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Financial microeconometrics in corporate governance studies

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Abstract

Quantitative research on corporate governance is mostly rooted in microeconometrics. Paper debates the financial edge of microeconometrics and its relevance to corporate governance. The considerations are illustrated with the examples from Central and Eastern Europe.

Keywords: corporate governance, microeconometrics

JEL codes: C10, O57, G30

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1. Introduction: microeconometrics

The subject of this paper is two-fold. Firstly, we introduce the area of financial microeconometrics. Secondly, the methodology of financial microeconometrics is presented in relation to the issue of corporate governance.

At the outset, let us recollect in the words of James Heckman in his Nobel Prize lecture of 2000 (Heckman 2000) that ”*microeconometrics* is a scientific field within economics that links the theory of individual behavior to individual data where individuals may be firms, persons or households.” Second quote on microeconometrics is by Cameron and Trivedi (2005): “Microeconometric analysis is the analysis of individual-level data on the economic behavior of individuals or firms. (…) Usually regression methods are applied to cross-section or panel data”.

James Heckman (2004) summarizes the contributions of microeconometrics to economic knowledge in four main themes “(1) Microeconometricians developed new tools to respond to econometric problems raised by the analysis of the new sources of micro data produced after the Second World War. (2) Microeconometrics improved on aggregate time series methods by building models that linked economic models for individuals to data on individual behaviour. (3) An important empirical regularity detected by the field is the diversity and heterogeneity of behaviour. This heterogeneity has profound consequences for economic theory and for econometric practice. (4) Microeconometrics has contributed substantially to the scientific evaluation of public policy”.

The need for microeconometric analyses is matching the emerging abundance of microdata available for economic and social research. Equally parallel is the demand for lower level economic models explaining the individual behaviour rather than making use of the average “representative agent”. Again, in Heckman (2000) words: “Microeconometrics extended the Cowles theory by building richer economic models where heterogeneity of agents plays a fundamental role and where the equations being estimated are more closely linked to individual data and individual choice models".

The vast sources of microdata are also available operationally in today's business environment. From such perspective, microeconometric methods are a part of what is popularly labelled *data mining* or the identification of patterns in the data. There is also a correspondence of microeconometrics and *spatial econometrics*, as well as with other similar fields.

2. Financial microeconometrics

Providing tools for (economic) microdata analysis microeconometrics may be seen as the platform for developing the areas in which it is applied. Therefore, one can consider e.g. labour microeconometrics, social policy microeconometrics etc.

The term *financial microeconometrics* (FM) seems to be justified as well (see Gruszczyński 2006a). Since microdata is the daily outcome in finance, FM deals with the relationships being the result of analysing microdata on consumers, investors, companies etc. The target of FM is finance. The methods belong to microeconometrics. Therefore, FM is finance, not econometrics.

Obviously, FM is the part of financial econometrics, the field well advanced today, especially in time series context. The cross-sectional perspective of financial econometrics is easily skipped in typical exposition. Here, we stress its importance.

Thus, FM covers all econometric research based on individual financial data about companies. In fact: most of financial microeconometrics represents the field known as *empirical corporate finance*. Therefore:

– FM is Altman's discriminant analysis models, FM is Fama-French CAPM models etc.,
– FM includes cross-section and panel data models constructed for listed as well as for unlisted companies,
– FM includes models of IPO effects, some models of behavioural corporate finance, statistical models of fundamental investment strategies, various quantitative accounting models, e.g. for analysing disclosure, etc.

And, obviously, financial microeconometrics covers empirical corporate governance studies.

3. Corporate governance

The field of corporate governance (CG) seems to be one of the most actively studied in recent years, due to well known developments climaxing at Enron case and resulting in a number of regulations, of which the US Sarbanes-Oxley act is the leading example.

Popular understanding of corporate governance from the perspective of a company means: independent and efficient supervising body, transparent and accurate books, strong shareholders' rights and equal treatment of all owners groups. Mechanism of CG minimizes the agency costs, i.e. reduces the company's market value loss resulting from a potential conflict between the managers and the owners (Shleifer and Vishny 1996).

In Poland, Warsaw Stock Exchange (WSE) has adopted the corporate governance principles on the Polish market since 2002. Right now (in the middle of 2007) the document entitled "Best practices in public companies 2005" is in use for all public companies in Poland. The new Practices'2007 are already under way, being in the stage of final approval by the WSE. The Best practices express the corporate governance standing of WSE based on practical experience, opinions and suggestions of market participants and the European Commission recommendations in this area.

The research on CG is particularly demanding since it concerns such diverse disciplines as law, economics, accounting, finance and management. Of many sources on the current CG research it is worth to point out the webpages of European Corporate Governance Institute www.ecgi.org and Polish Forum for Corporate Governance www.pfcg.org.pl.

4. Corporate governance and microeconometrics

The quantitative research on corporate governance may be roughly separated into two streams. The first is empirical, with the statistical/econometric attempts to prove various hypotheses, such as the associations between various CG indicators and the measures of companies' performance. The second is theoretical, with the solutions broadly fitting into the area of mathematical economics.

The empirical research on CG belongs in fact to financial microeconometrics. Studied are e.g. the relationships between various categories representing companies' performance and those describing the governance level, such as ownership structure or the composition of supervising body. Number of papers and other contributions is overwhelming and constantly growing. The surveys of the research in this area quickly become outdated. On the other hand, works on unifying various results and the general issues microeconometric issues on CG, such as Shleifer and Vishny (1996) are scarce. Nevertheless, it is in order to point out the surveys by Bhagat and Jefferis (2002) for the US and Börsch-Supan and Köke (2000) as well as Gugler (2001) for Germany.

Typically, empirical attempts aim at examining such factors of CG as:

- composition of the supervisory board: independent board members, institutional members; relationship: the board vs. CEO,
- ownership structure: diluted ownership, concentration of ownership, corporate owners, managerial ownership,
- acquisitions, including managerial acquisitions),
- CEO changing,
- equity structure (debt structure),
- managerial compensation.

Technical questions of microeconometric research on CG include (Börsch-Supan and Köke, 2002):

- *structural reverse causality*; for example, it is not clear what is the direction of causality between ownership structure and firm's performance: more concentrated ownership can improve firm performance, but the reverse relation is also possible –firms well assessed by the market could also attract investors;
- *missing variables*; in the area of corporate governance it is customary that major explanatory variables may not be included into the model; moreover, the linear specification of the equations excludes the presence of higher order terms,
- *sample selectivity*; most empirical studies on corporate governance analyze only the largest companies, usually the listed ones; such samples are selected by the "performance" variable and – in effect – the studies have sample selection bias,
- *measurement error in variables*; for example, the company's performance can be measured by different variables, such as market value, ROA, ROE, EBIT, Tobin's Q; these variables are sometimes uncorrelated, i.e. measure the same performance in different way.

The results shown elsewhere confirm that CG is related to performance of companies. The recent survey of corporate governance in OECD countries (*Corporate governance*… ,2004) indicates that "studies what are considered to be best practice econometric techniques indicate that the corporate governance is an important determinant of performance… As with all regression work, the question of "causality" will never be resolved fully to everybody's satisfaction…".

5. Microeconometric research on CG for CEE countries

Emerging economies such as Central and Eastern European (CEE) countries as a whole are frequently the object of research attempts on CG. This is especially interesting since the CEE countries undergo major structural changes in terms of all CG-specific areas: economics, law, finance, accounting and management.

We indicate here some published results on corporate governance research pertaining to CEE countries.

1. *Disclosures vs. performance*. Source: Berglof, Pajuste (2005). The sample covers 370 companies from 10 countries.

Results:

– What is disclosed depends on the legal framework and practice and does not correlate with firms' financial performance.
– Financial performance is strongly related with how easily available the information is to the public.

2. *CG voting provisions and ownership structure*. Source: Klapper, Laeven, Love (2005). The sample covers 224 companies from 4 countries.

Results:

– Firms with a controlling owner (owning more than 50% of shares) are less likely to adopt either of the two non-mandatory CG provisions: (1) proxy by mail voting and (2) cumulative voting.
– Firms that have large, minority shareholders are more likely to adopt these provisions.

3. *Twin agency problem in emerging economies*. Source: Stulz (2005).

Problem: classical agency problem between corporate insiders and investors is accompanied by the agency problem at the state level: when the state works poorly, those who control the state pursue their own objectives. This is the twin agency problem. It explains the empirical evidence that corporate ownership is highly concentrated in countries where investor rights are poorly protected.

Results:

– Poor governance in Eastern Europe is accompanied by high corporate ownership concentration, low firm valuation, poor financial development, and low foreign participation.

4. *Ownership changes and investment*. Source: Gugler, Peev (2007). The sample covers 25,000 companies from 15 transition countries

Results:

– After an ownership change, the investment-cash flow sensitivity declines, indicating that new owners reduce either cash constraints or managerial discretion or both.
– Investment-cash flow sensitivities decline over transition years; this means decreasing of asymmetric information and managerial discretion as capital markets and corporate governance standards develop.
– Privatised firms invest efficiently in the long run.
– Foreign firms are less financially constrained than other firms

5. Other studies include e.g. country-specific research on CG, such as Iwasaki (2005) for Russia, Hanousek et al. (2004) for Czech Republic and Knezevic, Pahor (2004) for Slovenia.

6. Research on CG in Poland

Empirical quantitative research on corporate governance in Poland is concentrated on companies listed on Warsaw Stock Exchange. Major studies include:

– Corporate governance structures, financial indicators and the valuation of companies (Aluchna, Dzierżanowski, Przybyłowski, Zamojska-Adamczak 2005).
– Auditors' opinions and the financial performance (Gruszczyński and Pajdo 2003).
– Corporate governance rating and financial performance of companies (Gruszczyński 2006).
– Banks in the supervisory boards and the financial results of companies (Słomka 2004).

7. Summing up

Financial microeconometrics is the part of financial econometrics and, therefore, is the part of finance. This article aimed at showing the appropriate location and understanding of the areas belonging to financial microeconometrics.

Corporate governance research naturally fits into FM, due to cross-sectional character of underlying data. As a kind of "soft" subject, the CG is difficult to research in statistical/ econometric language. Nevertheless, there are attempts to quantify the CG level and to relate it to the performance characteristics.

Paper presented the references to some models of financial microeconometrics that fit to CG research for EEU countries, Poland including.

Major lesson is that there is no hard evidence showing that CG level is strongly related to other characteristics of the company. Statistics and econometrics may show that CG is actually associated with a given characteristic – but only for the given sample of companies. On the other hand, without such information it is difficult to point out on any relationship, if we need to describe it generally, and not in terms of a single case. Nevertheless, the research based on a theoretical model and performed with the use of statistical-econometric techniques substantiates broader judgments on CG and gives the opportunity to make predictions about the capital market in question and about CG performance of its participants.

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