisting of dividend changes, the authors found confirmation that the majority of targets of hostile takeovers were not poor performers. A majority increased their dividends during the two years prior to the bid, and in less than 8% of cases dividends were reduced or omitted in the year prior to the bid. This record is even more striking compared with the dividend behaviour of a sample of 80 firms in the bottom quintile of share price performance. Dividends were

⁷ Hostile takeovers may also be effective as a threat to managers. Thus, performance may be affected even in the absence of a bid.

omitted or reduced in 41% of cases.⁸ These studies do not imply that takeovers play no role in restructuring poorly performing companies; in fact, acquisition of very poorly performing firms is about 4.5% per annum.

The main research findings for the UK are that takeovers in general are good for shareholders, although most of the gains accrue to the target.⁹ Hostile takeovers look even more profitable and this may be attributable to a greater willingness to change management and make other more radical changes. However, the targets of hostile takeovers do not show evidence of past poor performers. Targets look to be average, or slightly below average, performers in comparison with other quoted companies. This does raise the question as to what happens to poorly performing companies and how they are restructured.

Experience with US takeovers appears different in one important respect. A study on hostile takeovers by Martin and McConnell (1991) found higher bid premiums in hostile than in friendly takeovers, and that targets of takeovers which were disciplinary in nature tended to under perform their non-merging industry counterparts prior to a bid. Shareholders of such targets suffered abnormal returns of -15.4% compared with +4.4% for targets, which were non-disciplinary. They concluded that 'the takeover market plays an important role in controlling the nonvalue maximising behaviour of top corporate managers.' (page 671). Thus, the US market operates more like a market for corporate control than the UK.

A second study in the US by Agrawal and Jaffee (1999) confirms these findings. They examined over 2000 acquisitions for the period 1926-1996. They find that 'target firms as a group do not exhibit under performance over a 100-month pre-bid period.

⁸ Other measures of performance, including cash flow rates of return, and the ratio of market value to the replacement cost of firms' net assets, also suggests that targets of hostile bids are not poor performers.

⁹ Accounting studies show somewhat different results to share price studies. Meeks (1977) and Singh (1971,1975), compare the accounting return on assets of the merging firm both before and after the event. They find much lower returns post-merger, and attribute the lower return to losses on the acquisition. A study by Ravenscraft and Scherer (1987) in the US shows similar results. There are two important criticisms of these studies. First, accounting rates of return are not economic rates of return, and are subject to much manipulation and smoothing (see Kay (1976) on the biases). A study by Healy, Palepu and Ruback (1992) show that when you convert the accounting rates of return to economic rates of return there are gains to merging.

However, sub-samples where disciplining of target managers is a likely motive for acquisition (e.g. tender offers, hostile takeovers, and multiple bidders) show evidence of pre-acquisition under-performance. These results for sub-samples support the inefficient management hypothesis.'

A third study of US hostile takeovers by Bhidé (1989) uses a different methodology to examine the issue of whether hostile takeovers improve value through managerial change. He examined the restructuring activities that followed 47 US hostile takeovers attempted between 1985-1986 and compared them with a randomly selected group of friendly takeover transactions. He found that hostile transactions were not motivated by market myopia or irrationality. High debt levels resulting from the transaction were quickly reduced by asset sales, new equity issues or innovative financing. There was little evidence of cuts in long term investment. There were, however, sales of assets that often represented the unbundling of past (unsuccessful) acquisitions. He concluded that 'an overwhelming percentage of the targets had poor, or at best mediocre, performance records.' (page 39) In contrast, he found that in friendly transactions, perceived synergies or the advancement of some corporate 'portfolio' strategies were the most common benefits expected by bidders. Targets of friendly mergers were more likely to be well managed companies, and the management teams were largely left in place. However, he finds little value added in these transactions. His overall conclusion is:

'The single most important contribution of hostile takeovers is that they cut down on corporate sprawl, and bring more focus to American industry. The problem of value destroying friendly mergers documented in my research would be much less serious if we had an effective system of firm governance in place. If shareholders were properly represented by boards of directors, fewer uneconomic transactions would take place and past acquisition mistakes would be quickly rectified. (page 56).

Nevertheless, even if takeover markets function well as a market for corporate control they appear to be especially expensive when the sole or prime objective is managerial replacement or the correction of managerial failure. The costs of changing control are high and are significantly affected by takeover regulation protecting minorities and

the transaction costs of acquisition.¹⁰ Also, shareholders may benefit on average from mergers, but there is evidence that the risk of failure is high. For example, in assessing the returns to shareholders on the announcement of bids about 46% of bidders lose value, notwithstanding that on average bidders gain.

The hostile takeover for National Westminster Bank seems largely motivated by management change and a restructuring of the business largely, although not exclusively independent of any synergies between bidder and target. It is an important question why other, less expensive, governance procedures failed to produce much of these gains.

An important question is the source of these gains to takeovers. Shleifer and Summers (1988) argue that some of these gains come at the expense of other stakeholders such as managers and employees. There is only modest empirical evidence investigating this question. Rosett (1990) finds that a wealth transfer from stakeholders to shareholders accounts for 10% of the hostile takeover premium and 5% in friendly bids. Brown and Medoff (1988) find that mergers do not redistribute wealth from workers to stockholders, and Hall (1988) finds that mergers have little effect on research and development spending, a result at odds with the managerial myopia theory (see Stein (1988)).¹¹

3. How are poorly performing companies restructured in the UK?

If hostile takeovers do not provide the mechanism for restructuring poorly performing companies, how are those companies restructured? In this section we summarise a study by Franks, Mayer and Renneboog (2001) of under performing UK companies and investigate the incidence of managerial changes and their influences.

¹⁰ Changes in large share block ownership in Germany are associated with much smaller bid premiums to sellers of about 10% than in the UK. Also, non-selling shareholders received virtually no gains from the transaction (see Franks and Mayer (2000)). They explain these differences in terms of the lower level of legal protection for minority shareholders, the lack of effective takeover rules, and the lower level of merger benefits. Their results suggest significant private benefits to large shareholders in Germany.

¹¹ See Chemla (2000) for a review of some of the empirical work on implicit contracts and breach of trust in takeovers.

We collected data on ownership, performance, capital structure and board structure for the period 1988-1993. We chose 250 companies randomly from all LSE quoted companies and an additional 50 poorly performing companies, defined as those performing in the lowest decile of share price performance during the period 1988-1991.¹²

We address two questions:

How much managerial change is there in poorly performing companies?

What are the influences on managerial change? (i) large outside shareholdings, (ii) non executive directors, (iii) high leverage giving rise to new financing and encouraging intervention by shareholders and creditors, and (iv) sales of large share stakes performing like a market for corporate control.

Another important question that is not addressed is the extent to which particular forms of intervention lead to better subsequent performance.

Board turnover and performance

We used 5 different measures of (poor) performance including abnormal share price returns, dividend cuts/omissions, after tax cash flow margins, after tax rates of return on book equity, and earnings losses. Table 4 shows various measures of board turnover related to abnormal share price returns. Only for very poor performance as measured by the worst decile i.e. decile 1, is there a strong relation between board turnover and performance. For example, for the 3 year period following the year of poor performance there is an annual rate of turnover of executive directors of 21.1% or 63% over 3 years for decile 1. The turnover of the CEO is even higher, with a cumulative rate of 86.4% over 3 years or an average annual rate of 28.8%. Only for one other decile, decile 2, is there significant management turnover; for other below

¹² This sample is described in much greater detail in 'Who disciplines management in poorly performing companies', Julian Franks, Colin Mayer and Luc Renneboog, July 14, 1999.

average performing deciles, 3 and 4, the level of managerial change is little different from that of average performing companies.¹³

Table 4: Average annual board turnover over 3 years for firms in different deciles of performance, measured by abnormal share price performance.

Board turnover:	Worst decile:1	Decile 5	Best decile: 10
Executive directors	21.1%	8.1%	6.9%
Non- executive	7.4%	4.2%	4.8%
CEO	28.8%	11.6%	10.4%
Chairman	15.8%	7.2%	5.9%

Types of ownership and concentration of ownership

In this section we briefly describe ownership in the UK quoted share markets. This shows the level of concentration of ownership and that with coalitions of shareholders, the often-cited monitoring problems arising from dispersed ownership might be substantially mitigated. We also compare the level of concentration with that in US markets.

UK capital markets are relatively dispersed by international comparisons. For example, whereas more than 85% of large German quoted companies have a single blockholder with more than 25% of the voting equity.

Table 5 shows that for the average firm in our UK sample, the largest single shareholding averages about 15%, and for the 5 largest shareholdings it average 30-35% depending upon the year.¹⁴ These numbers are similar to the US, where Demsetz and Lehn (1995) find an average ownership of the 5 largest shareholders of 24.8% for the average firm in the Fortune 500 compared with 33% for our UK sample.

¹³ The average size of board is 9.3, and the average proportion of non executive directors is 40%, and the CEO is combined with Chairman in 32.9% of cases.

¹⁴ The sharp change between 1989 and 1990 reflects changes in disclosure of outside shareholdings from 5% or more to 3% (Company Law, 1989).

Table 5: Size of largest shareholdings for a sample of quoted companies: 1988-1993

Year	Largest shareholding	Largest 5 shareholdings	All reported large shareholdings
1988	15.3%	29.7%	30.6%
1989	15.6%	30.7%	31.4%
1990	16.5%	36.4%	41.0%
1991	15.6%	36.7%	42.7%
1992	15.0%	35.2%	40.7%
1993	13.7%	30.4%	33.5%

However, the level of concentration does vary with the size of company. This may be important since smaller companies tend to have greater representation in the worst performing deciles. This is illustrated in Table 6 where the worst and best performing companies are shown to have much smaller equity capitalisations than average performing companies i.e. decile 5. Average performing companies are more than twice as large as best performers, and are about six times larger than companies in the worst performing decile.

Table 6: Concentration of ownership by performance of firms in different deciles

	Worst decile: 1	Decile 5	Best decile: 10
Largest shareholding	16.9%	11.0%	17.1%
Sum of all large shareholdings	42.4%	30.5%	45.9%
Institutions	17.9%	17.2%	17.4%
Industrial companies	5.8%	4.8%	6.2%
Families	3.5%	0.9%	4.7%
All directors	15.3%	6.8%	17.6%
Market cap. (millions)	132	993	408

Using the largest shareholding as one metric of concentration, it is 11.0% for average performers i.e. decile 5, compared with 16.9% for the sample of worst performers i.e. decile 1. This difference mainly reflects lower insider ownership by directors, which is 6.8% among average performers compared with 15.3% among poor performers. Thus, the pattern of insider ownership explains a large part of differences in the concentration of ownership among firms of different size and performance. Our

results suggest that the size of insider ownership plays an important role in protecting or entrenching management from change when performance is poor.¹⁵

The two largest types of shareholders are institutional shareholders and insider shareholders, i.e. directors. Industrial shareholders are also significant.

The pattern of share blocks is not static in our sample. There is a significant market in share stakes. For example, there are 82 sales of stakes greater than 10% for the period 1991-1993, and this constitutes an annual turnover rate of 9%. We explore the extent to which sales of blocks are influenced by performance and lead to managerial changes.

High gearing and managerial change

An important question explored in this study is the extent to which high gearing and the need for new financing may explain managerial changes among poorly performing companies. Table 7 explores this question. We show that where poorly performing companies are not highly geared there is a comparatively low level of managerial turnover, whereas where similarly performing companies have high gearing there is a high level of managerial change.

We calculate cumulative executive board turnover and CEO turnover for a sample of poorly performing companies in the lowest decile of share price performance for at least 1 year in the period 1988-1993. Board turnover is ranked by quartile of interest cover, with Quartile 1 containing companies with the lowest interest cover, and Quartile 4 those with the highest cover. Board turnover is accumulated over 3 years.

We find that cumulative executive board turnover is highest at 67.2% for companies with the lowest interest cover. For companies with the highest interest cover the cumulative board turnover is about one half, at 34.3%. It should be stressed that the performance of companies in different quartiles are the same. Statistics for cumulative CEO turnover show the same relation- low interest cover is correlated with high

¹⁵ Results are similar for the US. Insider holdings can be used to entrench management.

turnover. A similar relation holds when we use other definitions of gearing. Thus, for the same poor performance, companies with high gearing have much higher board turnover than companies with low gearing. This suggests that the relation between performance and board turnover shown in Table 3 may be driven by a combination of high gearing and poor performance and not poor performance on its own

Table 7: Cumulative executive board turnover and CEO turnover for a sample of poorly performing companies ranked by quartile of interest cover, with Quartile 1 containing companies with the lowest interest cover, and Quartile 4 those with the highest cover. Board turnover is accumulated over 3 years.

Interest cover:	Cum. executive turnover	Cum. CEO turnover
Quartile 1 (Lowest)	67.2%	69.6%
Quartile 2	44.6%	59.3%
Quartile 3	45.4%	55.9%
Quartile 4 (Highest)	34.3%	24.2%

The importance of high gearing fits with the view attributed to Jensen (1989) that high gearing is good for corporate governance because poor performance causes management to default on its loan obligations and to seek renewal of facilities from lenders who are better at monitoring management than shareholders.

To investigate the role of shareholders and creditors in firms with high gearing, we analysed 34 case studies of poorly performing companies. In 28 cases the CEO or Chairman resigned, or both resigned. In 18 cases or about 54% of the sample new equity finance was raised. Of these, 15 were rights issues and the remaining 3 were placings. There were a substantial number of ownership changes. In 72% of cases there was at least one of the following changes: a new issue, a takeover, or the emergence of a large shareholder. In some cases board changes coincided with one of these events. Debt restructuring was also important. In 5 cases there was a public debt issue and in another 5 a capital reconstruction or public recontracting of debt.¹⁶ However, the most significant finding was the high incidence of new equity financing. The question that we investigated was the extent to which managerial changes was related to the provision of new equity financing and was triggered by shareholders and (or) creditors.

¹⁶ Since much debt is bank finance, significant restructuring may be hidden from public view.

Interviews with senior management at some of the largest fund managers suggested that although they might intervene where there was very poor performance, in the face of management opposition, they were likely to avoid confrontation because of the dislike of any consequent publicity and the problems of co-ordinating other shareholders. However, it was a very different story when the poor performer required new finance: “it comes to a crunch when companies raise additional finance” or “it all unpicks when a company needs new money”.¹⁷

Results of regression analysis

In a more formal analysis we performed regression analysis on data for the total sample and separately on the sample of poorly performing firms only. Results showed:

- (i) Board turnover and performance is strongly non-linear. Managerial change is only precipitated in very poor performers.
- (ii) Where executive directors own large stakes, they impede managerial change when performance is poor.
- (iii) The presence of non-executive directors is not related to managerial changes when performance is very poor.
- (iv) In explaining CEO turnover, a non-executive chairman is important.
- (v) Large outside ownership does little for precipitating managerial change when performance is poor with the exception of holdings by industrial companies. Sales of share stakes do not perform much like a market for corporate control.
- (vi) High board turnover among poor performers is strongly related to high gearing and the raising of equity finance.

The overall conclusion from the regression results is that although there is a strong relation between performance and board turnover, concentration of ownership and the category of owner play a limited role in the disciplining of management. The exceptions are inside ownership, which is used to entrench existing management, and

¹⁷ These interviews were carried out in 1997-8.

industrial companies, which acquire stakes in poorly performing companies and precipitate high executive board turnover. Capital structure is important in explaining high levels of board turnover and the significance of new equity issues points to an important role for shareholders in disciplining boards of poorly performing companies when they are forced to seek additional equity. Board structure has little influence on overall executive board turnover but is important in the CEO regression with separation of the position of CEO and chairman leading to higher CEO turnover. Boards are therefore instrumental in dismissing CEOs in response to earnings losses or dividend cuts. To achieve wider board restructuring, investors require the leverage of external finance provided by high debt levels.

4. What might explain differences between outcomes in the US and UK?

There are three respects in which the exercise of corporate control is quite different in the UK and US. First, in the US, Weisbach (1988) reports a closer relation of CEO turnover to performance in firms where non-executive directors dominate the board. Also, Gilson (1990) and Kaplan and Reishus (1990) find that non-executive directors of poorly performing companies lose reputation and are frequently unable to find replacement positions. In the UK, we found no evidence of disciplining by non-executive directors; indeed, the relation is negative between the proportion of non-executives and board turnover. However, there is a strong association between CEO turnover and separation of the positions of chairman and CEO; separation seems to play an important role in CEO turnover.

Second, we find that takeover markets, and hostile takeovers in particular, in the UK are not significantly related to poor performance. In addition, we find no significant relation between managerial disciplining and large outside share blocks held by financial institutions, individuals, families and non-executive directors. The one exception involves purchases of share blocks by industrial investors where we report higher board turnover with poor performance. In some contrast in the US there is strong evidence in the US that hostile takeovers are related to poorly performing targets. Also, a study by Bethel et al (1998) reports that purchases of share blocks by 'active investors' are targeted on poorly performing companies. Also, Holderness and Sheehan (1987) find that when their majority blocks trade, there is substantial management turnover and

stock prices increase. Thus, in both countries, changes in share blocks by active investors perform a disciplinary function, although the definition and size of active investors in the US is considerably broader than that in the UK.

Third, we find that financial structure and new financing are particularly significant influences on board turnover in the UK. We are not aware of any US study reporting this relation.

What could explain these differences? We argue that legal rules or regulation could play an important role.

Fiduciary responsibilities of directors

Powers to enforce fiduciary responsibilities on directors in the UK are weak. Stapledon (1996) records that although directors in the UK owe their companies ‘fiduciary duties of honesty and loyalty, and a duty of care and skill’, in practice ‘actions to enforce the duties of directors of quoted companies have been almost non-existent’ (pp. 13-14). Parkinson (1993) states “Historically, the standard of diligence set by the courts has been comically low, as can be seen from the cases concerning failure to supervise fellow directors and managers who turn out to have been defrauding the company” (page 98). Miller (1998) suggest that derivative lawsuits by shareholders in the UK are unheard of, possibly reflecting the absence of contingent fees. All this might explain why directors of UK companies perform more of an advisory than a monitoring role.

In the US, directors (both executive and non-executive) have a duty of care to shareholders and they can be sued for failing to fulfil fiduciary responsibilities. Clark (1986) describes the circumstances under which shareholders can be sued in the US. For example, in *Smith v. Van Gorkum*, shareholders successfully sued directors for a breach of duty of care with respect to a merger. However, Clark also notes the paucity of such successful cases. His view is reinforced by Romano (1991). In reviewing the empirical literature on lawsuits in the 1960s to 1987, she concludes that shareholder litigation is a weak, if not ineffective instrument of corporate governance. One important exception is block ownership, where she finds that “blockholders who

are not insiders, litigation can be a valuable mechanism to redirect corporate policy”.
(page 80)

Minority protection

The 1989 Companies Act requires that share blocks in excess of 3% must be disclosed. Where there is a controlling firm the Stock Exchange lays down specific rules concerning the controlling shareholding (sections 3.12 and 3.13) and transactions with related parties (Chapter 11 of the Stock Exchange rules). Where there is a controlling shareholder, the firm "must be capable at all times of operating and making decisions independently of any controlling shareholder and all transactions and relationships in the future between the applicant and any controlling shareholder must be at arm's length and on a normal commercial basis" (section 3.13). A majority of the directors of the board of the subsidiary must be independent of the parent firm. Shareholders have to be notified about transactions with the parent firm and their approval has to be sought in advance with the related party abstaining from voting on the transaction (sections 11.4 and 11.5). Minority shareholders therefore have the right to be consulted about and approve transactions with the parent firm.

Minority shareholders are protected in the UK by the City Code on Takeovers and Mergers. The Code requires that any person accumulating 15% or more of the voting rights of a firm must declare their intentions about making a takeover and those acquiring 30% must offer to purchase all remaining shares at the highest price paid by the acquirer for the target over the previous twelve months. Also, a 25% minority of shareholders can block particular forms of new equity issues and mergers, and new issues have to be made in the form of rights issues where they exceed 5% of share capital. In terms of Goshen's (1998) characterisation of systems of minority protection, the UK has a "property rule" which prevents any transaction from proceeding without the minority owner's consent.

In Goshen's (1998) terminology the US has a "liability rule" which allows transactions to be imposed on an unwilling minority but ensures that the minority is

adequately protected in objective market value terms.¹⁸ Protection of investors, especially, minorities is primarily the concern of the courts. For example, Delaware courts in the US approved a discriminatory share buyback by Unocal against Boone Pickens, who was a large shareholder attempting a coercive takeover (Herzel and Shepro, 1990). There is no US equivalent of the UK Takeover Code requiring full bids for companies to be made. However, there is extensive State legislation discouraging takeovers and companies implement more defence mechanisms than are permitted in the UK (Miller (1998)).

Rights Issue Requirements

Differences in minority protection are particularly pronounced in relation to new equity issues. In the UK, the association of corporate governance with new equity finance revolves crucially around the investment banks and underwriters that organise the issue. Section 89(1) of the Companies Act 1985 states that seasoned new equity issues by companies must be in the form of rights issues and that if shareholders fail to take up their rights, the rights may be sold for the shareholder's benefit.¹⁹ Section 95 of the same Companies Act also describes the circumstances under which pre-emption rights may be disapplied. It requires a super majority vote by shareholders of at least 75% on each and every occasion an equity issue is to be made. Additional requirements imposed by the London Stock Exchange also require that where shareholders vote to drop pre-emption rights the discount of any new issue must not exceed 10% of the market price at the time of the issue's announcement (para 4.26, Stock Exchange Rules, 1999). The Exchange may relax these rules if the company is in severe financial difficulties.

This external control is reinforced by guidelines, authorised by the National Association of Pension Funds and the Association of British Insurers. They recommend that companies be limited to raising 5 per cent of their share capital each year by any method apart from rights issues - and 7.5 per cent in any rolling three-

¹⁸ The difference that is drawn here between UK and US minority protection conforms with the more general distinction which Atiyah and Summers (1987) and Posner (1996) draw between reliance on substantive reasoning under US law and formal reasoning in UK law.

¹⁹ These pre-emption rights are recognised in European Community law.

year period. These guidelines are designed to prevent management from selling shares to new shareholders at below equilibrium prices and thereby diluting existing shareholder wealth. They can only be bypassed if agreement is obtained from shareholders immediately prior to the issue. In a recent case, involving the Olivier Company, shareholders controlling 30% of the shares prevented an open offer of equity being made.²⁰

In the US, companies frequently obtain shareholders' agreement to drop pre-emption rights. Such agreement does not have to be renewed on each occasion the firm makes a rights issue as in the UK. Brealey and Myers (1996) suggest that 'the arguments [by management] for dropping pre-emption rights do not make sense' (p. 405). Our results imply that managers have incentives to drop pre-emption rights so as to allow issues of equity to be made to new shareholders at a discount to the equilibrium price, thereby diluting existing shareholder wealth. The discount would be in exchange for implicit or explicit agreements to new shareholders to leave existing management in place. US evidence of Loderer, Sheehan and Kadlec (1991) suggest that a significant minority of new seasoned equity issues are made at a discount from the market price.²¹

Thus while superficially the capital markets of the UK and US are similar and both have common law legal systems, there are subtle but important differences in regulation. These place greater burdens on directors in the US than the UK but more protection of minorities in takeovers, share block purchases and new equity issues in the UK. They make control by large shareholders more difficult and expensive in the UK than the US but facilitate control when new financing is sought in new equity issues. Consistent with this, we have reported that corporate governance in the UK relies more heavily on financial factors and new financing, and less on boards, non-executive directors and large shareholders.

What is the significance of this difference? Is it the case that the UK has evolved arrangements that are different from those in the US but perform similar functions?

²⁰ Financial Times, May 29, 1998.

²¹ Although not necessarily below their equilibrium price, if there is information differences between managers and new shareholders.

We would argue caution in concluding that the governance arrangements in the UK and US are close substitutes. Reliance on financial constraints and distress implies that governance in the UK is primarily restricted to the very worst performing companies. This is consistent with the observation that it is only the very worst performing companies in the UK that appear to display unusually high board turnover. It suggests a slow response of UK corporate governance to the emergence of poor performance.

The implication is that the greater protection of minority investors in the UK may have come at a price. It facilitates the operation of securities markets and encourages wider participation by investors but it may discourage active corporate governance by large shareholders and markets in corporate control.

An alternative view is that governance procedures in the UK and US are not static and evolve in response to past performance. Capital markets are constantly responding to past inefficiencies and governance may be no exception to this rule. Under this interpretation changes in legal rules are unnecessary, and we might expect to see improved governance procedures reflected in more recent data. One unpublished study by Dahya, McConnell and Travlos (2000) finds a stronger negative relation post Cadbury between top management turnover and corporate performance, and that the increased sensitivity of turnover to performance was concentrated among firms that adopted the Cadbury Committee's recommendations.

References

- Atiyah, P. and R. Summers, 1987, *Form and Substance in Anglo-American Law*, Oxford; Clarendon Press.
- Bethel, J.E., J.P. Liebeskind, and T. Opler, 1998, Block share purchases and corporate performance, *Journal of Finance*, 2, 605-634.
- Bhide, A. "Efficient Capital Markets, Deficient Governance," *Harvard Business Review*, 1994.
- Brealey, R. and S. Myers 1996, *Principles of Corporate Finance*, New York: McGraw-Hill.
- Brown, Charles and James L. Medoff, 1988, The impact of firm acquisition on labor, in Alan J. Auerbach, ed. *Corporate Takeovers: Causes and Consequences*, Chicago, IL: University of Chicago Press, 9-31.
- Cadbury, A., 1992, Report of the committee on the financial aspects of corporate governance, Gee & Co ltd, December.
- Chemla, Gilles, 2000, Hold-Up, Stakeholders and Takeover Threats, unpublished paper, University of British Columbia.
- Clark, R.C., 1986, *Corporate Law*, Little, Brown and Company, Boston.
- Coughlan, A. T. and R. M. Schmidt, 1985, Executive compensation, managerial turnover and firm performance: an empirical investigation, *Journal of Accounting and Economics* 7, 42-46.
- Daya, Jay., John McConnell, and Nicholas Travlos, 2000, The Cadbury Committee, Corporate Performance and Top Management Turnover, unpublished paper Cardiff Business School, February 2.
- Demsetz, H. and K. Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 93, 1155-1177.
- Denis, D. and D.K. Denis, 1995, Performance changes following top management turnover, *Journal of Finance* 50, 1029-1057.
- Denis, D. and T. Kruse 1998, Managerial discipline and corporate restructuring following performance declines, working paper, Purdue University.
- Firth, M., 1979, The profitability of takeovers and mergers, *Economic Journal* 89, 316-328.
- Firth, M., 1980, Takeovers, shareholder returns and the theory of the firm, *Quarterly Journal of Economics* 94, 235-260.

- Franks J. R. and R. Harris, Shareholder wealth effects of corporate takeovers: the UK experience, 1955-1985, *Journal of Financial Economics*, August, 225-249.
- Franks, J. and C. Mayer, 1996, Hostile takeovers in the UK and the correction of managerial failure, *Journal of Financial Economics* 40, 163-181.
- Franks J. and C. Mayer, 2001, The ownership and control of German corporations, *Review of Financial Studies*, Winter, 943-977.
- Gilson, S. C., 1990, Bankruptcy, boards, banks and blockholders, *Journal of Financial Economics* 27, 355-387.
- Goshen, Z., 1998, Liability rule or property rule: Voting in conflict of interests in corporate law and minority's protection, mimeo.
- Healy, Paul, Krishna Palepu, and Richard Ruback, 1992, Does corporate performance improve after mergers? *Journal of Financial Economics*, 31, 135-175.
- Hermalin, B. and M. Weisbach, 1991, The effects of board composition and direct incentives on firm performance, *Financial Management*, winter, 101-112.
- Hermalin, B. and M. Weisbach, 1998, Endogenously chosen boards of directors and their monitoring of the CEO, forthcoming in *American Economic Review*.
- Hertzel, Leo, and Richard Shepro, Bidders and Targets: Mergers and Acquisitions in the US, 1990, Basil Blackwell.
- Higson, C. and J. Elliott, "Post-takeover returns: The U.K. evidence", *Journal of Empirical Finance*, No. 58, 1996, pp 1-20.
- Holderness, C.G., and D.P. Sheehan, 1988, The role of majority shareholders in publicly held corporations: An exploratory analysis, *Journal of Financial Economics* 20, 317-346.
- Jensen, M., 1986, Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review* 76, 323-339.
- Jensen, M., 1989, The eclipse of the public corporation, *Harvard Business Review*, Sept/Oct, 61-74.
- Kaplan, S. and D. Reishus, 1990, Outside directorships and corporate performance, *Journal of Financial Economics* 27, 389-410.
- Kay, J., 1976, Accountants too could be happy in a Golden Age: The accountant's rate of profit and the internal rate of return, *Oxford Economic Papers* 28, 447-460.
- Lai, J. and S. Sudarsanam: Corporate restructuring in response to performance decline: Impact of ownership, governance and lenders, *European Finance Review* 1, p. 197-233.

La Porta, R., F. Lopez-de-Silanes., A. Shleifer, and R.Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131-1150.

La Porta, R., F. Lopez-de-Silanes., A. Shleifer, and R.Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.

La Porta, R., F. Lopez-de-Silanes., A. Shleifer, and R.Vishny, 1999, Ownership around the world, *Journal of Finance* 54, 471-517.

Loderer, C., D. P. Sheehan, and G. Kadlec, 1991, The pricing of equity offerings, *Journal of Financial Economics* 29, 35-58.

Loughran, Tim., and Anand M. Vih, Do Long Term Shareholders Benefit from Corporate Acquisitions, *Journal of Finance* December, 1997.

McConnell, J. J. and H. Servaes, 1990, Additional evidence on equity ownership and corporate value, *Journal of Financial Economics* 27, 595-612.

Martin, K. And John McConnell, 1991, Corporate performance, corporate takeovers, and management turnover, *Journal of Finance* 46, 671-687.

Meeks, G., 1977, *A Disappointing Marriage: A study of the gains from merging*, Cambridge: Cambridge University Press.

Miller, G. 1998, Political structure and corporate governance: Some points of contrast between the United States and England, in *The Sloan Project on Corporate Governance, Corporate Governance Today*, Columbia Law School, 629-648.

Parkinson, John, *Corporate Power and Responsibility: Issues in the theory of Company Law*, Oxford University Press, 1993.

Posner, R., 1996, *Law and Legal Theory in the UK and US*, Oxford: Clarendon Press.

Ravenscraft, D., and F.M. Scherer, 1987, *Mergers, sell-offs, and economic efficiency*, *The Brookings Institution, Washington, DC*.

Renneboog, L., 1997, Shareholding concentration and pyramidal ownership structures in Belgium, in *Corporate Governance, Financial Markets and Global Convergence*, eds. M. Balling, E. Hennessy, and R. O'Brien, Kluwer Academic Publishers, December.

Romano, Roberta, 1991, The shareholder suit: Litigation without foundation, *Journal of Law, Economics and Organization*, 55-87.

Singh, A., 1971, *Takeovers: Their Relevance to the Stock Market and the Theory of the Firm*, Cambridge: Cambridge University Press.

Singh, A., 1975, Takeovers, economic “natural selection”, and the theory of the firm: evidence from the post war UK experience, *Economic Journal* 85, 497-515.

Shleifer, A. and R. W. Vishny, 1997, A survey of corporate governance, *Journal of Finance* 52, 737-783.

Stapledon, G., 1996, *Institutional Shareholders and Corporate governance*, Oxford: Oxford University Press.

Stein, Jeremy C., 1988, Takeover threats and managerial myopia, *Journal of Political Economy* 96, 61-80.

Warner, J. B., R. L. Watts and K. H. Wruck, 1988, Stock prices and top management changes, *Journal of Financial Economics* 20, 431-460.

Weisbach, M. S., 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431-460.

NATIONAL BANK OF BELGIUM - WORKING PAPERS SERIES

1. "Model-based inflation forecasts and monetary policy rules" by M. Dombrecht and R. Wouters, *Research Series*, February 2000.
2. "The use of robust estimators as measures of core inflation" by L. Aucremanne, *Research Series*, February 2000.
3. "Performances économiques des Etats-Unis dans les années nonante" by A. Nyssens, P. Butzen, P. Bisciari, *Document Series*, March 2000.
4. "A model with explicit expectations for Belgium" by P. Jeanfils, *Research Series*, March 2000.
5. "Growth in an open economy: some recent developments" by S. Turnovsky, *Research Series*, May 2000.
6. "Knowledge, technology and economic growth: an OECD perspective" by I. Visco, A. Bassanini, S. Scarpetta, *Research Series*, May 2000.
7. "Fiscal policy and growth in the context of European integration" by P. Masson, *Research Series*, May 2000.
8. "Economic growth and the labour market: Europe's challenge" by C. Wyplosz, *Research Series*, May 2000.
9. "The role of the exchange rate in economic growth: a euro-zone perspective" by R. MacDonald, *Research Series*, May 2000.
10. "Monetary union and economic growth" by J. Vickers, *Research Series*, May 2000.
11. "Politique monétaire et prix des actifs: le cas des Etats-Unis" by Q. Wibaut, *Document Series*, August 2000.

12. "The Belgian industrial confidence indicator: leading indicator of economic activity in the euro area?" by J.J. Vanhaelen, L. Dresse, J. De Mulder, *Document Series*, November 2000.
13. "Le financement des entreprises par capital-risque" by C. Rigo, *Document Series*, February 2001.
14. "La nouvelle économie" by P. Bisciari, *Document Series*, March 2001.
15. "De kostprijs van bankkredieten" by A. Bruggeman and R. Wouters, *Document Series*, April 2001.
16. "A guided tour of the world of rational expectations models and optimal policies" by Ph. Jeanfils, *Research Series*, May 2001.
17. "Attractive Prices and Euro - Rounding effects on inflation" by L. Aucremanne and D. Cornille, *Documents Series*, November 2001.
18. "The interest rate and credit channels in Belgium: an investigation with micro-level firm data" by P. Butzen, C. Fuss and Ph. Vermeulen, *Research series*, December 2001.
19. "Openness, imperfect exchange rate pass-through and monetary policy" by F. Smets and R. Wouters, *Research series*, March 2002.
20. "Inflation, relative prices and nominal rigidities" by L. Aucremanne, G. Brys, M. Hubert, P. J. Rousseeuw and A. Struyf, *Research series*, May 2002.
21. "Lifting the burden: fundamental tax reform and U.S. economic growth" by D. Jorgenson and Kun-Young Yun *Research series*, May 2002.
22. "What do we know about investment under uncertainty?" by L. Trigeorgis, *Research series*, May 2002.
23. "Investment, uncertainty and irreversibility: evidence from Belgian accounting data" by D. Cassimon, P.-J. Engelen, H. Meersman, M. Van Wouwe, *Research series*, May 2002.

24. "The impact of uncertainty on investment plans" by P. Butzen, C. Fuss, Ph. Vermeulen, *Research series*, May 2002.
25. "Investment, protection, ownership, and the cost of capital" by Ch. P. Himmelberg, R. G. Hubbard, I. Love, *Research series*, May 2002.
26. "Finance, uncertainty and investment: assessing the gains and losses of a generalized non-linear structural approach using Belgian panel data", by M. Gérard, F. Verschueren, *Research series*, May 2002.
27. "Capital structure, firm liquidity and growth" by R. Anderson, *Research series*, May 2002.
28. "Structural modelling of investment and financial constraints: where do we stand?" by J.-B. Chatelain, *Research series*, May 2002.
29. "Financing and investment interdependencies in unquoted Belgian companies: the role of venture capital" by S. Manigart, K. Baeyens, I. Verschueren, *Research series*, May 2002.
30. "Development path and capital structure of Belgian biotechnology firms" by V. Bastin, A. Corhay, G. Hübner, P.-A. Michel, *Research series*, May 2002.
31. "Governance as a source of managerial discipline" by J. Franks and C. Mayer, *Research series*, May 2002.
32. "Financing constraints, fixed capital and R&D investment decisions of Belgian firms" by M. Cincera, *Research series*, May 2002.
33. "Investment, R&D and liquidity constraints: a corporate governance approach to the Belgian evidence" by P. Van Cayseele, *Research series*, May 2002.