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Anders Ekeland

Corporate governance, firm performance and type of ownership

Anders Ekeland
STEP Group
Hammersborg torg 3
N-0179 Oslo, Norway

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STEP group
Studies in technology, innovation and economic policy
Studier i teknologi, innovasjon og økonomisk politikk

Hammersborg torg 3, 0179 Oslo, Norway
Telephone +47 2286 8010
Fax +47 2286 8049
http://www.step.no/

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Introduction

This paper originated as a spin-off from the TSER-project 'Corporate Governance, Innovation, and Economic Performance in the EU,' coordinated by William Lazonick and Mary O'Sullivan.[1]

The aim of this paper is to discuss the relationship between theory and data in the corporate governance literature from a policy perspective. This is a literature dominated by a neo-classical approach to economic issues. Does the empirical work done in this tradition confirm the claim that corporate governance understood as an agency problem is important for the creation of wealth, for the performance of firms, and consequently for economic growth? More precisely, it is the importance of certain structural characteristics of firms that are regarded as proxies for various aspects of the agency problem that are analysed. There seems to be a consensus among the researchers in neo-classical tradition that ownership characteristics, like ownership concentration, type of owner, inside/outside ownership are predicted by the underlying theory to be the most important factors for corporate governance.

It is of course impossible to go through this vast literature[2] and that is not necessary since our focus here is a more general evaluation of this genre of research. What interests us is not one particular paper, rather whether this approach to corporate governance can serve as a basis for policy formulation.

Since this paper focus on corporate governance in Norway I will try to say something about this type of empirical research by looking at one recent Norwegian paper which I see as representative, as "typical", of this type of empirical research. The paper is Øvind Bøhren and Bernt Arne Ødegaard, *"Corporate governance and economic performance: A closer look*" from November 2001[3]. There are several reasons for focussing on the Bøhren and Ødegaard paper. They are using data from OSE that are unique in their detail and coverage. They test their data with different models etc. Secondly I use a recent PhD thesis by Henrik Mathiesen, *"Managerial Ownership and Financial Performance"* (2002) that analyses US firms, also using the best data available. But in this context it is the extensive overview and comments on the existing literature that makes this PhD particularly useful for our purpose.

Both Mathiesen's PhD thesis and Bøhren and Ødegaard are in my opinion very well-written papers both from a technical and theoretical point of view. Both are very careful in explaining possible statistical problems and consequently are very well

[1] See William Lazonick and Mary O'Sullivan, *Perspectives on Corporate Governance, Innovation, and Economic Performance*, report to 'Corporate Governance, Innovation, and Economic Performance in the EU,' a research project funded by the Targeted Socio-Economic Research (TSER) Programme of the European Commission (DGXII) under the Fourth Framework Programme, coordinated by William Lazonick and Mary O'Sullivan. This is the main theoretical document from the TSER-project.

[2] Mathiesen 2002 gives an overview of previous research in some very condensed and useful tables. Se also Gugler (2001)

[3] This paper can be seen as a short version of Øvind Bøhren and Bernt Arne Ødegaard (2001b) :Corporate governance and economic performance in Norwegian listed firms, November 26, 2001, 230 p. This paper has some more detailed analysis and a large data appendix, but the analyses in the two papers are very similar.

suited to serve as a vehicle for a broader debate on the policy implications. Both papers use the best US and Norwegian data available. In addition I will refer to an often quoted overview paper by Andrei Shleifer and Robert W Vishny: *"A Survey of Corporate Governance"* as a representative expression of the theoretical reasoning that underlies this type of empirical research.[4] Both Bøhren and Ødegaard and Mathiesen refer to this paper.

This is a rather technical literature and a certain amount of knowledge of regression analysis is necessary in order to read it. Our aim in this paper is to try to highlight the fundamental theoretical issues and the most important potential policy consequences of the regression results without going too far into statistical and technical details.

This paper is organised in the following way. I start out with an overview of the ownership structure of firms listed on the Oslo Stock Exchange (OSE) in order to make it easier for the reader to follow the discussion of the empirical results that Bøhren and Ødegaard presents. Most of these tables are taken form various papers by Bøhren and Ødegaard, who have done a truly impressive job in collecting, organising and tabulating the data on ownership of firms listed on the OSE. No stone is unturned as far as I can see. Their data cover the period from 1989 to 1997. When possible the time series have been extended to 2000 and 2001.

After this background of descriptive statistics I analyse some theoretical issues, especially the question of whether the economy is in equilibrium, because this issue is very decisive for the interpretation of the results. Then I go into a bit more detail regarding the regression analysis, trying to discuss both the robustness and the possible policy implications of these results. It seems to me that there is a certain lack of critical reflection in this literature about what the policy implications of the empirical results should or could be. In my opinion this is so because a more thorough discussion of policy results would pose rather sharply a range of questions. Questions about whether the economy actually is in equilibrium, or is moving towards equilibrium. In my opinion these questions would challenge the static equilibrium, homo economicus that poses corporate governance as primarily an agency problem. Another way to formulate this is to ask: do the results and analysis serve as guidance for private and public decision makers? If not, is that because the results from this detailed empirical research of ownership structures do not have *feasible* policy implications? Our tentative answers to this are, first of all, that the results are not sufficiently statistically significant. Secondly, to the extent that they are significant, they tend to be contradictory, or at least to contradict what I would expect from the theories that form the bases for this research, and finally that even if one holds that the results are sufficiently statistically significant and robust – one have to seriously consider if the policy implications that might flow from them are feasible.

My hypothesis is that that ownership *structures*, like concentration of ownership, type of owner are not that important for the economic performance firms. I think that the ownership structures must more or less be taken as given as a set of exogenous conditions formed by a long legal and business history, specific to each country and industrial sector. It is the business strategy of individual firms that really matters for

[4] Andrei Shleifer and Robert W. Vishny, 'A Survey of Corporate Governance,' *The Journal of Finance*, Vol. LII, No. 2, June 1997, pp. 737-783.

performance and they are not significantly correlated with ownership structures. By business strategy I mean innovation strategy, including R&D strategy, leadership style, etc., and these issues are not to any great extent determined by ownership structures or agency problems as they are formulated in the mainstream corporate governance literature. In my opinion there is a lot of heterogeneity in business strategy among firms with very similar ownership structures. Even if ownership structures had been shown to be important for performance, it might be that certain types of ownership are just an indicator of the real cause – the management ideologies, attitudes and practices that condition performance. In other words it would be a proxy for the real cause. And since a business strategy – which showed itself clearly superios - is a things that can be learned by firms with different ownership structures, this learning process would over time tend to reduce the correlation between ownership structures and performance, so that I would not expect it even to be a good proxy for such strategies. One could also argue that the nature of competition is such that pure imitation cannot generally be a successful strategy, and that consequently there will be a complex game of strategies and counter strategies. In any case the question whether ownership structures correlates with certain business strategies is another than the agency problem that is at the reason for most studies of corporate governance.

There is in addition the problem of reversed causation. That is that performance determines ownership structures, and not the other way around. One example - also mentioned by Bøhren and Ødegaard - is that if performance tends to be poorer in state owned than in privately owned firms this might be because the states comes in when private investors and managers have failed. The high level of state ownership in Norwegian banks caused by the deep crisis in the financial sector in the early and mid nineties is a recent and clear example of this “reverse” causation. Another is that managers might buy (more) shares when the firm is performing well, so that both ownership concentration and inside ownership are caused by performance, and not the other way around.

The modest aim of this paper is to study some recent empirical studies of corporate governance and to see if they are able to show by statistical modelling that corporate governance really matters for performance. And that is a question well worth studying even if the tentative answer is negative.

A brief empirical overview of ownership structures in Norway[5]

In the following section I will try to give a brief overview of concentration and ownership as a background for the discussion of the modelling and the regressions. The Corporate governance project at the Norwegian School of Management has done an impressive job in collecting and ordering data, so there is no reason not to "stand on their shoulders". The tables are focussed on the concentration and type of ownership since these are two of the most discussed topics in the corporate governance debate.

Bøhren and Ødegaard focus on listed firms since only about them do we have extensive data on market value and various ownership characteristics. The importance of the firms listed on the Oslo Stock Exchange (OSE) grew steadily over this period and the market value of the listed firms reached 43% of Norwegian GDP in 1997 which was close to the European median of 49%, but below the global average of 65%. But roughly speaking the role of listed firms in Norway is the same as in other developed market economies.

The table below shows the ownership structures of firms listed on the Oslo Stock Exchange over a ten year period.

Table 1 Shareholder structure 31.12 every year, 1990 – 2001

	Foreign investors	Financial companies	Non-financial companies	Private	Public sector	Unknown	Total
1990	27,20	15,70	29,60	12,90	14,50	0,10	100
1991	28,70	16,40	27,60	11,20	15,80	0,00	100
1992	28,90	16,10	22,00	11,10	21,70	0,20	100
1993	28,30	16,70	22,00	11,40	21,60	0,00	100
1994	30,50	15,40	19,70	9,80	24,60	0,00	100
1995	33,20	15,90	19,80	9,30	21,80	0,00	100
1996	33,59	17,73	17,82	9,15	20,37	1,34	100
1997	31,15	20,03	24,90	7,72	16,15	0,05	100
1998	31,71	20,59	22,85	7,77	16,93	0,16	100
1999	31,51	20,58	21,99	7,84	16,85	1,21	100
2000	34,11	16,05	17,36	7,73	24,57	0,19	100
2001	28,01	12,3	13,52	5,92	39,02	1,25	100

Source: Oslo Stock Exchange

The overall picture is one of stability. The clearest trend is that the share of private individuals declines. Probably the increased propensity to use various types of share based saving funds explains this trend. The other ownership categories change their share, but there is no clear trend. State ownership changes markedly in this period. First it changes in 1992-1993 as a consequence of the crisis in the banking sector. In this period several major banks were taken over by the state. The changes in 2000

[5] Research assistance in gathering up to data information on listed firms by Kari-Mette Stavhaug is gratefully acknowledged.

and 2001 are a result of the transformation of companies like Telenor and Statoil from state owned to semi-privatized companies on the OSE.

Table 2 The concentration of voting rights in Europe and the US

	No. of firms	Year	Owner size rank			Relative owner size		
Country			1	2	3	1/2	1/3	2/3
Austria	50	1996	54	8	3	6.8.	18.0	2.7
Belgium	135	1995	56	7	5	8.0	11.2	1.4
France	674	1996	52	10	4	5.2	13.0	2.5
Germany	372	1996	50	3	1	16.7	50.0	3.0
Italy	214	1996	48	10	4	4.8	12.0	2.5
Netherlands	137	1996	43					
Spain	193	1995	40	11	6	3.6	6.7	1.8
Sweden	304	1998	38	11	6	3.5	6.3	1.8
Mean Europe (ex N and UK)			48	9	4	5.6	11.5	2.1
UK	250	1992	14	7	6	2.0	2.3	1.2
Mean Europe (ex N)			44	8	4	5.2	10.0	1.9
US	2831	1997	3	1	1	3.0	3.0	1.0
Mean Western World (ex N)			40	8	4	5.3	10.0	1.9
Norway	130	1997	29	11	7	2.6	4.1	1.6

Source: Bøhren and Ødegaard (2000) p. 44, table 27

The difference between the US and the UK, on the one hand, and most European countries, on the other, is striking, even the difference between the US and UK is significant. Norway is somewhere in between, but with the largest owner typically on average having 30 % of the voting rights, Norway appears as more “European” than Anglo-American. Norway is closer to Sweden than the UK. If this table had contained Third World countries and developed market economies with a large and systematic difference – then it would have been tempting to draw some conclusions. But all of these countries are advanced market economies, and besides normal business cycles, they are all prospering economies. The point is that such great differences in ownership concentration do not lead to very different types of firms. The reason for this might be that the concentration of ownership is not that important, and as Bøhren and Ødegaard report themselves, the most of the findings on concentration are either that is positive or not significant. But as I shall see later Bøhren and Ødegaard find a strong negative correlation.

Germany is a special case due to very great concentration of shares in the hands of the largest shareholder. The second and third are relatively much smaller than in any other country.

Table 3 The propensity to hold large equity stakes in Norwegian listed firms, 1989 - 1997

Owner type	Owner size rank					
	1	2	3	4	5	Sum
State	9	7	5	4	4	29
International	19	21	23	25	26	114
Individuals	10	8	9	10	10	47
Financials	11	21	25	28	30	115
Nonfinancials	52	43	37	33	30	195
Sum, percent	100	100	100	100	100	

Source: Bøhren and Ødegaard, "Characteristics of an outlier", p. 29, table 17

The table shows for each owner type (State, International etc) the share of firms where the owner type hold the largest, second, third, fourth and fifth largest equity stake, i.e. the ownership rank.

The table clearly shows that the state and individuals are not involved among the five largest owners as often as the other groups, but the size of those companies where the state is among the largest owners of course makes state ownership very important. For the other groups the nonfinancials, i.e. other firms are clearly much more frequently the largest owner and this despite the fact that their share of the total value of shares on OSE is 24%. In contrast the International owners having the largest share of these owner types with 31% is less often holding the biggest or second largest share in individual firms. The nonfinancials is the most frequent for all the first four ranks, only to be matched by financials as the fifth largest owner.

Table 4 The aggregate holding by the five basic owner types in eleven European countries

	Year	State	Inter-national	Indi-viduals	Finan-cials	Non-financials
Austria	1996	10	16	57	9	8
Belgium	1997	0	34	25	15	27
France	1993	6	22	32	23	16
Finland	1997	21	32	16	12	19
Germany	1997	3	12	17	37	31
Iceland	1996	11	2	33	25	30
Italy	1994	24	7	26	22	22
Spain	1997	6	37	29	23	6
Sweden	1997	8	32	15	31	15
Mean (ex N and UK)		10	22	28	22	19
UK	1997	0	16	25	58	2
Mean (ex N)		9	21	28	26	18
Norway	1997	16	31	8	20	25

Source: Bøhren and Ødegaard, Characteristics of an outlier, p. 43, table 26

There are many aspects of this table that could be commented. What are the reasons why Iceland and Italy having a significantly lower share of international ownership than other developed marked economies? The UK has a very high share of

financials, and almost no non-financials, why is this so? Are the numbers really reliable? Focussing on Norway I see again that it is the low share of individual ownership that is most striking, but of course this low individual share means that state is high, but both Italy and Finland are higher, and the mean without UK is 10. But there are rather varied profiles when it comes to ownership types.

A small bullet point summary[6]

- Firrms listed on the Oslo Stock Exchange play a modest but increasingly larger role in the Norwegian economy as in other European countries
- Although individual (personal) investors are by far the most numerous group, their share of the total value is small and decreasing. Norway has the lowest share of individual ownership, clearly below 10% versus the mean around 30% in the rest of Europe.
- International investors hold the largest share of the total value. Financial investors in general and mutual funds in particular are increasing their share
- State ownership varies markedly over time, due to the rescue operations and the introduction of huge state companies on the OSE.

Some aspects of the Norwegian ownership structure are clearly different from most of the other European countries, but it is not extremely different. There is considerable variations in ownership structures in other European countries, there is no very clear pattern emerging from the available data. That means that the relationship between ownership structure and long term economic growth is not a one to one relationship.

[6] In Bøhren and Ødegaard (2000), with the telling title of "The ownership structure of Norwegian firms: The characteristics of an outlier", there is a set of summary tables at pages 49 - 51 that should be consulted to get a short and precise description of the main characteristiscs of the Norwegian ownership structure. http://finance.bi.no/~finance/

The theoretical background for empirical research

According to Bøhren and Ødegaard the key question of finance based corporate governance research is whether firm value is driven by corporate governance mechanisms, such as:

- Overall legal protection of the investor
- Competitive environment,
- Size and type of owners
- Ownership concentration
- Equity holdings by management
- Design of the corporate charter
- Decisions made at the stockholder meeting
- Composition of the board
- The firm's financial policy
- Design of managements employment contracts.

This is of course not an exhaustive list, and it seems that some mechanisms attract much more attention from researchers than others and that is those related to the agency problem, that is the separation between ownership and control in the modern stock company. Most research is focussed on the some of these governance mechanisms, namely: the role of equity holdings by management, the level of concentration of ownership, and the type of owner.

The agency problem and its importance are formulated as by Shleifer and Vishny in the following way:

> At first glance, it is not entirely obvious why the suppliers of capital get anything back. After all they part with their money, and have little to contribute to the enterprise afterward. The professional managers or entrepreneurs who run the firms might as well abscond with the money. Although they sometimes do, usually they do not. Most advanced market economies have solved the problem of corporate governance at least reasonably well, in that they have assured the flows for enormous amounts of capital to firms, and actual repatriation of profits to the providers of finance. But this does not imply that they have solved the corporate governance problem perfectly, or that the corporate governance mechanisms cannot be improved.
>
> In fact the subject of corporate governance is of enormous practical importance. Even in the advanced market economies, there is a great deal of disagreement on how good or bad the existing governance mechanisms are. Shleifer and Vishny (1997, p. 737).

This is the question that I will try to shed some light on in this note; what are the answers given by the empirical research around the question of how good or bad the existing corporate governance mechanisms are. Shleifer and Vishny bring forward anecdotal evidence arguing that managers in fact do waste the investors money and that they need to be tightly controlled by the best incentive structures possible. It is tempting to discuss these anecdotes in some detail the but I will focus on one aspect, research and development costs. Shleifer and Vishny (1997) write :

> "When contracts are incomplete and managers possess more expertise than shareholders, managers typically end up with the residual rights of control, giving them enormous latitude for self-interested behaviour." Shleifer and Vishny summarise evidence on what type of "discretionary spending" that for example large shareholders are more able to reduce and mention advertising, research and development and entertainment expenses. Shleifer and Vishny (1997, p. 744, p. 755)

I find it a bit surprising to be equally critical of R&D and entertainment spending. To cut down on R&D might just as well be a sign of short sighted cash flow maximising and not any long term maximising of profits. And managers might in many cases have more intimate knowledge on the firms need for R&D. In most cases that is not costs which they themselves get any direct benefit from. On the contrary in many cases it involves well-known risks of research projects getting delayed, being much more costly than originally planned etc.

Equilibrium and/or natural selection?

Before one starts to dive into either descriptive statistics of ownership or the statistical details of regression models, one should ask if one should expect to find some significant relation between corporate governance mechanisms like ownership structures and performance. This turns out not to be such a simple or innocent question since it turns out to be a question of whether one assumes that the economy is in, or at least close to, equilibrium.

> The equilibrium hypothesis brings all the mechanisms together by stating that if all of them are applied in a value-maximizing way, all of them satisfy the zero marginal value condition. That is, any mechanism is used up to the point where a small change leaves firm value practically un-altered. According to Demsetz (1983), this means that if firms are owned by value-maximizing investors who understand how to select governance mechanisms which minimize agency costs, corporate governance and firm performance will be unrelated in equilibrium. This is far from saying that governance is irrelevant for performance. Since two firms may have widely different sets of optimal mechanisms, the equilibrium condition implies that if I run a cross-sectional regression of performance on governance mechanisms, no mechanism will be significantly related to performance if the governance systems I observe in practice are the optimal ones. Conversely, a significant variable reflects a disequilibrium and a source for improved performance. [7]

This way of formulating the problem leaves some questions unanswered, all related to the issue of whether the economy is in equilibrium, or so close to equilibrium that one can argue and reason "as if " it was equilibrium. Or it might at least be on its way to long run equilibrium by its own spontaneous mechanisms. First of all, if the economy is in equilibrium or on its way to equilibrium, then it is just accidental that I find significant variables. Then even if I find significant varialbles this will only be

[7] Bøhren and Ødegaard (2001a), p. 6

temporary, and consequently that will have no policy implications. No policy measures are need.

On the other hand if the economy is fundamentally out of equilibrium in a way that it needs ad hoc or constant regulation from "outside" forces in order to get closer to the equilibrium fix point, does not that contradict the underlying hypothesis that markets left to themselves lead us to the economic optimum? These fundamental question are not much discussed. Because if the economy is not in equilibrium; if there is pervasive "bounded rationality", very many imperfect markets – then significant mechanisms do not necessarily mean disequilibrium. But in this case the theoretical and consequently the policy conclusions would probably be rather different. Mathiesen (2002) is more explicit on this question:

> "The natural selection argument proposes that financial performance determines ownership in the sense that ownership structures with insufficient performance will fail to survive in the long run. … This argument is used to justify a much more general hypothesis… namely the hypothesis that all kinds of economic organizations (not just different ownership structures) perform equally well. The reason is that competition among economic organizations in the end should be able to sort out inefficient organizational forms. Therefore, in the long run at least, only the efficient organizations prevail. In general such an efficiency hypothesis can be criticized for leaving unanswered questions. For instance – how long is the long run? Furthermore, to the degree that surviving organizations adapt to the changes in the environment, how quickly do they adapt, and what are the costs. Despite these objections efficiency arguments are among the most popular kinds of hypothesis in economics. An important reason is that the acceptance of non-efficiency arguments is equivalent to accepting that humans organize themselves inefficiently, and furthermore that selection mechanisms such as the market mechanism or human rationality are unable to ensure that only the most efficient organizations survive. Such view are simply too pessimistic for many economists who believe that human rationality in conjunction with market selection is capable of overcoming most, or perhaps all inefficiencies, at least in the long run. Mathiesen (2002, p. 21)

But Mathiesen does not answer this question himself, so I still do not know how long is "the long run". What he does is to describe how strong the belief in such selection/efficiency arguments is among economists, also among those studying corporate governance. But in my opinion this is less the question of optimism or pessimism, but that discard this *particular* type of efficiency arguments would be paradigm shift, a scientific revolution in the Kuhnian sense in the science of economics. Since such a paradigm shift is not on the order of the day, Mathiesen - after having posed the problem ends up with a theoretical underpinning of the agency problem and the consequences for statistical modelling that is a mix of equilibrium and very ad hoc disequilibrium reasoning. Just like Bøhren and Ødegaard and most other researchers in this field.

But as soon as you open up for the possibility that for the stock market might for long periods significantly overvalue or undervalue firms to rely primarily or

exclusively on stock market valuation as the performance measure will need to be theoretically and empirically discussed in much more detail. What is the "real" value of firms and its relation to the stock market values should be studied taking the very rapid rise and fall of stock market values over the last decade as its starting point. A discussion of various theories of stock market bubbles is beyond the scope of this article. But as I shall see below, what results that turn out to be significant depend to a very large degree on the performance measure you chose. Consequently the choice of performance measure determines what kind of disequilibria you will try to correct in order to improve the performance. Of course as mentioned above, it all depends on your "world view". That is if you do consider such deviations from equilibrium are temporary and transient, then of course you just lean back and wait for the self correcting mechanisms of the market to do their salient work in the always unspecified "long run". Or Bøhren and Ødegaard as formulate it: "When product, labour and take-over markets are fully competitive, self-serving managers will maximise their expected utility by maximising stockholders' equity value. … Competition is the only governance mechanism needed, and it works without owner interference." (p. 4).

Then fundamental question then becomes - do competition *basically* work as expected by the neo-classical theory? If not, if the mechanisms of the market, of competition do not work according to neo-classical theory, how does it then work, and what consequences do that have for the formulation the problem of corporate governance as an agency problem.

The challenges and problems of regression analysis

The challenges and problems with the empirical research in this area as Bøhren and Ødegaard see them might be summarized very briefly under three headings: data, univariate versus multivariate regression and single equation versus simultaneous equation system regression.

Problems with data

Most studies are using only one year. Most studies have data on ownership only in discrete steps >=5%, 10%, 20%, 50% since data are registered only at warning thresholds. The Norwegian data do not suffer from such defects since there are time series and very detailed ownership data. There is a difference in the kind of firms in the samples. Most studies are done with a limited number of very large US firms. The Oslo Stock Exchange firms are quite another type of firms, smaller in an international context, more like other European listed firms.

Bivariate and not multivariate studies

Only one mechanism is studied at the time. One studies ownership concentration, but often without looking at the same time at insider ownership, another obvious candidate for performance boosting corporate governance mechanisms and possibly related to the degree of concentration[8].

Endogenous and exogenous varialbles

Corporate governance mechanisms are seen as independent and exogenous. An important difference between single equation and simultaneous techniques is the ability of simultaneous equation systems to test for *endogeneity*. That is, some of the corporate governance mechanisms are internally related, for example a certain combination of outside directors and insider holdings. The same goes for "reversed" causality, that is when good performance leads to managers asking for stock opition plans, or to buying shares based on their inside information. The important point here is that the findings one get using simultaneous systems "differ quite remarkably from those using single-equation methods"[9]. The problem of endogeneity is seldom addressed, but as Bøhren and Ødegaard remark: "a successful implementation depends on whether corporate governance theory can provide well-founded restrictions on the equation system. Such a theory does not yet exist".

The results from empirical studies so far are mixed. There are many possible explanations for this. Mathiesen (2002) makes a rather detailed analysis of possible errors, and if one is very statistically orthodox, then all kinds of probable measurement errors and problems with misspecifications make it in principle "impossible" to use OLS[10] estimation, or two/three step least squares. But that is the case of almost all real-world problems, so the lesson to be learned is to use the results not as the truth, but as indicators strengthening or weakening certain hypotheses. It is beyond the scope of this paper to discuss these rather complex issues.

[8] For some reason, Bøhren and Ødegaard use the term 'univariate' instead of 'bivariate' when a dependent variable is regressed on only one independent variable at the time.
[9] Bøhren and Ødegaard (2001a), p. 2
[10] OLS = Ordinary Least Squares, in Norwegian "minste kvadraters metode", a very common statistical method for linear regressions analysis.

Performance measures

The performance measures most used in the literature are according to Bøhren and Ødegaard:

- Tobins Q ratio (Q)
- Return on Assets (RoA)
- Return on stock (RoS)

Mathiesen has a more elaborate list of performance measures, like return on equity, earnings per share. These are accounting based measures. Then there is stock market based measures: market returns, various measures of cumulated abnormal returns (CARs). The logic behind CARs is that only the difference in return after an unexpected change in one or more corporate management related factors can tell anything about its value. It is illustrative that the sudden death of top managers s have been studied as a proxy for a sudden change in the power of management in order to throw light on whether the stock market reacts to a weakening of managerial power, Mathiesen (2002, p. 138). Finally, there are what Mathiesen call "hybrid measures" like market-to-book ratios and Tobins's Q.[11]

In Bøhren and Ødegaard there is a discussion of the correlation between the five measures they focus on and their statistical properties. The fact is that they are relatively weakly correlated. But that is maybe not so surprising since it is difficult to find a *static*, snap-shop measure of performance. It is hard to construct a ratio that gives a correct picture of the "real value" of the firm at any point in time, since investments, costs, sales may be distributed very unevenly over time. One illustrative example is Amazon.com, a firm that has a huge debt, but at the same time is able to convince the stock market that they will have huge future earnings and therefore can keep on selling stocks and bonds to such a degree that they have more than enough cash to sustain their business operations. Is Amazone.com performing well – or bad? Maybe the answer is that the final judgement lies in the future. The choice of Q to measure performance makes Amazon.com into a well performing firm, because Amazon has a great market value and relatively small assets as was the case of many dot.com firms. While more traditional firma might have a "low", that is not so inflated market value, conservatively valued assets (book value), but real sales income and a real profit margin.

For the non-expert reading this literature it seems that the performance measure, which after all is the most important variable to measure correctly and to give a reasonable interpretation of, is too little discussed. If ENRON was in the data as a success story until it collapsed – what kind of biases does that lead to in the data? There seems to be very little attention to the question of firms going bust and disappearing. And what are the implications for the regression analysis when "natural selection" in the form of more or less unexpected and spectacular bankruptcies occurs. Are there any patterns in the corporate governance mechanisms of those firms? Both Bøhren and Ødegaard and Mathiesen are rather silent on this point, and do not refer any findings regarding this phenomenon from the literature. It would have been very interesting to see if there was any pattern in ownership structures, concentration rates, and management compensation for the firms that fail.

[11] Cf. Mathiesen (2002) chapter 5 for a extensive discussion of performance measures and his Appendix 3 for some sample calculations.

Table 5 Bøhren and Ødegaard's summary table of univariate regressions relating five alternative performance measures to a governance mechanism or a control.

	Q	*RoA-5*	*RoS-5*	*RoA*	*RoS*
Ownership concentration					
Herfindahl index	−***	−***	−	−	−
Largest owner	−***	−***	−	−	−
1-3 largest owners	−***	−***	−*	−	−
1-5 largest owners	−***	−***	−**	−	−
2nd largest owner	−	−	−**	+	−
3rd largest owner	+	−	−	−	−
4th largest owner	+	+	−	−	−
5th largest owner	+	+	−	−	−**
Owner type					
Aggregate state holdings	−***	−	−*	−	−
Aggregate international holdings	+	−	+	−	−
Aggregate individual holdings	+***	+***	+***	−***	+***
Aggregate financial holdings	+	+	−*	+***	+
Aggregate nonfinancial holdings	−***	−*	−	+	−
Aggregate intercorporate holdings	−***	−**	−	+***	+
Largest owner is state	−***	−	−*	+	−
Largest owner is international	−	+	+	−	+
Largest owner is individual	+***	+**	+***	−*	+
Largest owner is financial	−	−	−	+	−
Largest owner is nonfinancial	−***	−	−	+***	−
Largest owner is listed	−*	−**	−	+	+
Insider ownership					
All insiders	+	+	+	−	+
Board members	+***	+***	−	+	+
Management team	+	+**	+***	−	+
Primary insiders	+***	+***	+*	−	+
Board characteristics					
ln(Board size)	−	−	−***	+	−
Security design					
Fraction voting shares	+*	−	+*	−	+
Financial policy					
Debt to assets	−***	−***	−***	+***	−
Dividends to price	−***	+***	−	+***	−
Dividends to earnings	−	+	−	+***	+
Market competition					
Industrial	+	−	+	+	+
Transport/shipping	−***	−***	−**	+	−
Offshore	−*	−***	+	−	+
Controls					
ln(Firm value)	+***	−	−	+***	+*
Investments over income	−	−	−	+	−
Stock volatility	−***	−**	+***	−***	+
Stock turnover	+***	+	+***	−	+***
Stock beta	+	−	+***	−	+

Note: The table summarizes the estimated sign and significance of bivariate relations between a performance measure (Q, RoA5, RoS5, RoA, and RoS) and an independent variable (governance mechanism or control variable). Q is the market value of the firm divided by its book value, RoA is the book return on total assets, RoS is the market return on stock, and variables subscripted with a 5 are five year averages. Statistical significance is indicated with *, **, and ***, which means the relationship is significant at the 5%, 2.5% and 1% level, respectively. Data for firms listed on the Oslo Stock Exchange, 1989-1997.

This table illustrates the point about the "fragility" of the performance measure. I observe that RoA (return on assets) and RoS (return on stock) have few significant results generally and few common significant results, and in the single case the sign is opposite. Why these measures give such different results seems to get too little attention. This does not seem to be sufficiently theoretically and empirically justified. Bøhren and Ødegaard justify their choice of Q in the following way:

> There are several reasons why I choose ***Q*** as the basic performance measure. ***Q*** is by far the most commonly used proxy in the recent literature. Moreover, since consecutive observations of ***RoA5*** and ***RoS5*** are constructed from overlapping observations, the error terms in our pooled panel - time series regressions may be autocorrelated. Finally, because ***RoA*** and ***RoA5*** are constructed from book values, they may be far from market returns and can also be influenced by management discretion. (p. 18)

One would have liked more discussion, and since Bøhren and Ødegaard use *book values* instead of replacement values in operationalising Q, the critique against ***RoA*** and ***RoA5*** for being based on book values should – as far as I can see – apply to Q as well.

Bøhren and Ødegaard mention in a footnote that the R^2 values are between 0 and 4% and the non-expert in regression analysis would have liked more discussion of this fact. At face value it means that the corporate governance mechanisms explain very little of the observed variation in performance. One interpretation could be that corporate governance mechanisms taken one by one are not an important explanation for such performance variation. I shall return to this point when discussing the different multivariate models below.

The findings of Bøhren and Ødegaard – from the bivariate to the full multivariate model

In their paper Bøhren and Ødegaard go stepvise from the a bivariate model to the full multivariate model. They test different models, looking at more variables in each step. The results can be seen in the table below.

Table 6 Summary of eight different models, Q as dependent variable.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
lntrans(1-5 largest owners)	-***							
Largest owner			-***					
Herfindahl index				-***	-***	-***	-***	-***
Primary insiders (0 to 5)		+***						
Primary insiders (5 to 25)		+**						
Primary insiders (25 to 100)		-						
Primary insiders			+***	+***	+***	+***	+***	+***
Squared (Primary insiders)			-***	-***	-***	-***	-***	-**
Aggregate state holdings				-				-
Aggregate international holdings				+				+
Aggregate individual holdings				+***				+***
Aggregate nonfinancial holdings				-				-
ln(Board size)					-***			-*
Fraction voting shares						+***		+***
Debt to assets		-***	-***	-***	-***	-***	-***	-***
Dividends to earnings							-	-*
Industrial	-***	-***	-***	-***	-***	-***	-***	-**
Transport/shipping	-***	-***	-***	-***	-***	-***	-***	-***
O[ff]shore	-***	-***	-***	-***	-***	-***	-***	-***
Investments over income	-							-
ln(Firm value)	+***	+***	+***	+***	+***	+***	+***	+***
Stock volatility	-							
n	905	1057	1057	1057	906	1042	1028	868
R^2	0.14	0.20	0.22	0.23	0.21	0.22	0.22	0.27

The *, **, and *** indicate significance at the 5%, 2.5% and 1% level.

(1) pure concentration
(2) pure insider
(3) concentration-insider policy
(4) concentration-insider-owner type
(5) concentration-insiderboard-
(6) concentration-insider-security design
(7) concentration-insider-financial
(8) all mechanisms and control variables

Most of the eight models are well know from the corporate governance literature and it is a very valuable contribution to test them on the rich Norwegian data.

The main findings are according to Bøhren and Ødegaard:

1. Ownership concentration has a negative impact on economic performance Performance increases with insider ownership up to roughly 60% and then decreases.
2. Individual owners are associated with higher performance than other outside owners.
3. Performance is inversely related to board size, the fraction of non-voting shares outstanding, and financial leverage.
4. Performance varies systematically with industry membership and size.

The first point - the negative impact of ownership concentration is contrary to the general trend of most other empirical studies and to most of the theoretical reasoning around the agency problem. It is generally argued that in order to monitor and control managers, large owners will be more efficient since small owners have both relatively high costs of organizing themselves and the opportunity to free ride.

This negative finding on ownership concentration is the *strongest* finding of Bøhren and Ødegaard, it is the result that survives most of the different model specifications. Bøhren and Ødegaard point to a recent German study that finds a negative relation between ownership concentration and RoA, but they do not discuss whether it is reasonable to support their argument with a study that uses another performance measure, RoA, given that results are very sensitive to the choice of performance measure. In addition - if I understand them correctly - in their own study, RoA, do not confirm this negative relationship.

The only other variables that are significant in all models are the three industry controls and firm size, the latter measured as the natural log of the firms' value. Bøhren and Ødegaard argue that it is difficult to interpret the industry variables. They ought to be proxies for competition, but might function as a governance independent industry effect. I think Bøhren and Ødegaard are right in pointing out that a these industry variables are very crude and hard to interpret.

Bøhren and Ødegaard comment the firm size variable as follows: "The very consistent, positive association between firm size and performance reflects a governance-independent source of value creation, possibly due to market power and economies of scale and scope." Also Mathiesen (p. 226) states this even clearer:

"Firm size is extremely significant and positively related to performance. This result is remarkably robust and holds independent of applied sample, performance measure and whether the regressions are weighted or not. [...] The evidence is particularly strong for regressions on MTB[12]..."

[12] MTB = market-to-book values, that is the same measure as the Q used by Bøhren and Ødegaard

I think this is a correct observation, an obvious fact. The question now is how to handle this strong finding. What does it tell us about what factors that influence performance? Is the key to understanding the excellent performance of Microsoft, IBM or any such giant that their corporate governance mechanisms are superior? Or has their performance a lot do to with market power? And how did they get this market power? In my opinion *not* mainly due to any configuration of inside or outside ownership or size of the board etc. The key issue are a business strategy, in many – if not most - cases an innovation strategy in the broad sense. That is, to get and keep a technology based competitive advantage, including locking-in customers in their technology. Such technological advantages are in their turn often is connected to positive feedback loops due to economies of scale and scope.

It is beyond the scope of this note to discuss this at any length, but it is well known that general equilibrium theory is hard to reconcile with the existence of economies of scale. And that one in my opinion can argue convincingly that competition, and by this I mean real life price and quality competition, not the mechanical adjustment of quantities to given prices like in general equilibrium theory, leads to the unfit being forced out of business and leaving the survivors with monopoly-like market power. "Big firm" is significant, but it is not a disequilibrium phenomenon, it is a result of the dynamics of competition itself. All firms try to get and keep a technological advantage/monopoly. Consequently they need continuously to innovate to keep a certain distance to competitors.

The amount of variation explained

If I take a look at the R^2 values in Table 6 they are in the range from 14% to 27%, but it is not reported how much of the variance is explained by industry and size. Mathiesen reports that his industry dummies contribute significantly to the adjusted R^2, between 6 – 15% while some of the corporate governance mechanisms contribute less than 1% point. There seems to be a tendency that corporate governance mechanisms can explain less of the variation in performance than some other very ordinary variables, especially industrial sector and size.

The choice of variables

Another question is the choice of variables. Bøhren and Ødegaard make a reasonable choice in my opinion. From an innovation perspective some proxy for R&D would have been of special interest. Mathiesen (2002) reports (p. 226) that R&D divided by assets "is strongly significant and positive" when using Q (= market-to-book), but "strongly significant and negative" using return on assets (RoA).

Bøhren and Ødegaard run the full model (8) with the alternative performance measures. This gives the following table.

Table 7 Full multivariate model using the five different performance measures

	Q	ROA5	ROS5	ROA	ROS
Herfindahl index	-***	-	+	+	+
Primary insiders	+***	+***	-	+**	+
Primary insiders squared	-**	-**	+	-***	-
Aggregate state	-	+	-	-***	-
Aggregate internat.	+	+	+	-***	-
Aggregate individual	+***	+	+***	-	+***
Aggregate nonfinancial	-	-	-	-	-
ln(board size)	-*	-	-**	+	-
Fraction voting shares	+***	-	+*	-	+
Debt/assets	-***	-***	-***	+*	-
Dividends/earnings	-*	+	-	+**	-
Industrial	-**	-***	+**	-	+
Transport+shipping	-***	-**	+	-	+
Offshore	-***	-***	+	-	+
Investment/income	-	-	-	+	+
ln(firm value)	+***	-	+	+	+***
n	868	851	621	869	743
R2	0.27	0.12	0.12	0.11	0.05

The *, **, and *** indicate significance at the 5%, 2.5% and 1% level

They conclude that “there is very low consistency across performance measures” and that the concentration measure, the Herfindahl index, is only significant for Q. They report that they get similar results for the other (1) – (7) models, and that the overall conclusion is that “findings based on Tobin’s Q cannot be generalized to other performance measures”. Once more I stumble into the problem of measuring performance.

Significance, equilibrium and policy

Bøhren and Ødegaard draw the following conclusion based on the significant results from their eight models: "Finally, since I find that several mechanisms covary significantly with economic performance, I reject the hypothesis that the equilibrium condition prevails. Performance is inferior because most firms have a sub-optimal set of governance mechanisms."

Since Bøhren and Ødegaard want to be in equilibrium, in "first best", the policy implications of this are clear and on the basis of the regression results, the increase in firm value and/or performance of diminishing the disequilibrium can be quantified. Bøhren and Ødegaard give some examples:

> "Suppose the largest owner initially holds 28% of the equity in a firm with Q = 1.558. If this owner decides to decrease the stake by ten percentage points to 18%, our model predicts that Q will increase from 1.558 to 1.620. This means the market value of the firm grows by 0.4% for every percentage point increase in concentration. Since the average firm value in the sample is NOK 2 bill., this corresponds to a value growth of NOK 8 mill. (p. 26)

I shall not go into these rather technical calculations. The important thing here is *why* should the owner decide to reduce his share? Or the other way around, hasn't he[13] bought just that amount of shares because he, as an rational economic agent - considers it the best thing to do. To sell or buy shares in a listed company is not that difficult and goes on all the time, so why should I suppose that he by himself should reduce his share? And how should public policy makers construct incentives to make that happen? After all even this drastic reduction of the share of the largest owner does not mean more than NOK 8 mill. of increased value of the average firm. The chance that the implementation of an incentive scheme correcting the concentration of ownership would cost a lot and not be very efficient is far from negligible.

In the same manner – and with greater effect maybe one should raise insider holdings, or maybe reduce the size of the board with one member. To do the latter would increase firm value with NOK 20 mill. To reduce the board size is of course more realistic since in a way it is more of an administrative decision taken by the General Meeting, or maybe the board itself. And if the value increases as predicted, one could even pay people for leaving. Norwegian boards are fairly small by international standards according. The average number is 7; median 6 members and 75% of the boards have 8 members or less[14]. Their argument is that smaller groups communicate better and that is of course correct, but it is hard to see that going from 8 to 7 should make much difference. Again we are back to the crux of the matter: isn't the size of the board often rather random in the range from 6-10? Is that really a corporate governance mechanism? Isn't the real important thing what kind of business strategy the board decides on? If firms on their own do not reduce board size in order to get closer to equilibrium and become more efficient, should the public intervene with incentive schemes or regulation to make it happen?

[13] For simplicity I us he, it is in most cases a man.
[14] Cf. Bøhren and Ødegaard (2001a), p. 15

Improving the modelling and getting less significant results

In the regressions above Bøhren and Ødegaard use pooled data, that is, data from the whole period 1989 – 1997 are lumped together. This creates some statistical problems. First of all it means that causation and endogeneity cannot be addressed. Secondly - there might be changes in the relationship between the values. The first part of the period is marked by stagnation; the latter part is marked by economic upturn. Finally there are potential problems autocorrelation and multicollinearity. Bøhren and Ødegaard use different techniques to try to get around these problems by running cross-section regressions for each year in combination with parameter estimates done on the full set of observations. When running regressions year by year the number of observations then drops from about nine hundred to about one hundred each year. That of course makes it much more difficult to get significant results and consequently the equilibrium hypothesis, i.e. that all corporate governance mechanisms are used optimally = no significance, will be much harder to reject.

Table 8 Year by year regression of the full model, 8 variables

	1989	1990	1991	1992	1993	1994	1995	1996	1997
constant	+	+	-	-	+	-	-*	+	-
Herfindahl index	-***	-*	-*	-	-	-***	-	-	-
Primary insiders	+	-	+	+	+	+	+	+	+
Squared (Primary insiders)	+	+	+	-	-	-	+	-	-
Aggregate state holdings	+	+	+	+	-	+	+	-	-
Aggregate international	+	+	+	-	+	+*	+***	+	+
Aggregate individual	+	+	+	+	+	+	+	+**	+
Aggregate nonfinancial	+	+	+	-	-	+	+	+	-
ln(Board size)	-***	-	-	-	-	-	+*	-	-
Fraction voting shares	+	+	+	-	+	+	+***	+	+
Debt to assets	-	-	-*	+	-	-*	-**	-***	-***
Dividend payout ratio	+	+	+	-	-	+	-	-	-
Industrial	-	-	+	-	-	-	-	-	-
Transport/shipping	-	-*	-*	-	-**	-***	-	-	-
Offshore	-	-	-*	-	-	-*	-	-	-
Investments over income	+	-	-	-	-	-	-	-	-
ln(Firm value)	+***	+*	+	+***	+	+*	+	+	+*
n	81	73	64	83	90	98	108	118	153
R2	0.35	0.30	0.37	0.34	0.34	0.43	0.53	0.40	0.36

The *, **, and *** indicate significance at the 5%, 2.5% and 1% level

The table shows as expected that the level of significance drops. No variable is significant throughout the whole period. Size is consistently positive and has 5 years with some level of significance. But the same is the case with debt to assets and it is not easy to explain why. But again – the number of observations is radically lower than when the data are pooled. In order to get more reliable estimates to base policy on, one goes from pooled data – which cannot handle structural change, i.e. the influence of the business cycle – to year by year data - and one gets fewer significant results. This of course is an old dilemma: either the policy-maker must either base himself on significant but biased estimates or none at all.

Simultaneous equation systems - reverse causation

Another problem with the previous models is that they only tested the effects of governance mechanisms on performance, and did not test if the causation is in the other direction. That is, that performance influences the choice of governance mechanisms. One obvious example is when managers are buying shares or are asking for options when they know they are going make good profits[15]. Another is the reward given to managers. Are they highly paid ex ante in order to be motivated to perform well, or are they rewarded generously ex post, when financial performance is good? Or is both the case?

In simultaneous systems there is an identification problem that must be solved by – in most cases - a combination of theoretical predictions limiting the values of the parameters and the use of so-called instrumental variables, i.e. variables that are proxies for the variables that are endogenous in the equation system. One example is stock beta (a measure of systematic risk) used as an instrument variable for Q since mainstream asset pricing theory holds that systematic risk directly influences the value of the firm, Q, through the cost of capital. The technical aspects of this are beyond the competence of this author, but what is interesting for the non-technical reader is the results and especially Bøhren and Ødegaard's interpretation. As they formulate it: "There is a remarkable lack of significance, and the tendency to produce significant coefficients differs across models". Models here mean different sets of instrument variables. Stock beta for example never turns out significantly correlated to Q.

This lack of significance also characterizes other studies using simultaneous equation systems, but, according to Bøhren and Ødegaard, the most common "interpretation of the insignificant findings is that such evidence supports the equilibrium hypothesis" among those who have tested such models. Bøhren and Ødegaard do not agree with this interpretation:

> We are not convinced by this interpretation, which implicitly assumes that the system is better specified than single-equation models. As there exists no proper theoretical basis for establishing instruments, I test out three different instrument sets and find that the qualitative conclusions are sensitive to the choice of instruments. In particular, the choice of instruments decides whether or not our data supports the equilibrium argument. It also determines what to conclude about mechanism interaction and reverse causation. (p. 33)

Bøhren and Ødegaard do not agree that the simultaneous systems at present obviously are a more suitable method for studying these mechanisms than single equation modeling. I stumble again into the problem that the question of general equilibrium, of whether "natural selection hypothesis" can be used. But since this is not in my opinion based on a real discussion of whether general equilibrium, "first best" is a fruitful research paradigm, but becomes a matter of subjective choice. In other words, it becomes too much of a *ad hoc* subjective choice whether you doubt the specific model or chooses to doubt the equilibrium hypothesis. As soon ass one starts to question the equilibrium hypothesis, then there is no reason why one should not be very critical of the very specific modeling of the managers' motives as those

[15] Mathiesen focuses very much on these issues, using various techniques with lagged variables etc. to estimate the direction of causality.

of a pure homo economicus. But as soon as one starts to seriously question such basic assumptions, there is no reason to see the problems of corporate governance primarily as an agency problem.

Summary and conclusions

The question of whether corporate governance matters for economic performance is at the same time a debate of the meaning of this concept. In most of the existing literature this is interpreted as an agency problem stemming from the separation of ownership and control. The data chosen to study various aspects and hypothesis regarding this agency problem are various ownership characteristics, like concentration, type of owner, size of board etc, but not the actual, substantial business strategies of these firms like their R&D strategy, their human resource management strategy etc.

In my opinion there is no very strong link between the type of owner, degree of ownership concentration, inside ownership etc. - and business strategy. There is great heterogeneity when it comes to business strategies, there is no "representative" strategy and never can be. All firms cannot follow the same strategy when the name of the game is to compete with the others, taking advantage of path dependency, the effects of scale and scope, all other types of competitive advantages.

A manager of a pension fund might have just as good an understanding of the actual market dynamics as an individual shareholder. The complex web of strategies and counter strategies of firms makes it very difficult to predict – using ownership characteristics - who will be successful. Although I hold that one should not expect ownership characteristics to be that important, they of course warrant to be examined carefully, not the least because "agency problems" are regarded as very important in mainstream economics. Empirical research sometimes comes up with strong and surprising results, challenging conventional wisdom.

If Bøhren and Ødegaard and Mathiesen are representative of the state of the art – and I think they are - since their data are better than what has previously been used, so far it seems to me that the hypothesis that the "corporate governance as an agency hypothesis" is not that important for firm and economy performance has survived because:

- The share of variation in firm performance explained by the various *corporate governance mechanisms* is generally very low.
- Other traditional variables like industry and *size* explain more - as predicted by theories that use a innovation oriented, dynamic, time and path-dependent approach to explain firm performance.
- All of the results are very sensitive to the performance measure chosen
- the loss of significance is dramatic when one tries to use correct and/or more advanced techniques

Whether one thinks that regression results are convincing is always to a very large extent the result of a complex evaluation of theory, models, data and results. In short there is ample room subjective choice. But if one holds the opinion that the results from such exercises are solid, this then raises the question of the policy implications and not the least the question of the ultimate goal of policy. Is the goal of public policy in the field of corporate governance to get firms back to the equilibrium

point? If this is the case, is the policy advice that follows from this really feasible? To take as Bøhren and Ødegaard's strongest results, that ownership concentration "destroys value". How are individuals and/or public authorities going to decrease ownership concentration? In particular the Norwegian ownership concentration - which by European standards is low, although not as low as the US and UK – but is it really feasible to lower that significantly? If one is to achieve a substantial lowering of ownership concentration then one have to use some rather strong incentive mechanisms, to use some rather dramatic measures. Is this really feasible, and do researchers and policy makters what other effects on innovation and productivity might such a set of radical incentives and measures might have?

If ownership concentration is an indicator of disequilibrium, then most European countries *really* have a job to do taking into consideration their high levels of ownership concentration. And how is ownership concentration going to be reduced when it is the result of one of the freest and most liquid markets in advanced market economies, namely the stock exchange?

As Bøhren and Ødegaard point out themselves, this result "which is our strongest finding, is atypical in the literature, and it questions the fundamental agency hypothesis…that if managers that are not closely monitored by powerful owners they will not fulfill their fiduciary duty…" (p. 36). There is a small paradox here because this concentration-is-beneficial "rests on the implicit assumption that owners are competent, i.e. they know at least as well as managers how to run the firm in a value creating way" (p. 4). But that in its turn contradict the reason why the owners of capital handed control over their money over to the managers in the first place. Wasn't that precisely because the owners of capital did not have the necessary managerial competences, but a relative abundance of capital? If owners do not know better - what is then left of the whole agency problem? My tentative answer to that is that not very much is left of the agency problem as it is traditionally formulated. The main reason is that the notion of 'perfect information' which this whole way of reasoning is wrong. No person, no organization can have perfect information, be all knowing. On the contrary a lot of the real behavior of persons and firms can only be explained as a response to the fact that we do not have perfect information. We are not even able to digest more that fractions of the high quality information available etc. But this is an fundamental debate way beyond the limited scope of this paper.

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Fax: +47 2286 8049
Web: http://www.step.no/

STEP-gruppen ble etablert i 1991 for å forsyne beslutningstakere med forskning knyttet til alle sider ved innovasjon og teknologisk endring, med særlig vekt på forholdet mellom innovasjon, økonomisk vekst og de samfunnsmessige omgivelser. Basis for gruppens arbeid er erkjennelsen av at utviklingen innen vitenskap og teknologi er fundamental for økonomisk vekst. Det gjenstår likevel mange uløste problemer omkring hvordan prosessen med vitenskapelig og teknologisk endring forløper, og hvordan denne prosessen får samfunnsmessige og økonomiske konsekvenser. Forståelse av denne prosessen er av stor betydning for utformingen og iverksettelsen av forsknings-, teknologi- og innovasjonspolitikken. Forskningen i STEP-gruppen er derfor sentrert omkring historiske, økonomiske, sosiologiske og organisatoriske spørsmål som er relevante for de brede feltene innovasjonspolitikk og økonomisk vekst.

The STEP-group was established in 1991 to support policy-makers with research on all aspects of innovation and technological change, with particular emphasis on the relationships between innovation, economic growth and the social context. The basis of the group's work is the recognition that science, technology and innovation are fundamental to economic growth; yet there remain many unresolved problems about how the processes of scientific and technological change actually occur, and about how they have social and economic impacts. Resolving such problems is central to the formation and implementation of science, technology and innovation policy. The research of the STEP group centres on historical, economic, social and organisational issues relevant for broad fields of innovation policy and economic growth.