PIOTR URBANEK

Corporate Governance and Innovation Activity in Polish Public Companies. An Empirical Study

Abstract

Various components of the corporate governance system combine into an institutional environment for innovation processes, which are undertaken by corporations. This paper focus on the analysis of influence of corporate governance system on companies innovativeness. The empirical study concentrates the following components of the system: a level of ownership concentration, a type of control exerted over a company, a type of investor, the motivation systems for managerial staff, a type of supervision and an orientation of the company board. The discussion points out certain possible correlation between some components of a corporate governance system and an innovative orientation of enterprises. These hypotheses were empirically verified on a sample of 150 public companies, listed on the Warsaw Stock Exchange in the period between 1998 and 2000.

1. Introduction

An ability to create and commercialise new technical developments is one of the most vital attributes, which determine the effectiveness of an economic system. Long-term strategies are critical for the competitiveness of the economy. These strategies may concentrate on various aspects such as long-term investments in R&D, product development and market research in human and physical capital.

Numerous empirical analyses of innovation processes concentrate mainly on studying the level and dynamics of indices describing the real aspects of these processes may be seen controversial. An analysis of innovation indices allows only for an evaluation of quantitative effects of innovation decisions, which are made by enterprises during various stages of an innovation process. However, the motives behind those decisions usually remain outside the scope of such an analysis. The problem is that the positive tendencies and trends do not always result from conditions that are advantageous for an innovation-oriented economic system.

An alternative approach takes into account the institutional environment. The process of resource allocation, which results in creating innovations, is an organisational, development and strategic (O'Sullivan 2001, p. 58–69). It leads to an irreversible engagement of investment resources in return for uncertain future profits, an organisational integration of human and physical resources as well as a creative approach to the existing technological and market conditions.

The system of corporate governance is a significant element of the institutional environment. Corporate governance may be seen as an integrated system of control mechanisms, decreasing the intensity of the conflict of interests between the managers and the shareholders, which is created by the separation of ownership and management (Baysinger, Hoskisson 1990, p. 72). In other words it is a system of mechanisms (institutions) – the company boards, the debt structure and the financial markets, allowing the shareholders to exercise supervision over the way that their property is managed (Hessel 1995, p. 15).

Various components of the corporate governance system combine into an institutional environment for innovation processes, which are undertaken by corporations. This paper focus on the analysis of influence of corporate governance system on companies innovativeness. The theoretical discussion concentrates the following components of the system: a level of ownership concentration, a type of control exerted over a company, a type of investor, and an orientation of the company board. The discussion points out certain possible correlation between some components of a corporate governance system and an innovative orientation of enterprises. These hypotheses were empirically verified on a sample of 150 public companies, listed on the Warsaw Stock Exchange in the period between 1998 and 2000.

2. The corporate governance and the innovation processes – the theoretical concepts

Significance of the debate on the role of corporate governance in the process of creating and commercialising new technologies arises from the key role of corporations with regards to the process of resource allocation within contemporary economy. A corporate governance system determines who should make investment decisions, the kinds of investments that are to be carried out and, finally, who will participate in the benefits brought by investments. The quality of a corporate governance framework influences the results, which are attained during all stages of an investment process, directly through the regulations specifying the rights and obligations of all persons, who participate in the decision-making process.

The problems related to corporate governance, considered in a wider context, concerning the process of creating an innovation-oriented economical mechanism, are not limited to securing the interests of a single group of shareholders in one company. The quality of corporate governance is reflected in the economy's ability to mobilise capital as well as in the effectiveness of investing that capital and monitoring its final usage. The rate of economic growth and the directions of capital allocation are all partly determined by the "technology" of company operation, including the aims of both the owners and the managers, the rules of dividing tasks, competencies and responsibilities between the supervisory and managerial bodies and, finally, the tools for stimulating effective behaviour (Tamowicz, Dzierżanowski 2001, p. 4; Rudolf, Janusz, Stos, Urbanek 2002, p. 45–46).

An effective supervisory system ought to create an institutional framework and conditions appropriate for a corporation to get involved in innovation-oriented processes. These conditions include the following stages: mobilizing the capital, allocating the capital for alternative purposes, integrating the organisation of resources into the development processes and technology utilisation as well as carrying outstrategic control within the corporation (Isaksson 2000, p. 2).

The first stage requires that certain institutions provide an enterprise with financial resources which will make it possible for that enterprise to undertake or continue using the production-oriented resources for as long as it takes for the returns to become sufficient for securing financial liquidity and survival of the enterprise as well as the return of the allocated investments. Mobilizing capital requires, among others, that the ownership is effectively protected, that secure methods of registering ownership are in place and that there is a possibility of receiving legal compensation.

In order to make conscious decisions on the directions of capital allocation it is necessary to have credible information reflecting the financial and proprietor effects of those decisions. The accounting law is one of the most important formal and legal instruments that make up a system of corporate governance in any given economy. The owners of capital who cede it upon managers to manage their capital expect that the managers will act according to a policy resulting in the greatest possible growth of their wealth[1]. The relationship manager – owner thus requires that there are certain defined parameters for assessing the way that the executive board operates. There has to exist a system which would inform the owners of the financial effects that the executive board's decisions might have (a system for informing in terms economic categories regardless of the market evaluation). Such a system may serve as a basis for making the executive board accountable for the effectiveness of all actions with regards to managing the owners' capital.

The way in which the benefits of the successfully completed research and development tasks are reallocated is another factor determining how the investment strategies aimed at constant innovation are carried out. In order to remain among the leaders in the technological race it is necessary not only to predict the consumers' needs but also to create new needs (Aoi 1993).

Failing to do so means that the favourable access to technological knowledge will be lost, resulting in losing also the competitive advantages.

The internal strategic control is the last condition. Aiming at changing the technological and market environment of an entity as opposed to treating that environment as a set of exogenic factors, which are determined by the forces which are beyond the entity's ability to control, is the core of the innovation-oriented resource allocation. The resources which have been committed for executing innovation-oriented strategies must remain so until the first beneficial changes occur. This means that the decision-making process needs to be organised and supervised so as to integrate the innovation success with the goals of the decision-makers, i.e. the managers, the shareholders and the remaining stakeholders (O'Sullivan 2001, 58–69) It is therefore necessary to create institutionalised motivators for those who participate in the innovation processes. A perspective of being allowed to receive a share of the profits made by an innovative enterprise ought to convince the employees to become strongly involved in reaching their company's objectives.

[1] Wealth is understood here as the discounted net current value of the dividends plus the prices of shares times the number of possessed shares.

3. The nature of corporate governance as a control mechanism

The issue of large corporations, the way they operate, the principles of managing them effectively and the mechanisms of supervising them are the core of the debate on corporate governance.

The existing systems of corporate governance vary a great deal between countries. The differences are a result of economical, political as well as social conditions which vary a lot depending on the economy. However, it is possible to point out two basic models, which reflect the dichotomic division of corporate governance systems: the anglosas system (an outsider model which is based on the capital market) and the continental system (a so-called insider model which is based on the banking system). This basic division is the starting point for further analysis of the corporate governance systems in terms of financial and societal model of an enterprise (Koładkiewicz 1999, p. 35–43; Tamowicz, Dzierżanowski 2001).

The financial model which is prevailing in the American economy is based on an assumption that a corporation may be regarded as a set of resources provided by the shareholders. Therefore it is the corporation's main goal to maximise the benefits for the shareholders, mainly through increasing the market value of the corporation.

The managerial staff is another key player, apart from the shareholders, in the financial model of an enterprise. Although theoretically the shareholders possess formal control of large corporations, in reality they do not exert it. The reason for separating ownership and control lies in the fact that the shares are spread out across many small shareholders. Hence the communication between shareholders is hindered, or often even impossible, no individual shareholder may influence the enterprise's fate and so the shareholders become separated from the decision-making process.

Once the shareholders cease to exert influence on the executive board, the managers, who are the only people with highly specialised knowledge necessary to manage a company, take over the entire control over it. Faced with such a situation they are naturally inclined to undertake actions which are likely to result in achieving their own goals rather than the shareholders' goals. Examples may include: maximising sales (Baumol 1959), expansion (Galbraith 1967; Morris 1966), maximising the managers' utility function (which includes the following factors: prestige, security, professional success, wage levels and others). Therefore creating a mechanism which would ensure that the conflict of interests is eliminated and the goals of both groups (the shareholders as well as the managers) become convergent is one of the predominant tasks lying ahead of the corporate governance system.

The capital market is the leading supervisory mechanism within the financial model of an enterprise. The shareholders may control the company indirectly through the take-over mechanism or through a struggle for authorisations. The fact that ownership is spread out allows the shareholders to "vote with their feet" – i.e. by selling their shares, an option which is not as convenient for owners of larger shares. If the shares are sold en masse then their prices fall, allowing external investors to take over the control of the company. Should a company be taken over then in most cases the managerial staff is replaced. The threat of being replaced is highly motivatory for managers. However, such a threat may only arise if the capital market is developed well enough – i.e. the shares may be freely exchanged and their prices do not depend on the international capital market trends. In practice only the American economy meets those conditions.

The social model of an enterprise depicts the corporation as coalition of different groups of partners, the so-called stakeholders. The stakeholders are the managers, the employees, the shareholders, the clients as well as the suppliers, local communities and banks. Therefore, not only the shareholders take an interest in the way that an enterprise operates. Every company both influences and is influenced by many different interest groups. This fact needs to be taken into consideration when making any current or long-term decisions. There is a basic dichotomy in an enterprise which is the core of the social model. On the one hand, there are the individual members of the coalition, while on the other, there is an organisation – the enterprise. Such a dichotomy results in a conflict of interests. Every particular group may strive to achieve its own goals, differing from the goals of the entire organisation. It is therefore necessary to reconcile the opposing objectives of particular stakeholders (through attempting to keep a balance between all represented interests) in order for an enterprise to survive and develop.

The company board is a key factor determining the effectiveness of corporate governance within the social model of an enterprise due to the fact that the liquidity and capitalisation levels of the capital markets are low as well as the fact that large institutional investors, such as banks, exert a significant influence over a company. The role played by banks is subject to owning significant shares in an enterprise or holding the authority handed over by private investors who keep their shares in the bank's deposit (Rudolf 1999, Charkman 1994, p. 26–27, Becht, Bohmer 2002, O'Sullivan 2001, p. 234–240).

The following table summarises the basic differences between the financial model of an enterprise and the social one.

Table 1. The features of the financial and the social model of an enterprise

Components of system construction	The financial model of an enterprise	The social model of an enterprise
Countries (examples)	USA, Great Britain	Germany, The Netherlands, Austria
Orientation	Instrumental, shareholder–oriented	Institutional
The goals of an organisation	Serving the owners	Serving all the interest groups
Success measures	Share price and dividends	Satisfaction of the interst groups
Organisation of the supervisory system	Single level – a board of directors	Two-level – the supervisory board and the board of directors
Corporate governance carried out by	Independent external directors	Representatives of the interest groups
Owners	Shareholders	Banks, employees, oligarchical groups
The role of the stock market	High	Medium to high
The importance of the external supervisory mechanisms	High	Insignificant
The scope of monitoring carried out by the individual and institutional shareholders	Limited	Significant
Ownership concentration	Low	Medium to high
The correlation between the managers' compensation and the results of the enterprise	Strong	Weak
The time scale for economic relationships between the owners	Short	Long

Source: The table is based on: Weimer J, Pape J., *A Taxonomy of Systems of Corporate Governance, Corporate Governance*. An International Review 1999, April, Vol. 7, No. 2, after: Wawrzyniak B, *Nadzór korporacyjny: perspektywa badań, Organizacja i kierowanie* 2000, nr. 2(100), p. 23; De Wit B., Meyer R., *Strategy, Process, Content, Contex, An International Perspective*, International Thomson Business Press 1998, after: Koładkiewicz I., *Nadzór korporacyjny. Perspektywa międzynarodowa*, Poltex 1999, p. 42.

4. The ownership structure and the form of supervision

Owning a share of stock large enough to exert a working control of a company tends to favour taking an active approach to supervising the company's activities. The dominant investor is capable as well as motivated to gather information which may then be used to monitor the board's decisions effectively. The costs of actions aiming at increasing the discipline of the managers are usually lower than the costs of leaving the company. Large shareholders may not sell their stocks without suffering great losses – after all selling a large share of company stocks normally causes their price to fall. The dominant investors are thus required to take care of the company's results, regardless of the fact that doing so is also in their own interest. This often leads to a creation of long standing relationships between shareholders and their companies.

The enterprises which have a highly concentrated ownership structure or which have a dominant strategic investor should therefore be highly innovative. Such investors tend to formulate the company development strategies for the long term and are thus more inclined to invest (also in the research and development activities). On the other hand, if the ownership is spread across many shareholders, then the costs of leaving the company are relatively low. This can influence the managers to adopt short term financial strategies aiming at making the greatest possible profits at the expense of lowering the research and development budgets.

The dominant shareholders are usually interested in the long term results because of their attitude towards risk. The investors may reduce the risk that they are subject to by diversifying the portfolio of their financial assets. The investments in the research and development are characterised by a high rate of return but at the same time they have a high risk factor. This is in line with the shareholders' preferences – successful innovations bring in significant benefits whereas failures do not significantly affect them because of a diversified portfolio of assets. This sort of investments are less likely to be carried out by the managers who are more averse towards risk. The innovation projects have a high failure rate (Mansfield 1968) as well as a long period of return.

A different approach is to be expected in companies whose stocks are spread across many shareholders and which are fully controlled by the managers. Expansion through diversification is one of the ways that the managers may maximise their utility functions. Such a strategy allows risk to be reduced and hence ensures greater security. Such a development strategy leads to greater turnovers and lower risk but at the same time it may lower the effectiveness.

It is necessary to differentiate between two cases. First of all expansion may be carried out through the strategy of diversification into closely related spheres of activity, and secondly it can be done through taking over other companies. Considering the first case – the uniqueness and the autonomy of particular strategic business units make it necessary to adopt specific standards for evaluating their effectiveness. The role of the head management with regards to operational management is often reduced to approving or rejecting the investment projects which are proposed by the autonomous units, so as to allocate the financial resources of the whole organisation optimally (in order to reach the economies of scale for example). The standard financial indices (especially the return on investment – ROI) become the basic criterion for evaluation. This may result in the medium level managers preferring strategies which are aimed at reaching only the short term financial goals, resulting in reduced R&D spending, lower budgets for market research and development investments (Baysinger, Hoskinsson 1989).

On the other hand – the strategy of diversification through takeovers absorbs various resources thus preventing them from being used otherwise (Hitt, Hoskinsson, Johnson, Moesel 1996). The time and the energy of the head managers is one of the key resources. The takeover process requires that an objective is specified and an effective strategy is developed. Then it is necessary to conduct negotiations and finally, once the takeover has been successfully carried out, a composite and time-consuming process of asset integration needs to be put in place so that it is possible to achieve an effect of synergy. Hence the duties and challenges that are put upon the head managers force them to operate only in the short term, dragging them away from long term activities.

Gathering the funds necessary to conduct such an operation is another issue. Using the external sources of funding – the financial leverage – makes the managers even more averse to risk, hence reducing their willingness to get involved in innovative undertakings. Investing in takeovers may therefore be treated as a substitute for innovations, as takeovers generate new products and processes, provide an access to new markets and have a much lower risk factor.

In conclusion it may be stated that regardless of the chosen strategy of diversification it is to be expected that there exists a negative correlation between the adopted level of diversification and the volume of R&D spending. This hypothesis has been confirmed in many empirical studies.

4. Institutional investors

The institutional investors are a specific group of dominant investors. Their patterns of behaviour differ with regards to strategy formulation and evaluation of effectiveness[2]. It is expected that they will become actively involved in monitoring the executive boards' activities also in the interest of lesser shareholders. They ought to be highly involved in the corporate governance process because of the fiduciary functions that they carry out (they are obliged to fulfil the goals set by their clients – in this case the goal is to maximise the rate of return on their investment).

In practice the time scale of institutional investors is becoming visibly shorter, even when compared to individual investors. They act under a constant pressure to report on the results that they achieve in managing their portfolios of assets once every quarter or year (Graves, Waddock 1990, p. 75). Therefore they cannot get involved in undertakings, which bring profits in the long term, but require large allocations of resources for development or investments in physical capital in the short term[3]. The pressure is shifted onto the executive boards as well – as a result they too tend to concentrate overly on the short term when formulating their strategies[4].

Also it should not be expected that investors will want to keep their assets in stocks of companies that have serious difficulties. What is more, the investors will not be inclined to bear the costs of monitoring the activities of such company's boards, especially if the chances of a successful intervention are small (Short, Keasy 1997). The institutional investors act as "investors" and not as "owners". Their aim is to allocate their capital in the most effective way possible. In case they do not accept a company or its board they are required to sell the securities of such a company. The requirement of conducting an effective corporate governance by the institutional shareholders is more a "moral responsibility" than a legal requirement provided for by the company law or supervisory codes.

An effective corporate governance system ought to be equipped in an "early warning system" which would make it possible to identify possible crises within a corporation before they may cause negative consequences. This requires

[2] Such opinions were included in the Cadbury Commission report and the Greenbury Commission report which were prepared in Great Britain in the 90s.

[3] Only 4% of these investors take the quality of products into consideration when choosing stocks for their portfolios. See also: Choate, Linger 1986.

[4] The Japanese institutional investors have a greater share of ownership of public companies than in the United States. Their approach is different as well – the institutional capital in Japan is much more "patient".

that a mechanism for gathering, processing and evaluating information concerning the situation of all companies in a portfolio is created. If the strategies adopted by these companies differ from strategies which are considered advisable then certain mechanisms for exerting pressure on their boards ought to be initiated. The institutional investors may have hundreds or even thousands of companies in their portfolios which are highly diversified. The huge amount of information that ought to be processed is thus another restriction on effective supervision. However, if direct monitoring may not be used with regards to every company then it ought to be used at least with regards to a few of them which require close attention. This will then send a message to the boards of the other companies as they too may be placed under close scrutiny by the investor.

There are also arguments for proving that the financial instruments' market is an appropriate mechanism for mobilising and reallocating capital which could then be used for supporting the advanced technology undertakings. The key factors that determine its role include effectiveness, variety, flexibility, mobility, quick reaction to the occurring changes, high profitability of enterprises, transparency and accessibility of information (Koładkiewicz 1999, p. 136–137).

The perspectives of high future profits may encourage the institutional investors to become involved with companies which are intensively supporting the research and development activities. Such enterprises are highly evaluated by investors also because it often happens that an announcement of greater involvement in innovative undertakings causes the share prices of a given company to rise. Such strategies have a higher risk factor and a greater variance of future profits. Furthermore, the institutional investors' portfolios are usually very diversified, thus the risk that they are subject to is smaller than the risk that the individual investors, who have highly concentrated portfolios, are exposed to.

There are two alternative hypotheses that may be formulated in order to explain the different approaches towards the time scale of capital investments on behalf of institutions (Hansen, Hill 1991). According to the myopic institutions theory the institutional investors get rid of a portfolio of assets if the profits fall in the short term. As a result the market prices of stocks fall and there appears a chance of contested and profitable takeovers of companies. Acting according to an ineffective capital market the managers tend to concentrate on the short term, that is to generate current profits at the expense of long term investments, including the investments in the R&D. This theory thus shows that there is a negative correlation between the institutional shareholders and the R&D spending.

The efficient markets theory is an alternative. It assumes that all investors prefer investments which increase the forecasted cash flows. Therefore, a rational investor does not regard the current profits as the only factor for making decisions, but is rather more willing to accept various long term projects, including the R&D undertakings. The stocks are only sold if the company does not pay enough attention to such undertakings or concentrates on them too greatly.

The problem is however, that the shareholders are often unable to analyse whether such investment decisions were "correct" or not. Therefore, the possibilities of conducting an effective monitoring of the boards' activities in technologically advanced companies are rather limited. This is the case as there is an asymmetry of information between the company and its shareholders. The detailed information (also on the level of R&D spending) is important for evaluating the company's activities properly as well as for assessing the company's value. On the other hand, disclosing such information bears the risk that the value of the company will fall. Thus the shareholders may not be interested in receiving this information through making it publicly known. Concluding it may be stated that the efficient markets theory does not recognise any correlation between the level of commitment on behalf of the institutional investors and the level of R&D spending.

The discussion which has been outlined above shows that it is to be expected that the empirical research on the influence that the institutional investors have on R&D activities will reach varying conclusions.

5. The orientation of the supervisory board – the type of supervision

An evaluation of different types of corporate governance usually concentrates on determining the relationship between the structural features of a given system (such as a level of ownership concentration, a type of the dominant investor and a type of control exerted over a company) and their impact on the efficiency, which may be measured using, for example, the perspectives of activity. However, in most cases both the formal and the real responsibility for long-term development decisions lie on the shoulders of the company board. This is the case as the board is supposed not only to carry out the control function but also to actively participate in formulating and implementing the strategy of the company. Under no circumstances should it restrict itself only to approving the decisions made by the managers. Such an approach allows the board to play a greater role in shaping the company's fields of activity in the long-term.

Therefore, it is advised that an attempt should be made to evaluate the context of the board's decision-making process, while analysing the time scale of the company's activities. This is vital for understanding the strategy and the economic efficiency of an enterprise. Based on that it is possible to analyse the correlations between the composition of the board, various individual features of the board members as well as their views on the efficiency of financial markets and the decisions that they make, concerning for example the company strategy or the current, operational aspects of the company (Brewster, Mizruchi 1993; Goodstein, Gautam, Boeker 1994; Johnson, Hoskisson, Hitt 1993). Such an analysis should lead to a determination of the board's orientation (Jonnergard, Svensson, Karreman 1996).

The term "orientation" means "the way that people think and undertake actions with regards to a given matter" (Watson 1995, 810). The board's orientation may be thus defined as the viewpoint concerning the chosen aspects of company's activities which is common to all the board members (Jonnergard, Karreman, Svensson 1997, p. 4). Therefore the board's orientation will affect the way in which the board carries out its functions. If we use the term "board orientation" as the starting point then determining what exactly hides underneath this term for particular cases (different company boards) will be the next step. Defining various board orientations may be based on the way the board views and sets the hierarchy of importance with regards to the markets on which the company operates, the entities with which the company has specific relationships as well as the parameters which according to the board are the best way of measuring the company's activities (Walsh, Steward 1990).

Theoretically speaking there are two approaches which may describe the relationship between the supervisory board and the executive board of a company. The first of them is based on an assumption that there is a clearly defined conflict of interests between the executive board and its environment. The second approach assumes that there is a consensus between the managers and the owners of a company (Zahra, Pearce 1989).

The agency theory which represents the conflict trend in the theory of corporate management assumes that there is a conflict of interests between the supervisory board and the executive board. According to the agency theory the role of the supervisory board is limited to approving the decisions made by the executive board and monitoring its activities (Fama, Jensen 1983; Baysinger, Hoskisson 1990). The theory states also that the supervisory boards' main goal is to protect the shareholders' interests. The company's performance on financial markets needs to be the priority for the supervisory board – it ought to strive to reach the short term financial objectives while taking into consideration how the capital market might react to the decisions that are made within the company.

Therefore the supervisory board uses mainly the financial measures and the effects of company operation while initiating, approving and supervising all activities (the so-called financial priority) (Jonnergard, Svensson 1994).

On the other hand, the consensus theory assumes that the managers' and the owners' interests are convergent. According to this theory the supervisory board is not meant to carry out solely the supervisory functions but also to support the executive board with knowledge and experience. The board understands that taking care of the owners' interests is only one of many objectives. Therefore the supervisory board concentrates on the issues of survival and long term development while initiating, approving and monitoring all activities. It is assumed that the boards which operate in this way are industrially-oriented.

The financial or the industrial orientation set as a behavioural pattern is one of the criteria for classifying various board behaviours. This criterion is based on defining a function, yet it does not determine how involved the board is in particular activities. Limited commitment indicates that the board is concentrating on monitoring and approving the CEO's proposals rather than on initiating activities itself. A high level of commitment, on the other hand, shows that the board is active both during the initiating as well as approving the proposals. It also means that the supervisory process includes the ex ante control of the plans as well as the ex post analysis of the results.

By joining together the two aforementioned criteria it is possible to define four extreme patterns of behaviour of the supervisory boards[5]. An active board concentrates both on the financial as well as the industrial aspects of company's activities. Once the supervisory board members become highly involved in the company's activities it may be claimed that the supervisory board takes some of the executive functions, at least with regards to strategic undertakings.

An industrially-oriented board concentrates on the industrial aspects of company's activities. Such boards are active with regards to setting the strategic objectives for the company, formulating the strategic plans of action as well as evaluating the results of the adopted strategy.

A financially-oriented board concentrates on the financial aspects of company's activities. These aspects are carefully controlled both ex ante as well as ex post. As far as the long term decisions (like the investment decisions) are concerned the board stops at carrying out the ex post control.

[5] The methodology used for determining the type of corporate governance has been presented in: Jonnergard, Karreman, Svensson 1995; Działo, Jonnergard, Karreman, Svensson, Urbanek 1998; Urbanek, Działo 1998; Działo, Jonnergard, Karreman, Svensson, Urbanek 2000.

The last type is a passive supervisory board (dominated by the executive board). Such a board does not concentrate on any of the aforementioned aspects of company's activity, leaving the initiave with the executive board. The supervisory board's role is thus limited to approving the decisions prepared (and in fact already made) by the executive board and to monitoring (through ex post controls) the executive board's activities.

A type of supervision is another factor, which determines to what extent the company is willing to get involved in the long-term development processes. In companies, where the boards are industrially-oriented it is to be expected that the expenditure on R&D and investments in non-financial fixed assets will be higher. On the other hand, the financially-oriented boards may assess the executive managers using mainly the short-term financial indices of efficiency. Such an orientation of the board will result in the managers preferring strategies, which aim at achieving short-term profits and quick returns.

The hypotheses which were presented above had been verified using a sample of 90 public enterprises from Sweden (Jonnergard, Svensson, Karreman 1995). As expected, different orientations of company boards led to adopting different time scales for the decision-making process. The time scales are measured by an index showing the level of R&D spending per one employee.

6. Empirical analysis

Assessing the influence that the chosen components of corporate governance have on innovative activities requires first of all that the willingness to undertake such actions on behalf of companies is measured. There are no easy and commonly accepted methods for measuring the innovative activities which would neatly describe how committed various economic entities are to the processes of creating and using new technologies. Like many other economic phenomena, such an activity too can only be described using a certain number of imperfect indices. All available measures are imperfect because the innovation process is rather peculiar and very complex. Furthermore, there are also many difficulties with regards to gathering statistical data. The most popular measures that are practically used are: the level of R&D spending, the share of R&D spending in sales income or the level of R&D spending per one employee.

Using these indices for analyzing the situation of enterprises in Poland is even more difficult than elsewhere. Polish public enterprises have to follow the regulations issued by the Securities and Exchange Commission which oblige them to disclose detailed economic as well as financial information. This means

that information concerning the research and development activities undertaken by an enterprise should also be disclosed. Unfortunately there are no uniform standards which would deal with the way that companies present information on expenditure and its effects. Ideally there should be a set of quantitative indices which could be easily compared

Therefore in order to attempt evaluating innovative activities it is necessary to build replacement indices. We thus assumed that the R&D activities of a company reflect its long term strategic orientation which may also be measured by indices showing the volume of investment expenditure on fixed assets. In doing so the company may be regarded as willing to sacrifice the current benefits in return for long term ones. The fact that such an index is easily available in the yearly reports of listed companies is a significant advantage. The main drawback of such an approach lies in the fact that not all investments in fixed assets cause changes in products or technology, i.e. they cannot always be treated as proof of technological progress.

The types of corporate governance were characterized according to the research methodology which was described in the previous part of the paper. The results of empirical research carried out on Polish public companies show that the types of corporate governance that were observed reflect, to a certain degree, the theoretical model presented above. Two groups of companies were identified which directly reflect the industrial and the financial orientation of the board. The remaining two groups may not be interpreted in such a univocal way. The first of them was defined as tending towards industrial orientation but with relatively uninvolved supervisory boards, the second was defined as a passive type of supervision.

The paper aims at defining the correlation between the chosen components of corporate governance and the willingness to undertake innovative actions which is reflected in the long term orientation towards formulating strategies and decision making.

The discussion which was presented before allows us to formulate the following research hypotheses:

H_1: companies with industrially-oriented supervisory boards will have a relatively high level of expenditure on fixed assets.

H_2: companies with financially-oriented supervisory boards will have a relatively lower level of expenditure on fixed assets due to the fact that financial criteria will prevail in evaluating the company's activity.

These hypotheses were verified empirically. A sample of around 200 listed companies was tested (the data covered the period from 1998 to 2000).

The yearly reports and surveys among the supervisory and executive board members were used as the main source of information.

The statistical analyses which were conducted made it possible to identify four groups of companies. Each group consisted of:

1) the industrially-oriented boards – 24 companies (industrial I);
2) the financially-oriented boards – 12 companies;
3) the uninvolved industrially-oriented boards – 36 companies (industrial II);
4) the passive boards – 9 companies.

The level of commitment to innovative activities was measured by two variables:

1) the share of investment expenditure in the value of fixed assets;
2) the changes of fixed assets.

These variables were further standardized due to the significant sectoral differentiation of the analyzed sample. The following formula was used for standardizing:

$$SI_{i,j} = (I_{i,j} - MI_j) / SI_j,$$

where:

$SI_{i,j}$ – the standardized value of variable for the i^{th} company from the j^{th} sector,

$I_{i,j}$ – value of variable for the i^{th} company from the j^{th} sector,

MI_j – the mean value of variable in the j^{th} sector,

SI_j – the standard variation of the variable in the j^{th} sector.

7. Results

Verifying the research hypothesis stating that there is a correlation between the type of corporate governance and the willingness to undertake innovative actions on behalf of companies has been carried out using the Kruskal-Wallis one-way analysis of variance. It is a non-parametric test which is used when no information on the distribution of the analyzed variable is available. This test leads to a conclusion that the type of corporate governance significantly differentiates the level of commitment of companies in long term undertakings which is reflected by the level of investment expenditure.

The results of statistical tests are shown in Table 2.

Table 2. Kruskal-Wallis one-way anova

The share of investment expenditure in the value of fixed assets by type of corporate governance

Year	Type of corporate governance	Cases	Mean Rank	Chi-Square	D.F.	Significance
1998	Industrial I	20	31,55	2,842	3	,417
	Financial	10	40,40			
	Industrial II	30	32,47			
	Passive	8	42,13			
1999	Industrial I	22	38,91	3,728	3	,292
	Financial	11	47,18			
	Industrial II	33	36,88			
	Passive	9	28,67			
2000	Industrial I	15	31,13	3,718	3	,294
	Financial	11	36,27			
	Industrial II	25	27,76			
	Passive	7	21,57			

The changes of fixed assets by type of corporate governance

Year	Type of corporate governance	Cases	Mean Rank	Chi-Square	D.F.	Significance
1998	Industrial I	20	30,60	2,378	3	,498
	Financial	10	39,40			
	Industrial II	30	33,67			
	Passive	8	41,25			
1999	Industrial I	19	35,58	1,692	3	,639
	Financial	10	36,90			
	Industrial II	29	30,07			
	Passive	8	36,75			
2000	Industrial I	19	36,63	5,080	3	,166
	Financial	11	48,09			
	Industrial II	32	31,97			
	Passive	9	34,22			

The test results show that the correlation is opposite to the one stated in the research hypothesis, although statistical significance is very small.

The average range values for both analyzed variables are usually greater not in case of one of the industrially oriented types of corporate governance but rather for financially oriented companies. This is the same both for real as well as standardized data.

8. Conclusions

It is difficult to interpret these results univocally. First of all it needs to be emphasized that the index used for assessing the level of innovativeness of companies was imperfect. It has already been mentioned that a high level and dynamics of investment expenditure does not always mean that a qualitative change in the production technology used in a company has been introduced. The lack of credible, comparable and direct methods of measuring the innovativeness of economic entities means that all attempts at using replacement indices may end up in distorting the correlation between the analyzed phenomena.

If however we assume that these results reflect the influence of the type of corporate governance on an orientation of companies correctly then we need to ask how to explain a result which is so different from the assumptions of the theoretical model.

It seems that two processes are involved. Firstly, this may be caused by the adaptation processes which are occurring in the Polish economy during its integration with the European Union. Restricting or abolishing the tariff barriers, an increasing competition on the local market and restricting the standing of monopolies all mean that retaining the market share often becomes the primary objective for many companies. This in turn makes it necessary to become involved with the long term aspects of company operation like investments, implementing new production technologies, carrying out research and development work etc.

On the other hand we have been observing a dynamic development of the Polish capital market for the last few years. In order to adapt to the changing environment (the changes are spurred by the process of integration with the EU) the companies need new sources of funding. The stock exchange becomes a natural place where they can obtain capital. At the same time the standing on the capital market seems to legitimize the company's level of success. Therefore the financial orientation, the nature of which is to concentrate on the current profits, may under certain conditions change so that its perspective and time scale of the decision making process will become longer.

The effectiveness of supervision is a key issue, which is raised in debates on systems of corporate governance and their principles. Choosing an appropriate model, research procedures and evaluation criteria is a very complex methodological problem. The effectiveness analyses must concentrate on the chosen aspects of analysed systems. One of the possible research areas, which may be of interest also in the future, concentrates on the effect that the

supervisory mechanisms have on the willingness of companies to get involved in long-term development undertakings. The effectiveness of supervision must be evaluated in relation to the aims of the corporation, its surrounding environment and the specific components of the system.

Bibliography

Adams N. (1999), Próby reformowania brytyjskiego systemu nadzoru właścicielskiego, in: *Nadzór właścicielski w spółkach prawa handlowego*, edited by Rudolf S., PWN.

Aoi J. (1993), *To Whom Does the Company Belong?: A New Management Mission for the Information Age*, Journal of Applied Corporate Finance.

Baumol W.J. (1959), *Business Behavior, Value and Growth*, New York.

Baysinger B., Hoskinsson R. (1989), *Diversification Strategy and R&D Intensity in Multiproduct Firms*, Academy of Management Journal, Vol.32, No. 2.

Baysinger B., Hoskisson R.E. (1990), *The Composition of Boards of Directors and Strategic Control: Effects on Corporate Strategy*, Academy of Management Review, Vol. 15, No 1

Baysinger B., Hoskisson R.E. (1990),*The Composition of Directors and Strategic Control: Effects on Corporate Strategy*, Academy of Management Review, Vol. 15, No 1.

Becht M., Bohmer E. (2002), Ownership and Voting Power in Germany, in: Barca F. Becht M., *The Control of Corporate Europe*, Oxford University Press.

Brewster S.L., Mizruchi M.S. (1993), *Board composition and corporate financing: The impact of financial institution representation on borrowing,* Academy of Management Journal, No. 36.

Cadbury A. (2002), *Corporate Governance and Chairmanship. A Personal View*, Oxford University Press.

Charkman J. (1994), *Keeping good company*, Clarendon Press.

Choate P., Linger J. (1986), *Business and the Short-Term Syndrome*, The Washington Post, July.

Działo J., Jonnergard K., Karreman M., Svensson C., Urbanek P. (1998), Corporate board's line of reasoning – comparison between corporate governance in Poland and Sweden, in: *Managing strategically in an interconnected world,* edited by Hitt M.A., Costa J.E.R., Nixon R.D., J. Wiley & Sons, Chichester.

Działo J., Jonnergard K., Karreman M., Svensson C., Urbanek P. (2000), Nadzór właścicielski w polskich i szwedzkich spółkach giełdowych, w: *Efektywność nadzoru właścicielskiego w spółkach kapitałowych*, edited by Rudolf S., Lodz University Press.

Fama E., Jensen M. (1983), *Separation of ownership and control*, Journal of Law and Economics, Vol. 26.

Galbraith J.K. (1967), *The New Industrial State*, New American Library, New York,

Goodstein J., Gautam K. & Boeker W. (1994), *The effects of board size and diversity on strategic change*, Strategic Management Journal, No 15.

Graves S., Waddock S. (1990), *Institutional ownership and control: implication for long-term corporate strategy*, Academy of Management Executive, Vol.4, No. 1.

Hansen G.S., Hill C.W.L. (1991, *Are Instytutional Investors Myopic? A time-Series Study of Four Techology Driven Industries*, Strategic Management Journal, Vol. 12.

Hessel M. (1995, *W poszukiwaniu skutecznej rady czyli o kontroli spółek akcyjnych w gospodarce rynkowej*, Wydawnictwo Profesjonalnej Szkoły Biznesu, Kraków.

Hitt M., Hoskinsson R., Johnson R., Moesel D. (1996), *The Market for Corporate Control and Firm Innovation*, Academy of Mamnagement Journal, Vol.39, No. 5.

Isaksson M. (2000), *Inwestycje, wzrost gospodarczy i nadzór korporacyjny. Dziś i jutro nadzoru korporacyjnego w krajach OECD*, a paper prepared for a conference entitled "Corporate Governance. Zasady nadzoru korporacyjnego" OECD, Warsaw.

Johnson R.A., Hoskisson R.E. & Hitt M.A. (1993), *Board of directors involvement in restructuring: The effects of board versus managerial controls and characteristics*, Strategic Management Journal, No 14.

Jonnergard K., Karreman M., Svensson C. (1995), *Classifying board behavior – an empirical test on large Swedish companies*, The Institute of Economic Research Working Papers, Lund University, Sweden.

Jonnergard K., Svensson C, Karreman M. (1995), *Short-termimism and Corporate Board Orientation – the Swedish Case*, The Institute of Economic Research Working Papers, Lund University, Sweden.

Jonnergard K., Svensson C. (1994), *What boards think and how they behave*, The Institute of Economic Research Working Papers, Lund University, Sweden.

Jonnergard K., Svensson C., Karreman M. (1996, *The board's line of reasoning – financial and industrial orientation in corporate board work*, unpublished paper, Department of Business Administration, School of Economic and Management, Lund University.

Jonnergard K., Svensson C., Karreman M. (1997), *Opening up the black box – Lines of reasoning in the work of corporate boards*, Institute of Economic Research Working Papers No 1, Department of Business Administration, School of Economic and Management, Lund University.

Koładkiewicz I. (1999), *Nadzór korporacyjny. Perspektywa międzynarodowa*, Poltex.

Mansfield E. (1968), *Industrial research and technological innovation*, New York, Norton.

Morris R. (1966), *The Economic Theory of Managerial Capitalism*, London.

O'Sullivan M.A. (2001), *Contests for Corporate Control. Corporate Governance and Economic Performace in the United States and Germany*, Oxford University Press.

Rudolf S. (1999), *Niemiecki system nadzoru właścicielskiego*, in:, *Nadzór właścicielski w spółkach prawa handlowego*, edited by Rudolf S. PWN.

Rudolf S., Janusz T., Stos D., Urbanek P. (2002), *Efektywny nadzór korporacyjny. Teoria i praktyka*, PWE, Warsaw.

Short H., Keasy K. (1997), Instytutional Shareholders and Corporate Governance in the United Kingdom, in: *Corporate Governace. Economic, Management, and Financial Issues*, edited by Keasey K., Thompson S., Wright M., Oxford University Press.

Tamowicz P., Dzierżanowski M. (2001), *Własność i kontrola polskich korporacji*, IBNGR, Gdańsk.

Urbanek P., Działo P. (1998), *Priorytety działania rad nadzorczych a efektywność nadzoru właścicielskiego w spółkach z udziałem Skarbu Państwa,* Studia Prawno-Ekonomiczne, Vol. LVII.

Walsh J.P., Steward J.K. (1990), *On the Efficiency of Internal and External Corporate Control Mechanisms*, Academy Management Review, Vol. 15, No. 2.

Watson T.J. (1995), *Rhetoric, Discourse and Argument in Organizational Sense Making: A Reflexible Tale*, Organizational Studies, No. 16.

Zahra S.A., Pearce J.A. (1989),*Board of directors and corporate financial performance. A review and integrative model*, Journal of Management, No. 15.