CORVINUS UNIVERSITY OF BUDAPEST

FIRM PERFORMANCE UNDER INSTITUTIONAL CONSTRAINTS

Strategic adaptation and corporate co-evolution in the Hungarian energy retail sector

PH.D. DISSERTATION

Supervisor: Károly Balaton DSc.

Balázs Tibor Felsmann

Budapest, 2018

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Firm Performance Under Institutional Constraints

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INTRODUCTION

The choice about the topic of a doctoral thesis is always influenced by personal factors. The situation is the same in my case. I spent the first two decades of my professional life in various managerial and administrative positions in different industries, characterized by relative highly institutionalized environment. Although in the past ten years my interest has been connected to the network industries, and my doctoral thesis also explores a particular field of the energy sector, my interest in market actors and the institutional system around them started earlier. As a practicing manager, I faced with the impacts of institutional environment on firm level strategic actions many times. I worked for more than a decade for a vertically integrated pharmaceutical company where regulatory framework influenced strongly the corporate strategy. This industry is an excellent example of the co-existence of free-market competition mechanisms in the production and regulated price mechanisms in wholesale and retail segments. As a manager I regarded the institutional framework as an exogenous part of the corporate playing field and was ready to accept, that the maximum opportunity for a firm is to implement and develop quick adaptation processes as an answer to the changing environmental constraints.

That close to four years which I spent in public administration - in a period marked by dynamic environmental changes between 2005 and 2008 after Hungary's EU accession - brought about a significant change in my way of thinking. This experience in public administration helped me to revise my ideas and to regard the impact of the institutional system on company adaptation and the complex relationship between them as an *endogen* factor.

In my thesis, I shall compare particular institutional mechanisms and solutions which define the decisions made by participants in the sector via the concrete example of Hungarian energy trading. I will highlight the coordination mechanisms existing between economic organizations and the state regulatory authorities and look at the institutional 'solutions' and models based on them. A normative approach is not my aim - it is, instead, a description of each of the institutional models and their coordination schemes, seeing a comparison of models and getting an understanding of the direction of changes. Yet a comparison inevitably brings opportunities to choose

between possible models[1] if the relevant characteristics and preferences connected with specific model choice can be clearly defined. Discovering and understanding each institutional characteristic could lead to one's comprehending institutional and company adaptation models occurring in complex social-economic-technological systems; and one might then think that the *tendency* came from the imperfection of systems' ruling social relations (Kornai, 2010), which definitely has some influence over the development of companies within a specific system and and also the development of the social-economic system itself. The main point of the *co-evolution* approach - which I chose to be my theoretical guideline for my thesis - is that the analyzing focus is on the two-way relations and the dynamic interactions of each and every system characteristic.

I started to research the topic of the doctoral thesis in 2011, four years after the gas and electricity markets had been completely liberalized in Hungary. I thought that my choice of topic would be ideal to reveal the most important milestones of the transition from the regulated to the free market, the rearrangement between incumbent companies and new market entrants as well as the similarities and differences between respective business models. At that time, I had not yet foreseen that the development of the sector would not follow the development processes as defined according to "textbook models" at all, as the direct government intervention also appeared through both regulatory and state-ownership engagement very quickly and actively besides the competition dynamised by the new entrants.

Although this circumstance has made the subject of the topic much more interesting in researcher's point of view, but it also caused difficulties, since I had to adapt a number of my initial and preconceived hypotheses during the course of the often radically changing environmental characteristics. This was particularly led to prepare this doctoral thesis longer than it was planned and I was able to stop rather than close the research, as the sectoral changes described by me have not yet finished, the role of certain companies and ownership groups continues to change and questions remain

[1] I would probably lose credibility if I tried to present my approach as a neutral one, as during my job in the public sector I played an active role in preparing the laws and other key documents relating to Hungarian energy liberalization.

opened in connection with the persistent direct state-ownership in the Hungarian energy trade.

1.1. Research topic of the thesis – corporate co-evolution in the Hungarian energy retail market

When I began my doctoral studies at Corvinus University of Budapest, it was clear to me that my research topic will strongly connect to the examination of the two-way interactions between firms and their environment under highly institutionalized constraints. I was inspired by my personal experiences and related works of various leading strategic management scholars. Although the vast majority of the strategic management literature concentrates on competitive industries, leading representatives of the research field often keep their eyes on more regulated business environments. There are dozens of examples to illustrate this trend. Henry Mintzberg is the author of numerous articles and books on healthcare and educational issues (Mintzberg, 2012). Michael Porter has devoted considerable attention to analyse the problems of the U.S. healthcare system – see for example his article co-authored with Robert Kaplan in Harvard Business Review (Kaplan and Porter, 2011). John Child, whose theoretical work greatly inspired my own research worked together with Suzana Rodrigues and they published several articles and books which highlight the interactions between institutions and corporate behavior and also corporate co-evolution via presenting companies in a strongly institutionalized environment - such as TELEMIG, in the South American telecommunications sector, and Yantian International Container Terminals (YICT), from the Chinese container maritime logistic sector. (Rodrigues & Child, 2003; Child & Rodrigues 2008; Child, Tse & Rodrigues, 2012, 2013)

1.1.1. Main research areas and studied period

My thesis focuses on the Hungarian energy retail sector - especially the development of gas and electricity retail business - which offers an excellent research field to analyse the mutual interactions between industrial and governmental actors. I attempt to discover the nature of the two-way interactions between sector firms and institutions in the Hungarian energy trading market and look for the recipe of business success over the past and upcoming years of turbulence.

Having regard to the extension of the topic, I narrowed down my choice in two areas. On the one hand, my choice focuses on Hungary, so despite the fact that the presence of multinational companies is significant in the sector, I study specifically the strategies at the level of their local affiliates rather than at regional and European levels. It is undoubtedly a strong limitation, because many researchers have pointed out (Kolk et al. 2014) that the local strategies of the multinational energy companies are more likely to appear in the form of regional strategies which increases or decreases the strategic importance of certain regions. However, I believe that the research network available to me, the personal knowledge of local companies and their directors and the qualitative research opportunities resulted from it justified to focus my examination on the local strategies in Hungary.

The other limitation is the period covered by my thesis. It is very difficult to define the start and end date of the period covered by the empirical data of the research. In this regard, the time horizon defined by me may be considered somewhat arbitrary as the development of companies and the incremental transformation of corporate strategies are continuous which are definitely narrowed down by the designation of start and end date for research. Perhaps, the designation of start date for the research is less problematic. Having regard to the fact that the start date of the complete energy market liberalization was 2007 in the electricity sector and 2008 in the gas sector, it is justified to consider 2009, the first "full year" of the new structure, as a starting date for the deeper empirical researches. Of course, it does not mean that I will not briefly describe the major events of previous periods from the middle of 1990s, the significant privatization wave of the sector, but I wish to deal more deeply with the events of the period since 2009. The results of the Competitiveness Research Centre (CRC) of the Corvinus University of Budapest (Chikán et al., 2014), one of the studies has been used as a reference in my empirical research also confirmed that 2009 should be the start date of my analysis. Given the fact that the CRC study examined the change of external and internal factors based on a national sample consisting of 300 companies for the period between 2009 and 2013, it seemed obvious to compare those results with my own industry-focused questionnaire-based findings carried out with using the same methodology.

It was much more difficult to determine the end date of my analysis because the limit of the period which would constitute the frame of my examination is less clear. Finally,

I chose 2015 for quantitative analysis, but I also briefly refer to those main events that characterized the industry in 2016 and 2017. However, I believe that the new directions have become clear and it has significantly revealed that different environmental conditions prevailed in the retail and the corporate segments and the strategic path followed by the concerning companies has become well-identified by 2015. However, the transformation of the sector has not yet come to an end and there have been significant rearrangements in the area of universal services in the last two years as well, which are expected to cause significant changes again in the entire domestic electricity and gas sector in the next period.

1.1.2. Brief overview of the development of the studied industry

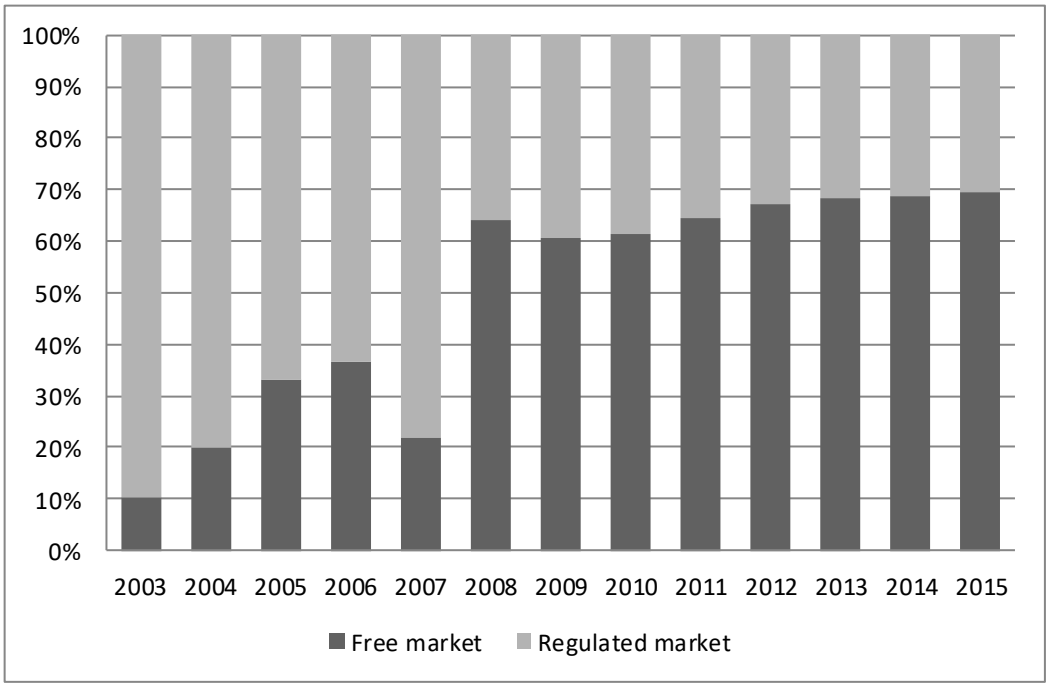
Hungary is characterized by a mixed ownership structure with mainly multinational incumbents in energy retail and distribution, while the wholesale sector is dominantly owned by state-owned companies. In the retail sector, the share of multinational service providers with acquired territorial monopolies from privatization is still predominant (however, in case of gas to residential customers is dramatically decreasing); yet in the wholesale sector - especially in the area of electricity - the direct ownership of the state has remained significant in recent decades as it is the major owner of Hungarian Electricity Ltd. (MVM).[2] The regulatory framework also has a dual characteristic. While in the case of industrial consumers, free-market mechanisms and free-market regulations prevail, with households and other eligible customers (public institutions, micro-enterprises) a regulated price is still used (Vincze, 2012, Felsmann 2014a).

This duality of the energy sector dates back to the partial market opening in 2003, when the newly adopted regulation of the electricity market granted the right to *'authorizeds*' (above a specified consumption rate for non-household consumers) to step out onto the non-regulated free-market. The liberalization process continued in the gas sector and gave the same right to non-household gas consumers from July 2004

[2] Vincze (2013) highlights similar tendencies in the natural gas sector through seeing the relations between MOL and the government. The national - and champion - market company first sold its loss-making natural gas business to E.ON; then the wholesale gas company was 'nationalized back' in 2013 because of the changed government ideology after 2012. As a result, the state share is still dominant (being more than 50%) in the gas wholesale trade.

(MEH, 2012). Figure 1 illustrates the dynamic increase of the non-regulated retail segment in the electricity retail sector in the last decade.

Figure 1. Share of free-market and regulated market segment in the Hungarian electricity retail sector from 2003 until 2013 (Compiled by the author based on data of MAVIR and MEKH)



The partial liberalization of the early 2000s opened new opportunities for private retailers and limited the scope of the regulation-dominated retail. As a result of accession to the European Union, Hungary harmonised its law and regulation with the European standards for electricity in 2007 and for natural gas sector in 2008. Since then, consumers who are not entitled to use *universal services* [3] will have to procure electricity and natural gas only from free-market traders.

Although theoretically the new legislative framework supported the further strengthening of competition in the trading sector, some segments of the market remained under strong state pressure. The rules of universal service providing, which represents around 30% of the total market and the access to monopolistic infrastructure elements (cross-border transmission rights, allocation of state owned electricity

[3] The framework for universal services is defined by the Third Energy Packet of the EU (2009a, 2009b). While the regulation put an end to the supply obligations of energy companies concerning industrial consumers, regulated retail services are still available to the population and small enterprises. The universal service providers are electricity and gas retailers, who have a supply obligation with regard to authorized consumer groups (households and small enterprises).

production) have been modified several times over the past decade. The main explanatory factors of the turbulent legal and institutional changes were mainly socio-political ones. Politicians have tended to use their legislative power to regulate energy prices for gaining short term political benefits over the long term stability of the industry (LaBelle & Georgiev, 2014). András Deák aptly expressed the Hungarian politicians' view on energy security in his essay: *"Hungarian energy must be first of all cheap, and only subsequently secure."* (Deák, 2006)

The demand for direct political influence was always present in recent decades regardless of government and political system. Liberalization and centralization periods followed each other in accordance with the existing political ideology - yet the sector's development is generally characterized by short, permissive pro-market changes and then fast regressions and corrections. This can be illustrated by many examples, but the most suitable is the continuous amendment of the legislative framework for universal services in accordance with the existing political interests. Half a year after the new law on electricity came into force, in January 2008, the rules for universal electricity supply had already been amended.[4] Since 2009, it is clear that institutional mechanisms strengthening the authorities' role became dominant, compared to the continuation of market openings. A ministerial decree in 2010 amended the fixing of official purchase prices coming for universal service providers. After the government change of 2010, further centralization (first the freezing of universal service prices, then an amending of former margin regulations and price fixing) led to a situation which, by 2011, had restored the division of competences on the universal service submarket to the time before the model change had begun in 2007 (Vince, 2012).

Although the proportion of universal service and free market in the total consumption has been stabilized, the transformation of the composition of the group of service

[4] In a former publication of mine, I summarized the process as follows: *'The conception of last year's adopted law assumed that the number of customers eligible for universal services will gradually decrease, and this non-market product with a quasi-official price will persist only for the general population'. Until the end of 2008, only 3*50A and then the 3*25A power plug consumers (i.e. the general population) could take advantage of the official prices of universal services. But then came the increase in international and national electricity prices - and there was also the typical political answer: "We resist the price increase because small consumers and public institutions should not be subject to the impact of electricity's price increase". And the law was altered, as is always the case: the upper limit of the universal service from 1st of September is 3*63A; moreover, it is applicable to public institutions and public service task organizations without an upper limit'* (Figyelő, August 4, 2008).

providers and of the market structure continued in the second half of the 2010s decade. In 2015, the state owned "Első Nemzeti Közműszolgáltató Zrt." (subsequently renamed as NKM Nemzeti Közművek Zrt.) was established, of which clear strategic goal – reflecting political intention – was to have a decisive role in the retail energy market. The intent of establishing of NKM is linked to the strategic vision of the government, which clearly outlines the more active state intervention in the electricity and gas sectors via ownership acquisition in the strategic document of the government, the National Energy Strategy 2030 (NFM, 2012) drawn up in 2011. The implementation of the program was started in 2015 with the state acquisition of FŐGÁZ, of which majority of shares had been previously held by municipality, and it was continued with the acquisition of the retail gas division of GDF-SUEZ, E.ON and TIGÁZ which resulted the acquisition of 3.4 million customers and that NKM became the exclusive universal service provider in the retail gas market at the end of 2016. (Kóbor, 2017.)

The unpredictable and rapidly changing institutional regime has notably influenced the market opportunities of energy trading companies in the last two decades, especially the subsidiaries of certain multinational enterprises, which gained a dominant market share in the Hungarian household energy retail segment as a result of privatization taken place in the middle of the 1990s.

1.1.3. Structure of the doctoral thesis

My study combines the viewpoint coming from industry surveys with a case study approach, in accordance with the development of the national energy trade sector. My aim is to present both the industry level reactions on the changing environmental constraints and the adaptation mechanisms of the firms concerned. The main theoretical model of my study based on the concept of corporate co-evolution. The co-evolutionary framework supports this dual research focus via concentrating on mutual interactions on both *meso* (industrial) and *micro* (corporate) levels.

My study has four main parts:

(1) After my Introduction, the Second Section outlines the basis of the research topic via presenting the new institutional economy, the theory of transaction costs, resource-based corporate theories and the relevant findings of Porter's

competitive forces model via development of the corporate co-evolution's theoretical approach.

(2) The Third Section outlines the most important tendencies of the energy sector, including the developing of markets and the regulatory environment, price trends, main indicators of competition intensity and market shares. Although this section is basically descriptive, it has an important role as it helps the reader to better understand and to synthesize the sector-specific information in follow-up sections.

(3) The Fourth and the Fifth Sections describe the theoretical and methodological framework of the research. The Fourth Section presents my own research model based on an adaptation of co-evolution's theoretical framework; and the Fifth briefly describes the quantitative and qualitative methods used during the research.

(4) The Sixth Section presents the results of the empirical research. The section explains in detail the impact of corporate co-evolution through the example of national electricity and gas trading companies. The quantitative part of the study presents the differences between corporate performances among sector-specified clusters and between cluster members. The objective of the qualitative research is to get to better understand company-specific differences and to analyze the variety of management forms and the effects of different owner expectations regarding corporate performance.

1.1.4. Acknowledgements

I would like to thank all of my professors at the PhD Program in Management and Business Administration of the Corvinus University of Budapest. Their courses gave me lots of inspirations and opened my eyes to new theories and approaches. I am very grateful for all of them for their excellent courses. I would like mention four of them by name also. First of all, I would like to thank my supervisor, Professor Károly Balaton, for his wisdom, patience and the decisive professional guidelines which helped me to go deeper into themes in the literature on *co-evolution* and *corporate embeddedness.*

I am grateful to Professor Erzsébet Czakó for drawing my attention to the institutional approaches of international business literature's theory. I would also like to thank her

for her support and encouragement as regards publishing my research results also in an earlier period of my studies.[5] Professor György Pataki offered me some excellent articles on the co-evolutionary approach of environmental economists. I would like to thank to Professor János Kornai for the opportunity to participate in his research seminar, which helped me a lot in developing my scientific thinking.

I would like to thank the reviewers of my thesis proposal and all of my colleagues who have participated in the debate of the proposal for their valuable comments, which I tried to take into consideration in the finalization of the thesis.

Last but not least, I would like to thank the associates of the Regional Centre for Energy Policy Research (REKK) and the Institute of Management, from who I got support many occasions in recent years both in my teaching and research activities.

1.2. Research objectives and significance

An analysis of firm-level strategic adaptation is one of the major focuses of my institute's research work in the Faculty of Business Administration. There are many hundred working papers and articles describing various aspects of firm-level competitiveness coming via the systematic analytical work of the Competitiveness Research Centre of Corvinus University of Budapest, which is helped by the robust longitudinal statistical database of competitiveness surveys[6] done from 1995 to 2013. Although some studies of this research program deeply investigated the role of *non-economic* factors (including technological, social and governmental) on the competitiveness of the Hungarian firms, the majority of publications considers the regulatory and institutional environment as an exogenous factor of the firm-level competitiveness.

Chikán and Czakó (2002) described the role of the government as to define the priorities of development policies and to allocate resources to achieve these macro-level goals. The authors deepened their model framework in their later researches

[5] An overview of the thesis was presented at the AIB-CEE Chapter Conference on 10th of October 2014 in Budapest; and it was published by the journal Theory, Methodology and Practice (Felsmann, 2014b). I would like to thank all of my reviewers and conference participants for their written and verbal comments, which helped me a lot in further development of my research study theme.

[6] Csesznák and Wimmer (2014) describe in detail the methodology of research programs looking into competitiveness.

(Chikán & Czakó, 2009) with clarifying the causal relationship between governmental actions and firm- and nation-level competitiveness. According to their model,[7] governments can influence input factors, demand, organizational strategies and structures through *macroeconomic policies* and through effects had on social norms. Yet governments are also influenced by social institutions and civil organizations - which have a direct influence on the development of *social norms*.

Szabó (2010) in his doctoral thesis analysed the strategic adaptation, ambidexterity and firm level competitiveness of the Hungarian firms between 1992 and 2010 on the basis of competitiveness surveys' database. He describes the quality of legislation and domestic political changes as macroeconomic indicators of the institutional environment as a potential source of uncertainty.

Balaton (2005) demonstrated the increased role of institutional factors in the perceived uncertainty of the Hungarian managers at the time of Hungarian EU accession based on comparison of the 2001 and 2004 surveys' data.

Szepesi and Czakó (2012) also investigated the role of public policies on competitiveness. They describe, that however institutions can support the firm- and nation-level competitiveness, the results always depend on the interactions of individual and organisational actors. *"Features of actors concerning policy actions can be summarized into four categories: (1) their position concerning the issue, (2) their involvement in the issue, (3) the characteristics of their decision, (4) the policy relevant impact on them."* (p.11).

Although my university colleagues have published several studies on the competitiveness of Hungarian firms - as can be seen from the list above - the institutional approach received a relatively limited amount of attention in these studies. The main reason behind this fact can be a methodological one. The surveys, which were the empirical basis of the studies cited above, tried to explore the general factors of the competitiveness with relative low focus on industry-specific impacts. The quantitative database did not support appropriately the deep investigation of industry-specific variables.

[7] The authors' research model can be found on page 80, in Chikán and Czakó, 2009.

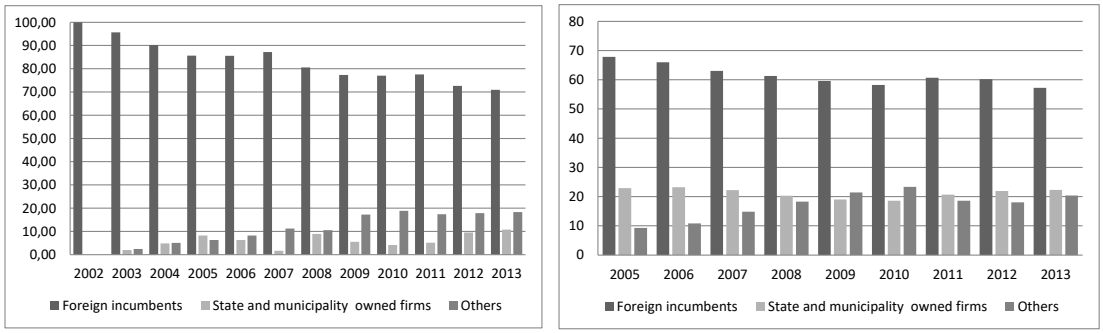
Contrasting with the big sample questionnaires, the case study approach gives an appropriate methodological answer regarding how to successfully analyze the impact of the institutional environment on the development, performance and competitive position of certain industrial organizations. There are only limited examples of using the industry-focused, case-oriented approach in strategic researches at Corvinus University with special focus on industries with strong institutional impacts on firms' strategic behaviour. I found only three studies concentrating on firms' adaptation strategies with strong sector focuses as a result of checking the last eight years' articles of *Vezetéstudomány*, the leading Hungarian periodical in management sciences. Szabó (2008) identified different adaptation strategies in the formulating bioethanol industry and concluded that each adaptation strategy can be successful depending on effective execution. Kis (2014) analysed the impacts of the strengthening state involvement in the Hungarian telecommunication industry. Pandurics (2017) gives an overview about the structural changes in the market of motor vehicle liability insurance using the framework of Porter's model relating to the industry surveys paying particular attention to the changes in the regulatory and competitive environment from 2013.

I hope that my study may serve to complete this strategic research program in my institute as, similarly to the above mentioned examples, it focuses on a specific industry - that of the energy retail sector. This industry is greatly influenced by institutional changes, due to its nature. The energy sector was always state regulated as this sector has the characteristic of mixing both competitive and monopoly services. Electricity and gas production and trading - and also storage in the case of natural gas - are typically seen as elements of market competition of the value chain, where - at least theoretically - the service providers truly compete for the consumers. In contrast, the network services (transmission and distribution) demand the continuous presence of the authorities via their natural monopoly characteristic and regulatory price fixing. In connection with the energy sector, the state is continuously present as (1) the regulator creating the legal framework of services, (2) a client acting on behalf of the consumers, (3) owner of the service providers, (4) socio-political and social policy representative of the existing powers-that-be, and (5) the repository of economic policy and financial policy. The different state roles are continually confronting one another, which might result in survival or creating systems lacking in efficiency and without the effectiveness of a single governmental vision.

Because of the various roles of the state (industry regulator, actor of social policy, infrastructure developer), it is not obvious how the state and the participants in the sector might influence each other to enforce their own interests. I think, that the past decade's evolution of the Hungarian energy retail sector offers an opportune case to analyse the impacts of the permanently changing complex business environment on the economic performance of sector firms.

Firstly, the privatization of the Hungarian energy sector in the middle of the 1990s radically changed the ownership structure of the industry. By 1995, many energy service providers and power plants had been taken over by foreign owners. In 1996, a new era began in the Hungarian electricity sector; the state-owned trust was replaced by a system of market contracts between privatized and state-owned participants. (Kerényi, 2006). The former state-owned monolithic structure was divided into two subsystems. The integrated retail companies (including the distribution system operator (DSO) units and the household and industrial retail units) were privatized and with the exception of one gas-retailer company (the Budapest based FŐGÁZ) transferred to major multinational energy companies like E.ON, EdF, RWE, ENI and GdF. From the time of privatization in the middle of the 1990s these local retailer and energy distributor firms operated as MNC subsidiaries.

Figure 2. Market share of major investor groups in the Hungarian electricity (left) and natural gas (right) retail sectors (Compiled by the author based on MEKH (2014) data)



In contrast, state control was maintained over wholesale activity. The state owned company MVM had a privileged position to distribute power from the contracted state-owned and private power plants, through long term power-purchase agreements (PPAs). The system of long-term agreements was not a Hungarian particularity, for privatization agreements as a kind of state guarantee also existed within other countries of the region. This mechanism, which guaranteed a return for the power plants, was in

existence until EU accession; it was terminated only in 2008 under pressure from the EU.

The same tendency prevailed in the natural gas sector. The former state-owned monopoly MOL Rt. gradually ended its natural gas retail activities after 1991 but kept its exclusive rights as an import and domestic natural gas wholesaler (Vince, 2013). Though MOL was floated on the stock exchange, when opportunities for direct state intervention into natural gas wholesale operations were reduced from the second half of the 1990s, the gas wholesaler still remained under strong state pressure via price-fixing.

(2) Secondly, Hungarian accession to the EU in 2004 required major changes in the legal framework. Hungary partially opened its closed electricity and natural gas trading market to medium and large industrial consumers in 2003. The share of the free market segment achieved more than 35% of the electricity market for 2006 as a result of the increased competition. The growing rivalry was partly due to the competition between the incumbent MNEs for the industrial consumers and partly due to new entrants with strong regional industrial background, such as CEZ and MOL. The natural gas retail sector developed in line with the same trends. By 2008, the share of the natural gas competitive market segment increased to 29.8% and the number of consumers on the free market went up to almost four thousand. (MEH 2009, p. 57).

Following EU legislation, Hungary broke down all legal barriers for free market trading from 2008 (from 2009 in the case of natural gas) and legally opened also the household market segment to the free-market traders. However, the removal of legal obstacles did not result automatically better condition for the non-incumbent players. The Hungarian wholesale market remained concentrated under the control of MVM, the state owned wholesaler company in the electricity market. On the natural gas market, the limit as regards evolving efficient competition came via a long-term contract (LTC) drawn up with Russia in the 1990s. The domestic wholesaler with the LTC (first MOL, then E.ON) still remained the dominant participant on the supply-side (REKK, 2013).

Hungarian accession to the EU brought Community law into domestic legislation. This is illustrated by the decision of the European Commission on long-term power purchasing contracts (PPAs). Hungary had to terminate the long-term power purchase

agreements between MVM and the major power plants after the European Commission requested that the Hungarian state end such contracts because they were against the European law and constituted illegal state aid to the power generators (EC, 2008). Commission declared that around two third of the electricity generated in Hungary was sold under PPAs and these contracts could restrict competition because they close off a significant part of the market from new entrants. The termination of the PPAs and the changes in the institutional framework gave new opportunities for entry on the trading market for companies from the energy sector and also from complementary industries, like the telecommunication sector.

Last but not least, the case of the Hungarian energy trading sector also gives a great opportunity to analyse the impacts of the deteriorating macroeconomic conditions caused by the economic crisis from late 2008 on governmental policies, actions and institutional regime. This case gives a remarkable research field to illustrate how macroeconomic problems have influenced the political actors to change the dominant socioeconomic ideology and sector policies.

Summarizing the most important topics of the doctoral thesis based on the above mentioned, the following four issues have a central focus:

1) What kind of ways of operating or solutions did companies with different ownerships (state-owned, domestic private and MNEs) come up with to deal with changes in the institutional environment (financial, organizational)?
2) Are there any particular differences between the adaptation strategy of companies with different ownership forms, management system and sizes?
3) What are the effects of the changes in the environmental conditions on the firms' performance in the short and longer time?
4) Can other particularities - ones which modify the above-mentioned general statements, such as focus between subsectors, production profile, impacts on a parent company's competitive strategy - be identified?

2. THEORETICAL BACKGROUND

The institutional environment – including regulatory bodies, state entities, governmental and municipality agencies – influences various ways the firm's strategic decisions through defining entry and exit barriers, market rules and regulation. The mainstream micro-economic theory pays relative little attention to the mutual interconnections between firms and their institutional environment. The theory focuses on private profit-maximizing firms, whilst it was recognized that large portions of economic activity were governed by state-owned firms and non-profit entities (Joskow, 2008).

The perception of the importance of institution-firm relationship rapidly changed in mainstream economics after the 2008 global economic downturn. Coase and Wang (2012) have drawn attention to the dangers of the separation of theoretical economics from the working economy. He describes the increased belief in political solutions against of market economy with the limited practical usefulness of the theoretical statements of economics. *"Since economics offers little in the way of practical insight, managers and entrepreneurs depend on their own business acumen, personal judgment, and rules of thumb in making decisions. In times of crisis, when business leaders lose their self-confidence, they often look to political power to fill the void. Government is increasingly seen as the ultimate solution to tough economic problems, from innovation to employment."* (Coase and Wang, 2012: 36)

Against of the economic theories, the post-crisis managerial literature expressly emphasizes the roles of institutional factors in the disruption of the *ecosystem of the market capitalism* and put into middle of its analytical framework. It is obvious that, nowadays, scientific discussions about the measure of increase of direct state involvement in certain economic areas became of real relevance. The economic model based on market coordination was obviously shaken by the crisis in 2008 all over the world and inspired the various representatives of scientific and political public life to revise their theses on coordination mechanisms that support the way out of such crises so as to establish the basis of a new and more sustainable economy.

Economists, analyzing particular market strategies, also highlight the challenges that successful corporate strategies have to face. The model of creating shared value, which

is described in the study of Porter and Kramer (2011), emphasizes that companies can only create economic value if they create social value at the same time. Innovative collaboration, focusing on the creation of value, is necessary between the government, civil sector and individual companies. However, the authors do think that the main focus of state policy still has to be regulation. It is the government's responsibility to create legislation which makes companies more interested in shared value creation and not in short-term profit maximizing. The instruments could be the following: *i) measurable social objectives ii) resource pricing based on real costs iii) adaptation, introduction periods on behalf of the actors iv) generally accepted evaluation and performance measuring systems v) and efficient regulations for the publication of measurement results and data.*[8]

Other scientists, such as Gulati et al. (2010), note that a strategic focus change is essential in the present recession period - though the way out is to be found through more efficient utilization of internal and not external resources. Ghemawat (2010) has a partly similar conclusion in that besides the definition of new strategic corporate directions, it is important to highlight the impact of strengthening state protectionism and the absolute necessity of managing an altered (private) corporate identity and reputation. Citing the analyses from Pew Research, he underlines the fact that to the question of whether corporate managers take social responsibility seriously, only 21% of the respondents answered positively. Such a low rate of social acceptance might make the participation of corporate managers in creating a new economic collaboration after the crisis doubtful.

Bower et al. (2011) note the inadequacy of the institutional regime of the market economies to cope with challenges of the changing world. Governments and international institutions seem ill copedto handle the complex social, environmental and economic challenges - such as inequality, populism, migration, environmental degradation, the decline of public health and education and the rise of *state capitalism.* Bremmer (2014) introduces the notion of *guarded globalization* to interpret the radically changed attitude of the governments (not only in the developing, but also in developed countries) to the foreign investments. The new way of globalization is more

[8] Porter and Kramer (2011) p. 74

selective and is affected by the increasing influence of the host country. Governments tend to protect local players through terminating the market liberalization process and perceive more and more sectors to be of strategic importance, with the ideology of national security. *"The objective of state capitalism is to control the wealth that markets generate by allowing the government to play a dominant role through public-sector companies and politically loyal corporations."* (Bremmer, 2014: 104). There are significant differences between countries about their thinking on which industry has a national strategic importance. Companies that are active in industries affected by *guarded globalism* have to permanently monitor institutional changes, anticipate risks and react to the changing political attitudes of host countries.

Hungary seems an excellent research field to explore the relationship between firms' investment policies and the dominant political ideology. The case of the energy retail sector - regarding dynamic changes - offers a great opportunity to analyze the influence of the changing institutional constraints on firms and overall sector development.

The following sections summarize the theoretical background of the firm-institution relations.

2.1. Institutions and firms in the economic and management theories

My doctoral thesis intends to show the nature of the mutual interconnections between firms and their institutional environment. I would like to narrow my focus to the perspective of strategic management sciences. It is not my intention to present in detail the economic theories on firms and institutions. However, I am convinced that a brief summary of the major economic theories' viewpoints is essential to understand the mechanisms of the interactions between institutions and organisations.

The general framework of institutions contains the social, cultural, political and economic institutions. As the most commonly used definition of Douglass North clarifies (North, 1990. p. 3): *'institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction".* Daron Acemoglu (2008) emphasizes three essential points in this definition: *"(a) they are 'humanly devised', which contrasts with other potential fundamental causes like geographic factors, which are outside human control; (b) they are 'the rules of the*

game', ones setting 'constraints' on human behaviour; and (c) their major effect will be through incentives" (Acemoglu, 2008, p.2).

There are huge number of researchers focused on the firm-market-institution relations from the seminal works of Coase (1937) on the costs of transactions and Williamson (1985) on the boundaries between firms and markets. Institutions determine various ways the opportunities of all actors (humans, organizations, firms) of the society, and organizations are look for the ways to realize the advantages of these determinations. *"Organizations are created to take advantage of those opportunities, and, as the organizations evolve, they alter the institutions. The resultant path of institutional change is shaped by (1) the lock-in that comes from the symbiotic relationship between institutions and organizations and (2) the feedback process by which human beings perceive and react to changes in the opportunity set."* (North 1990 p.7).

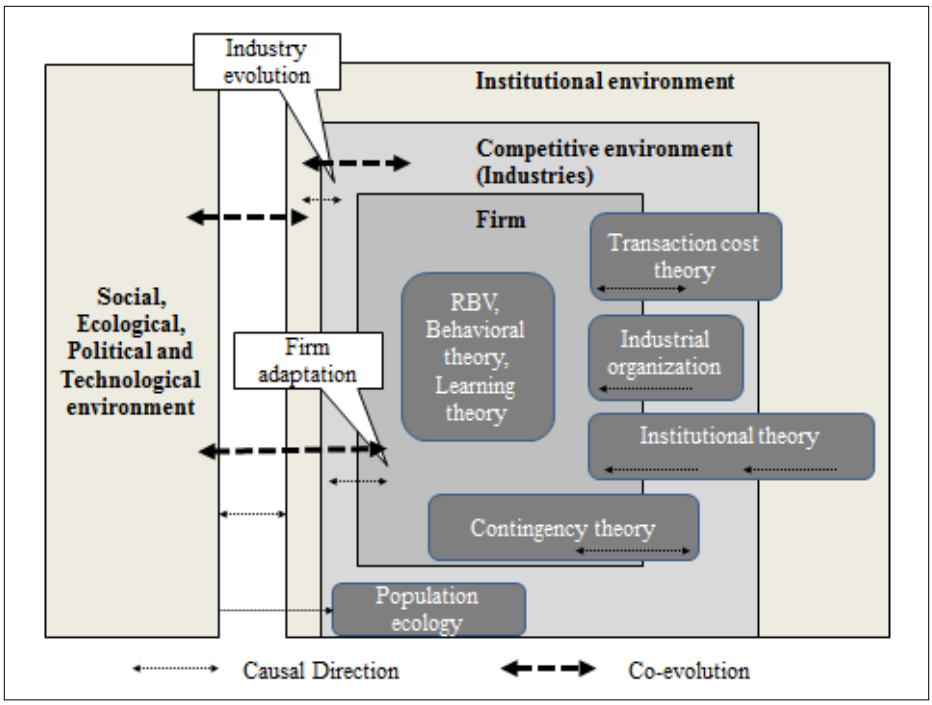
The institutional environment is a part of a complex system, including firms and organizations on micro level, industries (or competitive environment) on meso level and the social, ecological, political, technological and economic environment on *macro* level. The major economic and management theories have a different focus on the firms' reaction on the changes in their environment and differently interpret the causality of the interactions between firms, institutions and the further elements of the environment. March and Olsen (1998) emphasize the explanatory power of the different historical development paths on the characteristics of the established institutions. They explain, that *institutions are relatively robust against environmental change or deliberate reform and that desires and capabilities coevolve with the practices that reflect them* (p. 959).

Volberda & Lewin (2003) draw attention to the different scopes of firm-level and meso- level theories in relation to strategic *adaptation*, *selection* and *retention*. Figure 3 describes the perspectives of the main economic and organizational theories and illustrates their approach regarding the causal nature of the relationships between firms and their environment on the macro-, meso- and micro-levels.

The first group of theories (RBV, Behavioral Theory of the Firm, Learning Theories) are concerned with capabilities and strategies for adaptation and survival on the firm level and pay limited attention to population-level adaptation. In contrast, the meso-level theories (Transaction Cost Theory, IO, Institutional Theory, Organizational

Ecology) provide a theoretical foundation for linking firm adaptation to the macro institutional and competitive environment and ignore the firm-level micro adaptation.

Figure 3. Major economic and organizational theories and their perspectives on interactions between institutions and firms (adapted from Volberda and Lewin, 2003)



The International Society for New Institutional Economics (ISNIE) defines the research field of New Institutional Economics[9] as an interdisciplinary combination of economics, law, organization theory, political science, sociology and anthropology. The theory's major focus is to explain *"what institutions are, how they arise, what purposes they serve, how they change and how - if at all – they should be reformed."*[10]

While the main role of existence of institutions *"is to reduce uncertainty by establishing a stable (but not necessarily efficient) structure to human interaction"* (North, 1990 p 6), this does not mean that the institutions are unchangeable. The relationship between institutions and organizations has a mutual impact: *"institutions*

[9]A summary was published on the principal directions of new institutional economics in the Közgazdasági Szemle [Hungarian Economic Review] in 2004, related to a conference in Budapest (Kapás-Komáromi, 2004); according to the article, 'the main question for new institutional economics is why and how different institutions evolve, what purposes this is serving and why and how they change. The tendency basically remains within the framework of neoclassicism and undertakes to describe a traditional neoclassic theory.'

[10] The quotation is from the webpage of ISNIE. http://www.isnie.org/about.html

affect the economy and are themselves shaped by the behaviour of the actors in the economy." (Nye, 2008, p. 76.).

The concept of *embeddedness* emphasizes the importance of nature of personal relations and networks of relations between and within firms. The theory offers an alternative viewpoint compared to the transaction cost theory, which is for use by researchers to analyze the interconnections between firms and institutions (Dacin et al. 1999). Granovetter (1985) distinguishes the *over- and undersocialized* conceptions of human behaviour in sociology and economics. The oversocialized human actions are *"overwhelmingly sensitive to the opinions of others and hence obedient to the dictates of consensually developed systems of norms and values, internalized through socialization, so that obedience is not per-ceived as a burden."* In contrast, the *"classical and neoclassical economics operates… with an atomized, undersocialized conception of human action, continuing in the utilitarian tradition. The theoretical arguments disallow in their hypothesis any effects from social structure and social relations on production, distribution, or consumption"* (p. 483). The institutional economics usually follows the view of undersocialized conception. The followers of the theoretical concept believe in the *generalized morality* and share the view that *malfeasance* can be avert with clever institutional arrangements. The *"embeddedness argument stresses instead the role of concrete personal relations and structures (or "networks") of such relations in generating trust and discouraging malfeasance."* (p. 490). The concept of embeddedness broadens the perspective of any analysis of firm-institutional relations via introducing *"a commitment to organizations as complex and emergent social structures*" (Dacin et al. 1999, p. 320).

The theoretical concept of *co-evolution* gives a powerful practical analytical tool to commonly describe and synthesize the different perspectives of the micro- meso- and macro-level factors which influences the firm- and sector-level evolutionary changes. The co-evolutionary theory focuses on the mutual influence and impacts of the organizational and environmental factors on corporate adaptation and selection mechanisms. The general meaning of the expression reflects a situation where two or more populations can causally influence each other's evolution (Hannon et al., 2013). Corporate co-evolution is concerned with the ways in which firms and their environments develop interactively with each other over time. (Rodrigues and Child, 2003).

The following sections present the viewpoint of the organizational theories with the highest impact on my researches. Firstly, I illustrate the influence of industrial organization theory on the leading strategic management theories' approaches regarding firm-institution relationships via citing of Porter's and the RBV theorists' comments and then I will illustrate the institution-centered theoretical approaches to strategic management.

In the following, I describe the most important theories about international business studies. Given that the presence of MNEs characterizes every segment of Hungarian energy trading, the international business economic theory approaches on home and host countries and the relations between firms here give me some essential input as regards my own empirical research. International business economics highlights the role of institutional systems regarding any analysis of MNEs' strategic decision-making. Its approach helps me to broaden my research via analyzing a new dimension of institution-firm interaction - international relations and the field in which sector companies operate.

After summarizing the literature of international business studies, I will briefly present the approach of logical incrementalism and also some evolution theories. The logical incrementalism theory of Quinn and my summarizing of evolution theories give an opportunity to more deeply understand the dynamics of structural and organizational change.

The main theoretical framework followed in the empirical part of my thesis is the co-evolutionary approach. I aim to demonstrate the usefulness of the *co-evolutionary method* in highly institutionalized industrial environment on the basis of the research framework of Child and Rodrigues on this topic (Rodrigues and Child, 2003, 2012, 2013) in the last part of the theoretical review.

2.1.1. The approach of Porter and the RBV theorists

Although a large number of strategic management books and articles have examined the interconnection between the internal and external forces within a free market situation, there has been a limited focus on the role of active mutual interactions between the institutional environment and company performance. However firms, mainly in highly institutionalized environment are tend to behave more and more

actively in formulating the playing field than simply passively adapt to the changes in the external institutional environment.

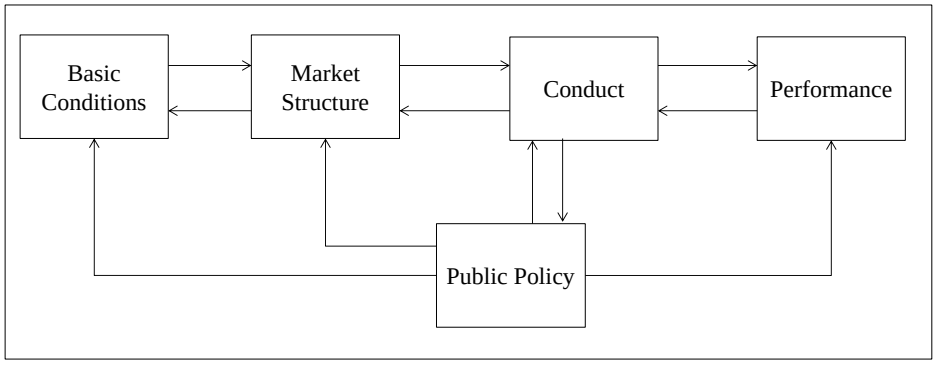
The two – possibly most influential – strategic management schools of the last decades, Michael Porter's *competitive strategy concept* (Porter, 1980) and the *resource based view* (RBV) of the firm (Barney & Arikan, 2001; Grant, 2008; Lockett et al., 2009; Priem & Butler, 2001), differ sharply in the attention given to the main determinants of the firm performance. Porter identifies the main factors of the economic performance of the firm 'outside the gates', in its industrial structure. In contrast, the RBV argues that the differences in performance tend to be explained by the differences in resource endowments.

At the end of 1980s, the main focus field of Porter's positioning school - the industrial structure - was amended via the uncovering of internal sources had by companies and an interpretation of strategy emanating from their suitable utilization (Tari 2010, p. 25). In this new theoretical framework, successful strategies are a result of dynamic capacities such as corporate learning, which continually provides one with new business opportunities. The strategic resources (VRIN[11]) are corporate-specific, so copying is not easily available to a competitor (Lockett et al. 2009, p. 10). According to RBV theorists, relevant corporate activity cannot be interpreted in as wide a sense as that outlined in Porter's positioning school. The possible strategic steps are defined by the firm's capabilities, opportunities and resources - and not the available strategic position in the present or future regarding the industry.

While it seems, that the analytical framework of Porter's competitive strategy concept paid relative little attention on the role of institutions in the strategy formulation, he has some considerable remarks on this topic. Porter's concept is strongly based on the structure-conduct-performance (SCP) framework of industrial organization (IO) theory. (Porter, 1981). As IO theory has developed, the original concept of SCP was supplemented with the impacts of government policies (Carlton and Perloff, 2003). Figure 4 shows the causal relationship between public policies and the SCP framework.

[11] From an abbreviation of English words: valuable, rare, inimitable, non-substitutable.

Figure 4. The Structure – Conduct – Performance framework (after Carlton and Perloff, 2003)



The government policies (including taxes, subsidies, antitrust regulations, prices control, international trade rules, etc.) have strong impacts on the basic conditions and the structure of the industry. Traditionally, IO characterizes the *industry structure* as an exogenous factor within the model, whereas *"the firm itself was stuck with the structure of its industry and had no latitude to alter the state of affairs"* (Porter, 1981 p. 613). In contrast, there is two-way interconnection between the *conduct* (pricing behaviour, advertisement, research & development activities, plant investments, legal tactics, etc.) and the *public policy* dimension. Although Porter highlights, that the determinism in the traditional IO model limits the applicability of the theory for business practitioners, the IO framework can help for them to understand better under what circumstances and with which type of strategic actions firms can change the rules of the game in their industries.

In his book on competitive strategy (Porter, 1980 (2004), Porter emphasizes that the forces outside the industry affect all competing companies and *"the key is to be found in the differing abilities of firms to deal with them.*" (Porter, 1980 (2004) p. 3). Porter uses the terms *government policies* and *regulation* rather than *institutions* or *institutional environment* in his book. He divides the *outside* forces in five major groups and the institutional relations discussed as a part of entry and exit barriers. He describes, that he government subsidies to the industry firms can function as an entry barrier as prefer the *established firms* against of potential new entrants. The regulatory requirements often cause particular disadvantages for potential new entrants compared to established firms because compliance costs affect more heavily on newcomers. Regulatory requirements often cause potential new entrants specific disadvantages (compared to established firms) as compliance costs affect newcomers more heavily. Thus, the government policies can affect directly the intensity of the competition:

"Government can limit or even foreclose entry into industries with such controls as licensing requirements and limits on access to raw materials." (p. 13).

Joan Magretta, who is the author of a remarkable book on Porter's strategic framework (Magretta, 2012) also clarifies, that there are situations, created by changes in the institutional environment when a strategy has to modify. *"Regulation can hold an industry in an artificial equilibrium by defining customer needs in an arbitrary way. Deregulation can unleash pent-up economic forces, allowing new needs to emerge."* (Magretta, 2012 pp. 170-171).

Porter's framework focuses mainly on the industrial forces throughout the firm, which have dominant influence on the strategic position and economic performance. In contrast, the RBV argues that the differences in performance can be explained mainly by the differences in resource endowments. It emphasizes the importance of unique, difficult-to-imitate resources in sustaining performance (Rumelt et al., 1991).

Yet the contradiction between the two model frameworks seems in part artificial. While RBV notes the internal factors in any sustainable competitive advantage to explain performance differences between firms, the theory does not ignore the role of external factors. As clear evidence of the combination of the two leading strategic school's viewpoints, Wernerfelt (1984) in his seminal article uses Porter's five forces' framework to explain the differences between *entry barriers* (control over critical input or a monopolistic market position) and *resource position barriers.* The notion of entry barrier reflects the relationship between incumbents and potential new entrant, while the resource position barrier reflects also the impacts of unequal resource allocation between already active incumbent players. However, a resource position barrier would be really valuable in case of converting it to market entry barrier. As he describes: *„an entry barrier without a resource position barrier leaves the firm vulnerable to diversifying entrants, whereas a resource position barrier without an entry barrier leaves the firm unable to exploit the barrier."* (Wernerfelt, 1984 p. 173).

In comparison to IO, which argues that a long-term over-the-market profit reflect of monopoly power or collusion of actors, the RBV emphasizes the above-the-normal profits as rents to costly-to-copy assets (Conner, 1991). But this distinction does not mean that the RBV's analytical focus neglects the institutional factors of competitive advantage. The notion of *strategic fit* (Grant, 2008) creates a connection between the

industrial competitive arena and the organisation. Grant explains this process in his article on the practical framework of a resource-based approach to strategy analysis as follows: *"Select a strategy which best exploits the firm's resources and capabilities relative to external opportunities."* (Grant, 1991 p. 115) The successful strategy must be consistent with the firm's external environment and also with its internal environment (values, goals, resources and capabilities, structure and systems). The *industry attractiveness* (entry barriers, monopoly, vertical bargaining power) and the *competitive advantage* (cost advantage or differentiation) are the two major sources of the rate of profit in excess of the competitive level. The sources of the competitive advantage are limited in "efficient" markets, when the set of resources required to compete are similar for all competitors (for example commodities or financial markets). The absence of the internal sources of long-term over-the-market returns means that in these markets the differences in the performance of the firms are more reflects on the industry attractiveness factor, such as the different bargaining power or the monopolistic position of the sector firms. In the view of RVB - as with the school of Porter - performance differences between companies in an industry possessing homogeneous products are the result of external environmental factors, especially the successful management of institution-firm relations. Grant's above concept is easily applies to the energy retail industry. In a non-overly distinctive industry, one which offers just a limited space for differentiation, a firm's capacity to enforce its own economic interests strongly depends on its relations with the institutions.

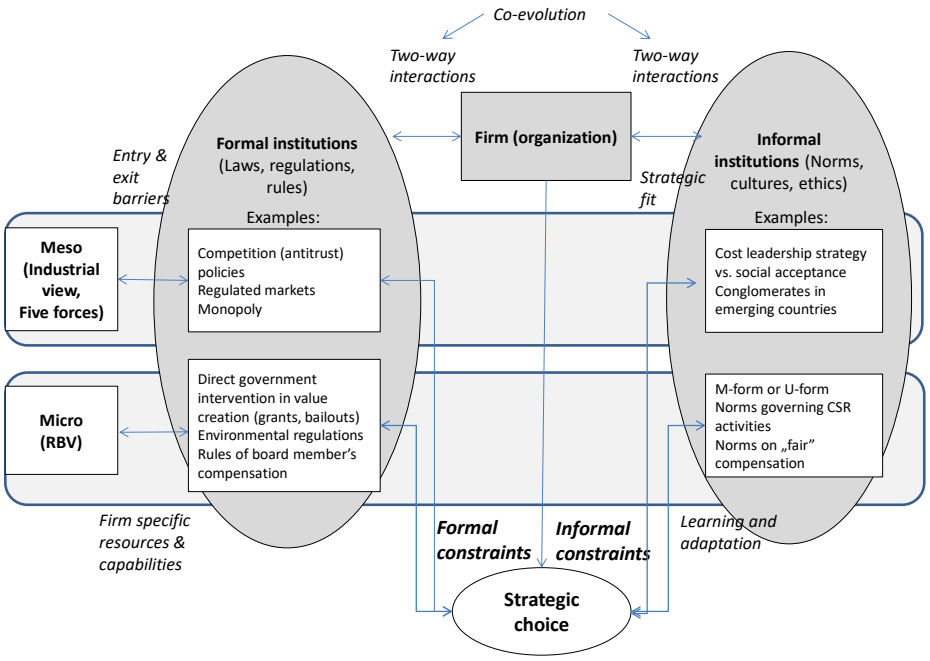
2.1.2. Institution-based approach of strategic management

It can be seen from the above summary, that the literature simultaneously addresses a number of labels to institution-based approach, which partly hinders the common understanding between certain disciplines. Peng at al. (2009) pointed out that it can be attributed to the fact that the roots of the theory developed in parallel of the area of sociology, economics and business sciences. Sociologists are mostly used the label of *institutional theory*, while economists used *institutional economics* to mark the territory of this field of science. Peng at al. suggest to introduce a new concept, the concept of *institution-based view* that can be used to distinguish the business oriented researches from the researches studying the economic or sociological background of the concept. According to the authors' suggestion, it's worth considering that equal

emphasis should be given to the institution-based view besides the leading strategic management theories i.e. along with Porter's competition strategy and RBV approach.

The business aspects of the correlation between the companies and institutions are also primarily analyzed in my thesis, so it closely follows the recommendation of Peng and his colleagues. The connections between certain strategic management disciplines is illustrated in Figure 5 which summarizes the connections between the main research areas of strategic management based on one of my earlier articles written in the same topic (Felsmann, 2016).

Figure 5. Connections between the main research areas between institution-based view and strategic management (compiled by the author)



The figure provides several practical research areas between the dominant theories of strategic management and institution-based view. In the intersection of the formal institutions and Porter's industrial environment analysis there are topics which are worth paying attention in terms of my research as well such as analyzing of regulated industries or the rules on competition. However, the monopoles also occupy a prominent position in resource-based approach (Grant,1991) as possible resources of competitive advantage so it is justified to jointly analyze the institutional and internal reasons for the creation and survival of them.

The informal institutions and industry-wide analyses seek answers to questions such as, for example, the limitations of social acceptance for cost leadership strategy or the reasons for the popularity of certain group-level management models in different cultures. It's a good additional fact to the latter, for example Ramachandran at al. (2013), who examine the social background of the phenomenon of why the conglomerates are much more successful in the newly industrialized countries than in the USA.

Analyzing the internal factors constituting the main focus of RBV and the interactions between informal institutions also induces a number of research themes. According to Kapás (2007), besides technology and institutions, the firms develop in a kind of evolution which, from time to time, generates organization forms that are favorable for a certain social environment such as the Multi-divisional "M-form". The correlations between social norms and corporate CSR programs or fair compensation systems require the analysis of both internal resources, the capabilities and informal institutional factors.

Summarizing that the figure illustrates, besides industrial and internal factors, the strategic choices of the firms are also affected by the system of interactions relating to formal and informal institutions. Studying of mutual impacts of the institution-firm relationship has an increasing role in strategic management researches and it's more and more justified to adopt the suggestion of Peng at al. (2009) who argue that the institution-based view should appear as a stand alone approach in the area of strategic management.

2.1.3. Institution-firm relationship in international business studies

The international business researchers have strong theoretical contribution to the analysis of external and internal factors on firm's behaviour and performance based on RBV and NIE. Heindenreich (2012) gives a thorough review of the international business literature - and describes four approaches that dominate IB studies. Heidenreich explains that the institutional approach in IB studies focuses on the MNC's simultaneous interactions with both global and national policies, regulations and opportunities.

Table 1. The social context of MNCs – conceptual approaches (Adapted from Heidenreich, 2012, p. 557)

Approach	Basic assumption	Analysis of societal context
Transaction cost and internalization approaches	Internalization advantage of MNCs	Politically included imperfections in market access and input markets
Network approaches	MNC as a differentiated network	External business networks (suppliers, customers, clients)
Resource-based and micro-political approaches	Power and politics within and beyond the MNC	External competences are used as resources in organizational negotiations
Institutional approaches	Multiple embeddedness in heterogeneous context	National and regional institutions

The multinational company itself acts as a transnational social space and combines *"the advantages of global strategies with embeddedness in a heterogeneous, social, and especially national context*" (p.572). The ability to harmonize an MNC's strategic goals with fundamentally different local environments requires a dual focus at the MNC's subsidiary level.

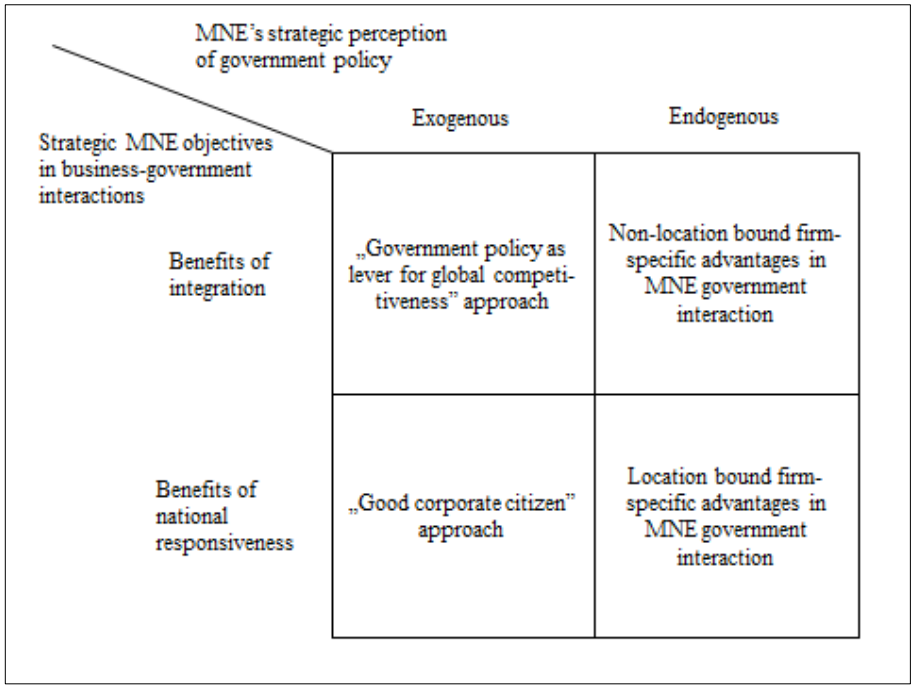
Birkinshaw et al. (2004) distinguish the external and internal competitive forces of the multinational company's subsidiary performance. The MNE subsidiary simultaneously competes in the external competitive arena, which contains the customers, suppliers and competitors of the local marketplace and in the internal competitive arena for the customers and with the other competing entities that are part of the same MNE.

One of the earliest focus areas of the research field is the analysis of the conflicts and/or cooperation between multinational firms and host counties' governments. Rugman and Verbeke (1998) explain that governments tend to favour local stakeholders (including voters, opinion-leaders) and redistribute incomes at the expense of foreign multinational enterprises (MNEs) *"because foreign equity holders cannot vote, and discrimination against foreigners may provide a perceived utility to domestic citizens"* (p. 117). Rugman and Verbeke suggest a complex conceptual framework to analyse the nature of interaction between governments and MNEs. As a result of reviewing the relevant international business literature they classify three main factors which determine the way of mutual impacts. The first factor of their classification is the

conflictual or complementary nature of the interactions between government and MNE in home and host countries. The authors present four different relations along these two dimensions, making a distinction via the predominance of either conflict or cooperation between MNEs and governments of the home and host countries. While the traditional market power approach (Hymer, 1960) focuses in the conflict-conflict zone of the four potential quadrants of the model, the life cycle approach (Vernon, 1966) reflects the complementary nature of MNE and government relations both in home and host countries. The third quadrant of the model – when the MNE acts as an *opportunistic relocator* (leaving the home country and looking for cheaper labour, milder regulations, tax evasion opportunities) – reflects a conflict between the MNE-home country government and the complementary nature of MNE and government relationships in the host country. Last but not least the political risk literature illustrates the conflicts with host country governments and complementary nature of MNE and home country relationship (fourth quadrant of the model).

The second structural dimension of the analytical model of Rugman and Verbeke is the *national vs. global responsiveness* factor, which analyses the symmetry or asymmetry between the inward and outward foreign direct investment compared to the dispersion of the firm-specific advantages between the countries concerned.

Figure 6. Relationships between an MNE's expectations of government policy and objectives in business-government relations (Adapted from Rugman and Verbeke 1998, p. 129)



Their third analysis dimension makes a differentiation in MNE-government relations: how much does the MNE see government policy as affecting its operations as a variable, endogenous factor - and how much does it define country-specific or global strategic targets in connection with business and governmental relations? Figure 6 illustrates the third factor of the authors' conceptual framework.

MNE's expectations regarding government policy will determine their strategic activities. If the expectation is that the government policy can be influenced through lobbying and negotiation, the multinational enterprise will see it as an endogenous part of the strategy formulation playing field. The way of interaction depends on the existence of location bound firm specific advantages. If the benefits of national, local responsiveness outperform the benefits of integration, the MNE will proactively try to achieve location-bound, firm-specific benefits via decentralization and using a flexible organizational structure, such as matrix organization. In contrast, if the benefits of integration exceed the benefits of localization, MNEs tend to use more political lobbying to achieve firm specific advantages.

Henisz and Zelner (2005) explain the dynamic nature of the relationship between MNE and host country's government, as the bargaining power of a foreign investor is more and more decreasing throughout the investment cycle.[12]While the potential foreign investor has an outstanding lobbying power in the negotiation phase, the host country's government will endeavour to reduce the benefits coming from the MNE via the investment made. Nevertheless, this interaction has more of a two-sided effect rather than a deterministic, causal one. *"In contrast to the traditional perspective's depiction of bargaining as a one-shot deterministic interaction between an investor and a monolithic government, our model depicts an ongoing process in the policy making arena, consisting of interactions among investors, organized interest groups, citizens, and political actors, all of whom face cognitive limitations; they differ in their preferences, and are subject to varying normative pressures, institutional constraints, and exogenous influences"(p. 376).*

The authors distinguish between *established* and *emergent* institutions depending on their societal embeddedness, traditions and legitimacy. The newly-formed, emergent

[12] A review of the authors' model has been published a working paper in Hungarian (Felsmann, 2011).

institutions are under greater pressure as they may have political actors seeking to either "*overturn, alter or reinterpret" (p. 369)* them in their early years, especially if the emergent institution represents an ideology relatively far from the social reference points.

The impact of the liberalization in the energy market illustrates well this pressure. The market-economy approach was forced through mainly by European Institutions, while local opinion-leading stakeholders – including the majority of the political parties and incumbent industrial players - were strongly interested in maintaining the status quo. Also, the stable institutions of market competition in Central and Eastern Europe vanished during the years of socialism while care for the public became natural regarding the public utility services used by the population. Fixed prices and lack of competition were natural for the operations of energy systems across generations. Thus, the liberalization and strengthening of competition did not have strong, internal social pressure - and the general population, companies and institutions saw an affordable and reliable energy supply as the state's responsibility. The liberalization process appeared as a form of external pressure, which had to be undertaken because of EU regulations; it was not arrived at via self-motivation.

The theoretical framework of Henisz and Zelner emanates from the new institutional economy and bargaining power theory. Those in favour of a bargaining power approach created a well-defined theoretical system to describe investor-government relations - even though their approach does also have its limits. According to the authors, the traditional bargaining power approach did not provide an answer on how environmental processes affect investor perceptions; in other words how environmental changes can influence the real and perceived bargaining positions between a government and foreign investors. Henisz and Zelner combine the theoretical framework of new institutional economics and the bargaining power approach to gain a better framework for discovering the processes and impacts which drive governments to terminate, amend, or reinterpret certain agreements with foreign investors. In the traditional bargaining power approach, the balance between government and investor depends on the demand for the resources had by the other party. The focus of the investor is obviously on the return from their investment. The motivation of a government is more complex: its objective is to acquire some missing

knowledge, resource or capacity, such as scarce capital or some technology that is lacking. According to this approach, the essence of the bargain here is to find a balance.

It is natural that the bargaining power of an investor is strongest up until the investment has been made; and it decreases after the capital tie-up and the *spread* and availability of its technology to other companies in the host country. As the bargaining power of the investor is reduced, the political risk of investment increases as the previous profit of the investor will be reallocated among a wider variety of interest groups by the government. The change in bargaining power can be described in its development via reference to a multi-stage, decision-making game in a game theory model - where the subject of the game is a series of choices to be made on investment continuation.

In their later article (Henisz & Zelner, 2010), the authors note that because of the strengthening, direct state interventions due to the economic crisis (changes in regulatory environment, direct state participation) the previously applied investment protection techniques become less suitable as regards maintaining their position. The crisis placed strong pressure on political actors to alter the emergent institutions, which required different reactions from companies; and they would have to learn how the political institutions work and how to directly manage any political risks.

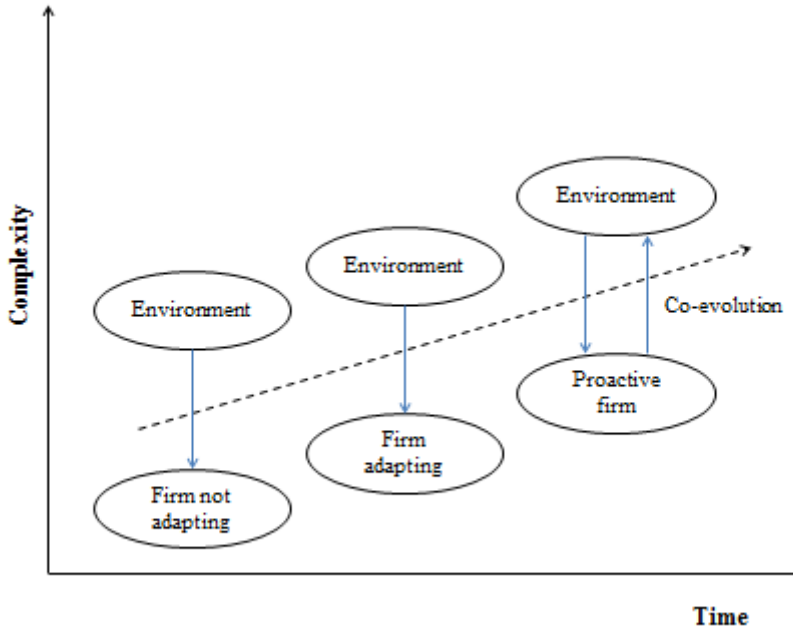
2.1.4. Logical incrementalism and evolutionary thinking

Although the change of the institutional environment is a slow process, the distribution of resources and political institutions tend to be persistent, this fact does not mean an unchangeable constraint, rather a slow, evolutionary way of modification of the institutions and firms (Acemoglu, 2008). The permanent change is a pre-coded surviving program of organisations because of their competition for the scarce resources. Simon (1993, p. 132) describes this motive as follows: *"each organization competes with others for scarce resources, and their fates must consequently be decided by some combination of natural selection and rational adaptation"*. While organizations are changing, they are still in some form of permanent interaction with their environment. The motivation for government action like extensive regulation or deregulation tends to be a *"way of overcoming the sort of strategic inertia that has arisen as a result of strategies developing incrementally on the basis of history, experience, existing cultural norms or the compromises that come from the bargaining and negotiations of powerful groups within an organisation"* (Johnson and Scholes,

2002, p. 73). The interaction can be different in its direction (Child et al., 2013), as **Hiba! A hivatkozási forrás nem található.**Figure 7 demonstrates.

As the environment is changing because of the impact on it by an external body such as government, legislative authorities or a competitor, firms have three different ways to react. The less complex situation is, when a firm is not adapting to changes because of its own decision or missing capabilities to do. The second is, when a firm understands the changes and adapt to it, through a learning process. This method requires more time to react and results a more complex answer. Proactive firms do not simply adapt to changing constraints but also try *"to alter the external circumstances, such as proposed legislation, through negotiation and persuasion"* (Child et al., 2013, p. 21). This two-way reciprocal interaction results a more complex relationship between firms and their environment.

Figure 7. Relationship between a firm and its environment. Source: Child et al. 2013. p. 22 (Source: Child et al. 2013. p. 22).



Adaptation to and alteration of the environmental constraints are evolutionary processes, through different forms of cooperative and coercive actions. James B. Quinn (1980), the leading theorist of *logical incrementalism*, highlights not only the impact of "hard" changes on strategy, such as selecting the markets and products, but also the importance of "soft" changes. Quinn mentions the government and external

interest group relations in this context. He describes the main characteristics of the firm-government relationship concerning strategic processes in the following way (Quinn, 1980, pp. 44-45): *"Almost all companies cited government and other external activist groups as among the most important forces causing significant changes in their strategic postures… However, if when asked: "How did your company arrive at its own strategy vis-à-vis these forces?" it became clear that few companies had cohesive strategies… for government-external relations, other than lobbying for or against specific legislative activity. To the extent that other strategies did exist, they were piecemeal and ad hoc, and had been derived in a very evolutionary manner."* Quinn suggests a more proactive, experimental, iterative approach for firms to manage the government-external relations.

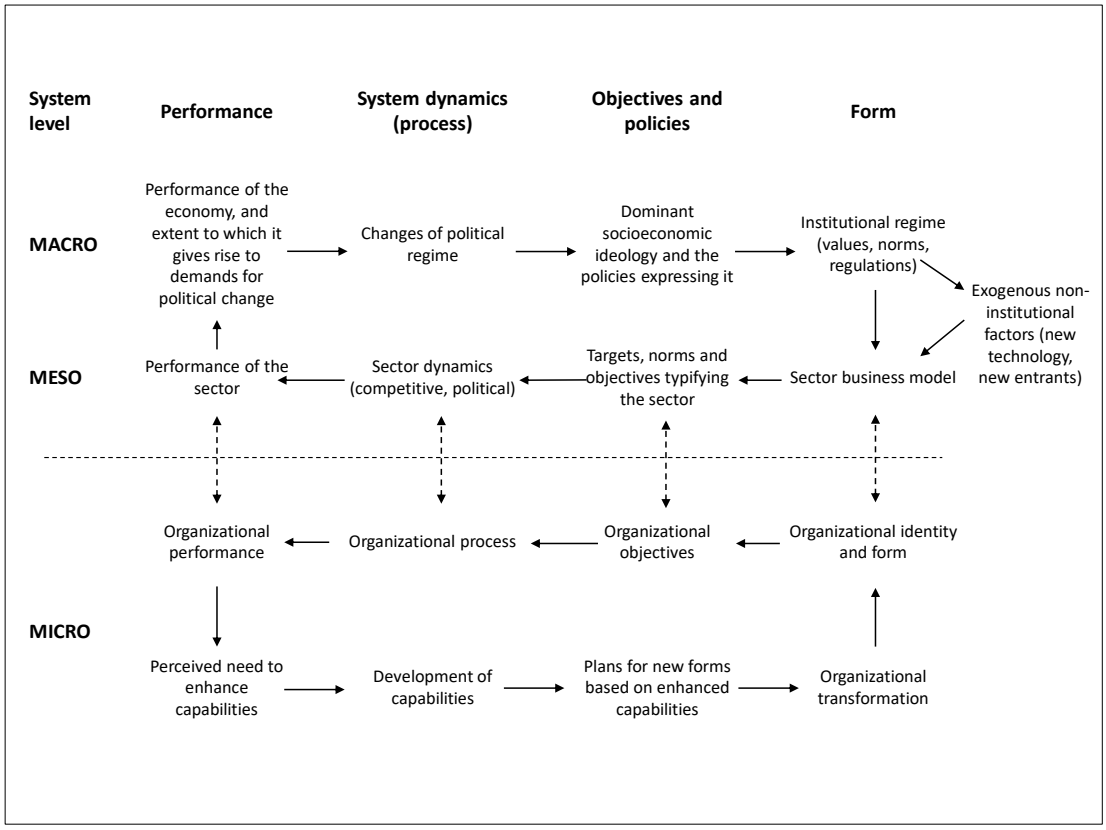
The evolutionary approach follows the Darwinian biological principles. Darwinists argue that variation, selection and retention can be used to describe evolution within social and economic domains (Breslin, 2011). Several organization theories follow the Darwinian tradition. The adaptation theories, such as contingency theory emphasizes the central role of formal organizational structure on the performance. Organizations have to adapt their structure to the respective environmental conditions to achieve appropriate performance (Kieser, 1995). Population ecologists assume that organizations are structurally inert and cannot follow the quick changes in their environment (Hannan and Freeman, 1993; Breslin, 2011). They focus rather on population level impacts of the changing environmental constraints rather than the adaptation mechanisms of specimens (the single firms).

2.1.5. The co-evolutionary framework

There are several studies on the theory of co-evolution. As I described in the introduction of Section 2.1, Volberda and Lewin (2003) introduced the concept of corporate co-evolution to analyze the process of firm-level adaptation and population level selection. They explain that co-evolutionary changes in micro and/or macro level are not simple outcomes of adaptation or environmental selection but rather the mixed result of managerial intentionality and environmental effects. Rodrigues and Child (2003) extended the scope of co-evolutionary perspective from competitive industries to a highly institutionalized environment. They followed both a deductive and inductive method to formulate a relevant research framework for a public

infrastructure organization. The main focus of their model is the two-side, mutual impacts of performance, processes, objectives and structural forms on the macro, meso and micro level. In the authors' interpretation, co-evolution is the *two-way interaction* between the meso (industrial) and micro (firm-level) factors.

Figure 8. The co-evolutionary framework (Source: Rodrigues and Child, 2003, p. 2139.)

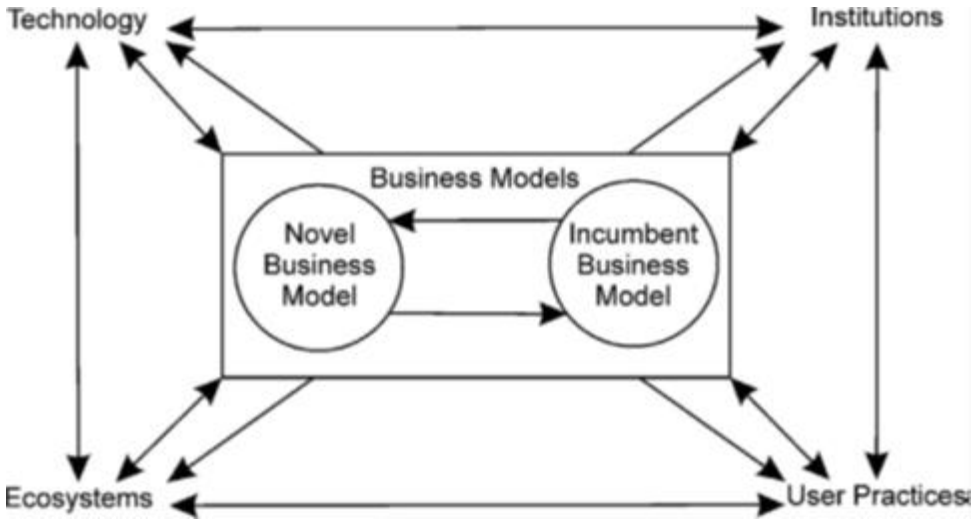


The performance of an industry has a strong impact on the performance of the individual firms. However, a company can also influence sector conditions, principally if it has a dominant market position or a leading role as regards innovation. Sector performance also has an impact on the overall performance of an economy. There is strong pressure on political actors to make changes in the political regime by modifying the dominant socio-economic ideology and policies if the macroeconomic indicators are underperforming. The changes in the institutional regime in combination with exogenous factors like technology and new entrants have strong effects on sector business models. The modification in the business model has a feedback on the sector performance through changing objectives and competitive and/or political sector dynamics.

Moving to firm-level effects, there is an evident two-way causal relationship between organizational performance and sector performance. Similarly, mutual interaction can be noted in the case of organizational and industrial processes. Targets, norms and objectives typifying the sector have a co-evolutionary interaction with firm-level objectives, just as the sector dynamics interconnect with organizational procedures.

Foxon (2011) in his pentagonal model framework combines the socio-technical and techno-economic transition with co-evolutionary approaches. The five key *co-evolving* systems in his framework are *ecosystems*, *technologies*, *institutions*, *business strategies* and *user practices*. Hannon et al. (2013) partially modified the original model of Foxon, replacing the *business strategy* dimension with the *business model* and moving it to the middle of the framework.

Figure 9. The co-evolutionary relationship between business models and the wider socio-technical system (Source: Hannon et al., 2013)



Hannon et al. (2013) use the *business model canvas* of Osterwalder & Pigneur (2010) to represent the co-evolutionary interactions between UK energy service companies and traditional energy utilities in their empirical study about the sector. The authors distinguish the incumbent players' business models from the newcomers' models - and note that the incumbents typically wield more economic and political power compared to the non-incumbent or niche population of firms.

2.2. Institution-organization context in the Hungarian strategic management literature

The Hungarian strategic management literature has several important remarks on the interactions between firms and their institutional environment. Balaton (2007) gives a deep overview on organization and management theories which explain the organisational changes. He describes that institutional theory provides a powerful explanation for understanding the adaptation mechanism of firms to the environment. Following DiMaggio and Powell (1983) he distinguishes three ways of interconnection between the firm level adaptation and the institutional environment. The *coercive institutional pressure* means a direct governmental pressure on firms to adopt certain rules and traits of operation. The *normative influence* means the common usage of professional industrial standards or specifications. Companies can legitimate their market activities only with the way of following these normative rules and standards. The *mitetic process* reflects the firm's own adaptive decision on following another firm's (possibly competitor's) technology, organizational structure and/or processes. Balaton highlights the importance of social embeddedness as a related topic to institutional approach.

Czakó (2000) describes the relationship of economics and business and management studies on the development of theories of the firm. She says that "*the theoretical framework of new institutional economics can be regarded as a school aiming to establish a connection between economics and business studies as it studies the limits of the firm and its internal operations on the basis of Coase (1973) and Williamson (1985)"* (Czakó, 2000, p. 13).

Rosta (2012) in his doctoral thesis on the institutional determinants of New Public Management (NPM) emphasizes the New Institutional Theory's influence on NPM. He gives a detailed literature review of the institutional theory's complex research field including the transaction cost economy, the property right-based theory, the collective action approach, the evolutionary economy and the principal-agent theory. He argues that the *"introduction of management methods belonging to this [NPM] approach can only be effective if these instruments fit in with the informal and formal institutional system being followed and applied by the society of the given country"* (Rosta, 2012, p.13).

Kozenkow (2012) compares Hungarian and Polish economic performances in the transition period after the political system changes of the early 1990s. She gives a detailed literature review of the development of institutional theory and concludes that the different economic performances of Poland and Hungary are in the main attributable to diversified political institutions.

Kapás (2007) suggests an evolutionary approach to get a deeper understanding of the firm's development. She argues that the technology, the institutions and the firms are developing evolutionary, and this evolution time-to-time produces new *mutant* forms of organizations. She analyses the evolutionary path in socio-technologic context and distinguish the concept of *physical* and *social technology*. The new mutant forms of firms, such as M-form and project organization, are part of the social technology and they are results of prior technological "revolutions". The wider institutional environment according to North might be also regarded as an aspect of social technology. Kapás says that the use of social technology is more suitable than an institution as it allows for an analysis of the effects of physical and social technologies on each other - and provides a common framework for analyzing the interrelations between the two subsystems and within each subsystem.

In Hungary, strengthening direct state involvement has been a dominant factor in the government's vision after the time of crisis. Underlining an enhanced state presence appears in governmental documents repeatedly. According to the National Energy Strategy 2030, which is one of the most important policy documents for my research topic: "*"Ensuring the coherence of legal and economic conditions by itself is not enough for the effective enforcement of the national interest. While in the electricity sector the state has maintained dominant, direct influence through the state-owned MVM Zrt. and Paksi Atomerőmű Zrt., the target is the same in the natural gas and oil sector..."* (NFM, Ministry of National Development, 2012, p. 16).

There are academic researchers who made it clear that for them, a strengthening of direct state intervention is suitable for achieving social goals. József Pálinkás, chairman of the Hungarian Academy of Science, declared in a conference in March 2010 the following: *"The state-owned energy producing and allocating system is essential to the national interest."* (Pálinkás, 2010)

In the meantime, there are other economists who are concerned about the strengthening of the state's role in the economy. Kornai (2010) compares the performance of capitalist and socialist economies in terms of innovation capabilities. According to his article, Kornai obviously associates such success criteria with capitalist enterprises, which could not be reproduced at all well in a state-owned company. In order to be the driver of innovation, it needs to fulfill certain requirements, ones which are difficult to reproduce in a state environment. Kornai comes up with five factors - the drivers of innovation - in a capitalist economy: *a) a chance for decentralized initiatives; b) available - and huge - premium; c) competition; d) possibilities for and the right to experiment; e) free capital and flexible financing.* Kornai does not say that the above conditions within a framework of bureaucratic coordination and central planning will be impossible - though his empirical research work does show that it will be quite difficult.

Kornai's list indicates the most important distinguishing criteria regarding any comparison of large social system models, the capitalist and socialist economies; and its criteria are also relevant if the objective is a comparison of coordination mechanisms - market and bureaucratic. Coordination hereby means regulating processes with two-way interactions between two or more organizations (Kornai, 1983). Dobák et al. (1992) use the notion of coordination in connection with corporate level activity and note that its primary aim is to synchronize the divisions of remit and responsibility of the more and more complicated institutional operations (p. 18). Coordination could develop from several primary factors relating to both organizational and social levels; and the form could be shaped by fixed regulations and prices, market transaction relations or moral, ethical norms. Kornai distinguishes between four forms of coordination: market, bureaucratic, ethical and aggressive. A coordination mechanism regulating a specific process might change in either time and/or space, too. The interactions of organizations and individuals affect institutions, create social norms, and have an impact on legislation and on the allocation of property rights and power positions. Yet our actions and decisions fundamentally depend on the existing institutional environment over the short term.

2.3. Empirical research regarding the thesis topic in national and international literature

The thesis topic has been in the focus of numerous empirical research publications, some of which have already been mentioned in previous chapters. As a conclusion to this chapter, I am going to present three groups of articles and studies which provided the basis for my own research.

2.3.1. Ownership and economic performance

Economic policies, business and strategic management sciences have focused on the impact of ownership on economic performance for a long-time. A comparative analysis of the effectiveness of state-owned companies and private companies has been widely studied, especially during the periods of privatization. During a short review in international research publications coming from the past two decades, different approaches and conclusions might appear. Frydman et al. (1999), analyzing the privatization transactions of Central European economies, conclude that an economy's performance after privatization depends on which investor has obtained the management rights. Helwege and Packer (2008), comparing the performances of European closed and publicly listed companies, conclude that closed companies did not perform worse than listed ones - contrasting with the authors' previous expectations.

In Hungary, Éva Voszka did comparative research on the effects of different forms of ownership on economic performance chiefly by analyzing the actual impact of privatization. Voszka (1997) concludes that *"soft"* indicators such as the creativity of management or corporate traditions may have a stronger effect than *"hard"* business management indicators - which leads to the conclusion that ownership change by itself is not a sufficient requirement for successful market adjustment. Vedres (2007) studies the economic performance of domestic companies with different ownership structures in the decade following privatization using further criteria. Via analyses of seven different ownership models and five different privatization methods, he studies the impact of ownership structure on performance with a regression model.

The role of state ownership has been perceived differently at different times and in different regions. Voszka (2015) points out that while the United States have rolled

back state ownership and have put more emphasis on the role of state regulation since the beginning of 20th century due to negative public opinion, Europe had seen an incessant increase in state ownership until the 1980s. European governments tended to regard state ownership as a viable alternative to the market, as a remedy for market failures. It can be argued that nationalization allows for necessary development, modernisation and crisis management, while privatization increases efficiency and competitiveness, and restores budget balance. In the short term, the economic crisis of 2008 tipped the balance between the two lines of arguments in favour of increased state influence. However, the debate over privatization versus nationalization swiftly triggered a counter-reaction to excessive state influence. In Europe, *the phase "crisis management by nationalization" was followed by the catchword "crisis management by privatization"* (Voszka, 2015, p. 737), which suggests that both types of ownership were considered suitable to remedy the same macro-economic problems. At the same time, – primarily in less developed regions of the EU – the crisis was accompanied by hostile attitude to privatization as governments often blamed price increases by private companies and growing unemployment for economic difficulties. The *"creeping nationalization"* of formerly privatized public service providers pushed down prices and resulted in the redistribution of revenues generated by services. Another way of re-municipalizing services is to allow private and concession contracts to expire, and then take services into public hands. Re-nationalization of companies has also started in the energy and public services sector in Hungary, Lithuania, Finland and Germany as well.

Mihályi (2015) analyzes the ownership structure of Hungarian companies and provides a detailed chronological analysis of the economic impacts of renationalization brought about by the change of government and political intentions in 2010. He dedicates a separate chapter to discussing the changes witnessed in the energy sector. The author concludes that there are interesting elements of continuity in the energy sector as regards the policies and decisions of left-wing (MSZP) and right-wing (FIDESZ) governing parties of the previous fifteen years. Neither could fully accept the privatizations of the mid-1990s; therefore, they were ready to embrace the nationalization initiatives of the Hungarian energy lobby.

In their book, Reszegi and Juhász (2014) adopted a very solid methodology to identify factors of competitiveness in 4600 Hungarian companies[13] by analyzing their financial data between 2008 and 2011. They study the performance of different ownership structures and try to find an answer to the question whether shared domestic and foreign ownership causes a duality in the Hungarian economy. In contrast to the prevalent simplistic idea of efficient foreign and less efficient domestic companies, they paint a much more complex picture. The authors point out that there is no clear correlation between the nationality of the owner and capital efficiency, that is, the efficient utilization of capital is not primarily owner-dependent. Instead, the analysis identifies a *"dual duality"* in the Hungarian economy. Indeed, leading foreign companies produce better indicators for return on invested capital (ROIC) and added-value. However, the cluster-by-cluster analysis of companies shows a more complex picture. The authors divide foreign-owned companies into *"semi-skilled trainers"* (n=506) and *"developed"* (n=983) companies, and domestically owned companies into *"exporting"* (n=533) and *"domestically oriented"* (n=2045) companies. The cluster-by-cluster analysis indicates that the performance of foreign companies correlates more strongly with the level of wages, while the performance of domestic companies is more strongly correlated with export intensity than the nationality of the owner.

2.3.2. Empirical research based on the co-evolutionary methodology

My thesis relies heavily on the co-evolutionary framework described by Rodrigues and Child (2003) and Hannon et. al (2013). Co-evolutionary research combines different methodologies and analysis procedures in order to understand the bidirectional connections between environmental factors and corporate behaviour.

This approach requires thorough empirical background work. Rodrigues and Child (2003), studying the South-American telecommunications company, TELEMIG, interviewed almost a hundred managers, analyzed more than 500 company documents, and reviewed the company's financial reports from 1973 to 2000. Joined later by K. T. Tse (Child, J. Tse, K. K. T., & Rodrigues, S. B. 2013), they carried out a similar

[13] The sample covers 53% of domestic industry and 71% of export. The number of employees of the companies included in the research totals 734,000, which represents 39.7% of people employed by the private sector.

analysis of the Chinese YICT container terminal, studying the interrelations between the company and surrounding institutional players.

Suhomlinova's article (2006) focuses on other dimensions of co-evolutionary research. His research examines 26 transition economies of Central Eastern Europe in the period following the change of political regime. According to her model based on the analysis of co-evolutionary effects between micro and meso level phenomena, four organizational characteristics influence organizational survival: 1) competitive structures; 2) product strategy; 3) control structure; 4) exchange strategy.

Hannon et. al (2013), as previously outlined in chapter 2.1.5, further developed the co-evolutionary model drawn up by Foxon (2011). The study provides both interesting theoretic insigths and empirical results. By comparing the business models adopted by ESCOs[14] and the incumbent British Energy Utility Company, the authors examine how market, technological, social and regulatory environments shape business strategy in the UK energy sector.

It can be concluded that co-evolutionary research studies rely on various methodologies and adopt a case-study approach with a focus on a particular sector of industry or geographical scope. All of the authors based their research into the connections between theory and practice on solid empirical results and discovered correlations which allow for generalizations and which fit into the wider theoretical framework as well.

2.3.3. Regulation and energy companies in a changing institutional environment

Since the energy sector is highly regulated, the behaviour of energy companies is often influenced by changes in the institutional environment. It is impossible to give an exhaustive literature review about this topic; therefore, I will only attempt to provide a brief overview of the most important research directions. Studies researching this topic can be divided into two main groups:

[14] The acronym ESCO (energy service company) is also widely used in Hungary as a collective noun for companies offering complex, third-party financing solutions for energy efficiency investments.

a) studies examining regulations and their impact on the behaviour of industry stakeholders;
b) studies analyzing the regional strategy of multinational companies, as well as examining individual market players or industry segments

As for the first group, I would like to focus on analyses conducted by two Hungarian research centres. First of all, the Regional Centre for Energy Policy Research (REKK) of the Corvinus University of Budapest, which regularly performs analyses on the regulatory and competitive environments of the electricity, natural gas and district heating markets. The research centre publishes comprehensive studies as well as impact assessments of regulatory measures and policy decisions. As a brief overview of recent publications, I would like to present a few studies carried out by REKK. Mezősi (2014) analyzes the impact of support for renewable energy generation on the retail price of electricity. Based on the review of relevant literature, Mezősi concludes that support for renewable energy could reduce wholesale electricity prices, but would increase retail electricity prices due to increasing network costs and sectoral taxes. Mezősi and Szabó (2014) present the cost-benefit assessment of another value chain segment, that of electricity transmission in the Central Eastern Europe region with the application of the EEMM model developed by the research centre.

REKK also analyzes policy decisions and their future impact on the development of the sector. Kotek et al. (2013) focus on the domestic universal service segment and analyze the impact of the government-imposed utility price cut on market players and on consumer groups. The Ministry of National Development commissioned the research centre in 2013 to evaluate feasible model alternatives for wholesale natural gas trading after 2015 when the long-term natural gas supply contract with Russia is due to expire (REKK, 2013). Kaderják et al. (2010) give a detailed overview of the current domestic regulatory environment. As for the supply side, they analyze issues related to the wholesale market, cross-border capacities, and the mandatory off-take system, and as regards the demand side, they evaluate the regulatory environment of the universal service segment. They give recommendations for modifying the regulatory environment with a view to increase competition.

Besides REKK, the Centre for Economic and Regional Studies of the Hungarian Academy of Sciences (MTA KRTK) also publishes studies related to competition

policy and the regulatory environment of network industries. “Competition and Regulation”, the annual volume published by the research centre contains several analyses on the regulatory environment of energy value chain segments and its impact on competition. In the 2013 yearbook, Valentiny (2014) puts the connections between sectoral and competition regulations into a wider context. He draws on numerous examples from the energy sector and other network industries to present the potential advantages and disadvantages of regulation and deregulation for the individual segments of the value chain. In terms of methodology, the article relies on economic analysis, combined with a competition law approach to present particular cases and regulatory practices. The study draws attention to the dynamics of regulation and underlines that changing market challenges initiated new regulatory forms and organizations (ACER since 2011, ENTSO-E since 2009, ENTSO-G since 2010[15]). Pápai et el. (2013) compares the different cost evaluation methods used in the regulation of distribution system operators. Vince (2012) analyzes the impact of market liberalization on the Hungarian energy trading sector. The author outlines the major elements of the third energy package and presents their impact on competition, with special regard to changes affecting universal services and possibilities of state involvement.

As for the second group, not intending to give an exhaustive literature review, I would like to present three studies which cover the Central Eastern European region and focus on analyzing the behaviour and market strategies of multinational companies. Kolk et al. (2014) compare the regional strategies of leading European multinational energy companies[16]. They combine the methodology of case studies with quantitative analyses and formulate statements regarding the international strategy of individual companies on the back of a wide empirical base. They underline the significance of institutional factors as regards the regional orientation of companies. They also draw attention to the fact that the international orientation of companies may defer in the traditional and renewable energy sectors, which can be partly explained by the regulatory environment of the host country.

[15] ACER=Agency for the Cooperation of Energy Regulators, ENTSO-E=European Network of Transmission System Operators for Electricity, ENTSO-G= European Network of Transmission System Operators for Gas.

[16] EdF, ENEL, E.ON, GDF Suez, Iberdrola, RWE, Vattenfall

Haar and Marinescu (2011) analyze the impact of the appearance of multinational energy utilities in Romania. They analyze the takeovers made by leading energy utilities in Romania, and give an overview of the regional activities of the companies included in the study (Enel, Eni, CEZ, RWE, E.ON, EDF).

The comparative study of Labelle and Georgiev (2014) analyzes primarily the impact of the regulatory environment on the profitability of energy sector companies and on the market structure in Hungary and Bulgaria. The authors compare and contrast the Hungarian and Bulgarian liberalization processes in the form of two case studies. It is justified to draw a parallel between the two cases as both countries were faced with a socio-political pressure to keep consumer prices low at the expense of long-term system stability.

The above literature concludes that researchers, opinion leaders and policy makers have diverse points of view on the effectiveness of state intervention and its necessary level or degree. Analyzing whether the past performances of private and state-owned companies (where they are both present simultaneously) confirm that the ownership model does have an effect on economic performance could make a small but not insignificant contribution to the debate. If - in addition to proving the existence of such a relationship - it is possible to create a hierarchy between the performances of each ownership model, some explicit or latent myths could be ruined or verified.

3. OUTLOOK OF ENERGY RETAIL MARKETS AND DEVELOPMENT OF THE HUNGARIAN MARKET

The following chapter gives a brief historical overview about the European energy retail markets, with a highlight to the Hungarian specialties. In this chapter, I intend to present the retail regulatory environment, the price trends and the milestones of development of Hungarian energy-retail sector.[17]

The analysis of the regulatory environment typical to the commercial markets is particularly important in order to to formulate my later hypotheses. As the official retail price fixing may significantly impede the market competition in the segments where it is applied. As I mentioned in the introduction of my thesis, the Hungarian electricity and gas retail market is characterized by duality, as the whole universal service segment operates under authority control and the consumer prices are fixed by ministerial decrees. On the contrary, there is an intense competition on the free market segment, where the state lays down only the framework of the competition, but it does not intervene actively in market processes. In order to understand certain firm adaptation strategies, it's important to know the earlier and current rules of price regulation, which is discussed in the subchapter with the introduction of European regulatory practices. The second section explains the main components of end-user electricity and gas prices, and analyses the current price trends in Europe overall, in the CEE region and in Hungary in particular. The last section examines the market structure and concentration of the energy retail segment.

3.1. Price setting in energy production

During the operations of energy systems, the physical and trading actors in the value chain can be distinguished. Producers (power plants and gas producing companies), TSOs, DSOs and system operators of the whole integrated system are part of the first group. In the gas system, the companies providing commercial and security storage are also actors of the physical value chain. The most important players of the

[17] The Appendices contain further details about the tends of the European electricity and gas market relating to the first half of the 2010s decade and the general theoretical models of price regulation and their application in certain elements of the energy value chain.

commercial value chain are the gas wholesaler and retailer companies, which give a service to specific consumer segments via their business policy. The so-called universal service providers are of great importance regarding price regulation. These companies, in accordance with EU regulations, provide the households and micro-enterprises with energy having fixed conditions.

Fixed prices can be found all along the value chain (Cambini & Rondi, 2010, Cave & Stern, 2013, Pollit, 2012, Pápai et al., 2013). Input operations and output control are able to be distinguished in line with the degree of regulation. Selection of a regulating method by a regulatory authority depends on the controllability, predictability and monitorability of the activity (Glachant at al., 2012).

3.1.1. Typical legal environment of price regulation in the electricity and gas retail market

The trading of electricity and gas is typically less exposed field as regards official price fixing in comparison with the fixes of network fees; however, state intervention into market processes can also be seen in this sector especially concerning the general population and micro enterprises. Such interventions are typical in the field of universal services, which is regulated by Directive 2009/72/EC on the internal market of electricity, and Directive 2009/73/EC on the internal market of natural gas, as part of the Third Energy Package of EU - as follows:

> Article 3(3) of Directive 2009/72/EC: Member States shall ensure that all household customers, and, where Member States deem it appropriate, small enterprises (namely enterprises with fewer than 50 occupied persons and an annual turnover or balance sheet not exceeding EUR 10 million), enjoy a universal service, that is the right to be supplied with electricity of a specified quality within their territory at reasonable, easily and clearly comparable, transparent and non-discriminatory prices. To ensure the provision of a universal service, Member States may appoint a supplier of the last resort.
>
> Article 3(2) of Directive 2009/73/EC: Having full regard to the relevant provisions of the Treaty, in particular Article 86 thereof, Member States may impose on undertakings operating in the gas sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies, and environmental protection, including energy efficiency, energy from renewable sources and climate protection. Such obligations shall be clearly defined, transparent, non-discriminatory, verifiable and shall guarantee equality of access for natural gas undertakings of the Community to national consumers.

The Directives do not connect the definition of universal service providing with official price fixing - but do not exclude the possibility of Member States giving special attention to relevant consumers in cases of necessity.

Domestic laws implemented the universal service providing into Hungarian legislation due to the Directive define the groups of consumers eligible for the service:

> Subparagraph 7 of Article 3 of the AEE: 'Universal service' shall mean a unique form of sale within the framework of trade in electricity that ensures the right to eligible customers to be supplied with electricity of a specified quality anywhere within the territory of Hungary at reasonable, easily and clearly comparable and transparent prices;
>
> Article 50(3) of the AEE:Household customers and users receiving low voltage electricity of not greater than 3*63A of interconnected output level in total for all service locations shall be eligible to purchase electricity within the framework of universal services.
>
> Article 32(1) of the ANG: Universal services may be provided in the service areas specified in the operating license by authorized providers of universal services. The provider of universal services is a natural gas supplier who provides universal services to customers eligible for universal services upon request. Customers eligible for universal services are household customers and other users with a purchasing capacity not exceeding 20 m3/hour, as well as the municipal government, to guarantee the security of supply to tenants of a residential property owned by the municipal government.

The regulatory bodies may intervene in creating a universal service price in several ways due to the above price-regulating possibilities. The first possibility is partial regulation, in which the official price is fixed via benchmarking, which universal service providers may apply in connection with their customers, and a regulated (maximized) margin, which is to cover operational costs and the income of the universal service provider. This model theoretically ensures competition between universal service providers if their sources are more beneficial than official benchmark acquired prices and/or their operational efficiency is better than their competitors. Hungary utilized the above regulation model from the full opening of markets in 2008 up until 2011.

The other regulatory possibility is output regulation - the price fixing of universal services through regulatory actions. In this model, the authority fixes prices via law for a definite time period (generally for each quarter), which shall be applied by all relevant service providers. After the government changeover of 2010, Hungary altered its regulations in this direction - while Act LV of 2010 centralized the rights of

definition the fixed regulated prices on governmental level. The universal price of electricity and natural gas has been regulated by Ministerial Decree from 2011.

3.1.2. Present European practice of consumer price regulation

As I have noted in previous Sections, the fact that the European Union regulated the basics of market organization and public services in the field of electricity and natural gas via Directives and not Regulations gave Members States wide range of opportunities to decide whether and in what way they might apply the official regulations regarding the energy trade. Although the legal environment of the free market has been formulated for a decade, retail markets are still characterized by regulatory intervention in many Member States.

Several international organizations have from time to time published studies to show existing Member State practices concerning price regulation. The European Regulators Group for Electricity and Gas (ERGEG) first prepared a report on the end-user price regulation of electricity and gas in 2010. A report covering thirty countries (including Norway and Iceland along with EU Member States) showed that only 11 countries had changed completely the former rules of consumer prices at the level of households, while 17 countries still kept to the regulations. Regulated prices are used with small enterprises in 16 countries, for large enterprises in 9, and for energy-intense industries in 6.

The Council of European Energy Regulators - CEER - prepared a similar study in November 2012. The study of 26 Member States (with the exception of Malta and Cyprus because of their geographical location) said that the situation was almost the same as in 2010. Though 12 countries had stopped price regulation in comparison with two years earlier, 14 countries still use it. The working paper of the European Commission (2014) describes in detail the methodology of price regulation applied in each Member State. Countries with fixed prices generally regulate in line with rate of return (RoR) and with justified costs. Price capping is also widespread; it is applied in six countries, while a revenue cap was only applied by one Member State, Bulgaria, in 2012.

Both the studies of CEER and the Commission indicate that most Member States which have a price regulation actually plan to stop it. Regarding the CEER

questionnaire, 11 countries from 14 answered that they plan to review their current price regulation system, and even consider its full termination.

The European Commission and other European professional organizations are emphasizing the need to remove price regulation in retail markets on more and more forums. In the study prepared by the Council of European Energy Regulators in 2015, it is pointed out that the retail price regulation adversely affects the development of the markets as it impedes the opportunities for new entrants and customer acquisitions. CEER (2015, p. 15.). The annual reports of 2015 prepared by ACER and CEER also draw the attention to the fact that the regulated end-consumer prices also impede the competition, especially in markets where the retail end-consumer prices are below the justified costs, i.e. the wholesale market prices and other transportation costs are not taken into account. The artificially low prices deteriorate innovation, leave investors in uncertainty, do not encourage the strengthening of competition through changing of service provider (ACER & CEER, 2016. p. 50). It is emphasized in the various points of report that the regulatory changes taken place between 2013 and 2015 had a particularly negative impact on the development of the free market in Hungary, especially in gas sector, where the universal service prices governed by regulation ensured a negative margin for market participants. This led to the rapid exit of privately owned service providers from this segment. In the report, similarly to CEER's earlier analysis, it is recommended to phase out the officially fixed prices in all European countries.

The so-called "Clean Energy Package" published in December 2016 proposes a number of changes relating to the retail sector. The draft Directive on the rules of internal market (European Commission, 2016) takes over the ideas formulated by ACER and CEER and proposes to completely abolish the regulation of end-consumer prices in the Member States. Although it is proposed that the universal services can be maintained servicing households and companies employing up to 50 persons with a maximum 10 million euros annual sales revenue or balance sheet total, but in the planned new legal environment the general access to energy can be ensured by targeted social policy measures instead of general price fixing. For the time being, the proposals made by EU concern only the electricity market, but the changes are likely to extend to the gas sector too in the future.

The trend in the regulatory environment in recent years and in the foreseeable future is the key to understand the Hungarian market trends. It can be seen that the direction marked by the government since 2011 which targeted complete regulation and centralization of the market has not followed the main European trends. Nevertheless, it is also a fact that the model change carried out by the government did not encounter any legal obstacle. While all professional studies argue for the extension of liberalization, the model change falls within the competence of the Member States at present. At the same time, it's not surprising that the majority of multinational service providers which had played a dominant role earlier decided to reduce their retail positions from 2010 and especially from 2012 due to the disadvantageous changes in market conditions

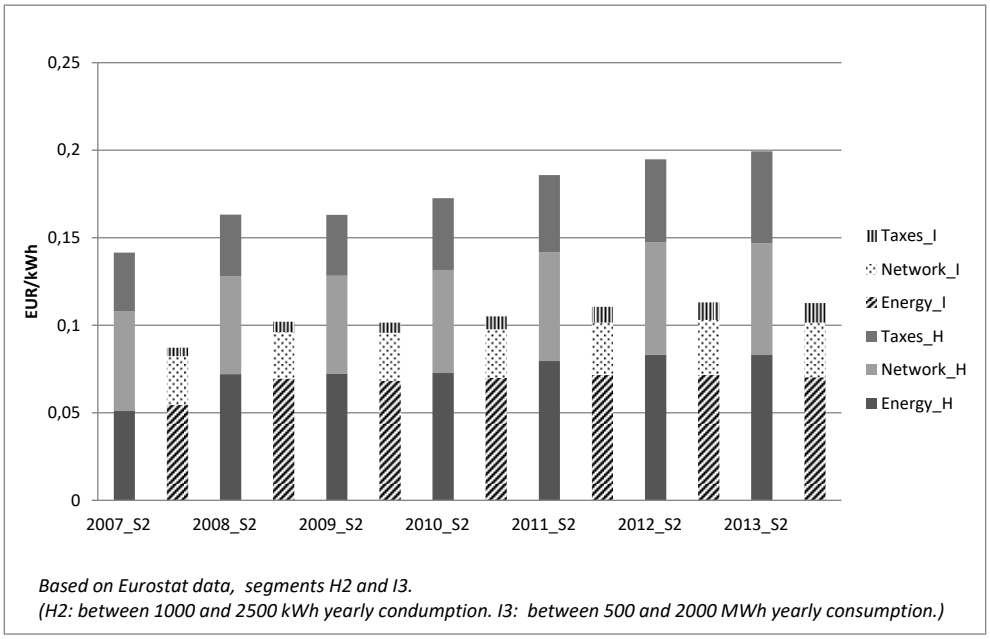
3.2. Retail prices market concentration and market dynamics

The end-user price on the market is the most important piece of information regarding retail factors; and these can be modified via product prices and - significantly - by the tax system in the relevant country along with network costs among customer segments.

3.2.1. Price development in the electricity retail market

Past decades have shown us notable price trends regarding the general population and industrial customers. While in the former group prices are gradually increasing, stagnation and decreases in certain cases are more common in the case of industrial consumers. To understand price changes, we have to divide the price of customers into its elements. EUROSTAT distinguishes between three categories of retail price: energy price (product fee), costs of natural monopoly services (transfer, distribution) and taxes.

Figure 10. Usual household (H) and industrial (I) electricity prices in the EU between 2007-2013 (Source: database of EUROSTAT, compiled by the author)



It is well illustrated in Figure 10,**Hiba! A hivatkozási forrás nem található.** that increasing taxes and network fees are much more the reasons of rising consumer prices, than the increasing wholesale prices.

Theoretically, taxes and network fees do not influence the retail market as, for retailers, they are treated as pass-through items, i.e. items that have to be collected but which are independent of their own profitability prospects. In reality, these items do have an impact on retailers when network and tax rates change significantly, whether over time or between customer segments. The regulating authorities tend to define the regulated price elements in line with existing political objectives, favouring preferred customer groups. This practice can be well seen by the development of network fees between 2010 and 2014. To keep the promise of *utility price cut* as announced in 2012, limiting the energy prices for customers was not sufficient, so other elements of price were amended by the government. Regarding network fees, significant changes occurred. While the network costs of the population have been reduced by 14% since 2010, industrial customers are paying 18-32% more than in 2010 (Table 2).

Table 2. Development of network access fees in the Hungarian electricity sector between 2010 and 2015 (Source: MEKH, compiled by the author)

		Change From 01.2010. to11.2013.	Net change in tariff (FT/kwh)
Connection to transmission lines		44,4%	0,68
Connection to distribution lines	High voltage connection	29,3%	0,65
	High/medium voltage connection	26,7%	0,99
	Medium voltage connection	29,9%	1,70
	Medium/low voltage connection	30,5%	2,34
	Low voltage I. (profiled)	-8,0%	-1,24
	Low voltage II. (controlled)	-3,7%	-0,28
	Low voltage III. (non-profiled)	9,7%	1,37
	Average	1,7%	0,16

Industry

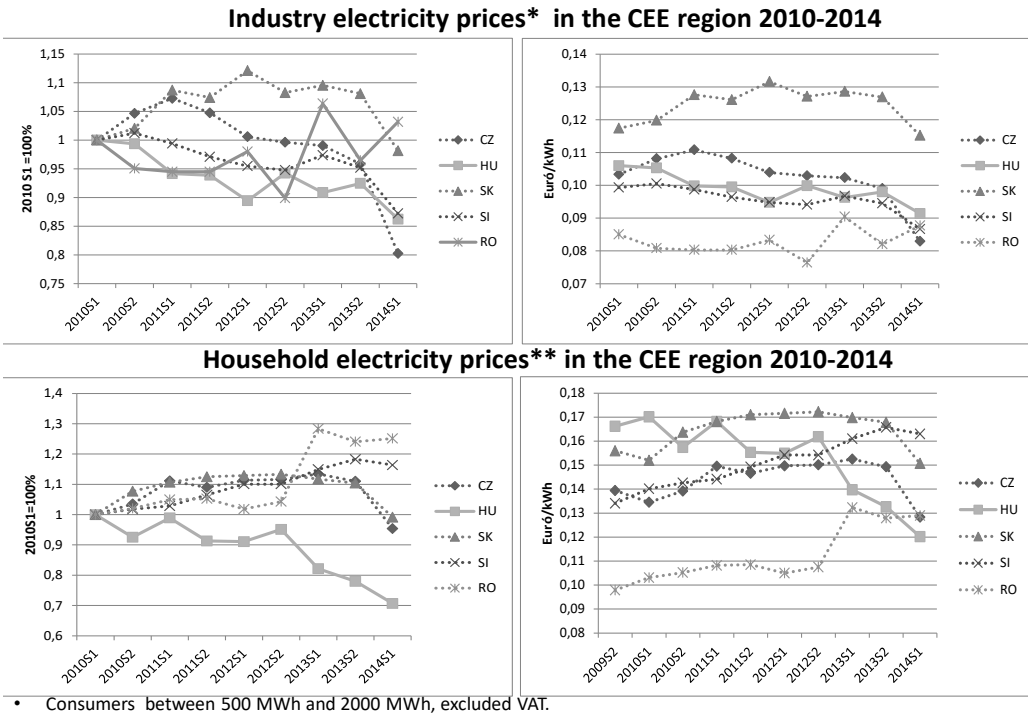
Households

Source: own calculation on the data of Hungarian Energy Office (MEKH)

Restructuring network fees is an excellent example of how changes in government preferences have appeared in the electricity sector. In order to carry out the political program of utility price cut, the government forced industrial consumers to lower their competitiveness level, even risking a decline in energy-intensive industries. The resulted demand decrease also affected the business opportunities of free market players.

Comparing regions, price trends in the Central Eastern European countries show well the importance of institutional factors in energy pricing. Figure 11 shows that electricity prices for the households have gone down at the highest rate in Hungary (from within the region) since 2010. As a result of a 30% decrease, Hungarian households were paying the lowest electricity costs in the region (and also in the entire European Union) by 2014. For industrial consumers, a similar reduction did not occur. Although prices decreased in line with the general price decreasing trends in overall Europe, the electricity costs paid by industrial consumers in Hungary are only surpassed by those in Slovakia.

Figure 11. Development of electricity prices in the Central Eastern Europe region between 2010 and 2014 (Source: EUROSTAT, compiled by the author)



• Consumers between 500 MWh and 2000 MWh, excluded VAT.
** Households between yearly consumption of 2500 kwh and 5000 kwh.

Overall, the development of domestic and regional prices demonstrates the importance of institutional factors in sector development:

(1) The failure of the Hungarian price regulatory authority is obvious in particular as regards the household price that was covered by universal services until 2011 (Kotek et al., 2013). Although after the crisis a remarkable household price decrease would be possible as a result of reduction in wholesale prices, it was actually only in 2012 that a utility price cut program was announced.

(2) The centrally-driven household price reduction redefined the rate of naturally monopoly services (network fees) and taxes paid by households and industrial consumers.

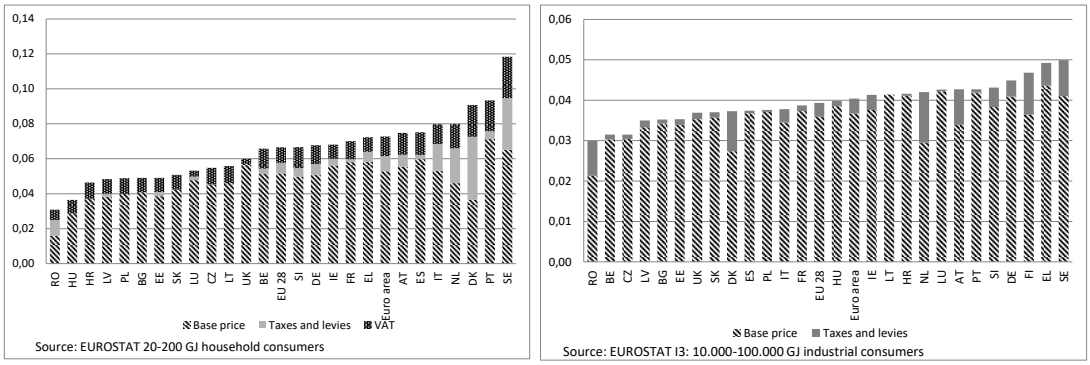
(3) On the completely liberalized Czech and Slovenian markets, household electricity prices barely exceed Hungarian prices - while industrial customers are offered lower prices, too.

3.2.2. Price trends in the gas retail sector

There are big differences in household gas prices among European countries, something that is influenced by access to resources (domestic vs. imported),

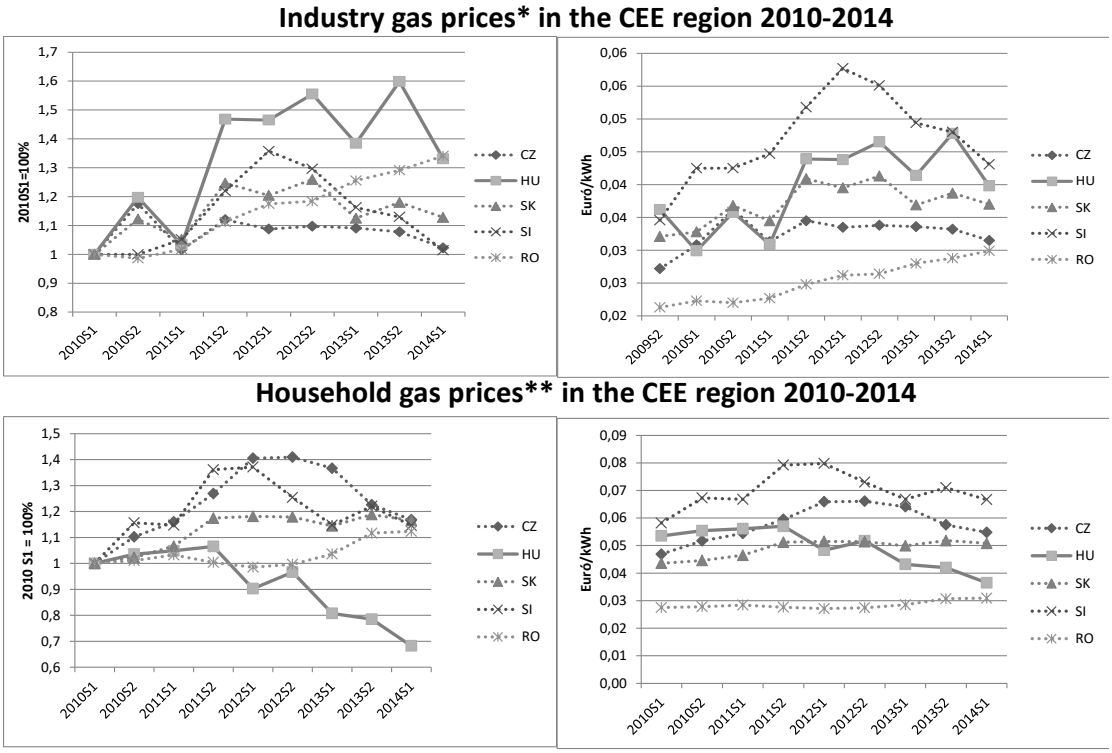
infrastructure and the quality of gas networks, and and taxes and levies paid by specific consumer segments. Figure 12 shows the natural gas prices paid by households and industrial consumers in the first half of 2014 based on EUROSTAT data. It clearly demonstrates that the differences in sector-based taxes and VAT rates for the population significantly affect end-user prices.

Figure 12. Household (left) and industrial gas prices (right) in the first half of 2014 in the EU (Source: EUROSTAT, compiled by the author)



Having more closely examined the Central Eastern European region, we can see that similar processes were taking place with domestic household gas prices as on the electricity market. Concerning regional gas prices, a general price reduction did not occur, so changes in price rates - when making a comparison with the other - can be seen in the case of costs being paid by each consumer group. Figure 13 shows that the natural gas price for household customers was radically lowered in 2012 by centralized official price fixing and, as a result, Hungarian household prices were close to Romanians' (who have a significant amount of self-production within the region) prices. Yet the suppliers could hardly compensate at all for their losses in universal services on the gas market compared to in the electricity market. The unfavorable household return expectations limited the price competition in the free market segment, resulting in a Hungarian natural gas market that had the second highest prices for industrial consumers in the region by 2014.

Figure 13. Development of natural gas prices in the Central Eastern Europe region between 2010 and 2014 (Source: EUROSTAT, compiled by the author)



• Consumers between 10000 and 100000 GJ, excluded VAT.
** Households between 20 and 200 GJ.

Without further elaboration, it is clear that the change of dominant political ideology, which aimed to decrease household utility costs from 2012, had a significant effect on the business models of gas traders and the development of market prices in the different consumer segments.

3.3. The institutional environment of the Hungarian energy market from partial liberalization until today

3.3.1. The fulfillment of market opening

Although Hungarian full market opening often connected with the acceptance of AEE in 2007 and ANG in 2008, in reality the liberalization process began much earlier, in 2003, with a partial liberalization. Hungary gradually opened its electricity and natural gas markets to new entrants as a part of EU access negotiations. The period between 2003 and 2008 is often called the period of the *dual market* as household supply happened in accordance with fixed regulations, via the participation of monopoly service providers and opportunities for energy purchase through market competition that was open to more and more industrial consumers simultaneously.

The partial market opening was successful both in the electricity and the gas sectors. Expansion of so-called authorized consumers (industrial customers) gave an added impetus to free market trade from 2004. Besides the already present MNEs, large regional energy providers established Hungarian retail subsidiaries such as CEZ or OMV. New entrants increased the intensity of competition and inspired higher activity among incumbent service providers.

The adoption of AEE in 2007 and ANG in 2008 ended the dual market and customers not authorized to have access to universal services could not benefit anymore from the protection provided by utility services. Their electricity and gas acquisitions were organized via the free market. It can be said that the liberalization process of 2008 seems to have moved the two-thirds of the market permanently and irrevocably away from the institutional system of central price regulation. In this market segment, market conditions predominate, and competition has been strong between suppliers since 2008. Official regulations in the industrial consumption segment were reduced in number to determine network fees and tax rates, yet given that these two factors represent 50% of the overall price it still cannot be said that consumers existing in more liberalized electricity and gas markets are free from any state intervention that might significantly influence their competitiveness.

The period between 2008 and 2011 is characterized by a completion of liberalization in the electricity and gas trading industry, something not hindered even by the economic crisis in the autumn of 2008. Newer, significant trade companies entered the market, such as MOL Energiakereskedő Kft., established with 50% shares from MOL, the Hungarian national champion oil company. After the establishment of this company in 2009, it became one of the most dynamically developing companies on the gas market, although there are critical voices about its ownership background and some of its business transactions.[18] The other large new entrant into the liberalized energy market is Magyar Telekom (Hungarian affiliate of Deutsche Telekom), which energy unit was established in 2011 to raise competition for incumbent universal service providers in the household segment. The company's entry into the electricity

[18]The company, after its establishment, went under the control of off-shore owners to a degree of 60%, and it changed its name to MET Zrt. Its business successes were largely due to the special import opportunities partially facilitated by state regulatiory actions by MVM, which supported its gas imports with favorable conditions via Austrian-Hungarian cross-border pipeline from 2011.

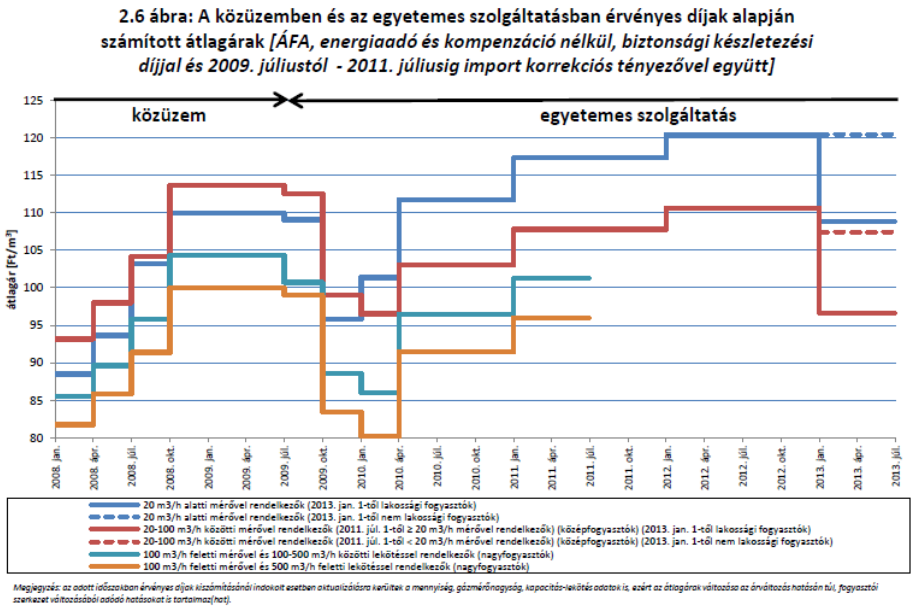
and gas market coincided in time with a significant restructuring of the regulatory environment - which questioned the viability of the free market model being offered by Telekom.[19]

3.3.2. Another model change - a strengthening of centralized state regulation

The universal services and the evolving free market were not radically transformed by the government change of 2010 at first, but there were signs that the new government was preparing fundamental changes. The frequent head of management changes at the Energy Authority and a fixing of universal prices at ministerial decree-level in 2010 were preparation for the centralized decision making. Although the early market organizing measures rhetorically highlighted patriotism and representation of the national interest, in reality they mostly indicated a classical route for a right-wing government. This is well illustrated by price regulations for universal prices on the gas market between 2010 and 2012. The former socialist government was often criticized for the lower household prices resulting from cross-financing and high gas prices for small and medium enterprises. Figure 14 shows data from MEKH from 2008 until July 2013. It can be seen, that until 2010, consumers with meter readings below 20 m^3/hour (blue line) usually accessed more cheaply public utility gas with its official price - and universal service gas from 2009 - than did consumers with meter readings of 20-100 m^3/hour (red line). With 2010, this cross-financing ended and consumers could get lower prices by following the rationalism of economics.

[19] The energy division of Magyar Telekom obtained HUF 48 billion income from the electricity and gas trade in 2013, yet it had a HUF 4.2 billion loss from services because of the limits on competition - which was a result of artificially low universal service prices.

Figure 14. Utility and universal prices of natural gas between 2008-2013 (Source: MEKH)*



*(*dark blue line shows the household prices for consumers below 20 m3/hour meters, red line shows the prices in consumer category between 20 and 100 m3/hour)*

The successive price increases, as a result of earlier ones that were missed, increased the burden of consumers in the gas sector and inspired the government to change the status quo anyway, even if there were a loss of service providers.

The "National Energy Strategy 2030" (Ministry of National Development, 2012) determined new priorities for the sector governance, which were accepted in 2011. The former energy policy document from 2007 underlined the priority of market coordination and declared that state interventions should be restricted to areas where market mechanisms could not function. The new strategy supported the strengthening of state intervention. According to the authors *"Ensuring the coherence of legal and economic conditions by itself is not enough for the effective enforcement of the national interest."* The dominant presence of the owners is necessary for government-accepted development of the energy sector. "*While in the electricity sector, the state maintained a dominant direct influence through the state-owned MVM Zrt. and Paksi Atomerőmű Zrt., and the aim is the same in the natural gas and oil sector with special regard to the long-term Russian Hungarian price agreement terminating in 2015."* (p. 17). An acquisition of minority shares from MOL was the first step in the acquisition strategy declared by the government, which was followed by several investments including the acquisition of E.ON's natural gas division and the purchase of FŐGÁZ's minority

shares. The state-owned MVM - whose profit was greatly reduced by the crisis - had a key role to play in the implementation of governmental acquisition strategy. The company's consolidated profit after tax decreased to HUF 22 billion from the HUF 61 billion of 2009. The new legislation relating to universal electricity of 2011 accepted a 17.17 HUF/kWh cost level for 2011, contrasting with the earlier HUF 15.49 figure. Whereas the largest service providers on the universal service market are power plants connected to MVM - or they have a long-term agreement - it is not difficult to see that improvement in the MVM Group's profitability might be in the background to the 10% product price increase.

The government was obviously not in an easy situation, as termination of the former cross-financing in the gas sector from 2010 and a restoration of MVM's profitability in the energy sector affected household price increases. Moreover, household electricity with official prices and the gas market were not cheap in a regional comparison - and became rather expensive in any international comparison in 2010. The increase in the VAT rate to 27% decided upon at the end of 2011 resulted in further price reductions regarding household energy costs.

As the government wanted to reduce neither the profitability of the key service provider MVM regarding energy prices nor the VAT rate, the imported gas price could not be influenced, so it was obvious that it should turn to the price components influenced by official price regulation, network access fees and the justified costs of universal service providers. The processes led to the 10% "first utility price cut" announced in December 2012 - and introduced in January 2013 - whose ‘victims’ were principally the universal service providers active in the household sector and, indirectly, industrial electricity consumers via the restructuring of network costs.

After the government change in 2010, the multinational service providers - E.ON, EdF, and RWE - of universal services had altogether more than HUF 20 billion losses as a result of frozen universal service prices due to the document of the National Ministry of Development.

Table 3. National Ministry of Development report on the profitability of service providers in universal electricity services for 2011 (Source: National Ministry of Development)*

Villamosenergia-szektor (2011-es adatok alapján)

(millió forintban)		árbevétel	üzemi eredmény	pénzügyi eredmény	adózás előtti eredmény	adózott eredmény
EDF	elosztó	44 204	9 799	-1 197	8 883	**7 687**
	egyetemes* szolgáltató	**62 255**	**-883**	**-234**	**-1 193**	**-1 193**
	szabadpiaci kereskedő	65 628	2 118	-438	1 680	1 550
E.ON	elosztó[1]	150 302	12 299	-5 514	9 541	9 111
	egyetemes* szolgáltató	**195 286**	**-7 981**	**-1 373**	**-9 666**	**-9 666**
	szabadpiaci kereskedő	186 638	10 304	810	11 085	10 725
RWE	elosztó[2]	148 455	19 431	305	19 734	15 308
	egyetemes* szolgáltató[3]	**199 095**	**-6 984**	**-2 210**	**-9 236**	**-9 236**
	szabadpiaci kereskedő[4]	188 061	9 129	-1 160	7 958	6 787
Összesített adatok (EDF, E.ON és RWE együtt):						
	elosztó	342 961	41 529	-6 406	38 158	32 106
	egyetemes szolgáltató	**456 636**	**-15 847**	**-3 817**	**-20 095**	**-20 095**
	szabadpiaci kereskedő	440 327	21 551	-788	20 723	19 063

* a lakossági és kisfogyasztók = ún. egyetemes szolgáltató

forrás: NFM

**Translation of the table: elosztó = DSO, egyetemes szolgáltató = universal service provider, szabadpiaci kereskedő = free market tarding unit, összesített adatok = overall data, árbevétel = revenue, üzemi eredmény = operating proft, pénzügyi eredmény = financial profit, adózás előtti eredmény = pre-tax profit, adózott eredmény = post-tax profit.*

The official governmental communication declared that the loss made by universal service providers' divisions will be compensated for by the profits in their distribution and free market activities. However, this is only true within certain limits. The companies' distribution activity is a regulated activity by itself - thus its profitability depends on a justified cost level and expected return accepted by the regulating authority. Free market activity is only suitable with limits to finance the incumbent service providers' loss-making household division. As a result of strong free competition, traditional service providers could not increase their prices for business customers because this would lead to a significant loss of customers.

Finally, the rate of tax burden on the sector deserves a special mention which is also related to the government's intention to restructure the sector. The roots of sector specific taxes can be identified in the era of the socialist government. In order to reduce

the social tensions due to the economic crisis, the Parliament imposed a special tax,[20] in 2008 which aimed to make district heating more competitive. At the beginning, the income tax rate was 8% and it was planned to remain in force for the period of two years as a kind of crisis tax. However, the date for removing the tax was modified to 31 December 2012 after the change of government in 2010. The tax rate had been increased to 11% from 1 January 2013 and then, the so-called Robin Hood tax rate was increased to 31% of the positive tax base from 1 January 2013.

The introduction of sector specific tax in 2010 was also an additional tax burden for the firms of the industry.[21] This tax remained in force until 2013 and, according to it, a rate of 1.5 % of tax base was imposed on the energy companies. Nevertheless, the tax burdens of the sector did not ameliorate after 2013 because the so-called utility tax was introduced from 2013 according to which the tax was imposed on the public utilities based on the length of public utility lines.[22] The tax rate is currently 125 HUF per meter. Although this tax does not directly affect commercial companies, it has a significant impact on group-level tax burdens for the group of companies that also own the distribution system operators.

3.3.3. Size of the Hungarian energy retail markets

The size of the market can be illustrated by various indicators, but it has a same importance to present the changes both in quantities and prices. Nevertheless, it is not easy to gather the concerning time series data. Although data are published by the Hungarian Energy and Public Utility Regulatory Authority, the published data set has been changed during the years. The data available in the electricity and gas sector are not uniform too. In the former, the data relating to values and quantities are published by MEKH while, in the latter only data relating to quantities are available.

As a result of data collection, a monthly timeline could be compiled concerning the period between 2010 and 2015, which contains the quantities and values of monthly sales data broken down by free market and universal service. Unfortunately, as I have already mentioned, MEKH did not publish value data relating to the gas sector, so only

[20]Act LXVII of 2008 on Enhancing the Competitiveness of District Heat Supply

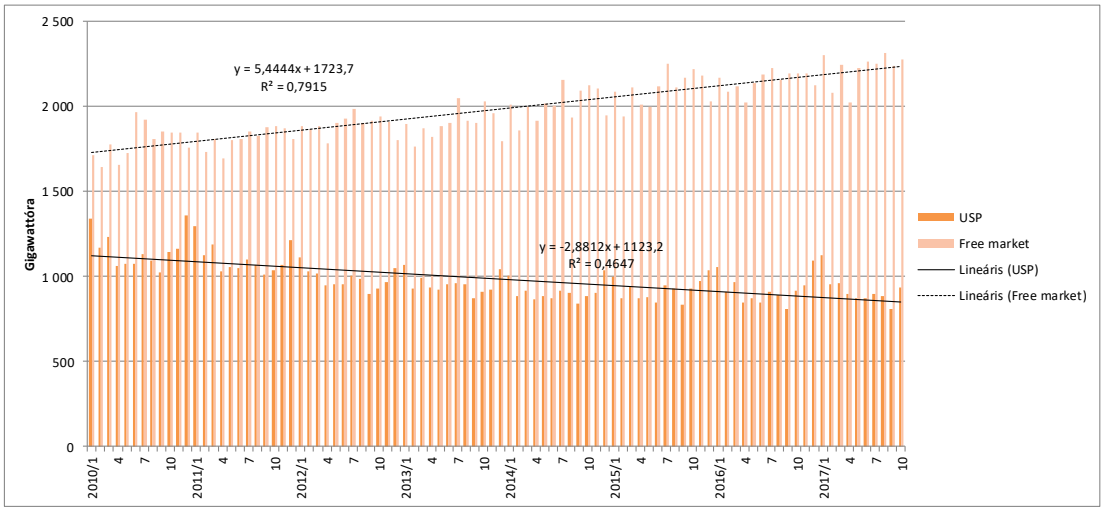
[21] Act XCIV of 2010 on the special tax in certain sectors

[22]Act CLXVIII of 2012 on Public Utility Cable and Pipeline Tax

the monthly quantity data series is available for the free market and the universal service.

An interesting duality is observable in the data of the previous period relating to the electricity sector. While an increasing trend can be seen on free market segment, it is decreasing in universal service segment (Figure 15).

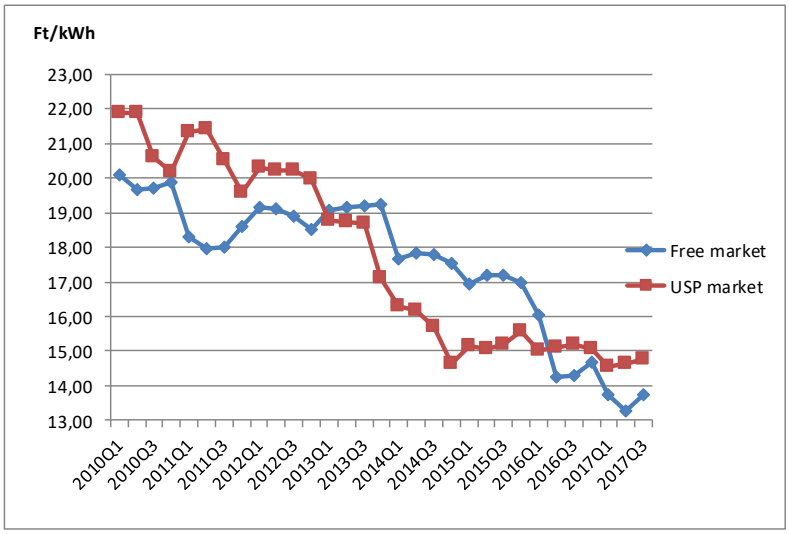
Figure 15. Quantity of sold electricity within free market and univeral service between 2010 and 2016 (Source: MEKH, compiled by the author)



As the monthly value data for electricity market are also available on the website of MEKH, the average market price for free market and universal services can be calculated.

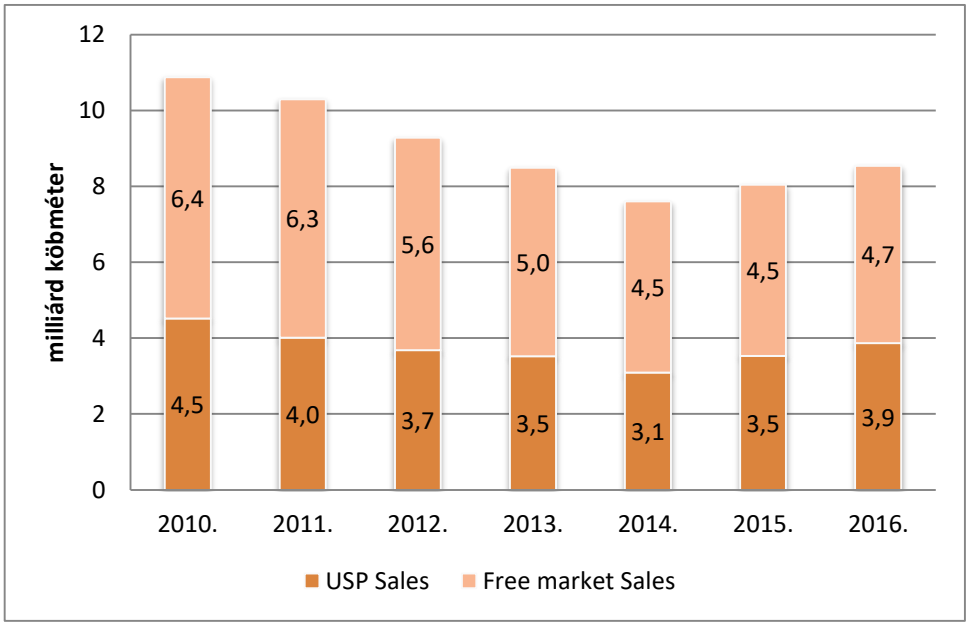
Figure 16 expressively illustrates the impacts of the multi-stage household utility price cut taken place in 2012 and 2013 on prices. While in the preceding period, the prices of universal service had been typically above average prices of the free market, it was reversed from 2013 onwards and the universal service price level fell below the free market price level. From an economic point of view, the data line of the period lasted to 2012 can be considered as “normal”, since all major industrial consumers need to obtain their electricity needs on the free market, which is, based on the principle of return to scale, typically lower in the segment of major consumers than in the most universal service which mainly represents the households. The other lesson of the figure is that the officially regulated prices are inflexible and they follow the rapid changes of the market with difficulties. Thus, it can be seen well that the average free market prices were again below the average price level of universal service due to import opportunities which have become cheaper since 2016.

Figure 16. Average prices on free market and in universal service fr electricity sector between 2010 and 2017 (Source: MEKH, compiled by the author)



Concerning the gas sector, only quantity statistics are available. Data show well, that the sector faced with serious challenges after 2010.

Figure 17. Changes in the size of gas market between 2010 and 2016 (Source: data of MEKH, compiled by the author)



The decline in industrial consumption is partly attributable to the decrease in industrial gas consumption due to the crisis, to the effects of weather as well as to the decrease in electricity generation of gas power plants. In addition to the effects of weather, the main reason for decrease in household demand is the decline in gas consumption, which is partly attributable to the declining gas consumption of consumers who were in difficult financial situation due to the crisis (and the application of alternative

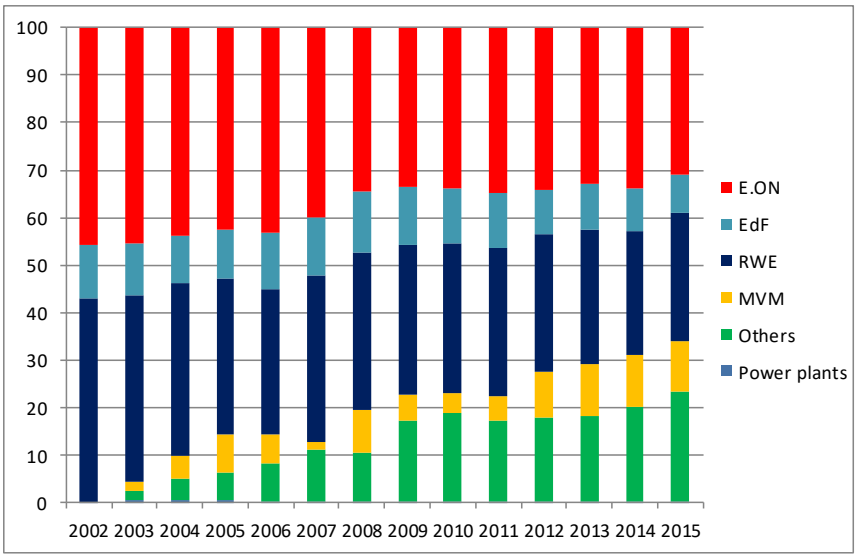
heating methods, mainly the usage of firewood). The other reason is the emergence of the effects of energy efficiency improvements. From 2015 onwards, there was a slow increase in both segments, but the size of the gas market is still far behind the gas consumption level of the peak years before 2008.

3.3.4. Market shares and their changes in the Hungarian electricity sector

The changing environmental effects influenced in a fundamental way the business opportunities of industrial players, which is illustrated by changes in their market share.

As a result of the first partial liberalization in 2003, and then full liberalization in 2008 of the electricity retail market, the shares of the three incumbent players (E.ON, RWE, EdF) began to gradually decrease in value. It can be seen, that new, independent energy traders appeared on the market in the service of authorized customers due to the legislative changes of 2003. The state-owned MVM, with dominant position in the wholesale, also expanded its activities into the retail market. Figure 18 shows the limits of market opening; while 10 years after the first liberalization measures, the shares of the three incumbent traders are still 70%.

Figure 18. Market shares in Hungarian electricity retail sector (Source: data of MEKH, compiled by the author)



It is observable in connection with firm performance that the market positions and shares of new entrants improved during the years of completion of liberalization, although state intervention did have a negative effect on the operations of alternative

service providers. Between 2007 and 2009, in the energy retail sector the multinational incumbent companies lost 10% and their market shares went down to 77%, from 87%. In this regard, the winners are obviously the new market entrants, who increased their market shares to 17.2% from 11.1% over the same two years. The process ran out of steam from 2010, and a new status quo was created, which changed only from 2012. From this year, the more active MVM increased significantly its market share at the expense of multinational incumbent companies and had attained a 10.7% market share by 2013.

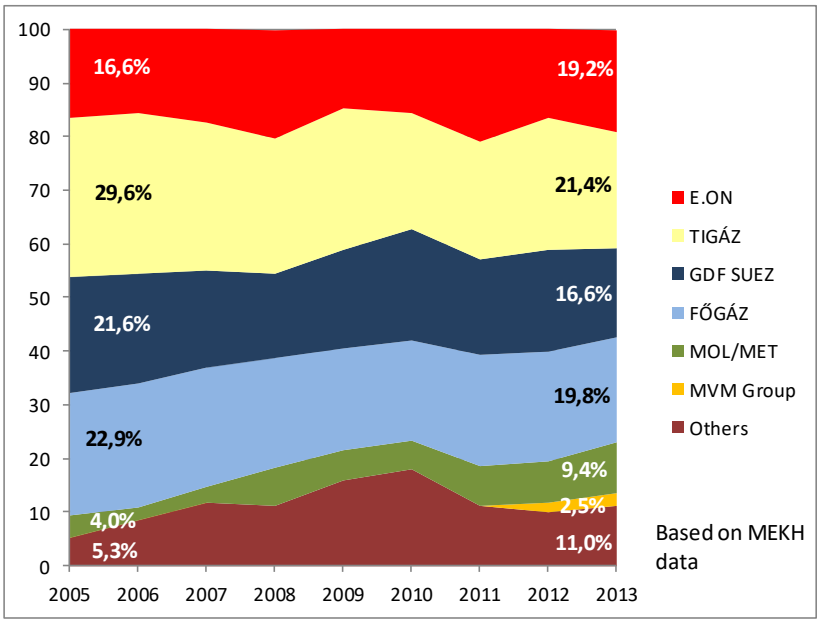
The changes in market share well show that the most dominant retail relations have hardly changed despite the major environmental changes. Along with the fact that independent traders have up to 30% of the market share, analyses of external effects on incumbent companies' strategies do seem reasonable.

The dominance of incumbent players on the gas retail market has maintained itself despite the 23% share had by independent gas traders by 2014. On the other hand, significant differences could be seen on the retail and wholesale gas markets. In the wholesale segment, the E.ON group had a dominant role until 2012, as it imported 50-60% of natural gas by a long-term gas agreement through E.ON Földgáz Trade Zrt. Following the sale of the company in 2013, the MVM group became the dominant player in the gas wholesale market, as in the electricity market.

The shares of each of the large groups (multinational incumbents, state-owned companies, new entrants) hardly changed between 2008 and 2013. This is explained by the fact that alternative service providers had already got a significant role (18.3% share in 2008) before liberalization of the natural gas market in 2008. Regarding the market actors, rearrangement happened more within the relevant group (and especially among the new free market entrants). The rising “stars” of the former period were seeing a change caused by the successful new entrants, which begs a question: are their business models based on long-term prudent operations or are they aiming to utilize a market anomaly? I have already noted the successes of MET in 2012, but it was not MET who was first in the history of the domestic natural gas sector to rapidly get significant results; similar signs of a combination of factors from the political and

economic environments can be seen in the background in relation to the former, temporal successes of EMFESZ.[23]

Figure 19. Shares in Hungarian gas retail sector (Source: data of MEKH, compiled by the author)



As a conclusion to the market processes analysis, it can be said that extraordinarily turbulent changes have served to characterize the looked at period in Hungarian electricity trading. While defining my research field, which is based on the co-evolution model described previously, I have tried to overview the complex interactions between institutions and companies with the widest possible research focus. Following this summary of the energy sector's main tendencies, I shall present my own research field and define my most important research theses in the next section.

[23] The first Hungarian Natural Gas and Energy Trade and Service Kft.'s (EMFESZ) - temporal - success in natural gas retail was mainly due to the fact, that the official price of natural gas was kept artificially low for political reasons in Hungary before the elections of 2006. From 2006, when the lowering of the import price would theoretically allow for a limiting of household prices, the regulations authority did not reduce the price because it wished to compensate for the former losses of gas wholesale (E.On) via high household prices and to prevent possible legal procedures regarding the non-refunded import cost. EMFESZ, using the arbitration opportunity, was able to provide household customers with cheaper gas in such a way that it did not have to buy it at a lower price from Russia (like the competitor E.On). EMFESZ appeared on the list of the 40 largest firms in Hungary if we look at its HUF 180 billion revenue in 2007. (Felsmann, 2014a)

4. RESEARCH METHODOLOGY AND HYPOTHESES

4.1. Deductive and inductive theorizing

Theorizing is never easy, but it is extremely difficult in the social sciences. I have already written (citing Coase) about the fact that the gap increase between statements with practical relevance for theoretical economics and company managers represents a serious problem (Coase, 2012). In their article, Auger and March (2008) highlight the dilemma of social scientists. According to them, the world is far more complex than the inevitably simplifying scientific theorizing could present. *"Almost everybody agrees that theories must be as understandable and realistic as far as possible and taken all together. However, everybody also agrees that lots of characteristics which make a theory understandable often result in a reduction in realism, while the factors that make it more realistic (such as complex details, breaking through conventions) decrease clarity" (p.97).*

Strategic management theories are especially exposed to the arguments of scientific philosophy; for it is a relatively new scientific field, being developed along less canonic, competing research programs in recent decades. In the theoretical overview, I presented the theoretical variety existing in the field of strategic theories, which had led to a gradual, patchwork fragmentation of science by the last decades of the last century (Balaton, 2010). One may well wonder whether in the scientific field, where a dominant school cannot take a stand, theoretical pluralism is result of the fact that the scientific field itself cannot correspond exactly to the expected requirements of science in terms of Popper's scientific philosophy. On the basis of Popper's (1999/1969) definition, it is not easy to answer whether the scientific field does have justifiable theoretical suspicions at all in terms of his theory. He thinks that if we do not know how to check a theory, we can rightly doubt if there is such a reality that describes the theory in question. If we know that it cannot be checked, we may suspect that it is only a myth or a tale. However, in connection with the description of strategic theories, the question also rises often in scientific life: is strategy a science or more of an art?

Mahoney, in one article (1993) which positions the argument about the theories of strategic management within the framework of scientific theory, supports methodological and theoretical pluralism. He warns scientists against strategic theories

that follow on from a comfortable but simplifying reductionism in terms of methodology, instead of utilizing pragmatism. He argues with the theorists, especially with the views of Teece (1988) and Camerer (1985), who think that strategic research needs a dominant research program and rigorous, deductive research within it. Arguing with Camerer, who proposes the instrumentalist approach of Popper's category system for strategic research, Mahoney explains his contradictions in four points:

a) Such a deep and detailed empirical research cannot be expected from the developing scientific field of strategic management, in contrast to matured scientific fields;
b) Better forecasts do not guarantee better understanding;
c) Why to take seriously models in which the authors have started from a completely mistaken assumption?
d) Falsification is impossible.

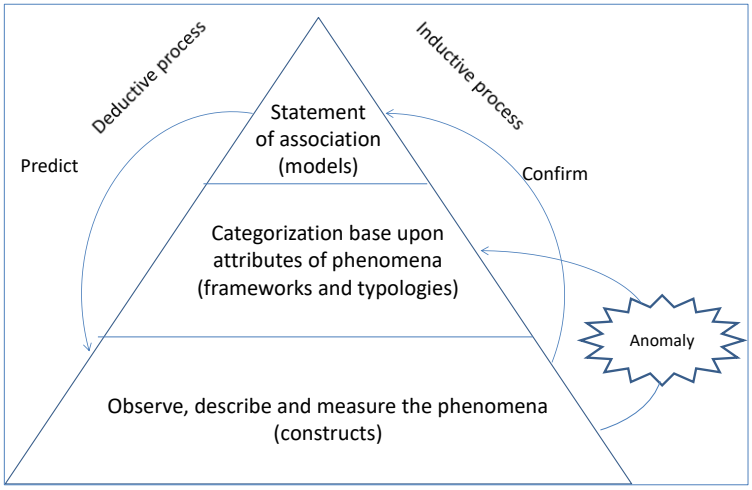
The period after the crisis strengthened methodology pluralism as scientists had to face the fact that the explanatory power of former theories was limited. In the field of economics and management sciences, more and more proposed a rethinking of the balance between the practical usefulness and academic rigour of theories. In Hungary, an all-day conference at the Hungarian Academy of Sciences dealt with the questions arising in 2014 (Balaton, 2014). The conference's summary was explained by conference participants as follows: *"As a social science discipline, both economics and management science fight with the assessment system, which sees only scientific results gained via hypothetical, deductive research models and based only on a positivist research philosophy with the basis of natural sciences' characteristics and development. However, subjects for natural and social science researchers significantly differ from each other in some of their characteristics. For representatives of this later science, the subject of research consists of dynamically changing the participants with own-will and strategic initiatives, where analysis based on measurements and the repeatability of studies is rarely feasible."* (p.928)

My own research approach also notes that besides the positivist research philosophy, an interpretative approach is also justified (Gelei, 2006), which might throw light on the unique and dynamic effects existing between studied cases and the actors, with

their freedom in activity, more deeply and more realistically than a reductionist theoretical approach.

A combination of analyzing methods is supported by many scientists as a methodology-related technique. Already in the 1970s, so-called *triangulation* was created as a proposal, being a combination of different methodologies in social science research (Jick, 1979). Christensen and Carlile (2009) made a similar proposal, highlighting the raison d'etre of a study case approach during any process of theorizing.

Figure 20. The process of theorizing (Source: Christensen and Carlile, 2009, p. 241)



The authors distinguish between the normative and descriptive phase of research. Data collection and analysis are obviously descriptive, but this does not reduce the effects of the raison d'etre of empirical research using this methodology. Christensen and Carlile call this period a preparation period, which consists of three elements: *observation*, *categorization* and *association*.

The objective of the first, inductive phase is a deeper recognition of phenomena. On the basis of newer information, the researcher can repeat several times his progress from bottom to top, testing the rightfulness of former theoretical models and constructions with ever newer empirical data. The *anomalies* - the situation in which the later research does not justify the former presumptions - have an emphasized role as they provide a chance for further development. The existence of anomalies offers a possibility to transform and clarify the categories, frameworks and models in the deductive process of theorizing. However, we can only move from the descriptive theory to prescriptive theorizing if we are able to come up with generalized statements

from the studied individual cases. Thus, prescriptive theorizing goes from the top to the bottom on the pyramid and focuses on statements with model-level causal relations. Of course, the prescriptive theory can be tested and improved upon via stepping between the levels of the pyramid, first from top to bottom with deductive methods, then with inductive theorizing.

This dilemma runs through my research, which asks whether *case -focused or variable-focused* phenomena for my research model might be more appropriate - in other words, if it is individual characteristics or deduced general statements that are worth focusing upon. The problem has been studied by many methodology researchers - and it seems that no "definitly best way" exists. Alston (2008) notes that it may be that the study case approach only satisfies within limits one important requirement of scientific research: an expectation of *generalizability;* and this still has an important role to play in the social sciences. Via his view, case studies can help us to study both the reasons for and results of institutional change. Alston also highlights the fact that case studies can help us to a deeper understanding of - and a comparison of - the institutional changes implemented in different countries. *"Through the study cases, researchers can study the dynamics of individual societies and then understand the reasons for a lack of global development."* (p.104).

Korsness (2000) summarized the differences between the approach of variable-centered versus case-centered as follows: (1) While the main target of the study case-centered approach is finding the balance between *cause and effect relations, interpretative analysis and theory forming,* variable-centered theories are typically created with the aim of justifying a general theory. (2) The study-centered approach sees a studied case in its complexity, the variable-centered sees the case as a combination of studied variables instead. (3) The first approach offers more flexibility in its conclusion as regards consequences and a justification of statements, while with the second an interpretation of phenomena is more limited. (4) In the case study approach, a comparison study becomes more difficult with an increase in case numbers; while with a variable centered approach, serious methodology issues arise in connection with the problem if the number of cases is big enough to talk about non-distortion results.

In their article, Bromiley and Rau (2014) offer a new theory formulation model for strategic management researchers which is called Practice based view – PBV. In their view, the practices followed by companies should have explanatory power themselves without any theoretical background construction in terms of explaining the achieved performance. Nevertheless, we need to use qualitative and quantitative research methods to understand these practices with explanatory power.

Co-evolution research is characterized by a combination of the inductive and deductive approaches and the simultaneous application of qualitative and quantitative methods. I also aimed to present this variability of methods in my own research. I conducted an analysis primarily based on a quantitative methodology characterized by its exploratory nature (Bettis et al., 2014) in the first phase of the research; while in the second phase, the focus was much rather put on the case study and interpretative approach. Following Christensen and Carlile's (2009) dual model of theorizing in my thesis, I "ended" my own study at discovering the relations between each element of the research model. In this research phase, discovering cause and effect relations was not my first objective - rather, it is a mapping of relations' intensities among and between phenomena. This two-phase research model corresponds well with the theoretical approaches applied in research work on co-evolution, which also combines deductive and inductive approaches (Rodrigues and Child, 2003; Suhomlinova, 2006; Wilson & Hynes 2009; Child et al., 2012; Hannon et al., 2013). The conception of co-evolution by itself searches for simplifying cause and effect explanations but it should, rather, focus on observation and an interpretation of two-way interactions between elements.

The current study follows the conceptual approach of Rodrigues and Child (2003), Hannon et al. (2013) and Foxon (2011) with minor changes in focus. I give different emphasis to the four external dimensions of Foxon's co-evolutionary framework. Although I present some illustrations on the interactions between the ecosystems, technology, user practices and business models, this study focuses more on the two-way relationship between the institutions and business practices. Thus, my research approach is closer to the model of Child and Rodrigues, who have their main focus more on the political perspective of co-evolution (Rodrigues and Child, 2003 and Child et al., 2012).

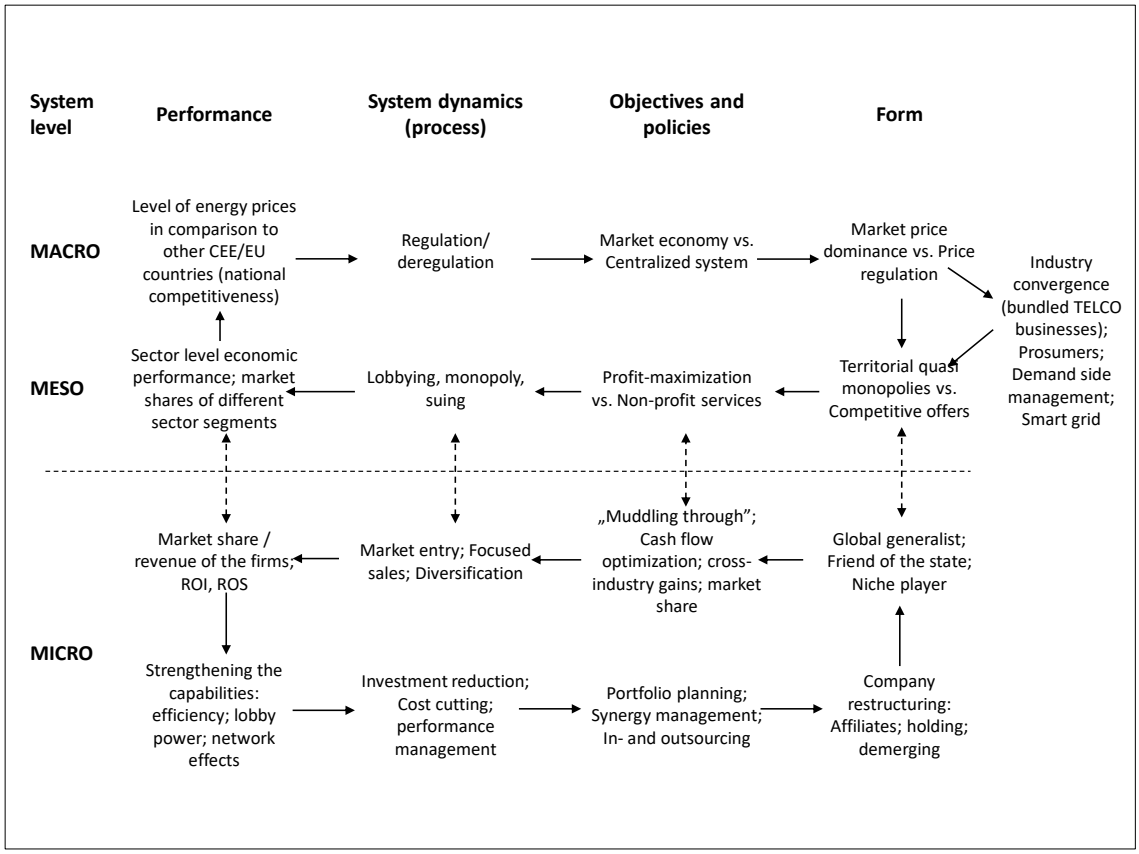
I do not want to underemphasize the impact of the ecological environment on the business models of sector firms or the effect of technological innovations on user practices and firm level strategies,[24] yet I think that the institutional environment has had the biggest impact on firms' behaviors and strategic activities in the period of my research. Of course, the evolution of institutions is not independent of ecological or technological effects. Foxon (2011) explains, that the process of co-evolution between technological and institutional environment can slow down the disruptive innovations and stabilizing the status quo through a 'lock-in' effect. *"Lock-in arises because both technologies and institutions benefit from path-dependent increasing returns to adoption. For technologies, scale economies, learning effects, adaptive expectations and network economies mean that the more a technology is adopted, the more likely it is to be further adopted." (p. 2260).* While the impacts of the technology-institution co-evolution are predominant to understand the revolutionary changes in the European electricity production and distribution, the retail sector is relative less concerned with the increased share of renewables. The business models of the energy retail companies reflect the European policies on liberalization and the national adaptation process of the market reforms.

4.2. Adaptation of the co-evolution framework model

By adapting the model of Rodrigues and Child a domestic co-evolution mapping can be seen in relation to the domestic energy trade in connection with my research area.

[24] For the above, a good example is the appearance of energy-saving companies (ESCO) who share the results of more efficient energy utilization, thus promoting the environmental message of energy saving and creating a business model for the utilization of arising possibilities at the same time. A good example of the development of technology is management of the demand side, which belongs among the so-called smart grid network solutions, and whereby specific customers take part in sustenance of physical system balance and receive consideration for this.

Figure 21. An institutional co-evolution map for the Hungarian energy trade (compiled by the author)



Each element of the map has a natural effect on the other so dynamic interactions and combined changes are more typical than one-way, deterministic cause-and-effect relations. Overviewing each element of the table, on macro level governments gain information on the competitiveness of the relevant country's energy prices in comparison with other countries. If the government thinks it is lagging behind regional (or targeted group of countries) prices, it will try to change the situation by regulation or deregulation measures in accordance with the predominant political ideology. Regarding policies, a strengthening of state regulation and/or market economy institutions can support the objectives of the dominant ideology. Thus, the most effective institutional and organizational model for trade moves in the direction of creating the structure of the market or official price fixing.

4.2.1. Policy changes, processes and objectives on macro-level

I have already explained, that the legal environment in Hungary basically changed due to the new national Energy Strategy adopted in 2011 and even more from 2012 when

the utility price cut was announced. I consider it important to emphasis the following macro level elements of the model:

1) *Low household electricity and gas prices as the key indicators of the governmental performance:* the key indicator of the government success after 2010, even more from 2012, is to reduce the domestic energy prices and reach their lowest level within the region. It's important to highlight that this objective may have priority against other macroeconomic factors and it may even involve the increase of charges paid by industrial consumers as I have already illustrated in **Hiba! A hivatkozási forrás nem található.** relating to the network charges levied on certain consumer groups.
2) *Impose taxes to ensure macroeconomic balance and to achieve industrial objectives:* the government imposed industry-specific taxes on a number of occasions after 2010. The industry-specific taxes improve the sort term budget equilibrium and, on the other hand, they are active influencing means for the government to achieve the its objectives within the industry. The increasing tax burdens contribute to deem the investments less attractive by the private investors of the sector making it easier to decide whether these investments are being redeemed or sold to government-preferred owners.
3) *Strengthening of national ownership:* As I have mentioned in chapter 2.2 strengthening of national ownership is a declared objective of the energy industry mainly of the gas sector in the strategic document of the government, the National Energy Strategy 2030. In terms of government performance, the change in the ownership composition within the industry is also an important indicator for achieving governmental objectives.

In addition to the above three performance indicators, it is important to highlight some elements which are specific to the institutional environment that may facilitate to achieve the objectives. In this connection, the changes of the regulatory and control institutions have outstanding importance on macro-level in terms of system dynamics. In chapters 1.1.2 and 3.1 I gave an in-depth overview of how the actual government tried to subordinate the legal environment of energy sector to its own policy objectives with the continuous restructuring of institutional environment. In this respect, the persistence of the system of regulated prices and the centralized institutional system

suggest that priority is given to the central operation and bureaucratic coordination by the government to achieve the abovementioned objectives.

4.2.2. Sector-level adaptation and performance

Changing to the meso (industrial) level - as was described in detail in 3.2 - the price system has an obvious effect on market structure. Application of a system of regulated prices eliminates the competition between market players, which can lead to the creation of quasi-monopolies/regional service providers. With objectives defined on an industrial level (regarding the full population of sector companies), profit expectations from certain operational models may be different. The possibilities of cross-financing (for example in the case of vertically integrated industrial players) or pursuing social targets even at the cost of reducing profitability (for example with a non-profit state-owned public utility) have an impact on the expectations of trading companies. The performance of each industrial segment and of the entire energy trading industry is a result of lobbying on the industrial level or legal enforcement - which has a repeatedly reversing effect on competitiveness at the macro level.

It is not easy to define clear performance indicators for the entire industry as its performance as a whole includes the impact of both internal and external factors. But in terms of the elements of co-evolutionary interactions some issues can be clearly analyzed within this dimension as well:

1) *Rearrangement between the market segments:* The clear objective of the government regarding universal services is the reduction of prices. This objective can reduce the share of universal service across the entire industry both in terms of revenue generation and profitability.
2) *Rearrangement between certain ownership groups:* Considering the sector as a whole, the impacts of macro-level objectives and structural changes on the strategic decisions of companies with different ownership background can be well analyzed.
3) *Profitability and taxation on sectoral level:* although there are significant differences between companies in this regard, the values of profitability and taxation characterizing the whole sector clearly show how and to what extent the whole sector contributed to achieve the macro-level objectives.

4.2.3. Corporate level adaptation and mechanisms

Changing the company (micro) level and dynamic co-evolution interactions can be seen here regarding performance, processes and organizational ways of operation. The individual company's performance naturally affects industrial performance while generating changes on organizational level via strengthening institutional learning, developing resources and skills, making efficiency improvements, having lobbying capacity outside the organization and networking. Profitability which does not reach the level of competitors and/or one's own expectations effect the level of investment and the company's cost management. Companies react to changes in environmental conditions with the better utilization of synergies and organizational adaptation steps (for example restructuring or closing loss-making divisions). The clustering of the industry is strengthening, and companies with different strategies (for example companies focusing on niche markets, generalists, representatives of state interest) give similar responses to challenges from the institutional environment. Strategic targets associated with market entries and exits and concentration or diversification have an impact on measurable business performance indicators.

In terms of analyzing micro-level adaptation mechanisms it's an important issue if groups or clusters can be constituted within the industry of which responses for environmental challenges are typically similar. Several group constituting criterion can be conceivable some of which I will study in detail.

1) *Hungarian and foreign owned companies:* since as a part of the government declared objectives, the intention to strengthen the Hungarian ownership was formulated in 2011, it is worth studying the differences and similarities of strategic goals and adaptation mechanisms between the Hungarian and foreign owned companies including the achievement of growth and profit targets as well as steps in favor of organizational restructuring.
2) *incumbent companies versus new entrants:* the other possible grouping logic is the comparison of (partly Hungarian but mostly foreign owned) companies with natural monopoly status with the new competitors entering as a result of liberalization processes.
3) *Companies which (also) have universal service provision versus free market traders:* The effects of the household utility price cut influenced the business

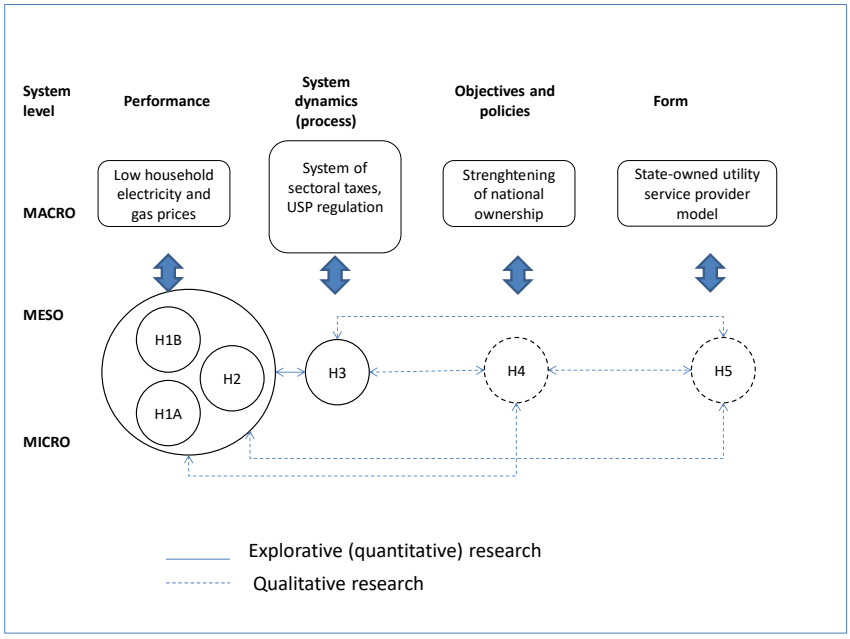
opportunities of companies providing universal services (too) while of the companies being active only on the free market have not been affected by them. Therefore, it would be interesting to examine the similarities and differences that can be found in the typical strategic and organizational adaptation processes of these two groups.

4) *Distinction according to sub-sectors:* as a part of trading companies are active only on electricity, while the others only on the gas market and there are companies which are active both markets, its worth studying that how this feature influences the adaptation processes and business performance.

4.3. My research model and hypotheses

Although the aim of co-evolutionary research is more to discover the interactions between each subsystem than to search for a causal relation, in **Hiba! A hivatkozási forrás nem található.** I have tried to organize my most important research theses into a single research model. I have followed the model of Rodrigues and Child in the Figure, indicating in relation to my hypotheses which element of the referred-to frame model they are connecting with. Even though I put forward my research questions as hypotheses, I do consider it important to note here also that with the followed co-evolution research being used as the theoretical model, it is not the causal relations that are being highlighted mainly but the study of interactions between each factor and the "change together".**Hiba! A hivatkozási forrás nem található.**

Figure 22. Outline of my research model



In my research model, I study the relations between the four subsystems - performance, processes, objectives and policies, and organizational models - via five hypotheses. I indicate the hypotheses with solid line in the chart, which can be studied primarily via quantitative research (with special regard going to an analysis of companies' financial reports). For the elements marked with dotted lines, I have formulated only preliminary hypotheses for specific phenomena which can reveal only some details about the connections between macro-, meso- and micro-level within a certain dimension. As I have already mentioned in chapter 4.1, inductive and deductive theorizing are combined in the co-evolutionary researches in a number of occasions. Inductive approach is only suitable with limits to formulate general theories through observations that increase the empirical base. Thus, in describing certain phenomena, I could only strive to make the sufficiently large "inductive base" which make the generalized theoretical findings as likely as possible but, of course, I could not formulate a close logical connection system. In terms of methodology, I attempted to study these model elements in more detail by conducting questionnaires and deep interviews.

During the formulation of hypotheses studied in the model, it is important to distinguish the industrial strategic groups which could be the subject of analysis. These group constituting criterion are as follows:

- *The company's scope of activity based on customer segments:* does the analyzed company carry out universal services or it is present only in the free-market segment;
- *The company's scope of activity regarding the sub-sectors:* electricity, gas or mixed trading profile;
- *Ownership structure of the company* (it has domestic or foreign ownership or control);
- *The company is incumbent or new market entrant*: the company is a successor of a previous regional integrated state-owned monopoly service provider or it entered into the market after 2003 seizing the opportunities created by liberalization.

In the following, I give a brief overview of the hypothesis illustrated by the modell.

4.3.1. Performance

We can assess the performance of the companies in various ways in the *Performance* dimension of the model. Under fortunate circumstances, performance measures the owner's value creation, but its correct measurability drops a number of methodological issues. The owner's value creation is approached the best with a cash flow indicator but the production of these kind of indicators from public financial statements requires a lot of time and knowledge of additional information which can only be revealed partly based on annual financial reports. Concerning the indicators included into the analysis I have attempted to apply those which are sufficiently representative in case of a trading company, not cause problems with their calculation based on the publicly available data sources, and not have serious interpretative problems with regard to the usability of the given indicator regarding the comparability over time among companies.

In terms of financial performance indicators, we can distinguish profitability, operational and liquidity indicators each of which shows a section of performance. At determining the range of indicators examined by me, the indicators included in the analysis were selected to show the most important areas of the trading companies' operation, so I basically analyzed four indicator groups more deeply: (1) return on sales indicators; (2) efficiency of working capital management; (3) rate of paid taxes; (4) trend in the rate of dividends.

I have formulated my hypotheses taking into account the circumstance mentioned earlier according to which the year 2012 can be considered as a kind of watershed based on the method and extent of state intervention. At studying the hypotheses, I primarily sought to find out whether there were any differences between typical industry groups (Hungarian versus foreigner, free market traders versus companies which also have universal service provision, traders with electricity, electricity, gas or mixed profile trading companies).

Hypotheses regarding profitability

The first hypothesis concerns the performance gap between the companies which carry out activities in the universal service market too and companies solely active on free market:

H1A: In the period between 2009 and 2011, there was no significant difference in performance between companies solely active on free market and traders providing universal service too regarding their profit margin, however, the profitability of the latter has been lagging significantly behind the former since 2012.

The expectation behind the hypothesis is that the government eroded the profitability of retail service providers as the sales prices have been determined in the area of universal services via official price fixing since 2012. Within the frame of the hypothesis I study the development of EBITDA. Concerning energy traders providing universal services too or companies solely active on free market, my previous assumption was that the EBITDA of companies which also have universal service provision had been significantly decreasing since 2013 in comparison with the previous period. I supposed that the decline in EBITDA from 2013 onwards has far less affected the free market traders, as in their case, official price was not fixed centrally which limited profitability in an administrative way.

I have studied, but I did not formulate a preliminary hypothesis in connection with EBITDA of Hungarian and foreign-owned companies, as in the former group, in my opinion, the primary aspect was to increase market share, which could have been carried out at the expense of short-term profitability. At the same time, the growing market share of Hungarian controlled companies could improve EBITDA through economies of scale. The origin of the two opposite effects determines the typical profit rate of the groups.

As I have described in chapter 3, the Hungarian gas sector faced with several challenges after the crisis of 2008. On the one hand, the size of the market was continuously decreasing as the industrial gas consumption and the gas powered power plants declined in the Hungarian power generation which itself created a difficult situation. On the other hand, the centralizing intentions of the government strengthened from 2012 were more intensive here than in the electricity sector. In view of this I have formulated the following hypothesis concerning the traders being active in certain sub-sectors:

H1B: Examining the entire research period, the operating profit of the energy trading companies being active in the electricity market is higher than of companies being active in the gas market or in both segments.

Similarly to the hypothesis H1A, the study is carried out here by quantitative analysis of data originating from the industry sample based on the comparison of EBITDA ratios.

Preliminary assumptions on operational efficiency

As trading is typically not a fixed asset intensive activity, the operational efficiency of energy trading companies can be studied in the most informative manner via factors describing working capital management (rotation of accounts payable, inventories and accounts receivable). Regarding working capital management, I have formulated the following hypothesis:

H2: in the period of research, companies with foreign ownership performed better than the companies with domestic background in terms of efficiency in working capital management.

The hypothesis reflects some anticipations. On the one hand, it assumes the know-how transfer of foreign-controlled companies, based on which they are in a more favorable environment than the domestic competitors in terms of their processes relating to working capital management (management of accounts payable, accounts receivable and inventories). On the other hand, the expectation that the optimization of cash flow was the focus of their strategy after 2009, of which one key element, besides restraining of investments, is the improvement of working capital and the exploitation of financial reserves resulting from it.

Having inventories are not typical for electricity traders, so the analysis of inventories' rotation periods could only be partially interpreted for the whole sample, so I did not formulate a hypothesis in connection with it. It would have also been problematic to analyze the changes in accounts receivable. For companies that have significant purchases from other companies within the same Group, the accounting of these transactions in the balance sheet are not reported at accounts payable but at other liabilities so the comparison of rotation factors calculated based on accounts payable would be distorted. Although this effect could be filtered out from the notes of the financial statement with significant extra work, but to process them in detail was beyond my data collection possibilities relating to the 22 analyzed companies.

Assumptions relating to taxation

H3 – the system of sector-specific taxes increased the tax burdens on the entire energy trading from 2009, but no direct competitive disadvantage can be identified for any of the industrial groups against the others.

The hypothesis is based on the assumption that sector-specific taxes have worsened the overall profitability for the companies operating in the sector, but their imposition did not affect the relative competitive positions between individual market players and the industry groups.

4.3.2. System dynamics - processes

Along with the system dynamics dimension of the model, following the approach of Bromiley and Rau (2014), I tried to describe the typical firm practices. In this case, I didn't formulate preliminary hypotheses except of Hypothesis H3 concerning taxation which can be studied with quantitative methods and can be partially defined either in the dimension of performance or system dynamics.

During the analysis of meso-level system dynamics and processes, particular attention has to be paid to the examination of the companies' lobby capacity. As I expected, the lobby capacity of new entrants is typically connected to a specific industrial segment, so companies having as their base such capabilities typically choose focusing, the relevant segment targeting strategy. In contrast, the bargaining power of incumbent companies is a result of their historically regional monopolistic position, so their primary concern is to maintain their whole industrial position during the bargaining

process, even against their narrowly interpreted retail activities. Although I have not formulate as hypothesis, but examining whether a similar corporate practice can be identified relating to certain clusters which were defined earlier or not is in the centre of my research. I attempt to describe the strategies followed by certain companies based on processing of questionnaires, in-depth interviews and other qualitative sources.

4.3.3. Objectives and policies

I have already presented in chapter 3.3.2 that the National Energy Strategy defined the strengthening of the government's ownership role as a declared objective. The business decisions of the state (publicly) controlled energy trading companies (MVM, FŐGÁZ) operating in the sector is determined by the intention to meet the objectives of the outlined governmental strategy. In chapter 4.2.1 I have described the macro-level objectives (low household energy prices, sector-specific taxes in order to ensure macroeconomic balance, strengthening of national ownership) which influenced the decisions mace by MVM and FŐGÁZ in the studied period. The relationship between corporate policies and macro-level governmental objectives is analyzed based on the following hypothesis:

H4: The political expectations of the state-controlled energy trading companies enjoy priority even at the expense of their business and management objectives.

This hypothesis can be tested partially with quantitative instruments. However, the deeper understanding of organizational adaptation processes requires the large-scale application of qualitative research methods, so during the study of the hypothesis I also relied heavily on the results of interviews and questionnaires.

4.3.4. Organizational structure

I formulated two hypotheses to study the two-way relations between the organizational form and other factors regarding the ownership determinations of organizational changes:

H5: The incumbent MNEs can compensate for changes in the regulatory environment with rapid strategic and organizational adaptation. They respond to the challenges of the institutional environment with rapid restructuring of organizational structure.

This hypothesis can be justified or withdrawn by qualitative research methods. I study the organizational changes implemented by the companies and their connections with the changes of institutional environment via qualitative methods. The expectation behind the hypothesis is that the companies with international background decide much more quickly on the organizational restructuring if the formal structure does not adequately reflect the characteristics of the changing institutional environment.

4.4. A quantitative, explanatory analysis in the first phase of the research

The study concentrates on the changes of the Hungarian energy retail sector from the time of liberalization of the whole market in 2008 until 2015. I have used secondary sources such as company yearly reports, articles, press releases, legal documents and industrial surveys. Active personal involvement in several industrial organisations, industry events and conferences also helped me to collect background information from company managers, regulators and state officials through informal discussions.

The main purpose of the quantitative analysis was to better understand the differences in performance influenced by different business models and environmental factors of the focal firms. I have collected company specific information and performance data of 22 major trading firms of the energy sector from 2008 until 2015. The most important variables in the database are the following:[25]

Table 4. The most important variables applied in a quantitative analysis

Variable	Possible set of values	Short description
Nationality	Alphanumerical code of (majority) owner's country	The indication of nationality adopts the database to be studied with domestic/foreign types

[25] In the background database, more financial information is used in connection with the focal firms. The database contains complete annual report of companies (balance sheets and profit and loss accounts) and several operational, liquidation, profitability indicators calculated in relation to them between 2008 and 2013.

Variable	Possible set of values	Short description
Market focus	Electricity, natural gas or mixed double dummy variable with ELECTR, GAS 1/0 value	The variable shows the direction of the company's trade activity between the electricity and natural gas market.
Size	Numerical	Natural logarithm of the balance sheet total.
DSO within the company group	dummy 1=yes	The variable indicates if the company's ownership group has an interest in energy distribution.
Universal services	dummy 1=yes	Indicates whether the analyzed company does universal service providing activity.
Hungarian power plant within the company group	dummy 1=yes	Indicates whether the analyzed company has Hungarian power producing capacity.
Net income	Numerical, HUF million	Revenue according to accounting reports.
Equity	Numerical, HUF million	Equity according to accounting reports.
Average level of corrected equity	Numerical, HUF million	Equity according to accounting reports compensated for with the value of capital of non-commercial divisions (subsidiaries)
EBITDA	Numerical, HUF million	Earnings before interest and taxes (EBIT)
Adjusted profit after tax	Numerical, HUF million	Profit after tax according to accounting reports compensated for with the value of the capital of non-commercial divisions (subsidiaries).
Profitability indicators calculated from report	Percent	Gross margin Sale proportional operational revenue Adjusted profit after tax as a proportion of revenue
Tax rate	Percent	The rate of paid taxes (corporate income and sector specific taxes) comparing to the gross margin (revenue reduced by its cost of goods sold)
Rotation time of accounts receivable	day	The average annual accounts receivable comparing to the revenue.

The set of variables includes the industrial activity focus (electricity and/or natural gas), retail market segments served (universal services and/or free-market trading), ownership structure (foreign/local incumbent or foreign/local free-market trader), key operational revenue and cost figures (cost of goods sold, staff costs), and balance sheet

items (fixed assets, invested capital, accounts payables, account receivables). I calculated operational efficiency indicators, companies' equity, short and long term debt to measure the companies' leverage and dividend and taxes paid, to measure the financial transfers between the firm and other key stakeholders, like the state and the shareholders. Appendix 1 shows an extract of companies' data in the database based on the numeric values of one of the analyzed years (2013).

The firm level data were collected from the official website of the Company Information and Electronic Registration Service Office of the Ministry of Justice, where all companies registered in Hungary compulsorily have to upload their yearly reports (profit and loss statements, balance sheet and notes). The financial figures of the 22 companies concerned properly represent the whole sector with the following minor limitations:

(1) There are several international energy trading companies which manage their Hungarian commercial operation through local representative offices without establishing affiliates under the Hungarian corporate law. The non-Hungarian registered firms have a limited licence for energy trading operation without providing any retail services in the country. These companies naturally do not publish their financial data on the official Hungarian website - thus they do not play a role in my study.

(2) The retail activity of the power plant companies also was excluded from the analysis. Although it is legally possible to sell their production directly to consumers without using intermediate traders, this is an uncommon activity, so their exclusion does not point to any distortions.

(3) The total energy trading volume in Hungary achieved 221 terawatt hours for electricity and 13.2 billion cubic meters in the natural gas sector based on 2013 figures from the Hungarian Energy and Public Utility Regulatory Authority.[26] The total revenue of the electricity and gas trading sector was approximately 15.5 billion euro, while the revenue of the 22 firms of my dataset achieved 8.6 billion euro (55% of the total) in the same period. As I included all locally registered energy trading firms with

[26] Naturally, such data are significantly higher than actual domestic electricity and gas consumption with regard to the accumulations of sales amongst traders.

yearly revenue over 3 million euro in the dataset, the difference can be explained mostly by the international trading activity of the non-Hungarian registered firms. Taking into consideration the impacts of the abovementioned limitations, I can state with high confidence that my dataset represents the overwhelming majority of the Hungarian energy retail market.

I made some corrections of the raw financial data for better comparison. There are different organizational structures of the firms concerned. The majority of the companies operate the trading business unit in a legally separated affiliate, while several others combine the commercial activity with investment activities in an operating holding structure. The typical investment of the former incumbents is the direct ownership of the DSO's shares. Due to the *unbundling* rules of the European Union, valid from 2007, the energy companies earlier operating integrally were obliged to separate their network and commercial activities to ensure access without discrimination to the monopoly network infrastructure for all traders. The vast majority of the incumbent traders (ELMŰ-ÉMÁSZ, FŐGÁZ, GDF, TIGÁZ, EDF-DÉMÁSZ) also own shares in their group's DSO - so the legal division, with its trading activity, is the investment company at the same time, which can be described best with reference to the organizational scheme of operative holdings (Dobák et al., 1992). As a sole incumbent, E.ON has chosen a different organizational way of moving and undertook a full legal separation and organized all of its Hungarian investments into a strategic holding form (E.ON Hungária Zrt.) with legally independent subsidiaries.

There are some other examples of a mixed activity profile, when free-market traders own shares in production units (ALTEO, Greenergy). To ensure the comparability of the commercial activities of my sample, I corrected the balance sheets and profit and loss (P&L) statements of the firms by deducting the book value of the non-trading investments from the non-current assets and deducting the same amount from the capital reserves on the liabilities side. I deducted the financial income (dividends) from the owned DSOs or production units from the raw P&L figures.[27] I have utilized the modified fixed assets, equity and financial income figures in further reports.

[27] A question may arise: why did I not use division reports, which are obligatory in the case of companies with several divisions as an annual report? After looking over several reports, I concluded that as division reports do not divide up general corporate costs among each of the divisions and they do not contain capital consolidation, their use would result in greater distortion than the simple division divide chosen by me.

4.5. Second phase of research – questionnaires and interviews

In the second phase of the research, I have widened the analysis based on a quantitative methodology characterized by its explanatory nature with qualitative instruments. In connection with the earlier mentioned triangulation, Child et al. (2013) note that to make a good analysis, the circle of analyses must be, if possible, widened to take in the three dimensions of the triangulation:

1) *data triangulation:* in more time, for different observational units, from several information sources;
2) *the triangulation of researchers:* invitation of researchers with different approaches;
3) *triangulations of methodology:* using different methodologies for observation of the same phenomena.

Regarding the first point, longitudinal quantitative studies, which are based on standard accounting data, suitably meet the requirements of the methodology, in my view.

Regarding the second point, a doctoral thesis offers limited possibilities - as independent, individual research performance is of greater importance. Along with this, I consider it important that in the earlier stage of my research I did have an opportunity to present my results in an international, academic conference and at industry-specific conferences; and some parts of it were published first in a format of reviewed conference publications and then as an article (Felsmann, 2014b).

Regarding the second point, the questionnaires and interviews used in the second phase of the research completed the methodology based on primarily quantitative data, industrial research, articles and informal conversations which got input for further qualitative elements. In this research phase I wished to overview the individual characteristics via structured interviews with the senior managers of the companies in the database and, given this, to complete my observations on meso- and micro-level co-evolution.

During the conduction of interviews I made use of questions covering the institutional environment coming from the competitiveness survey done by CUB Competitiveness Research Center. The advantage of a questionnaire is that, as a reviewed questionnaire,

it offers an opportunity to compare answers with the national surveys of autumn 2013, thereby highlighting sector-level characteristics.

In the second phase of the interview, on the basis of a preliminarily defined questionnaire I have provided an overview about the most important hypotheses and the co-evolutional effects connected with issues indicated in the basic model. I conducted interviews with 12 top managers in 2015. I considered it important to select the interviewees so that to conduct the interview with, whenever possible, the chief executive officer of the company or, in case of a company with diversified portfolio, with the head of energy field. As the questionnaires were also filled in by the interviewees, I conducted the interview with the highest-ranked Hungarian senior manager in case of companies where the mother tongue of the chief executive officer was not Hungarian. Sound recordings have been made during the interviews, but the thesis does not contain identifiable findings relating to the companies according to preliminary confidentiality agreements concerning the questionnaires and the findings mentioned in the interviews. The questionnaire and the set of questions which have been used during the interviews is included in Appendix 3. The top managers of the following companies participated in the interviews. Alteo: Attila Chikán Jr., CEO; CEZ: Balázs Hajdú and Tamás Hiezl, Managing Directors; EDF-DÉMÁSZ: Gábor Lehóczki, Deputy Managing Director; ELMŰ-ÉMÁSZ: Zoltán Nagy, Director; E.ON: Zsolt Jaminczky, Deputy CEO; FŐGÁZ: Laczó Sándor, General Manager; GDF SUEZ: Péter Csiba, Deputy CEO; Greenenergy: László Dajbukát, Deputy CEO; Magyar Telekom: Attila Soós, Business Unit Manager; MÁSZ: Zoltán Nagy, Managing Director; MET Balázs Lehőcz, Deputy CEO; MVM Partner: Attila Baly General Manager. At the selection of interviewees, I considered important that the respondent group appropriately represents the portfolio consisting of 22 companies which was analyzed by quantitative methods. The interviews conducted between June and November 2015, therefore the consequences which can be drawn from them reflect the opinion of the respondents at that time. Since then, many of the analyzed companies has been significantly restructured which affected the interviewees' position as well. Many of the respondents have been in another position since the interviews. In some cases the activities of the company (e.g. Magyar Telekom, EDF, GDF-SUEZ, FŐGÁZ) also changed significantly, the energy activity was restructured or even completely eliminated.

5. EMPIRICAL ANALYSIS: CO-EVOLUTION IN THE HUNGARIAN ENERGY TRADING INDUSTRY

In the previous chapter I have described my research model and the hypotheses which are studied in detail in the further parts of my thesis. In the course of my analysis, I primarily look for the answers to the following questions: (1) How much was the profitability of companies influenced by the change of institutional environment and market competition? (2) Has the strategic position of focused-on companies changed on the studied time horizon - and, if yes, how much? (3) Is it justifiable that the MNEs could compensate for the changes in regulation environment with faster organizational adaptation steps than could domestic companies?

In the next chapter, I will give a detailed overview about the 22 analyzed companies at first and then I analyze the database compiled by me with statistical methods. During the statistical analysis, I will first study the strength of the connections between the variables via correlation analysis and conduct a time series analysis of data collected from the financial reports.

In the second part of the chapter I will complete the analysis with qualitative methods. First I will compare the results of the CRC research with the results of my own sample of industry sector, and then I present the main conclusions that could be drawn from structured interviews. The chapter is ended by a detailed evaluation of the hypotheses.

5.1. The general characteristics of energy trading companies

Before a general characterization of the companies in focus, I see it as important to note that the quantitative database contains the financial data of companies between 2008 and 2015, so the results of the analysis reflect this period.

Of course, a number of important changes affecting trade as a whole have been made in the Hungarian energy market even after 2015, but I omit to analyze them in detail in my thesis. Among the changes, it stands out that the construction of national public utility system was continued which resulted that the consumers served by E.ON USP unit from 1 January 2016 and the consumers seved by TIGÁZ USP from 1 October 2016 have been took over by FŐGÁZ Zrt, and it closed the transfer of household gas supply to the state by the end of 2016 all over the country. The state gained position in

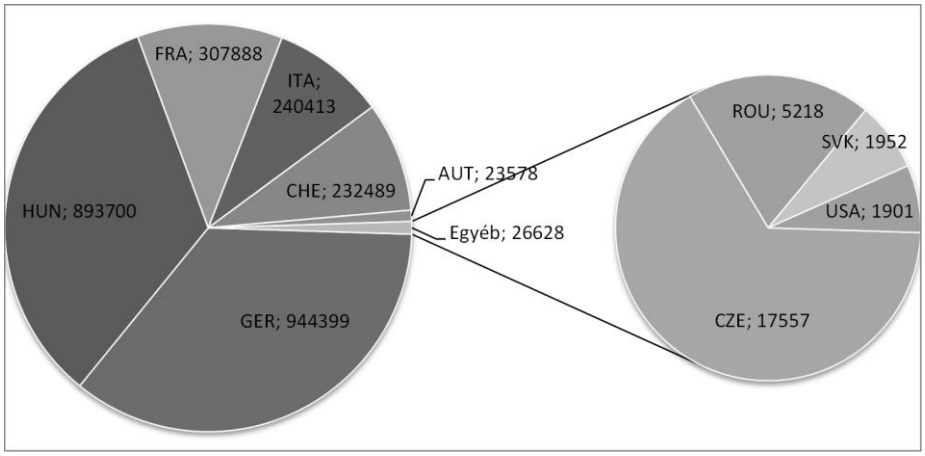
the electricity market as well because the universal service unit and distribution network of EDF-DÉMÁSZ was acquired by Nemzeti Közművek Zrt in February 2017.

Although, these changes may make the conclusions drawn by the quantitative analysis more subtle, I considered that the eight-year data series studied by me gives an appropriate picture about main features of the transformation of the Hungarian energy trading sector.

5.1.1. Financial and operational characteristics of the focused companies between 2009 and 2013

The 22 energy trading companies had a HUF 2670 billion income overall in 2013. The 22 companies can be linked to nine countries regarding their final owners. According to the nationality of owners, the companies with German owners (E.On, ELMŰ, ÉMÁSZ, Magyar Telekom, and MÁSZ) had 35% of the entire revenue in 2013. The companies with Hungarian owners, which had 33% of the entire revenue in 2013, are Alteo, E-OS, FŐGÁZ, JAS, MVM Partner & MVM Trade, Nordest Energy, IFC Energy, and VPP Erőmű). Two French companies (EdF-DÉMÁSZ and GdF-Suez) had above 10%; TIGÁZ, owned by Italian ENI, almost reached a 10% level; while MET, owned by a Swiss holding, performed similarly. The representatives of other countries together got only 2% of the overall income in 2013.

Figure 23. Distribution of focal companies' incomes in 2013 according to the nationality of final owners



From the 22 companies, seven provided universal services in 2013: GdF, TIGÁZ, FŐGÁZ in the natural gas sector, ELMŰ, ÉMÁSZ and EDF in the electricity sector, and E.On in both sectors. The examined companies applied different practices

regarding the measure of separation and integration of activities in the universal service and free market trade. E.On, adhering to the generally typical strategic holding model, integrated all of its activities into one company - E.On Energiaszolgáltató Kft. - at the time of market liberalization in 2007. TIGÁZ, FŐGÁZ and EDF - and with the exception of a short time period - provided both universal and free market services from the parent company, the center of Hungarian operations. Two companies from the RWE Group (ELMŰ and ÉMÁSZ) established MÁSZ Zrt., with common ownership, in 2002 particularly to provide a service to free market customers.

10 companies from the 22 belonged to a group which had power plant investments in Hungary in 2013. From the large players, MVM, and from the smaller ones Alteo and Greenergy had a business model which was basically built upon utilization of the power plant in their portfolio. The business model of the VPP power plant is also interesting as it is primarily built upon the sale of self-controlled power plants' produce. However, this company sells not only the capacity of self-running but of other contracted power plants - so the initials of the name of the company refers to 'virtual power plant'.

To answer the questions raised at the beginning of the section, the 22 focal companies are divided into groups. Table 5 presents the main financial indicators of these sector firms for the last six years (2010-2015) of operation. The table shows the average equity, earnings, taxes and dividends of the four main clusters of the identified energy trading firms: (1) domestic incumbents, (2) foreign incumbent (3) domestic new entrants and (4) foreign new entrants.

The two companies in the domestic incumbent group (Group1) were fully or partially under state (MVM) or municipality (FŐGÁZ) control over the whole research period.

Table 5. Financial key indicators of energy companies with domestic and foreign management

all data in million HUF	Group*;**	2010	2011	2012	2013	2014	2015
Turnover	1	592,527	620,326	743,819	879,286	828,210	702,345
	2	1,676,029	1,750,452	1,552,712	1,534,597	1,444,700	1,297,109
	3	40,771	85,803	237,564	345,236	297,858	211,000
	4	46,372	69,907	63,395	91,340	98,206	97,662
Average level of corrected equity	1	33,853	33,768	51,851	33,748	42,349	33,219
	2	51,842	110,388	33,362	-4,389	-17,594	-41,314
	3	2,714	8,171	4,041	7,427	6,973	2,124
	4	1,026	2,405	1,684	-6,544	3,718	4,187
Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)	1	21,002	23,745	41,225	3,259	-1,501	2,199
	2	26,368	8,094	-27,175	-7,365	818	13,166
	3	4,568	9,084	18,561	3,841	7,417	5,265
	4	1,912	-1,047	-1,302	-4,276	-1,015	1,299
Corporate income tax	1	6,002	4,141	8,560	2,362	-229	986
	2	5,035	1,928	1,310	3,099	5,212	6,359
	3	1,241	907	1,773	2,011	275	-543
	4	315	289	204	213	462	710
Average level of dividend paid	1	20,344	21,943	29,900	1,710	0	953
	2	30,433	38,032	23,090	40,432	19,944	15,915
	3	2,575	9,761	55,428	1,975	971	3,399
	4	2,024	845	829	88	90	302

* Group1 = domestic incumbents; Group2 = multinational incumbents; Group3 = domestic new entrants; Group4 = new multinational entrants

** Number of companies in the group in 2010: Group1 n=2, Group2 n=7; Group3 n=6; Group4 n=2. From 2011: Group1 n=2, Group2 n=7; Group3 n=8; Group4 n=5, the number of employees of Group2 in 2015 is n=6.

The incumbent foreign companies are those electricity and natural gas service providers (companies with E.On, EdF, ENI, GdF-Suez, RWE ownership) who acquired trading positions during the privatization undertaken in the ‘90s in Hungary. The members of the Group did not change in the studied period except of the fact that the data of GdF-Suez were not included in the database after the selling of their Hungarian interests in 2015.

The number of new entrants changed in many times during the period as liberalization in 2007 invited domestic and foreign companies to enter the market.

All in all, ten companies are included in the group of domestic companies - apart from the two already-mentioned domestic incumbents (MVM, FŐGÁZ) - Alteo, Budapesti

Energiakereskedő, E.OS, IFC (Optenergy), JAS, MET, Nordest Energy and VPP. For creation of the clusters, only two need to be further explained. According to company register data, the Budapesti Energiakereskedő has Slovakian ownership but the registered office is in massive Hungarian majority Slovakian city Dunajská Streda (Dunaszerdahely), and the Hungarian staff indicated that there had been a reclassification of the company. The situation is similar in the case of MET. This company has the direct ownership of a Swiss holding, of which most (60%) are part of different companies registered in offshore fields and 40% is owned by MOL Nyrt. The composition of the management and their declarations in connection with it[28] show that the company is considered to have domestic management.

The group of foreign-owned entrants consists of CEZ, CYEB, Econgas, Greenergy and Magyar Telekom.

5.1.2. Time horizon of statistical data evaluation relating to the studied companies

Quantitative analysis instruments can only be used within limits in a study of liberalization's first period, between 2003 and 2007, as several of the focal companies entered the market only after this time. Thus, data for the period beginning in 2009 are used in analyses on the basis of financial data.

As I showed in 3.3, the period after liberalization can be divided into two distinct periods regarding the relations between institutional and industrial players. I term the period between 2008 and 2011 the years of *unfolding liberalization.* This period is characterized by new entrants and a strengthening of competition. The years beginning in 2012 are more characterized as the period of *centralization* and a *strengthening of direct state intervention*. Having regard to the scarcity of data being available before 2009 and interpretation difficulties, I have narrowed down the focus of the quantitative analysis for the period between 2010 and 2015. In view of the analysis the year 2012 has a key importance because the drastic changes in the governmental vision relating to the sector can be seen from this year. However, 2013 was the first year when the companies have been able to respond to the challenges of the changed environment. Therefore the studied six-year period can be divided relatively well into two three-year

[28] See the interview with Benjámin Lakatos, chief-executive of MET Holding AG in Figyelő 2015/5.

periods: a period between 2010 and 2012 and between 2013 and 2015. During the analyzes, I study the relationships between the three-year averages on several occasions to filter out the effects of individual years.

5.2. Calculation of correlation coefficients for the studied companies

Although the correlation analysis may only be applied with limits to the analysis of the strength relationship between variables due to the small sample size and the non-dependent nature of variables, the correlation table calculated from variables fixed in the database gives us a chance to create a foundation for several valuable statements (the correlation table is included in Appendix 2). I don't intend to reveal clear cause-effect relations with the correlation matrix in my analysis, the aim of calculating correlation coefficients is only a statistical component to the further study of the bilateral relations between the variables for analyzing with cross tables and time series. The fact of correlation alone does not prove the cause-effect relationship between variables due to the possibility of false correlation (Füstös et al., 2004, p. 105).

During the calculation of correlation matrix, the following variables have been included in the analysis: amount of dividend paid; size of company (logarithm for the natural-based sales revenue); operating profit; dummy variable indicating the company's domestic control; dummy variable indicating universal service; electricity generation within the company (group of companies); DSO within a group of companies; average equity; dummy variable indicating incumbent nature. In the Appendix, I highlighted cells of the correlation table with dark-grey background to which I do not attach explanatory power in economic terms (e.g. the dividend for 2015 is not explained by the profit of 2010). I highlighted the cells of the table with light-grey background which examine the relation between the consecutive annual data of the same variables as autocorrelation has a high likelihood here. Having regard to the cells with white background the matrix quantifies relations between variables which can be interpreted economically but it should be noted that these variables are not independent from one another (e.g. it has a strong correlation between the size of the company and its incumbent nature).

Furthermore I will give an overview about the main findings which can be drawn from the correlation matrix, emphasizing again that the results of the correlation analysis provide components for the preparation of further analysis.

It is not so surprising the fact that if an energy trader provides universal services, this indicates a positive, stronger than the average (between r=0.609 and r=0.711) and also significant (at a level of significance of 99% in every year)[29] correlation with the size of a company during the whole period between 2010 and 2015. As all universal service providers come with the earlier incumbent regional service providers' foundations, this statistical correlation can be easily understood.

It is also obvious why the relation is so positively directed by whether the focused-on company gives a universal service and whether there is a network company in the relevant group. The indicator of the relationship's strength is r=0.904**. It is also easy to see the reason for a negative direction between the dummy variable for a company with domestic management and a universal service provider (r=-0.428**) as, after privatization, household service providers were acquired by foreign companies (with the exception of FŐGÁZ).

It is interesting to see that a substantive correlation is missing between the dummy variable for production and company size.[30] On the one hand, the reason here is that both large and small-sized enterprises can be found among the companies with a production background so the existence of or lack of a production background will tend to lead back to the chosen business model and not to general company size. On the other hand, the indicator of the company size used by me (logarithm for the natural-based sales revenue) "valorizes" the trading activity against the asset intensive generation activity. At the same time, it does not show a divergent picture if we consider the correlation between the equity of the company and the dummy variable of the production. Neither the average equity between 2010 and 2012 nor between

[29] Hereinafter I refer to the 95% significance level with * and that of 99% with ** with the relevant correlation value.

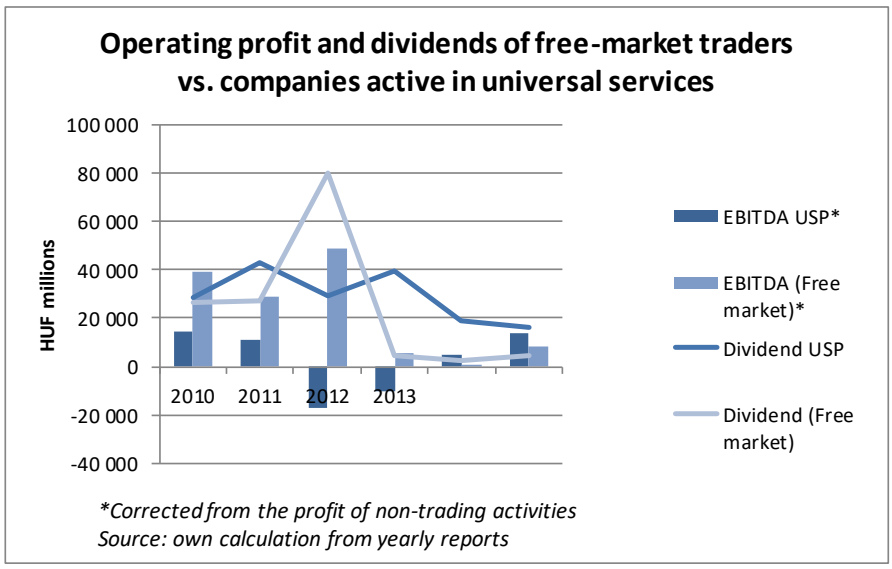
[30]The electricity generating capability within a group of companies does constitute an added value not only for the companies which are active in electricity sector. A gas-based power plant constitutes a kind of real option for the gas trader which widens their opportunities for concluding more favorable PPAs for purchasing of gas and for taking the advantage of timing differences between electricity and gas market concerning profit prospects. MET is a good example for this kind of optimization which entered into the electricity market as producer by the acquisition of Dunamenti Erőmű in 2014.

2013 and 2015 shows significant correlation with the fact whether production activity was carried out by the company or not.

Turning to the profitability of companies and looking at correlations between consecutive years' profits after tax deductions via the profit or loss effects of non-commercial activities, it can be seen that, year by year, the strength of positive correlation between profit after tax of the current and then the previous year shows a declining trend. While in the case of 2010 and 2012 its value is r=0.824** and r=0.843**, in comparison with 2012 and 2013 it decreases to r=0.600** and in case of correlation between 2013 and 2014 it is only r=0.439*. Significant correlation cannot be detected for the period between 2014 and 2015. Certainly, a number of reasons might be behind this - yet it well indicates the increases in turbulence in the industry.

The statistical analysis of data only partially supported the preliminary expectation of hypothesis H1A according to which a significant difference cannot be detected between companies solely active on free market and traders providing universal services too by 2012, but it has changed since 2012 onwards and the profit margin of the latter has been significantly lagging behind the former due to price regulation. A significant correlation cannot be detected between the dummy variable and the EBIT in any year, moreover the direction of the relation inversely formed as it could be expected based on the hypothesis. The direction of correlation is negative in each year between 2010 and 2012, but the correlation coefficient indicates a slight positive relation in 2015. There may be several possible explanations for this observation: (1) frozen prices resulted from "utility price cut" continued to provide adequate coverage for the universal service providers taking into account the purchasing opportunities (2) the intense free market competition depressed the free market traders' profitability. These effects will be studied in detail during the time series analysis of the companies' financial reports.

Figure 24. The profitability of companies solely active on free market and companies which also have universal service provision and the amount of their dividend paid 2010-2015 (compiled by the author)



Observing, over time, the profitability of universal service providers and free market traders, it can be seen that the Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA), of companies solely active on the free market exceeded that of companies who also had universal service provision until 2013 (See Figure 24). The performance of the latter group surprisingly exceeded the companies being active only on free market in 2014 and 2015.

The relation between companies' domestic control and profitability is positive between 2010 and 2014, which indicates a significant, moderate positive correlation in 2012 (r_{2012}=0,496*). These values provide an interesting addition to any execution of the government's desires (which aim was to prefer the domestic companies in the way declared in the National Energy Strategy). The business performance of the group of domestic-controlled companies typically could not exceed the foreign traders in the studied period. The only year when the domestic-controlled companies performed significantly better was 2012 but it was definitely the result of the outstanding performance of only one market player, MET.

The owners of companies indicate their future expectations through dividend policy. From the above figure we can see that companies also giving universal service provision increased their rate of paid dividend in 2013 - against the fact that their revenues were still negative. Naturally, it is also true that individual company effects modify this picture slightly.

The correlations between dividends and other variables show phenomena worth further study. The first is, that the correlation between the dividends of the consecutive years is typically positive, which suggests that certain companies had relatively stable dividend policy in the studied period. The weak correlation between 2012 and 2013 can be traced back to the outstanding dividend payment carried out by MET in 2012.

The strength of correlation between the company size and the dividend is interesting. The relation between the company size and the paid dividend indicates a moderate, significant correlation between 2010 and 2012 (r_{2010}=0,490*, r_{2011}=0,722**, r_{2012}=0,468*), however, in 2013 and 2014, the correlation is still positive but not significant. The correlation between dividend and company size indicator is moderate, r_{2015}=0,454*, again in 2015.

The correlation between EBIT and dividend reflects well that the relation of these factors radically changed from 2013. While we can measure moderate significant positive correlation between 2010 and 2012 (0,540*, 0,498* és 0,666**), significant correlation is not observable from 2013, moreover, the correlation coefficients indicate only weak positive relation in 2013 and 2014. In addition to this observation, we can measure obvious positive correlation between universal service and paid dividend (r_{2013}=0,560**, r_{2014}=0,588**, r_{2015}=0,525*) between 2013 and 2015. The strength of correlation between the incumbent state of the companies and the dividend paid is also strong.[31] This obviously suggests that these companies ensured the continuance of financial transfers to their foreign parent company with the maintenance of the previous dividend level independently from deteriorated profitability.

The following findings can be made in connection with the formulated hypotheses through the statistical analysis:

The correlation analysis did not justify the preliminary expectation of hypothesis H1A according to which the profitability of companies providing universal service has been significantly lagging behind the profitability of free market traders after 2012. In the following, I will study this observation from many sides via time series analyses. I will

[31]The similarity is not surprising, as only MVM can be considered an incumbent company that did not carry out universal service, so the two groups are significantly overlapped.

study the effects of working capital management (H2) and taxation (H3) to the profitability of companies in a similar way.

Many indicators (e.g. correlation coefficients relating to dividend payment) justified that 2013 can be regarded as a turning point in the studied period. It can be seen that the incumbent companies with multinational background maintained high dividend level even instead of the fact that it was accompanied by the decrease of their equity. In the centre of their strategy was to maximize the short term cash-flow for equity holders which influenced all the areas of operation.

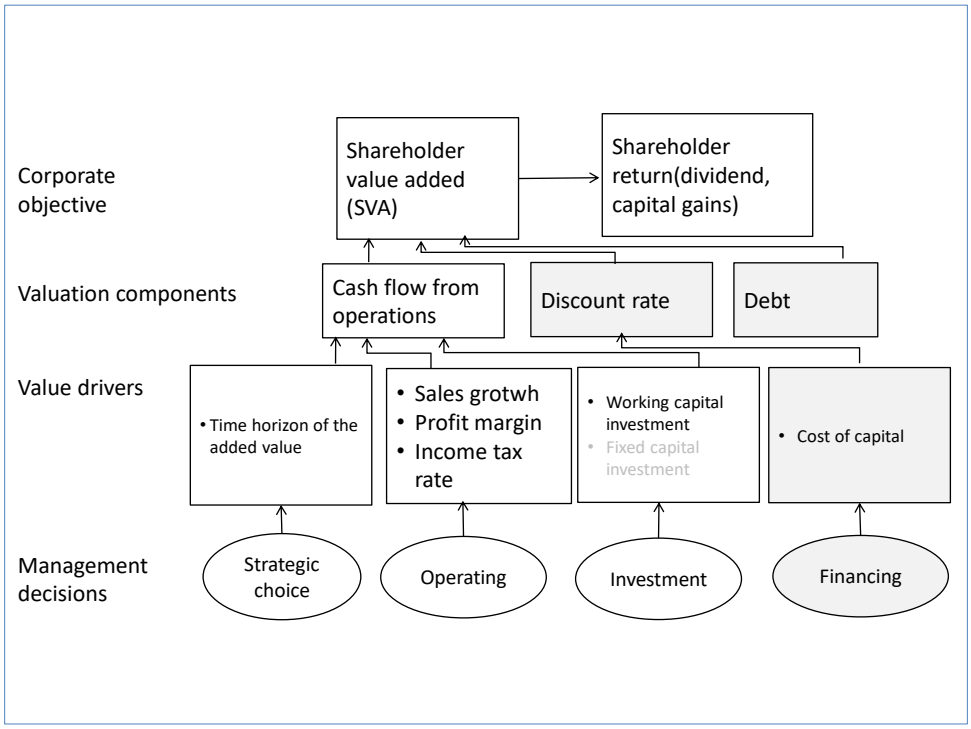
In the following, I will make the time series analyses for the development of indicators of company's key operation relating to the above defined clusters.

5.3. Time series analyses

In case of time series analyses, I will study four main areas in harmonization with the formulated hypotheses: (1) profitability differences between clusters; (2) impacts of the changes in tax system; (3) trends in working capital management in different segments; (4) effects of cash-flow for equity holders and dividend payment on the changes in equity.

Rappaport (2002) distinguished three types of shareholder decision in terms of creating shareholder's value: decisions on operation, investments and financing. These affect via value creating factors through three evaluation pillars on increase of shareholder's value. The key index of value increase is the Shareholder Value Added (SVA), which ensures the opportunity to shareholders for realization added value through two ways: dividend and exchange rate gains.

Figure 25. Shareholder's value net (based on Rappaport 2002. p. 72 with own additions)



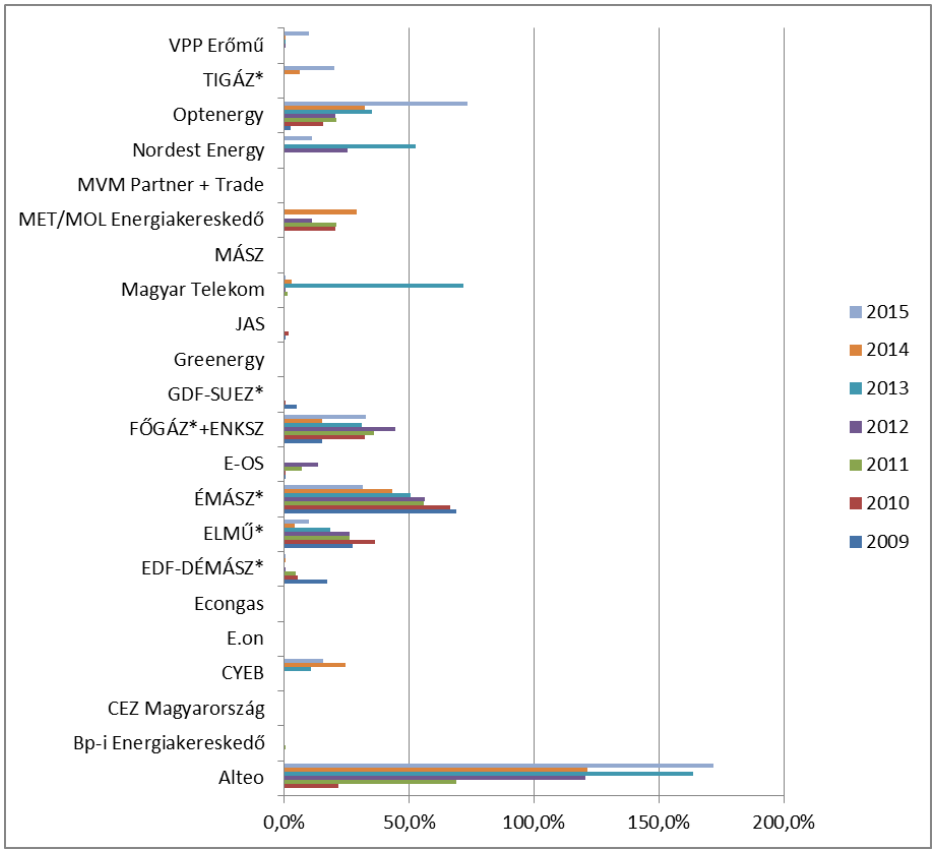
The contribution of value creating factors to the shareholder's value is shown in Figure 25. In the figure, the factors which are not studied in my analysis are highlighted with grey background. Although the analysis of financing and capital cost is also an important factor for defining the created added value, the accounting information, unfortunately, did not allow me to reveal the real financing processes. The loan stocks recorded in accounting and financial reports is typically subject to group-level financing decisions. In case of companies where a kind of cash-pool system or common treasury in group-level, the loan stock of trading companies is usually zero as the receivables and liabilities within the group are typically not recorded in this balance sheet line but in the lines of other receivables or other liabilities. Figure 26 shows well that the individual companies have a board range of credit/equity[32] factor.

We can see zero value at many companies of which activities are typically financed by another unit of the group based on a group level agreement. In this regard, two ways can be distinguished: (1) supplier type funding, when another producer or wholesale trader company of the group provides long term operational funding to the Hungarian

[32] During calculation the loans stock was compared to the equity deducted by trade companies' investment form division and production.

company or, (2) financial type funding which provides the cash flow being necessary for operation with financial transfers within the group.

Figure 26. Credit/equity ratio of the studied companies (compiled by the author)



In case of the studied 22 companies we can hardly find one, of which reports themselves give a good picture about the effects of funding on value creation. Alteo admitted to listing is such an exemption, which ensured its stable financial situation with issuance of bonds during the period. However, it is difficult to distinguish how the additional resources raised by issuance of bonds supported the trading, power generation and other service activities.

The analysis of discount rate generates further controversies in the aspect of examination of Rappaport's model with accounting methods. There is no doubt, that the return on equity can be increased by leverage (e.g. borrowing or share repurchase), but these decisions are not made at the level of commercial company in case of several group of companies. As, in this respect, the analysis of the available data would show a distorted picture, I came to the conclusion that I do not carry out quantitative analysis in the capital cost dimension of value creation. Nevertheless, I am convinced that the data of the studied companies allows to draw conclusions in respect of operating cash

flows and working capital management. In my opinion, the indicators of the studied companies can be compared with sufficient prudence in this respect, as the principal business activities of companies and the risk level of business activities resulted from is are similar, taking into account, of course, the differences, particularly the scope of activities (electricity and/or gas), the targeted sales segment (companies who also have universal service provison or companies solely active on free market), defined in the constitution of clusters.

5.3.1. Changes in sales revenue and gross margins

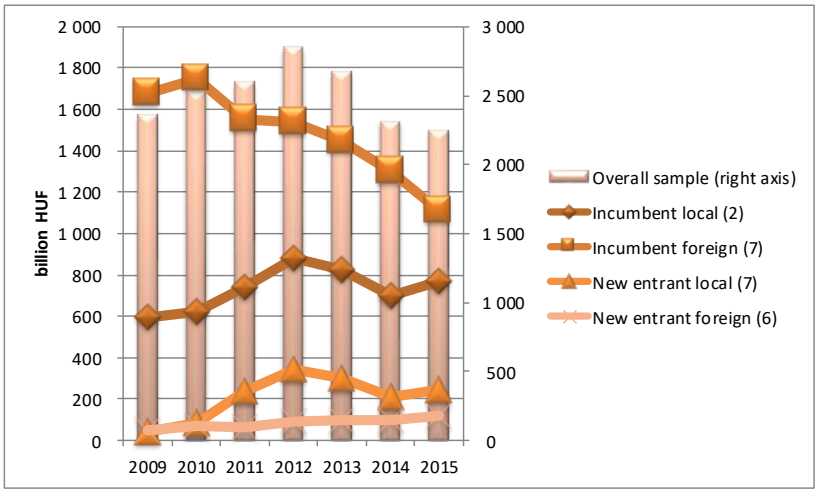
The sales revenue of the sample companies increased constantly in the firs half of the studied period and then it decreased between from 2012 to 2015. The total sales revenue originating from electricity and gas trading units of the former incumbent companies having distribution network too within the group, reached its maximum level in 2010 with HUF 1974 billion total revenue which decreased to HUF 1404 billion by 2015. MVM Partner[33], which is also included incumbent companies, achieved its highest revenue, HUF 623 billion, in 2012 which amount was basically the same in 2013 but it decreased to HUF 477 billion by 2015.

Among the new entrants, MET reached the highest growth after 2009. The revenue of the company peaked in 2012 at HUF 280 billion which fell to HUF 158 billion, but it started to increase with the amount HUF 187 billion in 2015. It is clear, that new entrant foreign-controlled companies were able to increase their revenue with modest dynamics but throughout the period, which is particularly noticeable taking into account the fact that in the meantime the overall revenue of the investigated companies has significantly decreased.

Figure 27 shows well that the revenue of foreign incumbent companies decreased in the whole period instead of the fact that the revenue of the whole sample exceeded the 2010 level in 2012 and 2013. An opposite trend is observable in the other three groups and, according to the analysis of revenues, it can be stated that multinational incumbents lost their market more rapidly than the shrinkage of the market from 2012 onwards would have been justified it.

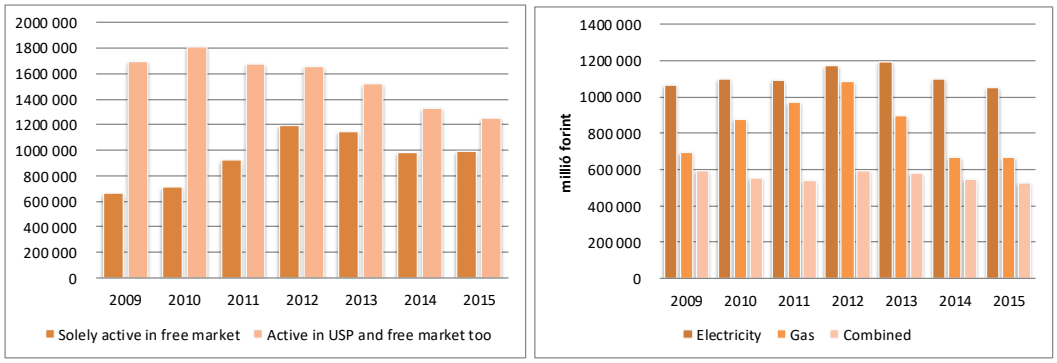
[33]MVM Partner took over the activities of MVM Trade from July 2012, so I took into account the data of both MVM companies in the first half of 2012.

Figure 27. Trends in turnover of the Hungarian electricity and gas trading companies between 2009 and 2015 (compiled by the author)



Analyzing companies which also have universal service provision and those who solely active on free market, it can be concluded that the revenue of the first group changed more between 2009 and 2015. It's true for both groups that every year shows an increase until 2012, and we can observe a decrease between 2013 and 2014 and a slight increase again in 2015. The electricity trading companies were less exposed to market fluctuations than those who were active on the gas market, which could be attributed to the international price decrease of gas, which led to a decline in domestic sales prices and a fall in gas demand for domestic gas-fired power plants which was the result of other electricity generating technologies and competition caused by electricity import.

Figure 28. Changes in revenue of energy traders based on the targeted consumer group (only free market or universal service too) and product mix (electricity, gas or mixed), (compiled by the author)



Besides revenues the analysis of gross margins (revenue minus its cost of goods sold (COGS) and services, divided by total sales revenue) also shows interesting tendencies. In case of new entrants, the gross margins were at extremely low level in

2009, there were many companies which had negative values. The results of it can be attributed to the accounting of costs for start-up and the effects of the cirsis.

Table 6. Gross margins at energy traders between 2009 and 2015 (compiled by the author)

Clusters	2009	2010	2011	2012	2013	2014	2015
Domestic incumbent	13.3%	11.5%	9.4%	9.0%	5.2%	4.0%	4.6%
Foreign incumbent	6.6%	8.9%	8.6%	6.6%	6.5%	6.3%	7.7%
Domestic new entrant	4.5%	11.7%	11.9%	11.7%	8.6%	17.0%	14.9%
Foreign new entrant	-5.1%	8.6%	11.6%	7.5%	4.1%	6.7%	7.9%

Clusters	2009	2010	2011	2012	2013	2014	2015
Companies acting only on free market	9.2%	8.7%	7.5%	8.5%	5.4%	5.6%	6.1%
Companies which also have universal service provision	7.5%	10.1%	10.2%	7.6%	6.9%	7.4%	8.5%

Clusters	2009	2010	2011	2012	2013	2014	2015
Electricity	9.7%	8.9%	7.9%	8.2%	6.2%	5.2%	5.9%
Gas	8.5%	11.6%	11.8%	9.2%	7.0%	10.3%	11.5%
Mixed	4.4%	8.1%	7.2%	5.3%	5.2%	5.0%	5.2%

Based on the data of Table 6 we can make further interesting findings. On the one hand, it is interesting to note that traders providing universal service too have achieved a higher gross margin each year than their competitors on the free market except of 2009 and 2012. Of course, this effect can be attributed to the positive returned to scale as a result of larger size too, and it can not be drawn the conclusion that universal service activity has improved profitability on its own. It is also worth mentioning that, despite the large fluctuations in the gas market, the figures of the gas market traders' gross margin were significantly higher than the companies having electricity or mixed portfolio between 2010 and 2015.

The domestic incumbent companies (MVM and FŐGÁZ / ENKSZ) have suffered a significant downturn in their gross margin levels starting from 2014. In case of MVM, it can be explained by the effects of the third phase of utility price cut which had a negative impact on the company, the quasi wholesaler of electricity.

After liberalization, it is interesting to observe that the domestic new entrants performed significantly better than the foreign new entrants after 2012. This is

basically attributed to the performance of two companies, Alteo and MET, which achieved two-digit gross margin in the studied period. Among foreign-controlled traders, only Econgas owned by ÖMV was able to achieve similar performance.

If we analyze EBITDA or earnings before taxes at the groups, it is also obvious that 2013 can be considered as a watershed regarding revenue generating capacity. Both indicators of the studied 22 companies considered as a whole were positive, but differences can be encountered at that time as well.

Table 7. Changes in EBITDA and profit before taxes of the studied companies between 2009 and 2015 (compiled by the author)

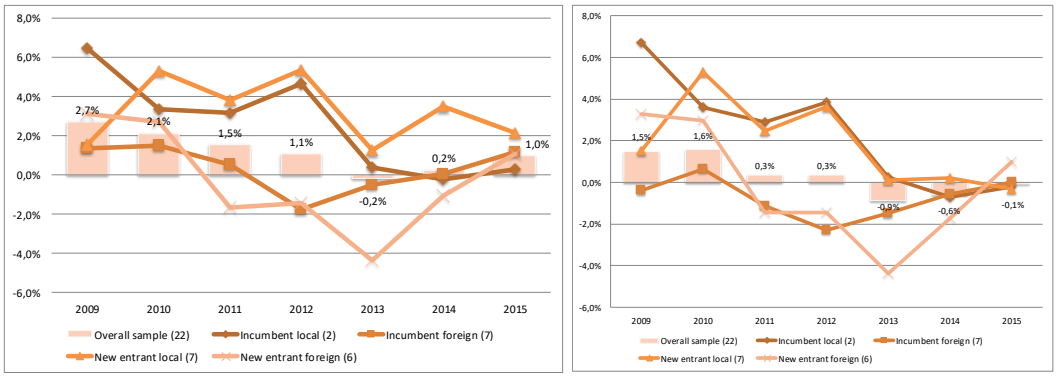
The studied (22) companies total (million HUF)	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
EBITDA	63,730	53,849	39,876	31,309	-4,542	5,718	21,930
EBT	35,134	39,759	8,957	9,708	-23,362	-13,664	-1,273
EBITDA							
Companies solely active on free market (15)	51,986	39,418	29,111	48,718	5,812	935	8,089
Companies which also have universal service provision (7)	11,744	14,431	10,765	-17,409	-10,354	4,784	13,841
EBT							
Companies solely active on free market	54,814	41,111	26,692	43,461	2,623	-4,105	1,363
Companies which also have universal service provision	-19,680	-1,352	-17,735	-33,754	-25,984	-9,559	-2,636

Based on Table 7, it can be seen, that the free market traders had performed significantly better than the companies which also have universal service provision regarding both EBITDA and EBT until 2011. In 2012, the profitability of universal service providers was drastically deteriorated by the official reduction of retail prices, while free market traders continued to achieve high profitability. From 2013, there had also been a significant downturn in the free market, but it cannot (or only partially) attributable to the strengthening intervention of the state.

The picture is further subtle by examining the profitability of companies broken down by domestic-foreign. Figure 29 shows well that the ratio of EBITDA and EBT comparing to sales revenue of foreign incumbents and new entrants have steadily exceeded by the domestic controlled companies between 2009 and 2014. It's interesting to observe the trend changes relating to foreign companies after 2013. From

2014 onwards, these companies have significantly improved their reported performance, while we can see a downturn at domestic companies.

Figure 29. Rate of EBITDA compering to sales (left) and profit margins (right) of the studied energy traders between 2009 and 2015 (compiled by the author)



Of course, the difference between domestic and foreign energy traders may not be attributed to the fact that the foreign-controlled companies as a whole would have been less well managed than the domestic-controlled traders. Disperate group level optimization choices would be the cause of difference:

- the difference of EBITDA would be the result of the fact that the Hungarian trading affiliate of a foreign controlled company purchases the main part of the further sold electricity or gas in a centralized purchase structure. The margin accounted internally may differ from the market margin which may lead to the decrease of the reported EBITDA;
- It will lead a decrease in EBITDA if the foreign parent company provides central services to its Hungarian subsidiary or it charges a management fee;
- EBT may decrease due to the differences of funding structure or credit stock.

In summary, the comparison of profit margins of domestic and foreign energy traders did not justify the expectations that the change in regulatory environment implemented from 2012 resulted a more favourable long term situation of domestic companies within energy trading sector.

5.3.2. Conclusions based on profit margins in connection with the formulated hypotheses

Hypothesis H1A was not justified by the quantitative analyses as it cannot be demonstrated that the institutional environment changed from 2012 resulted a considerably less favourable situation for the companies providing universal service

than free market traders either of the various profit categories (gross margin, EBITDA, EBT). Based on the data, companies providing universal service too improved their profitability after the shock of 2012 and 2013 and, in 2015, they achieved higher EBITDA than the free market traders.

Table 8. EBITDA to sales ratio of companies which also have universal service provision and companies solely active on free market (compiled by the author)

Clusters	2009	2010	2011	2012	2013	2014	2015
Companies solely active on free market	7.81%	5.52%	3.16%	4.09%	0.51%	0.09%	0.82%
Companies which also have universal service provision	0.69%	0.80%	0.64%	-1.05%	-0.68%	0.36%	1.10%

The analysis of data relating to traders operating in gas and electricity sector justified Hypothesis H1B which assumed that electricity traders achieved higher profit margin in the studied period than their gas or mixed profile competitors. Comparing the profit margins, the EBT/revenue was 1.8% for the electricity trading companies and -0.9% for the gas and mixed-profile energy trading companies in the analyzed seven-year period.

In contrast with the lowest point of 2013, except of two incumbent companies, all the analyzed clusters (foreign-controlled and new domestic entrants) could improve their EBITDA index by 2015. Concerning profit margins, the highest improvement has also been achieved by the foreign controlled companies between 2013 and 2015. The observation anticipates the justification of hypothesis H5 studied with mainly qualitative methods, according to which the foreign companies quickly adapted to the changes environmental conditions through making organizational adaptation decisions and they were able to counteract the effects of environmental changes.

5.3.3. Effect of taxation to profitability

The rate of tax burden is one the most powerful indicators of the relationship between the state and companies. As I have described in chapter 3.3.2, the significant increase in tax burdens imposed on the sector is observable from 2008, when the Parliament decided to levy the so-called “Robin Hood” tax. During the analysis of hypothesis H3, I look for the answer to how can be justified that the tax burdens did not basically influence the relative competitive situation between the companies.

Table 9 shows the total tax burdens of the studied 22 companies. It is conspicuous that regarding EBT, the tax burden of the sector is significant and the whole sector remained net taxpayer after 2013, although by this time, the total earnings before taxes of the 22 companies under review had become negative. It is also clear that the taxation of the energy sector is indeed extremely high comparing to the average Hungarian corporate income tax rate.[34]

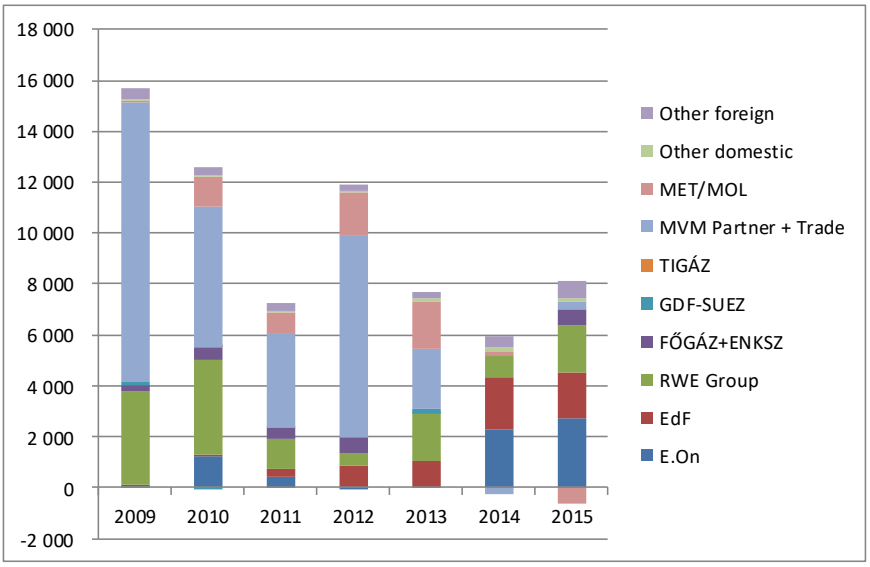
Table 9. Total tax burden on the studied companies in the proportion of EBT and gross margin (compiled by the author)

	2009	2010	2011	2012	2013	2014	2015
Paid taxes (corporate income tax, specific tax, income tax on energy suppliers)	15,676	12,593	7,264	11,847	7,685	5,720	7,512
Gross margin	188,501	244,089	239,559	227,273	166,523	152,492	166,271
Earnings before taxes	35,134	39,759	8,957	9,708	-23,362	-13,664	-1,273
Tax/Gross margin	8.3%	5.2%	3.0%	5.2%	4.6%	3.8%	4.5%
Tax/EBT	45%	32%	81%	122%	*-33%*	*-42%*	*-590%*

It is illustrative to examine the tax rate in proportion of gross margin as gross margins can be compared relatively well for the companies concerned. Surprisingly, we can observe the highest level of tax burden on the sector in 2009 in this respect, while in the period between 2013 and 2015 the value of the indicator was much lower. However, the picture is subtle by examining which companies paid the highest nominal rate of tax in each year. Figure 30 shows clearly well that the highest tax burden had been mainly levied to the state-owned MVM, while the extent of aggregate amount of tax paid by the foreign-controlled incumbent companies within the sector gradually increased from 2013.

In 2009, the corporate income tax rate was 16% in Hungary (up to HUF 50 million tax base it was 10%), this rate was increased to 19% in 2010, while maintaining the 10% preferential rate. From 2011, the limit of the 10% preferential rate has been increased to a HUF 500 million tax base.

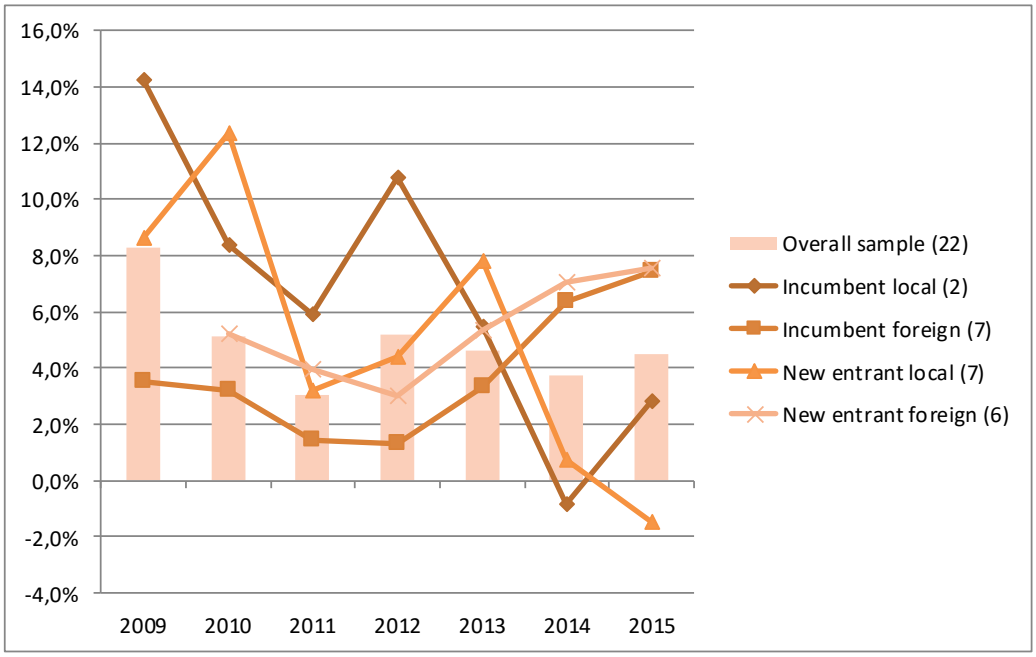
Figure 30. Amount of tax paid by the studied companies between 2009 and 2015 (compiled by the author)



The amount of tax paid by MVM is significant, but its structure does not differ from the taxes imposed on other companies. For example, in 2009, the main part of the tax imposed on two separately operated trading companies (Partner and Trade) was paid by the latter. MVM Trade paid a HUF 6.21 billion corporate income tax, a HUF 1.54 billion industry specific tax and a HUF 2.99 billion "Robin Hood" tax. If we compare the paid taxes with the gross margin, the average tax burden of MVM is 19.3%. This is outstandingly a highest rate among the focused-on companies. Two-digit value was recorded only at MÁSZ Kft (the free market trader of the RWE group) during the same period, while we can observe a value ranged from 0% to 6.2% for all other companies. At the same indicator, in the average of 2013 and 2015, we can see two-digit value for tax burden rate comparing to gross margin only for three companies. One of them was still MÁSZ with a value of 23.3%, the other was EDF-DÉMÁSZ with a value of 11.3% and the third was Magyar Telekom with a value of 13.3%. The tax burden of other companies remained under 10% of the gross margin. In this period, MVM paid taxes on average of 3.5 % of gross margin.

If we summarize the trend in tax burden on revenue minus its cost of goods sold (gross margin) at the foreign and domestic companies, we can observe an upward trend at foreign and a decreasing trend at domestic energy traders (Figure 31).

Figure 31. Tax burden comparing to the gross margin (revenue reduced by its cost of goods sold) (compiled by the author)



However, this observation can not be attributed to a kind of discrimination in determining the rate of taxes at the expense of foreigners. On the contrary, the same tax rules have been applied to the studied firms, irrespective of their nationality or focus of activities throughout the analyzed period. The decreasing tax burden of the domestic controlled companies is mainly attributed to the fact that MVM paid much lower amount (and proportion) of tax into the budget after 2012 than in the previous period. This is primarily due to the deteriorating pre-tax profit of MVM and FŐGÁZ. The deterioration of profitability, in contrast of the fact that the foreign-controlled companies achieved significant increase in profitability comparing to the deepest point of 2012, resulted that the average tax amount paid to the budget by the foreign controlled companies of the sector was much higher in the period between 2013 and 2015 than before.

Having regard to taxation, the quantitative analysis of Hypothesis H3 could not reveal a circumstance suggesting that the taxation system is definitely advantageous or disadvantageous for any of the studied groups of the sector comparing to the others. However, the Hypothesis justifies that the tax burden imposed on energy trading was high throughout the whole studied period.

5.3.4. Working capital management

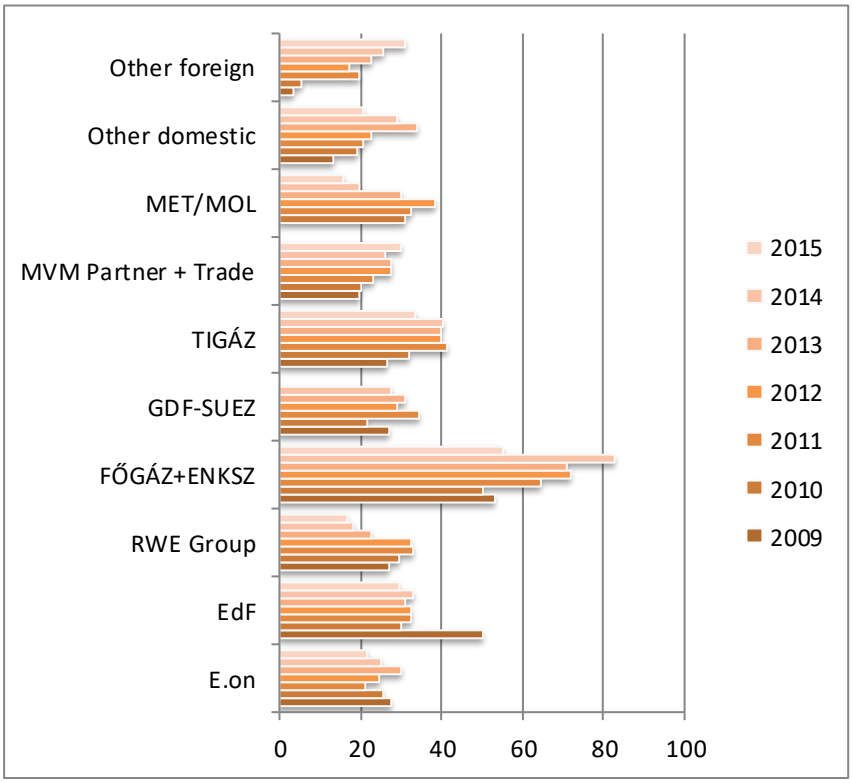
The differences in operative management of the companies are good indicators for analyzing the working capital management polices of companies. Three important elements can be highlighted at examining the efficiency of working capital management: accounts receivable and inventories on the asset side and changes in accounts payable on the liability side of the balance sheet.

Data relating to accounts payable and inventories are only limitedly applicable for comparison in case of the sample. In the former case the cause of the problem is the fact that there are companies in the samle, where the main source of supply is a trading or producer firm of the same group. The inter-group settlements are not reported in the line "accounts payable" but in the line "other liabilities" of the balance sheet which strongly limited the comparison of rotation times calculated from accounts payable. Having regard to inventories, there is a fundamental difference between gas and electricity traders. As the inventories of the former is very low, the inventories of the latter may be high periodically as gas can be stocked. This fact strongly limits the comparison of the data relating to trading companies having different profile.

Due to the abovementioned data collection and interpretation constraints, I considered that two indicators could be suitable for time series analysis: 1) rotation time of accounts receivable; 2) net working capital of companies in comparison with their turnovers. I calculated the net working capital needs as current assets corrected by the amounts of cash and securities minus current liabilities reduced by the amount of short term liabilities subject to interest.

Based on the comparison of the rotation time for accounts receivable it can be seen, that the companies of the sector can maintain their value relatively stable for about 30 days. The outstanding figure of FŐGÁZ in the whole period is conspicuous, which can be partially explained by the fact that the company carried out several acquisitions in 2014 and 2015, but the figures of this company is significantly higher than the others in the previous years as well. It seems that the consumers living in Budapest was supplied with gas with longer payment period or their bills were paid later than the national average.

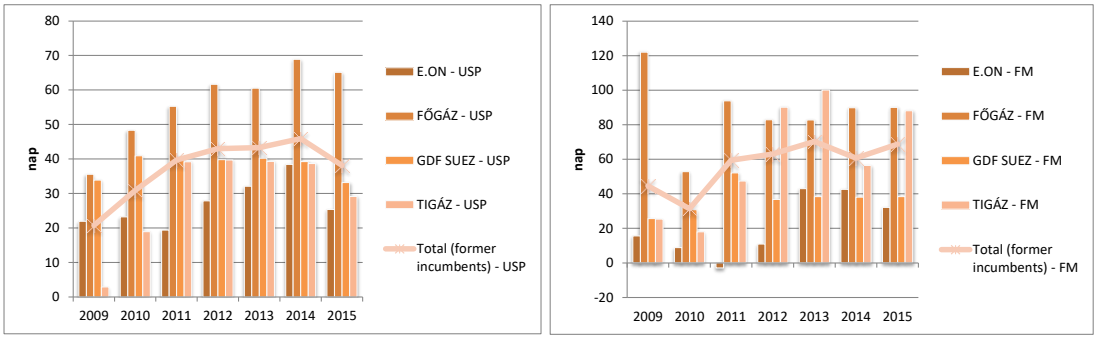
Figure 32. Rotation time of accounts receivable at the studied companies between 2009 and 2015 (compiled by the author)



Due to the outstanding figures of FŐGÁZ I have studied the data relating to companies providing universal services in the gas sector more deeply. For this purpoes I have used the division reports of the companies, which contain the data of each division separately in compliance with the accounting requirements for separation. The detailed analysis provided several interesting conclusions:

1) in case of FŐGÁZ we can observe a much longer rotation time concerning accounts receivable regarding universal service and also regarding free market activities in the whole analyzed period compared to the other three foreign-owned incumbent gas traders.
2) Surprisingly the average rotation time of accounts receivable relating to free market was longer than the rotation time of accounts receivable relating to universal service.
3) An increase can be observed regarding the rotation time of free market divisions (31.4 days in 2010, 68.7 days in 2015). On the other hand, in the divisions of universal service, we can also see an increase until 2014 (30.9 in 2010, 45.9 in 2014), but the value decreased in 2015 (38.2 days).

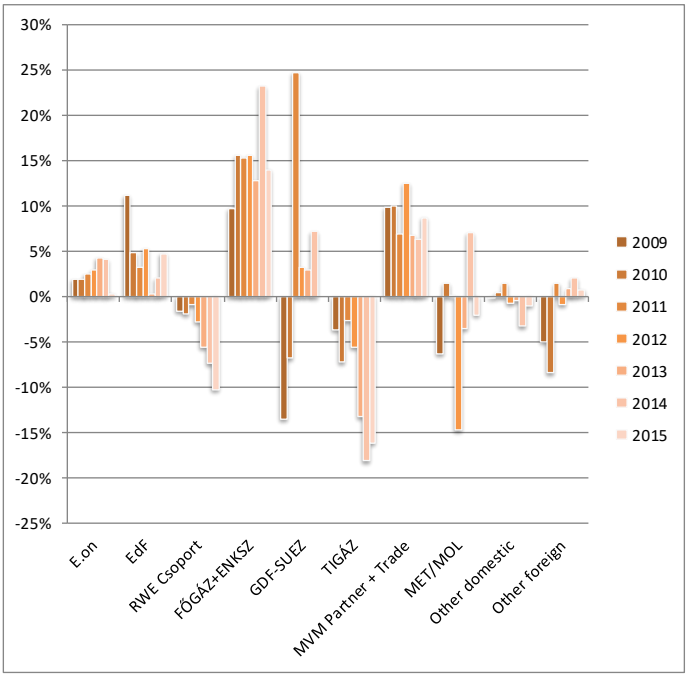
Figure 33. Trends in rotation time of accounts receivable regarding the business divisions of incumbent gas traders in universal service (left) and free market (right) between 2009 and 2015 (compiled by the author)



A rotation time of accounts receivable justifies the explicit expectations of Hypothesis H2. FŐGÁZ performed much weaker in this regard than its competitors in the sector. In case of MVM the rotation time falls into the industry average, but the trend is also unfavourable here as the value of the indicator is increasing year by year.

The trend in net working capital demand is more meaningful than the rotation time of accounts receivable. At calculation of net working capital needs, the current assets corrected by the amounts of cash and securities is reduced by the unfunded short term liabilities subject to interest.

Figure 34. Working capital needs of the studied energy trading companies comparing to their revenue (compiled by the author)



The positive value of working capital needs means that the short term assets of the company (accounts receivable, inventories, other payments receivable) exceed its current interest free liabilities (accounts payable, other liabilities) so the difference should be typically ensured by borrowing or equity funding. There may be many explanations for positive working capital needs: 1) increase of revenue; 2) restructuring within the group of companies; 3) non-effective operational management.

The decrease of revenue and the reveal and exploitation of efficiency reserves may cause negative working capital needs. Figure 34 provides several conclusions: As the figure indicates, the trend of the indicator in certain companies almost follows the "textbook models", for example, the revenue of TIGÁZ is continuously decreasing since 2009 which almost naturally leads to continuous negative working capital needs. The case of companies owned by RWE is more interesting, where the indicator of working capital needs is continuously indicating negative value instead of the fact that the revenue of the group stopped decreasing from 2013. In this case, the data of the last three years indicates the improvement of working capital management. In case of MVM the increase in revenue justifies the positive working capital needs until 2013. However, the company's revenue fell by HUF 132 billion from 2013 to 2015. Nevertheless, the net working capital needs increased by HUF 34 and 41 billion in these years, suggesting that MVM Partner financed other activities of the Group. Similar tendency can be observed at E.On as well. In this case, the working capital needs is positive instead of the fact that the HUF 569 billion peak revenue of the company made in 2009 fell by HUF 134 billion to HUF 435 billion by 2015 partially due to the exit from gas universal services. The company has a positive working capital requirement over the entire studied period, which also indicates the reorganization of liabilities within the group of companies.

In summary, the majority of the companies effectively managed its working capital needs in the studied period although, in many cases, the trading company cross-financed the liabilities originating from other activities of the group. The hypothesis H2 was justified by the observation that the rotation time of accounts receivable of

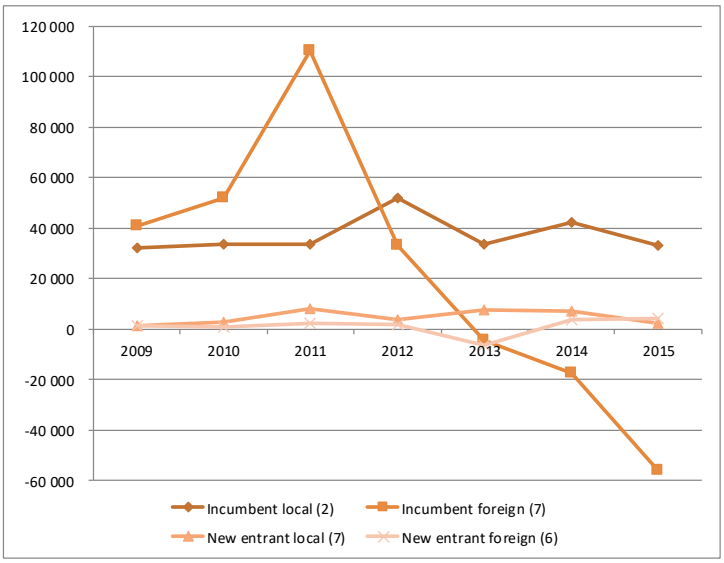
FŐGÁZ is outstanding from the other companies providing universal service and operating in similar conditions.

5.3.5. Changes in equity, dividend payment, equity cash-flows

A continuous decrease in capital has been typical for the whole of the energy sector from the beginning of 2010, which is partly a result of a rearrangement of resources to other more profitable areas and partly due the deterioration of the profitability factor. However, the equity of the trading companies' after deducting investments into distribution and production does not indicate a uniform decrease - indeed, it even shows an increase until 2011. A fast decrease can be seen primarily in relation to incumbent MNEs from 2012, but this applied to every ownership group in 2013. The year of 2012 was also a watershed for profitability. In this year, the utility price cut obviously shocked the MNEs taking part in household services' provision. In 2013, none of the clusters were able to show substantial earnings before interest.

The rate of dividends radically changed with each cluster in the relevant time period. A relatively stable dividend policy pertained to sector players until 2011, but the drastic reduction in the paid dividends' rate for incumbent MNEs in 2012 reflects well the effects of political, institutional changes on business operation (dividends fell to HUF 23 billion from HUF 38 billion paid in the previous year).

Figure 35. Changes in corrected equity of the studied companies in the period between 2009 and 2015 (Compiled by the author)



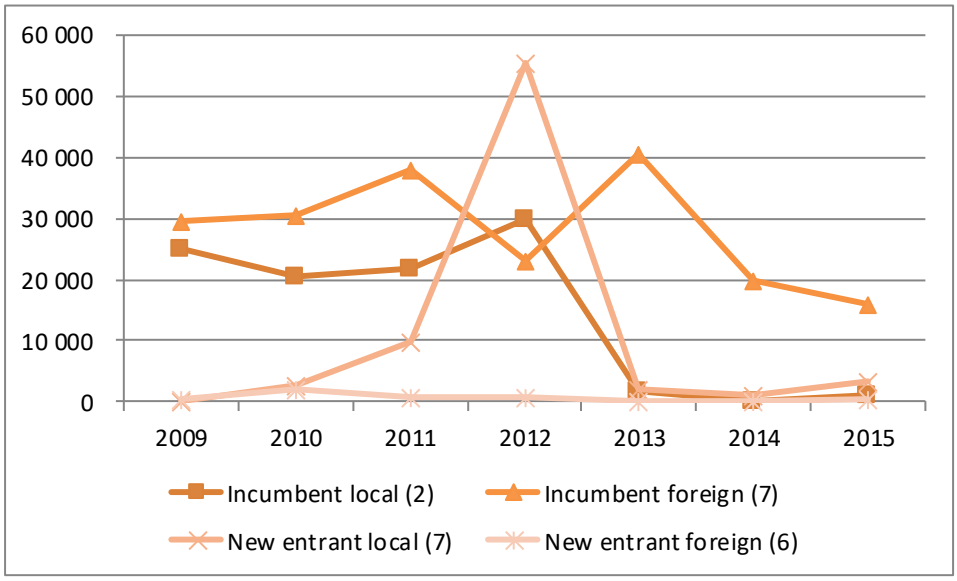
2012 was the year for lending a friendly state hand to domestic players, too. For the incumbents, the MVM, which did not take part directly in household services, is

exempted from the burdens of the first circle of utility price cut. The impacts of changing regulations were not so drastic in case of Budapest-based FŐGÁZ, due to the fine geographical location of the firm. The successes of the cluster 'domestic new entrants' in 2012 may lead back to the successes of MET, who acquired the Austrian-Hungarian gas import capacities which were reserved to the state-owned MVM by legislation, with favorable conditions. The company paid HUF 60 billion dividend to its owners in 2012.

2013 brought new rearrangements in each cluster. Companies with foreign control fast improved their efficiency and increased the dividend level - yet the profitability of companies with domestic control decreased after the successes of 2012.

The different dividend policy of foreign incumbents from other clusters is obvious. They continued to maintain the high dividend payment ratio, although lower than the level before 2012, which clearly indicates a capital withdrawal from the Hungarian market.

Figure 36. Dividend payments in the studied clusters between 2009-2015 (compiled by the author)



In addition to dividend payment, the period between 2012 and 2015 was obviously about capital withdrawal of the foreign-controlled incumbent companies. Some of them reduced their registered capital,[35] others paid the retained earnings of the

[35] GDF-SUEZ reduced its registered capital from HUF 17.4 billion to HUF 4.9 billion in two steps between 2011 and 2013.

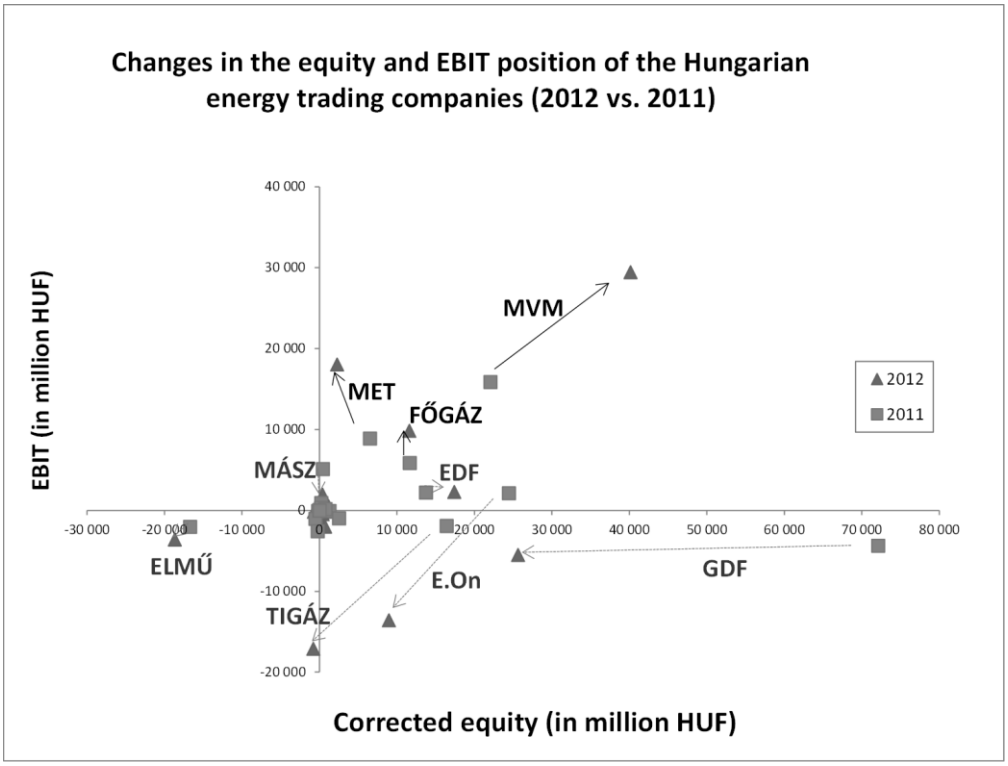
previous years as dividend,[36] thus they ensured the decrease in invested capital and the financial transfers towards the parent company through equity-to-debt conversion.

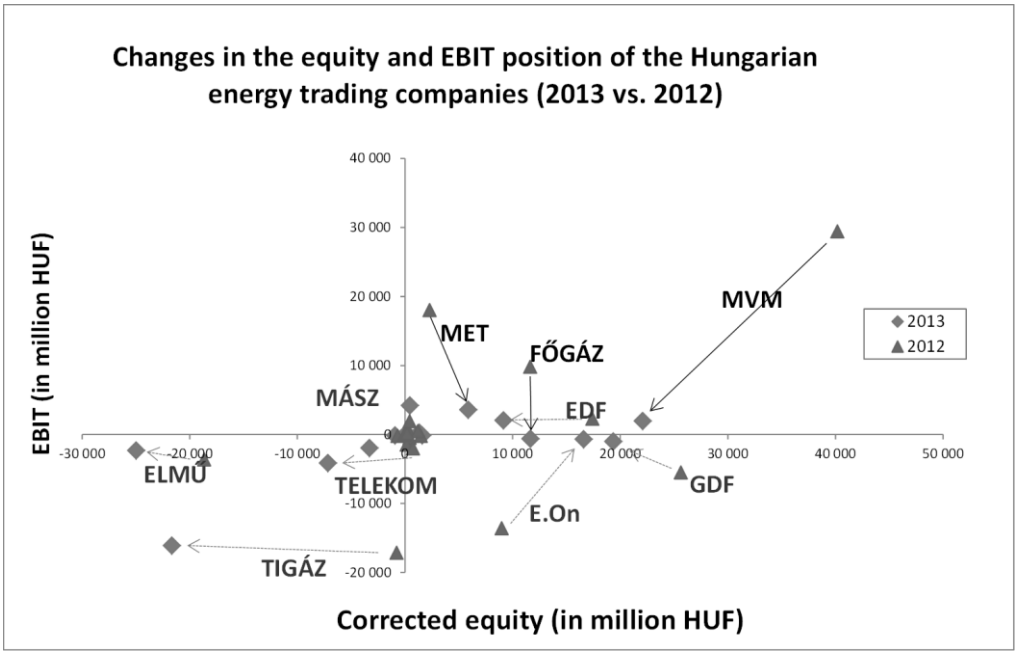
5.3.6. The adaptation of the most important sector firms

The two critical years, 2012 and 2013, worth studying in their dynamics with a more detailed presentation of individual corporate impacts. Figure 37 shows in two parts how much the business efficiency and capital position changed for each group of companies in these two years. I have shown in the chart the particular firms and their positions' annual change with using arrows. The figure clearly shows that 2012 was the year of domestic companies' success as both MVM and FŐGÁZ - and also MET, seen as a domestic company - improved upon their former figures; while all MNEs had lowered earnings before interest in comparison with 2011.

[36] For example, ELMŰ Nyrt. decided to pay dividends of HUF 16.1 billion in 2013 from the previous retained earnings, although its earnings before taxes were HUF -29.9 billion.

Figure 37. Profitability and capital change of the most important domestic energy traders between 2011-2013 (Compiled by the author)





The tendency had significantly changed by 2013. Almost every MNE improved its earning before interest, which indicates improvements in operational efficiency. Service providers reacted to the worsening economic conditions with restrictions in investments, redundancies, and reduced the rate of partner and subcontractor contracts. Although the changing conditions also adversely affected the domestic companies, it seems that their short-term adaptability was less successful than the MNEs'. These

observations justify the preliminary expectations formulated in hypotheses H4 and H5 which will be studied with qualitative methods in the next chapters.

5.4. Qualitative analysis - results of questionnaires and interviews

During the analyzation of questionnaires, I will compare the results of questionnaires compiled by the Competitiveness Research Centre (for more details on the methodology, see Csesznák and Wimmer, 2014 and on the summary of results, see Chikán et al., 2014) to the industry sample questioned by me. It's important to note that the points of the questionnaire used by me was completely identical with the questions used in the CRC questionnaire relating to the same topic. I may cause small, but in my opinion, not a significant distortion in the analysis of the results that made the survey about one and a half years after the national sampling. However, I always drew the respondents' attention to give their answers relating to the period between 2009 and 2013. Most of the questions were responded on five-point Likert-scale, with individual completion in the interviewer's personal presence. The questionnaire was followed by a semi-structured interview. All respondents received the interview questions in the same order.

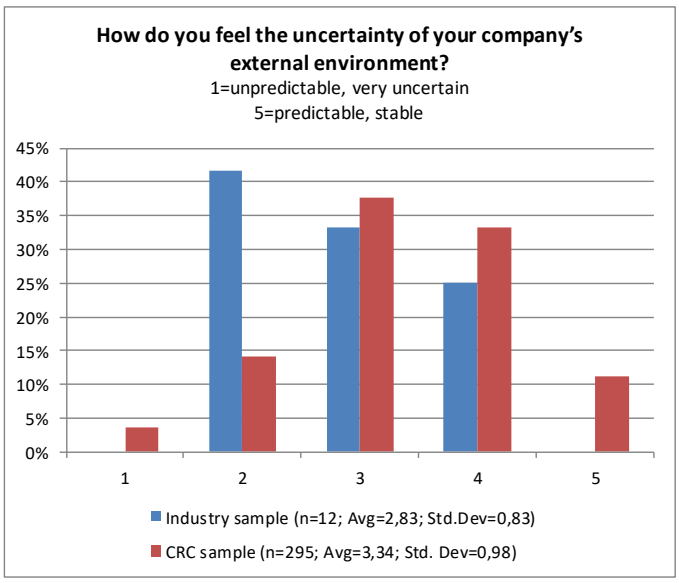
The interviews were always conducted after the filling of questionnaires. I asked the same three questions for every interviewee. First, what important milestones would be mentioned in the relationship between the company and institutional environment from 2008 onwards which are considered to have an important effect on the company's life. Second, how the market competition can be characterized from the perspective of your own company. The primary aim of my third question was to study hypotheses H4 and H5 and asked about the main organizational measures and adaptation processes carried out by the company. Sound recordings have been made during the interviews. According to the preliminary agreement with the interviewees, I only refer what they said in the dissertation in anonymous form, so, in case of individual quotes formulated by them, I try to avoid that the author of the idea can be clearly identified. The duration of interviews and the completion of the questionnaires took about 60 minutes in total.

5.4.1. Outcomes of questionnaires

Regarding the demonstration of the outcomes resulted by the questionnaires, it is essential that, given the limits of my own sample, I would not have considered methodologically appropriate the use of more complex statistical methods. Thus, I will demonstrate the areas where the values relating to the 12 questioned industry leaders significantly differs from the values of the country-wide sample consisting of 300 elements through mainly cross tables and graphic illustration of the differences between the two samples.

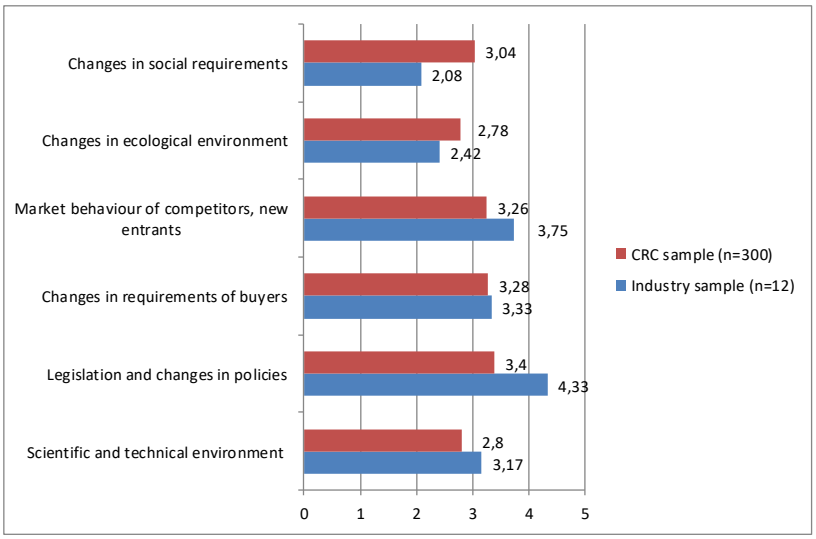
Question 1 of the questionnaire asked how uncertain the executive managers of the companies feel the characteristics of the external environment which are important to their company. Responds given to the questions measuring the predictability of the environment and uncertainty were significantly different from the outcomes of the big sample questionnaires (Figure 38). The average value was 2.83 of the industry sample and 3.34 of the national sample. The standard deviation of the industry sample is also below the national level, which suggests that sectoral respondents considered the degree of uncertainty and predictability more similar to each other. The smaller standard deviation of the sectoral sample is not surprising, since the national sample included representatives from many industries, which itself suggests that their opinions are significantly different than that of the same industry respondents. However, the deviation of the expected values indicates that, all in all, the energy traders considered their environment more uncertain than the national average. There may be several reasons of uncertainty which were tried to reveal by further questions.

Figure 38. Effects of environmental uncertainty on the predictability of characteristics which are important to the company (own figure based on the outcomes of questionnaires)



Question 2 of the questionnaire looked for the answer to how much the essential characteristics of the companies have changed due to environmental effects since 2009. The question concerned the evaluation of the effects of scientific-technical environment, legislation and regulations, changes in consumers expectations, behaviour of competitors as well as appearance of new market players, ecological environment and social expectations.

Figure 39. Changes in the effects of essential characteristics of the company between 2009 and 2013 due to the effects of environmental factors (own figure based on the outcomes of questionnaires)



The comparison of the averages of the industry and nation-wide samples also reveals a number of interesting differences. The results show the main difference in the

evaluation of the impacts of legal and social environment (the difference between the industry and nation-wide sample is Δ=-0.96 concerning social expectations and it is Δ=+0.93 concerning legal environment). Both results are remarkable. On the one hand, energy trading as a basic service is likely to be less exposed to the effects of social changes and, in addition, the differentiation is difficult due to the homogeneity of the product. On the other hand, it is also a fact that, in the last decade, a number of impacts have affected the industry which can also be attributable to the socioeconomic environment, such as the emergence of so-called prosumers (producers and consumers at the same time) besides the renewable energy producers, or some impacts of sharing economy affecting energy sector too, such as the emergence of e-car sharing services. However, it seems that respondents as a whole have seen the impact of changes in the social environment as less relevant to their own companies than the representatives of the 300 companies participating in the nation-wide survey.

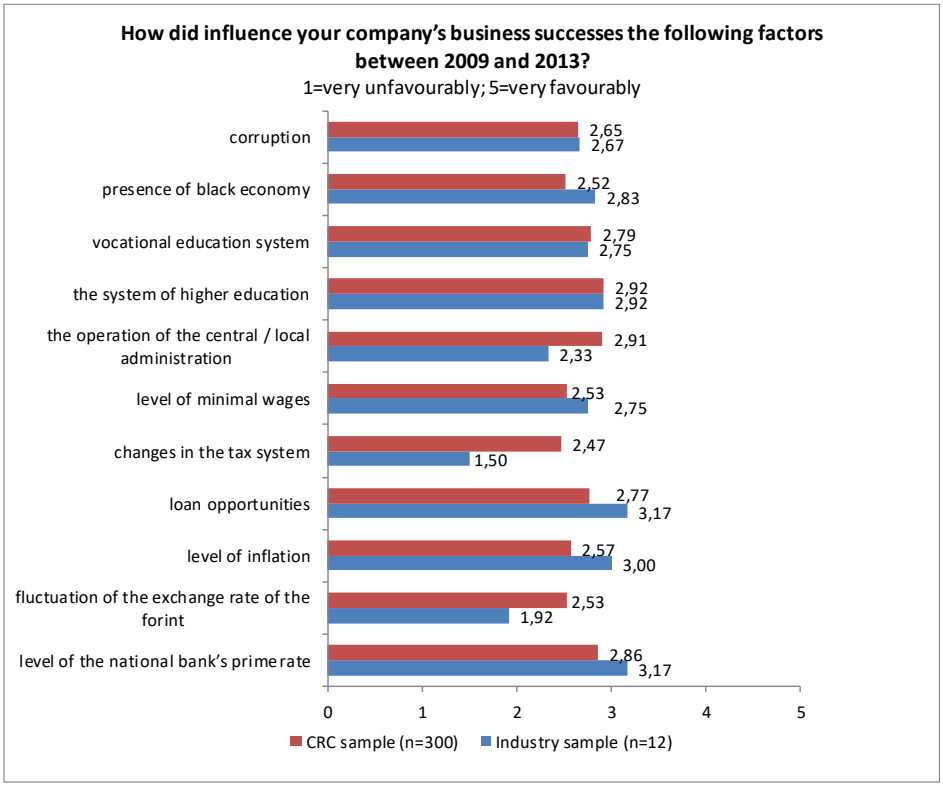
The assessment of the change in the legal environment shows a marked difference between the two samples. While the national sample virtually shows normal distribution (n=296; expected value=3.4; standard deviation=1.046), the industry sample strongly inclines to the right (n=12; expected value=4.33; szórás=0.78). None of the respondents of the industry sample scored the impacts of the changes in legal environment less than 3, six of them scored the highest value and four of them scored 4 points to it. Based on the answers, it can be observed that legislation and regulators have a predominant role among the formal institutions. The responses strongly support the fact that significant legislative changes have been made in the energy sector in the years after 2009, which had a major impact on the business performance of companies.

The relevance of the competitors' behavior and the impact of new entrants on the market got higher scores from the respondents of the industry sample than those of the nation-wide sample. The high value is likely to reflect the effect that several new market players entered into the gas and energy trading sector after 2007 as a result of liberalization processes which indicated the strengthening of the competition within the sector.

Question 3 of the questionnaire examined the effects of economic factors influencing profitability. In answering the question the respondents evaluated the effects of central base interest rate, exchange rate fluctuation, inflation, possibilities of access to loans,

changes in tax system and the level of minimum wage on the profitability of their own company. Question 4 examined the same in the context of effects of some aspects of social environment (quality of central and local administration, situation of higher education, vocational training, black economy and corruption) on profitability.

Figure 40. Effects of economic and social factors on the profitability of companies between 2009 and 2013 (own figure based on the outcomes of questionnaires)

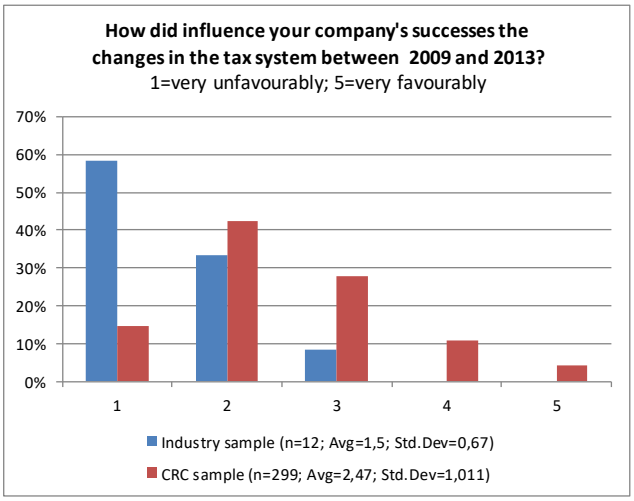


Overall, the impact of financial factors evaluated much more favourable by the respondents of the energy sector than those of the national sample. The evaluation of possibilities of accessing to loans and the base rate is slightly positive, the changes in rate of inflation was assessed neutral on average by the representatives of the energy sector. However, the forint exchange rate fluctuation was considered more unfavourable than by the respondents of the national sample. The possible reason for it is that the studied companies sell almost exclusively in the domestic market and they are highly exposed to the risks of exchange rate fluctuation due to gas and electricity import.

It has been already indicated in Figure 39 that the effects of changes in legal environment received more scores from the respondents of the industry than the companies of the national sample. The tax system can be considered as an integral

element of legal environment, regarding which the evaluation of the energy sector was markedly different from the national sample. The average of the industry sample is 1.5 and the standard deviation is 0.67. Only one respondent considered that the effect of the change in the tax system was neutral on the company, the others considered the changes in tax system as disadvantageous or highly disadvantageous.

Figure 41. Effects of changes in tax system on the profitability of companies between 2009 and 2013 (own figure based on the outcomes of questionnaires)



The difference is not surprising if the tax-related changes of the period between 2009 and 2013 are taken into account. As I have described in chapter 3.3.2, many new taxes were imposed on the sector after 2008. Among which income tax on energy suppliers and public utility tax stand out. Although the players carrying on trading activities are not affected by the latter (only the fixed-line operators Transmission System Operator, Distribution System Operators are concerned) but the responses hardly reflect this positive effect. This may be due to the fact, that most of the respondents are representatives of a company that owns a network operator within the group, so their tax burden has not decreased at group level since 2013. On the other hand, the significant increase of Robin Hood tax rate compensated the positive effects of elimination of sector specific tax in 2013. In conclusion, the period between 2009 and 2013 resulted numerous important changes in taxation of the sector which made the corporate tax planning completely uncertain.

Question 5 of the questionnaire sought to find out how the company managers evaluate the current situation of their companies in comparison to the situation of 2009. The CRC questionnaire examined four dimensions: domestic and export sales opportunities, import costs and the economic situation of suppliers.

Table 10. Evaluation of some dimensions of the companies relating to the year 2013 in comparison of 2009 (own table based on the outcomes of questionnaires)

	Domestic sales opportunities	Export sales opportunities	Import costs	Economic situation of suppliers
Average value of CRC sample	2.63	3.00	2.65	2.58
Average value of industry sample	2.25	3.17	2.75	2.25
Broken down by: Incumbents	2.33	3.17	2.67	2.50
New entrants	2.17	3.17	2.83	2.00
Domestic owned companies	3.25	3.50	3.25	2.00
Foreign-owned companies	1.75	3.00	2.50	2.38

Concerning the evaluation of industry data, the average value of domestic sales opportunities was rated at 2.25 against the 2.63 value of the CRC sample. One of the industry players scored 5 points which means that significantly improving domestic opportunities were perceived by it, and one company evaluated the potential in domestic sales as a small improvement. Two of the respondents assessed neutral, four of them slightly deteriorating and also four of them strongly deteriorating trends.

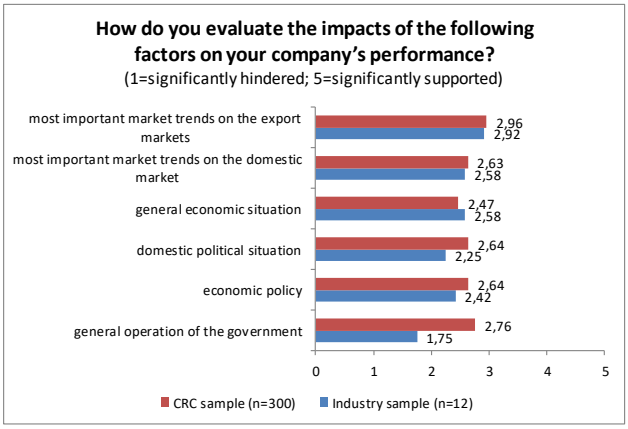
Among the formerly applied group constituting criterion, the distinction between incumbents and new entrants does not show a significant difference relating to the average value of the groups. The difference in evaluation is more significant between the responses given by the managers of domestic and foreign-owned companies. While the impacts of changes on sales opportunities in Hungary received a definite negative evaluation from the foreign-owned firms, the average evaluation of the domestic firms was rather positive. Of course, the effect of the individual differences should also be emphasized in this case, but overall, domestic companies are more optimistic about the changes of the studied period relating to their own sales opportunities.

Given that export was not significant either of the companies, the assessment of this factor was broadly neutral. Nevertheless, the evaluation of import costs at management level is interesting. The standard deviation of responses is extremely high in this case especially among the respondents of foreign-owned firms. All points of the scale were marked by the respondents of foreign owned firms (rating 1: 2 respondents, rating 2: 3, rating 3: 1; rating 4: 1; rating 5: 1). This situation shows that the trend in import costs is not only the result of decisions made by the domestic management of

the company, but also largely dependent on the decisions made in connection with procurement within the group of companies and the allocation of import costs within the countries. The responses of domestic firms reflect the European trends of energy prices much better and show a slight improvement of import costs.

Question 6 sought to find out how the companies influence the impact of environmental factors on their own performance.

42. Figure Evaluation of the impact of external factors on the performance of the company (own figure based on the outcomes of questionnaires)



The opinion of the industry respondents differs markedly from the national sample in one question which is the evaluation of the government's general operation. In addition to the specifics presented above, such as the introduction of sector specific taxes, the negative evaluation could be influenced by the effect of changes in formal and informal relationships between the industry and the government. Many of interviewees mentioned the lack of dialogue during the personal interviews. The changes in legislation has been communicated as fait accompli to the industry stakeholders by the governmental actors on a number of occasions. The mechanisms of the administrative control over the sector did not provide the effective dialogue as well. The duties and powers were shared between the Ministry of National Development, the Ministry of National Economy and the Hungarian Energy and Public Utility Regulatory Authority. The organizational structure and the management of governmental institutions has been changed several times. In addition, several laws were formed on the basis of bill proposals of individual member's of the parliament, independently from the professional administrative system which had a fundamental impact on the operation of the companies.

It's interesting that, as opposed to the negative perception of the government functions, the interviewees' opinion in connection with economic policy, general economic and political situation was similar to the respondents in the national sample. This is further strengthened by the fact that the issues of the operational control of the sector, the erratic communication, the lack of professional consultation forums and transparent preparation of legislation were particularly considered negatively by the questioned industry leaders.

In addition to the environmental factors, the questionnaire examined the adaptability of companies and the stability/variability of their strategies. The seventh question examined the strategic orientation followed by the companies in the period between 2009 and 2014 based on Miles and Snow (1978) typology concerning adaptation strategies. The respondents could choose one out of five strategic orientations which was considered to be the most typical of their companies in the given year. Besides defender, analyzer, prospector or focusing strategies they could also indicate if they considered that the company did not follow a consistent strategy over the period. Table 11 illustrates that most of the companies targeted stability and ensuring their existing business position in every year (in tied game in 2012 and 2013), except of 2009. Regarding 2012, the first year of intensive government intervention, the same number of respondents (4-4 respondents) identified the defender strategic orientation, while in 2013, prospector strategy received the same number of responses as the analyzer. Relating to the first year after liberalization, prospector strategy received most of the responses which shows well that the majority of companies formulated aggressive growth targets on the developing free market. The answers also show that only one of the companies and only relating to one year (to 2009), indicated that they had not followed a consistent strategy. This is definitely remarkable, especially given the extremely turbulent changes affecting the sector.

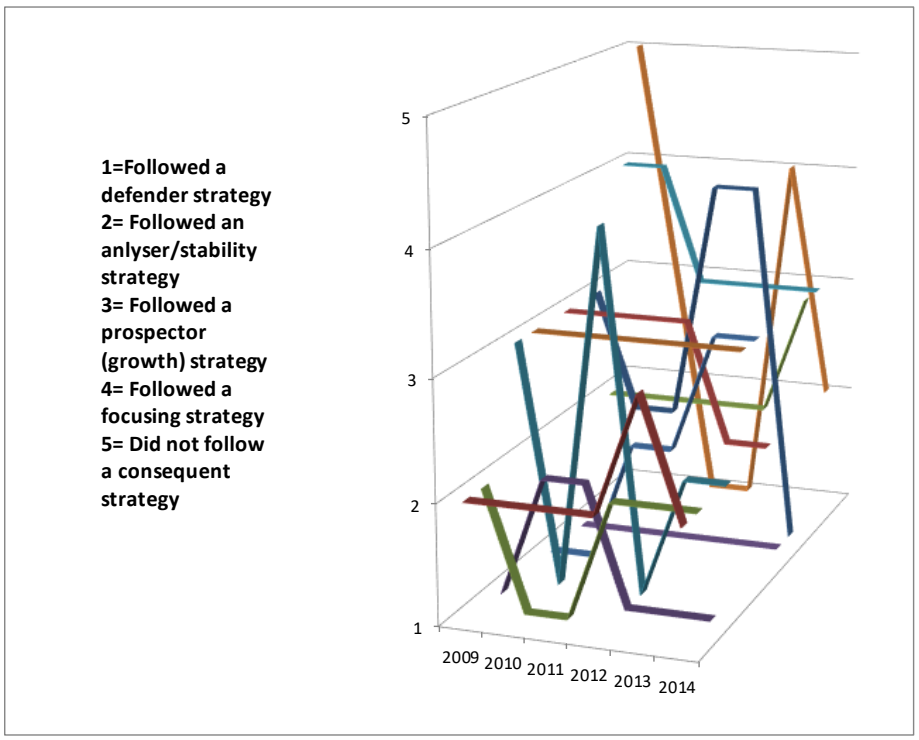
Table 11. Strategies followed by the questioned energy trading companies between 2009 and 2014 (own table based on the outcomes of questionnaires)

	2009	2010	2011	2012	2013	2014
Companies followed defender strategy	3	4	3	4	2	3
Companies followed analyzer strategy	3	4	5	4	4	5
Companies followed prospector (growth) strategy	4	3	3	3	4	4
Companies followed focusing strategy	1	1	1	1	2	0

Companies which did not follow any consistent strategy	1	0	0	0	0	0

Although, based on the data in the table, it may seem that the strategies followed by the sample companies was relatively stable in the studied period, but the picture is much more coloured. Looking at the time series of individual responses, it can be seen, that there were hardly any companies that have followed the same strategy during the studied six-year period. Figure 43 shows a time series of the responses given by the company executives relating to a certain year. The confusion of the lines illustrates the fact that the studied companies had very different strategic orientations during this period. Based on the lines which seem to be chaotic at first site, some strategic path can be traced. The incumbent companies having significant consumer base were more likely to follow defender or analyzer strategies than the new entrants. However, the prospector strategy also appear here but only in case of two companies. It is also not typical that any of these companies followed an analyzer strategy. We can see one company as an example for it relating to two years, 2012 and 2013.

Figure 43. Strategies followed by energy traders between 2009 and 2014 (compiled by the author)



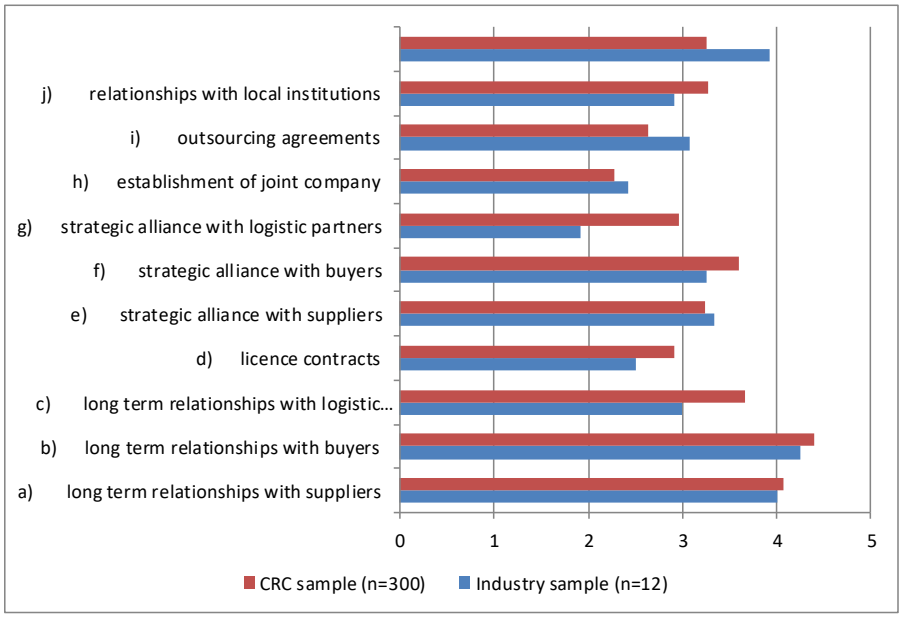
The growth strategy was more typical for new entrants, which is obvious, as these companies entered on the liberalized energy market with the objective of increasing

their shares. The growth strategy is obviously dominant at companies without customer base from universal service segment, while it is hardly typical at companies providing universal service too. In case of the former group at least three questioned companies out of the seven indicated this orientation in every year and, in 2014 four companies indicated it. In case of the latter group, none of the five companies indicated that they followed a prospector strategy relating to four years and one company indicated to follow a prospector strategy in 2009 as well as in 2013.

It is also interesting that defender strategy has also emerged among the companies solely active on free market since 2009 at least at one company (at two companies in 2010 and 2012). None of the free market traders indicated that they followed defender strategy as a followed orientation from 2013. It's conspicuous that the responses relating to defender strategy given by domestic and foreign owned companies differ markedly from one another. Only one out of the four companies with domestic background indicated this response in 2009 and 2010 and none of them indicated this in 2012, while four out of the eight foreign-owned companies indicated this response in 2012, two of them in 2013 and three of them in 2014.

The eighth question concerned the elements of firms' business relationship network studying their importance for the implementation of strategy. Due to the nature of energy trade – homogenous and standard commodities and services based on them – significant differences can be observed comparing to CRC sample. The relationship with local institutions has minor importance and logistical cooperation and licenses are less prominent. Nevertheless, the importance of outsourcing agreements evaluated higher by the industry respondents which may be due to the organizational structure which is typical within the sector according to which the trading company delegates many supporting activities to external companies (typically to a company within the group).

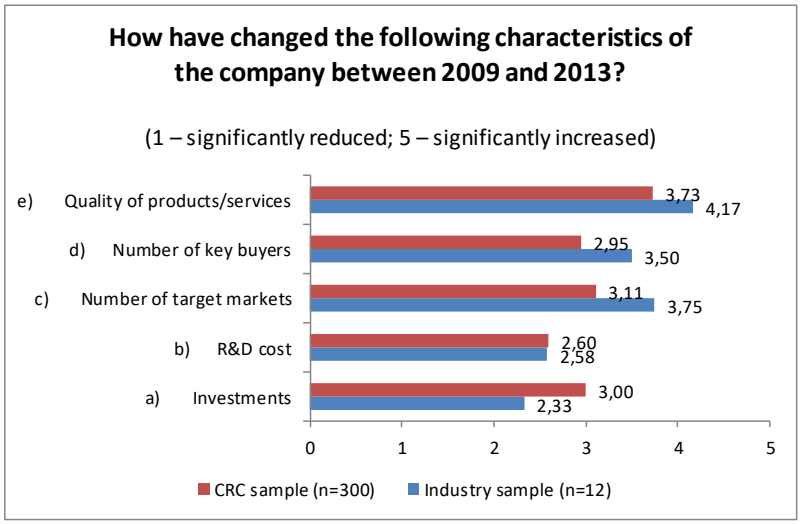
Figure 44. The importance of business network for the implementation of corporate strategy? (own figure based on the outcomes of questionnaires)



The industry respondents' opinion about the importance of relations with the state significantly differs from the national sample. If we study the responses in detail, we can see that free market traders attributed much less importance to the importance of relations with the state than those who also have universal service provsion. The average score of the responses given by free market traders is 3.25 which is exactly the same average scores of the CRC sample. By contrast, the average score of responses given by companies which also have universal service provision is 4.8. This clearly shows that the opinions of the companies markedly different between the two market segments and indicates the limits of state intervention which had a much higher impact on the opportunities of energy trade for households.

The last question concerned the actions and market features that are relevant to the implementation of strategy. Figure 45 summarizes the differences between the average values of industry responses and of the CRC database. The figure shows well that the energy trading industry faced significant market challenges as a result of liberalization, which revalued the quality of products, services and customer relations and opened up new target markets for companies. In these three dimensions, the average scores given by the representatives of energy companies was much higher than of the companies involved in CRC research.

Figure 45. The changes in market and operational characteristics at the studied companies (own figure based on the outcomes of questionnaires)



It's conspicuous that the investment activity of the sector is significantly below the average value of the national sample. There may be many explanations for it. Firstly, the year of liberalization of the energy market was not included into the time horizon of the research (2009-2013), so the energy companies that had an active role in market opening might have implemented significant investments before 2009 and, comparing to those, the period beginning with the year 2009 did not require further significant investments from them. Secondly, due to the changes in governmental role perception the companies started to deliberately reduce their investments in some segments particularly in household service segment from 2011. Thirdly, the narrowing growth potential and the general decrease in profitability could have resulted that the energy trading companies implemented smaller scale investments than before. However, there is a contradiction between the growing significance of market factors and the decrease in investments, so it can be expected in long run the the winners of market restructuring as well as companies targeting growth will increase their inclination to invest which may lead to a new market restructuring. Of course, it is also true in this regard that the companies may follow a completely different strategy on free market as well as in universal service segment.

5.4.2. Responses to the interview questions

The interviews provided several interesting additions to the deeper understanding of market and firm's adaptation processes. Based on the responses, several strong viewpoints developed regarding the changes in institutional environment, which partly

supported my expectations formulated in the hypotheses (primarily in hypotheses H4 and H5), but they were partially fined.

All the interviewees considered that the market (at least in the free market segment) works, which is perhaps the most important statement, despite all the structural and regulatory issues described earlier:

"We can operate, but the market could function even better." (domestic incumbent)[37]

"Trade is the island of peace. The institutional system is developing, there is a real market." (domestic new entrant)

"In overall, the development curve is clear on the free market. I cannot consider it tragic that the market works, even it means that the situation is getting more and more difficult as the slice of cake is getting smaller regarding both profit and margin." (foreign new entrant)

"The heating plants have been removed from the mandatory off-take system since 2011, but apart from this, the institutional changes are basically competitive-neutral on the free market." (foreign incumbent)

Many highlighted that liberalization has created a chance to enter the market:

"*Our firm could be established due to liberalization." (domestic new entrant)*

5.4.2.1. Significant changes in the wider environment

In terms of changes in the social environment and consumer habits, almost everyone mentioned the change in consumers' information level among the significant factors.

"In 2009, consumers were not well informed, they did not know that they could buy electricity from anywhere else than their old trader... By 2011, they recognize the opportunity to buy at much cheaper price. From 2013, they started to select a trader through competitive selection." (domestic incumbent)

[37] As I have mentioned earlier, my interviewees contributed to the discussions by ensuring their anonymity, thus I do not indicate the name of the person from whom a citation originated. However, in order to be clear what type of company managed by the person from whom a citations originate, I indicate in brackets whether company is domestic or foreign controlled or incumbent or new entrant of which executive said that information.

"The consumers were not well informed. In 2011, a consumer asked me in Miskolc for what price I could supply electricity in Budapest. He thought, that there was only one electricity supplier from whom he could buy." (domestic new entrant)

Several interviewees mentioned new consumer trends that could be decisive for the future of the sector such as digitalization, e-mobility or emergence of prosumers. But even more of them have stressed out a complete change of perspective was needed, because energy as a commodity was not attractive enough:

"The commodity is not so exciting. There are two options for it: either the energy providers offer new interesting products or energy products are sold through other service providers' (financial, telecommunication companies) sales channels. Margins fell sharply in all the three sectors – you should sell good product cheaply. This can lead to convergence in the sector." (domestic new entrant)

"Its not enough to sell, we have to keep track of customers in order that they feel we want to help them." (domestic incumbent)

"The most important goal should be to fully satisfy the needs of the customers." (foreign new entrant)

5.4.2.2. Significant changes in the regulatory environment

Of course, in addition to social changes, the changes in regulatory environment was mentioned in the interviews as one of the most important factor influencing the studied period. The changes in regulatory environment were basically characterized the whole period. One interviewee summed up his opinion on this issue:

"There were two or three [regulatory changes] every year, but not much of them were positive, perhaps excluding the removal of cogeneration plants from the mandatory off-take system." (foreign new entrant)

The standard deviation of opinions relating to the extent of governmental intervention which affected the operation of the company was significant among the respondents. Thus, the companies carrying out activities in the universal service segment too had a completely different opinion on utility price cut mentioned by almost all of the respondents than the companies solely active on free market. The former group clearly experienced the transformation of retail price regulation system as one of the most

decisive events. In this regard, the state-owned companies emphasized the priority of political decisions, even at the expense that it could have unfavorable results for their own business:

"Utility price cut on wholesale side was also problematic to us. The lower wholesale prices had negative effect on profitability. But there was an external influence, a political pressure which had to be carried out." (domestic incumbent)

"As both retail and wholesale trade are controlled by the government, when we start looking for a cheaper energy sources, they might have a problem. These should be settled in higher level." (domestic incumbent)

These two citations support Hypothesis H4 according to which the political expectations of the state-controlled energy trading companies enjoy priority even at the expense of their business and management objectives. This hypothesis was justified by both of the interviewees belonging to the sector. But the executives of private companies also drew the attention to the fact that state actors could not avoid the negative business impacts of utility price cut:

"The third phase of utility price cut did not affect us, that was completely borne by MVM." (foreign incumbent)

However, interestingly, the state actors considered that the increased political attention presents higher expectations which could result in the improvement of operational efficiency:

"We have been one of the several market players so far. From now on, there won't be a competition [on universal service market] but the political expectations have increased in order to operate well." (domestic incumbent)

"We have to work as if the company wouldn't be state-owned, but in case of an owner makes a decision, we have to implement it." (domestic incumbent)

Of course, the utility price cut commenced in 2012 was considered as one of the most significant event of the previous period even by the private companies that were active on retail market:

"I highlight only one of the most important milestones, that is the utility price cut announced in 2012. It completely undermined our business model." (foreign new entrant)

"In this case [with utility price cut], the operation of the company was drastically influenced by politics." (foreign incumbent)

„The government policy has been markedly changed since 2010. There had been political pressure before, but from that date it was institutionalized with sometimes unspoken but often enunciated objective... After the second utility price cut, everyone said, that the situation of the business was untenable, and the market should be exited." (foreign incumbent)

Besides utility price cut, four issues were mentioned by the interviewees in connection with regulatory environment and its impact on companies which had a fundamental effect on their operation: (1) tax system and tax rates, (2) mandatory audit of invoicing systems, (3) the change in allocation system of regulated tariff elements between consumer groups, (4) removal of cogeneration plants from the mandatory off-take system.

The extremely negative assessment of the tax system was clearly revealed by the questionnaires, with the biggest difference between the industry and the national samples. Many of respondents mentioned the issues of tax system:

"The red tape associated with sector specific tax and local business tax is a nightmare." (foreign new entrant)

"Today, it's not worth having a profitable energy trading company in Hungary, because the additional tax immediately appears. If you want to sell you have better to do it from Bratislava or beyond." (foreign incumbent)

The mandatory audit[38] of invoicing systems has been considered as one of the most serious political interventions of the past few years which is beyond the direct financial effects. Many of the interviewees mentioned this event and perhaps the following

[38] In autumn 2014, the Parliament adopted the Act XLI of 2014 which requires the public utilities to certify their invoicing systems. The law has adopted such strict requirements concerning the possible certifying organizations (at least three years of accredited status, three years reference for safety certification, two years of attested certification practice in case of two experts, the company should be included into the Authoritative Register of the Constitution Protection Office as an appropriate certifying authority in terms of national security) which only one (later two) firms could meet. Many market players believe that this act was adjusted to Hunguard Kft which had clear governmental relations Certification resulted tens of millions expenditure for public utilities (hundred millions for major firms).

citation is the most expressive relating to the serious indirect consequences of this measure:

"The audit of invoicing system has really worsened the image of institutional system. Such a measure can ruin the ownership belief according to which it is worth investing into this sector. The most frightening thing is that it raises a kind of Latin Americanization." (domestic new entrant)

At first sight, the changes in allocation system of officially regulated charges may seem not to be a problem for traders as these items can be considered as path through costs. However, in practice, the sudden changes of these charges constituted a serious business exposure for traders:

"Basically, the fact that the tariffs of mandatory off-take allocation and charges according to Section 147 of Electric Energy Act were removed from universal service segment[39] do not affect us, as they are pass through items. But they had a great impact on us due to our opened positions." (foreign new entrant)

Finally, there is a rather positive change. Compared with the former, the removal of heat combined power generation facilities from the mandatory off-take system (KÁT) in 2011 did not necessarily affect the market players negatively. Of course, the market players (Greenergy, Alteo, E.On), which were interested in cogeneration, have also been challenged by the termination of the guaranteed sale opportunities ensured for power plants, but they did not consider this government intervention to be simply negative. One of the market players interested in cogeneration summarized his opinion in connection with the termination of mandatory off-take system:

"The termination of mandatory off-take system in 2011 was not a soft landing, we needed a complete turnaround and we had to create a new strategy. We hadn't carried on a trade before, but it became inevitable because of the complete reliance on the free market. We have struggled a lot, but we did it, in addition, from own resources." (foreign new entrant)

[39] Section 147 of Act LXXXVI of 2007 on Electric Energy refers to many allocated funds which is managed by TSO to implement concrete industry specific objectives of which source is ensured by items built into tariff. These include for example, the aids for restructuring of the coal industry, electricity supply at reduced prices associated with employment in electricity industry and the support for cogeneration. These costs have been exclusively borne by the industrial energy consumers as a part of utility cost reduction since 2012.

It's interesting to note regarding the relationship between the regulatory environment and the companies, that none of the respondents mentioned the formal institutional system as one of the highly problematic areas which indicates that the formal institutional structures were basically considered to be appropriate by the interviewees. The governmental interventions were much rather considered as direct policy-driven measures which aimed to achieve the energy sector-related governmental objectives described earlier.

5.4.2.3. Development of the market institutional system

While critical observations dominated in connection with regulatory environment, basically all respondents considered development of the market institutional system very positive. Among positive elements, many of them mentioned the strengthening role of the stock exchanges (mainly HUPX) and, in this respect, the connection of regional power exchanges. Traders being active on balancing energy market emphasized the development of MAVIR processes, and of the tender procedures for purchasing of balancing energy. However, negative opinions also occurred in connection with the system of public procurement carried out by state-owned companies:

"Public procurement is a special large market, but perhaps there is the least intensive level of competition. It is not worth investing too much energy into it, if there are people who are closer to the start line." (foreign new entrant)

The respondents handle as a kind of precondition the complete separation of universal service and free markets and the state's active engagement in the former, accepting that currently there is a little chance to change the status quo. Some pointed out that the transfer of household gas supply over the state might have been justified as liberalization did not arrive at a meaningful outcome.

"Universal service in gas sector has been loss-making since the beginning. Utility price cut was not necessary for it, in this case, the regulation of 2009 did not result any solution." (foreign incumbent)

Although currently it seems that retail services have lost their attractiveness due to utility price cut, some respondents think that the current political environment may

change and the strengthening of the household services may be interesting again in the long run:

"Household market is very attractive, we treat as it is not a target temporarily." (domestic new entrant)

Overall, based on the responses, it seems that the market players consider the system of market institutions suitable for providing an appropriate background for competition (at least in the free market segment). The opinions relating to competitive environment are summarized in the next sub-chapter.

5.4.2.4. Characteristics of competitive environment

As I have pointed out earlier, the majority of respondents basically considered that the markets of electricity and gas trading were not easy markets, but they functioned. Of course, there are great differences in the perception of market segments. Virtually, nobody considers retail supply based on universal service as a part of the functioning market, but the picture relating to the free market segment is much more encouraging.

Regarding market development, everybody drew the attention to the appearance of several market players after liberalization, but after that a kind of consolidation started which is justified in terms of size and trends in the market.

"Until 2014, more and more players have appeared on the wholesale and retail markets. The market watered down a bit, but a clearing started from 2014 as the prices reduced and the margins are small. If a company has not a stable consumer background, it will not survive. Market sales segment had an upturn from 2008, but it has already reached its peak and now it is in downturn. 8 or 10 companies will survive which will be predominant in retail and wholesale trade." (domestic incumbent)

"It is a classic scheme, a new thing comes and everybody starts digging for gold and then who is not tough and smart enough lags behind." (domestic incumbent)

"We have five tough competitors in retail market, we monitor them, and the others are not really interesting." (domestic incumbent)

Differences between electricity and gas markets

It's interesting to note that many interviewees have pointed out that the gas and electricity markets are significantly different. Of course, their opinion about the markets is strongly related to the sector in which their company is active:

"Gas market is quasi-oligopolistic. Comparing to the change in electricity market of 2003, the gas market is at least 5-6 years behind. Electricity has been transparent much longer... We have seen it at European level too that the market players are more comfortable, there is a lot of gold in the streets, but nobody scoops it up. They were lazy to did so." (domestic new entrant)

"We don't deal with gas, it's much more "grey zone" comparing to electricity. Economic based on relationships – it is not our cup of tea." (foreign new entrant)

"Power plants' gas consumption disappeared in Europe. The major gas companies were in trouble, because they had full of gas and take or pay obligations... There is no growth engine in the gas market and it cannot be foreseen any." (foreign incumbent).

Interviewees partially confirmed the preliminary assumption formulated in a hypothesis (hypothesis H1B) that electricity market is more stable and offers higher profitability in average as it is more transparent, functions with more market player so it has lower risks. Nevertheless, it is also true that looking at individual companies, the higher risk level of the gas market may be associated with much higher returns, as one of the gas market players mentioned above.

Intensity of competition, entry barriers to the market

I have already cited the opinions of those who expect consolidation, stagnate or decrease in the current number of market players as a trend in the market:

"There won't be new market player, I can't see anybody is coming." (domestic incumbent)

The fact that the market is less attractive can be primarily explained by those expectations according to which those public utility companies will survive that ensures complex services and consumer-oriented attitude. Besides future uncertainties, returns achieved in the past are not encouraging:

"If anybody states that retail is good, he won't be right. In reality, the yield of retail never exceeded 1% regarding either electricity or gas." (foreign incumbent)

Based on the intensity of market competition and the entry barriers hindering competition, we can see dividing lines between new entrants and incumbents rather than state-owned and private firms. Many people have pointed out that incumbent companies have had a number of advantages to market competition, which reduced only partially:

"The background and potential of actors are more important than their number. Is there anybody who has advantage in the competition? I should say, yes." (foreign new entrant)

"As we have grown, we feel that they [incumbents] increasingly throw back. The concept of nothing is too expensive often prevails on their side" (foreign new entrant)

"The network side margin, the purchase of network side loss and the small consumer margin help the incumbents. These provided cross financing opportunities for them. (foreign new entrant)

"Unbundling is not perfect, the distributors' value added subsidy remained for incumbent traders." (foreign new entrant)

Even though the advantages attributed to the incumbents, almost all respondents agreed with fact that competition was intensifying and new opportunities may be opened in the competition, either due to the changing global strategies of foreign companies or due to changes in the regulatory environment:

"The major MNEs came to grief here and there in the region, now they are following defender, retreat strategy." (domestic incumbent)

The positive thing for us is that the cross-financing opportunities of our major competitors significantly reduced." (foreign new entrant)

The following two citations may give the best illustration of the cut throat competition of the free market:

"The market is like a madhouse. There is someone who goes nuts in every year. It is carrying on market increasing strategy which is a never-ending story as the cake is the same and you can only cut from its other slice." (foreign incumbent)

"The toughest competitor is the firm which lost the most in the previous year. It is often connected with change in management. Since the new manager wants to prove." (foreign new entrant)

"The competition is very tough we have to pull our socks up to keep up with it." (foreign incumbent)

All in all, the respondents considered the free market segment of energy trade as functioning market while universal service, especially on gas market, was not actually considered as market activity. Although the new entrants encountered some disadvantages originating from the additional resources of incumbents (consumer base, cross financing between distribution and trade, controlled purchase of network losses), but they didn't think as insurmountable barriers that seriously impede on the implementation of their own strategy. Of course, this is not true for traders being active in household segment, they virtually had to completely think over their previous activity.

Cooperation between market players

There is a wide range of relations between market players from strategic cooperation to conflicts reaching personal accusations which is clearly illustrated by the following citation:

"In the past, there used to be a comfortable industry culture, everybody got on well the others because everybody used to have enough money... Personal accusation is also a problem. The strengthening of the competition became emotional issue which led to personal conflicts." (domestic new entrant)

Of course, besides growing competition, it is not surprising that the system of personal relations has been transformed within the industry, as the earlier comfortable age of MNEs ended. It can be clearly seen that the strategic cooperation between companies as well as the assignment of duties according to competences are strengthening. It can be observed, for example, in case of cooperation between asset-backed traders primarily wishing to ensure their own sales opportunities for their production background and dealers with significant consumer base or purchase agreements where a retail-focused market player cooperates with a stronger firm having wholesale

background. Many examples mentioned as examples for such cooperation by the interviewees.

5.4.2.5. Strategy and firm's adaptation

The last question of the interviews examined the firms' reactions to the changing environmental factors. In this case, of course, there are significant differences among companies, so here was the most difficult to ensure anonymity. The answers given by the interviewees are therefore summarized in three groups, first the most typical answers given by the domestic incumbents, then the foreign incumbents, and finally the new entrants.

Domestic incumbents

"In 2009, we created our call centre which is now functioning with more than 100 employees. We have strengthened our for-profit wholesale activity and created the financial support for the increased invoicing tasks since 2011."

"At present, we are in volume growth phase, our workflows have not really changed. We will start to exploit the potential of synergy management next year."

Foreign incumbents

"We have carried out diversification: towards gas market and abroad."

"We have created a new structure on free market: segment management, new customer management channels."

"Our strategy oriented into two directions: (1) we will release the branches of business in which we don't see any potential; (2) we will carry out complete streamlining and efficiency increase in the remaining areas. These are functioning so well that neither utility price cut nor public utility tax have frightened the company."

"We got from the strategy of 2009 when we planned to create a regional centre here to the strategy according to which we do that in order to restructure the company in a way that its organizational units which are independent legal entities can be sold or easily gone into bankrupt. The company also communicated that we would orient towards solvent exit. It should be sold that has market value and is saleable."

New entrants

"We review our strategy annually according to a strict scenario. It has not any untouchable part, including a review of the vision."

"We pursue a cooperative strategy, the good allies are important."

"Year 2010 was about the creation of sales channels. It was followed by organizational development - portfolio management, procurement, finance and IT."

"The creation of joint venture has improved the efficiency of portfolio management."

"We moved to a cheaper office centre, and we have built commercial competencies. The size of the organization has been reduced. We introduced more painful measures, but we had to carry out significant restructuring."

5.4.2.6. Conclusions drawn from the responses to strategy and adaptation

The companies assigned a typical strategy based on Miles and Snow typology for each of the studied years which is further coloured by the above citations. The strategies of the three groups (state-owned domestic, foreign incumbent and new entrant firms) are markedly different form one another. The firms of the first group are characterized by volume growth strategy, they pursued stability and aggressive strategies which is associated with strong political expectation primarily in the household sector. Incumbent companies are characterized by defending their acquired positions and a kind of selective strategy. As part of it, they perform efficiency improvements or even invest in prospective business areas, while the less prosperous areas are regressed or completely withdrawn. New entrants basically pursue focusing strategy. Their position determines if this strategy concentrating on a sub-market is either stability or agressive. It's important to note, that these companies think in cooperation, creation of strategic alliances or even joint ventures on several occasions in order to reduce the advantages of incumbents from economies of scale. Their main strategic capability is flexibility, so their potential is targeting to satisfy the much more sophisticated, individual consumer needs rather than to serve the entire market.

5.5. Evaluation of hypotheses

I could formulate hypotheses for only certain parts of the co-evolutionary framework model, but in my opinion the quantitative and qualitative approaches described in the previous chapters contributed to the deeper analyzes of effects at macro, mezo and micro levels in all of the four dimensions (performance, processes, objectives and policies and organizational structure) of the model. Hereafter, I would like to summarize the evaluation of hypotheses formulated by me.

5.5.1. Hypotheses relating to performance (H1, H2)

I have formulated two hypotheses (H1A and H1B) that can be well analyzed by quantitative methods as well regarding EBIT and its changes achieved by certain clusters. In the frame of hypothesis H1A, I have compared the energy trading companies being active in the free market and/or universal services assuming that the profitability of the latter group has been significantly lagging behind the former one since 2012 due to the utility cost reduction.

Hypothesis H1A is justified by neither time series nor correlation analysis. It seems that the institutional environment which have been changing since 2012 did not lead to unfavourable situation for the companies providing universal services compared to the companies solely active on free market, moreover, they achieved higher EBITDA in 2015 than the free market energy traders. The finding can be explained by the fact that the profitability steadily declined in the free market segment due to the strong competition and that the incumbent companies carrying out universal services still take the advantages of the synergies between their various businesses but on a declining trend. This was supported by the answers given by new entrants to the question concerning the intensity of the competition during the interviews.

Hypothesis H1B, which assumed the different profitability of electricity and gas trading companies, could be successfully justified for the analyzed period. Having regard to the profit margins, the average profitability on net turnover was 1.8% for the electricity trading companies and -0.9% for the gas and mixed-profile energy trading companies in the analyzed seven-year period. Interviews have also confirmed that there are structural problems in the gas market, which slow down the expansion of the

market in the long term as well. Regarding this, one of the company leaders mentioned that the engine of growth cannot be seen in the gas market.

In frame of hypothesis H2, I have studied the efficiency of working capital management through the analysis of the rotation time for accounts receivable and the changes of the net working capital needs. In chapter 5.3.4, the data of companies have been analyzed in detail regarding both indicators. In terms of working capital management, the analysis showed that the foreign-owned incumbent companies performed better than FŐGÁZ throughout the period considered, while MVM had achieved similar results comparing to the foreign-controlled competitors in the electricity sector until 2013, but after that time its data started to deteriorate. In my opinion, based on the observations, hypothesis H2 can be maintained and the difference between the companies with various ownership background is observable regarding working capital management. One of the most important reasons for this is the different strategy of companies and the attempt of foreign incumbent companies to optimize cash flow, which can also be observed in the decisions made by the operative management.

5.5.2. Hypothesis in the dimensions of system dynamics and processes (H3)

Concerning the relationship between institutional environment and companies, the topic which can be analyzed the best is the impact of taxation on the operation of companies. The extent of the tax burden on the sector is well illustrated by the fact that the whole sector remained net taxpayer after 2013, although by this time, the profit before taxes of the 22 companies under review had become negative. The fact that taxation occupies a prominent place in the thinking of company managers reflected at the completion of CRC questionnaires, where the average industry-specific rating was 1.5 comparing to the rating of 2.47 of the countrywide sample. Nevertheless, although I examined in various aspects, I couldn't reveal an amendment of tax legislation concerning the taxes imposed on energy trading that have been selectively targeted the foreign-owned companies. Thus, I maintain the hypothesis H3, because it is justified that the tax burdens of the sector have been increased considerably due to sector-specific taxes, but this change did not result a direct competitive advantage or disadvantage for any of the clusters under examination.

At the same time, the interviews draw the attention that the effects of the tax system would be worth studying in a complex way for complete groups of companies too, as, in that way, it is likely to be possible to observe changes that affect commercial activity and they can be linked to the changes of taxes imposed on other activities (production, distribution, transmission) of integrated companies. The impacts of them are differently judged by the industrial players as it is revealed by the citations relating to the competition and tax system. While some of the new entrants consider that the increased taxation of incumbent companies (taxes imposed on non-commercial activities) facilitated the development of equal opportunities for competition as it reduced the opportunities for cross financing, on the other hand, the companies facing with high tax burdens mentioned that the reduction of their investments and the outsource of some activities abroad were the negative results of tax increase.

5.5.3. Hypothesis relating objectives and policies (H4)

In the frame of hypothesis H4, I studied whether the political expectations of state-owned companies could override the objectives relating to profitability. The hypothesis is naturally linked to the assessment of the financial indeces of company performance, which I have also analyzed in terms of profitability and capital management. In this respect, the detailed analysis of the period between 2011 and 2013 illustrates that domestic companies were placed in more advantageous position than their foreign incumbent competitors in 2012, but this advantage quickly disappeared. By 2015, except of two incumbent companies, all the analyzed clusters (foreign-controlled and new domestic entrants) could improve their EBITDA index.

However, hypothesis H4 may not be really justified by quantitative analyzes, but rather by the interviews that I have conducted with the senior managers of domestic incumbent companies. Both interviewees indicated that although they are basically similar to a for-profit company, there may be overriding objectives and political expectations that need to be taken into account when making decisions. This was the case, for example, to pass on the costs of the third utility price cut to MVM group, as well as the decision according to which FŐGÁZ has been received only a limited authority in relation to find various sources of supply from the gas wholesaler (MFGK) which had been taken into state ownership in the meantime.

All in all, the qualitative study has confirmed that the business concerns of state-controlled actors may be overridden by the fulfillment of political expectations.

5.6. Organizational adaptation processes at incumbent MNEs – assessment of hypothesis H5

In the final section of the chapter, I will study the correlation between environmental effects and firms' adaptation mechanisms at the micro-level dimension of the co-evolutionary framework model based on the results of quantitative and qualitative analyses. As it would considerably exceed the possible scope of the thesis to demonstrate the micro-level adaptation processes regarding each company analyzed by quantitative methods, I have primarily narrowed down my analysis to the organizational adaptation processes carried out by the former incumbent foreign-controlled companies. In addition to the scope of a doctoral thesis, one of the reasons for narrowing down the analysis is the fact that the questionnaires and the interviews made it clear that these companies were much more affected by the transformation of the regulatory environment than their competitors in the sector entered into the free market after liberalization. Hypothesis H5 has been formulated for this narrowed scope. According to the hypothesis, energy trading companies under foreign-control respond to the challenges of the institutional environment with more intense organizational structure adaptation than the companies with domestic background.

As I have mentioned earlier, looking at the time period between 2008 and 2015 we can see that institutional environmental effects can be divided into two separate periods. The national energy trading sector moved in the direction of competition's completion after having created the liberalization framework regulations (AEE, AGT) in 2007 and 2008. Strong new entrants appeared on the services market, which stimulated the players on the market to increase their service levels. It is also true for the period that real competition did not develop in the field of universal services or, more broadly, in the area of household services. Regulated fixed prices strongly limited opportunities for firms, which made the segment unattractive for a wide range of new entrants. With the exception of Magyar Telekom, other companies did not undertake any real activity in household services in order to acquire new customers; while Telekom decided to terminate its household services from 2015.

The new energy strategy, accepted in 2011 (MND, 2012), clearly intended to position domestic companies against foreigners – who saw their autonomy limited by direct interventions and restrictions in market possibilities coming from the government. Representatives of the government indicated on several occasions that the presence of foreign companies in the energy industry was not essential and that they were ready - and also intended - to have the larger portion of the electricity value chain in national hands. Nevertheless, it can be seen well that the government pressure intended to weaken the market position of the foreign controlled incumbent firms which gained ownership during the privatization of the 1990s and it less affected the new entrants.

I have already described in chapter 5.4.2 that basically the representatives of all trading companies considered that although there are several regulatory anomalies on the free market, it functions according to market rules. Companies solely active on free market faced with mainly market type challenges albeit some of these challenges can be attributed to the shortcomings of institutional environment. However, the household energy supply system of universal service does not meet the market rules, because the declared objective of the government policy changing from 2011 was to create a state-owned monopoly.

5.6.1. Adaptation by lobbying

The companies in the energy sector adapted different ways to the radically changed circumstances. Spiller and Liaou (2006) delineate three ways in which specific business interest groups tried to enforce their own interests over institutional actors. The three possible instruments are: buying of influence, lobbying for influence and litigation. While the incumbent MNEs tried to put pressure on the government to have the unfavorable regulations altered whether by threat and start suing[40] or by lobbying in Brussels,[41] in reality, both parties had an interest in maintaining a dialogue.

[40]GDF-SUEZ (subsequently renamed Engie) has brought an action against the Hungarian State before the International Centre for Settlement of Investment Disputes (ICSID) operating under the World Bank. Based on an unconfirmed press report the amount claimed in the action is approximately HUF 200 billion and its main points are the public utility tax, yield specified by the state and reimbursement of other unrecognized costs (https://www.portfolio.hu/vallalatok/energia/gazszolgaltato-inditott-pert-a-magyar-allam-ellen.230360.html)

[41] Several points of the Hungarian energy regulation were seen as problematic by EU experts: *"An infringement procedure was initiated by the European Commosion via a letter of notice on Friday against Hungary as it is convinced that the national regulation is incompatible with common energy market regulations."* http://bruxinfo.hu/cikk/20150224-brusszel-belekotott-a-magyar-energiaszabalyozasba.html

Some companies with a multinational background intended to utilize the intention of the government's direct ownership role, as declared in the National Energy Strategy, and tried to reduce their Hungarian exposure by selling their shares. E.On followed the same strategy; it first agreed to sell its gas division in 2012, which resulted in the establishment of E.On Storage Kft and the E.On Földgáz Trade Kft., operating as subsidiaries from 1 October 2013; while on 5 March 2014 it signed a letter of intent again with the MVM about the possible sale of its gas distribution system operators and universal trade service provider. Later, this transaction was not implemented but E.On finally sold its universal service activity of gas market to the state-owned FŐGÁZ in 2015.

Maintaining negotiations and an announcement of state acquisition transactions from time to time was at least as much in the interest of the government as it is the relevant companies'. Via announcing further potential acquisition projects, the government basically followed the strategy of *divide et impera.* In regard to their malfunctioning, loss-making business units, or divisions with uncertain future due to excessive regulation risk, all MNEs wished to conclude the government's next acquisition. Until the government's real acquisition intention could be perceived, the companies refrained from pushing their arguments with the representatives of the government towards litigation.

Government acquisition processes continued after 2014. Like E.On, GDF-SUEZ also divested its universal service of gas supply in 2015. In this case, the buyer was also FŐGÁZ operating under Első Nemzeti Közműszolgáltató Zrt. The complete transfer of household gas supply over the state ended with the transaction between TIGÁZ and FŐGÁZ which resulted that the consumers of TIGÁZ supplied within frame of universal service have been took over by the state-owned service provider. The 100% transfer of household gas supply over the state ended withthis transaction.

The acquisition promises did not only affect the gas market. RWE Group also started negotiations about the sale of its own portfolio to certain government actors. "*ENKSZ started to build the electricity division of the national public service, and for this it intends to acquire the customer service company of ELMŰ-ÉMÁSZ, while the Hungarian Development Bank (MFB) is interested to buy shares in the universal*

service and distributing companies of RWE Group."[42] Although this transaction was not finally realized, the owners of RWE did not close the previous year without equity sales transaction as a consortium involving the Czech EPH and Opus Global Nyrt. controlled by Lőrinc Mészáros acquired Mátrai Erőmű from RWE Group at the end of 2017.[43]

At the end, the state entered into the household electricity supply market with not the acquisition of ELMŰ-ÉMÁSZ, but of the French-owned EDF-Démász in 2017. Through this transaction, the state-owned service provider, ENKSZ entered into the electricity market and acquired 775 000 consumers and the distribution network supplying the Dél-Alföld region of Hungary.[44]

The interviews have shown that the foreign incumbents followed a kind of selective exit strategy regardless of state intervention partly irrespective of the changes in the institutional environment in Hungary. As Kolk at al. (2014) point out, all of the active multinational incumbents in Hungary made a strategic shift after the crisis of 2008, and the exit from the less attractive business areas was a part of it. Gas investments in Central and Eastern Europe are clearly within this scope, so in this respect, the MNEs willingness to sell clearly has met the expansion plans of the Hungarian government and state-owned companies.

It's interesting to note, that the (partial) exit strategy provided purchasing opportunities not only for state actors, but also the individual private companies. In the field of energy trading, it can be mentioned the acquisition carried out by MET which resulted in obtaining the free market business of GDF-SUEZ in 2014. But if we study the other elements of the value chain, we can also include the acquisition of Dunamenti Erőmű from GDF-SUEZ which was also carried out by MET, and the acquisition of previously EDF-owned power plant, the Budapesti Erőmű Zrt by the Czech EPH in 2015. The latest private market transaction was also related to MET, when the company acquired 98.99% stake in TIGÁZ Zrt. in December 2017.[45] Private market

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[42] Péter Horváth, chief-executive of ENKSZ Első Nemzeti Közműszolgáltató Zrt. Source: http://www.enksz.hu/Hirek/2015/elkezdodott-a-nemzeti-kozmuszolgaltatas-aram

[43] https://www.portfolio.hu/vallalatok/energia/megveszik-a-matrai-eromuvet-meszaros-lorincek.271041.html

[44] http://enksz.hu/Hirek/2017/02-01

[45] https://www.napi.hu/magyar_vallalatok/uj_tulajdonoshoz_kerult_a_tigaz.653291.html

transactions show, that the motivations of the exit of incumbent MNEs are not only the negative changes in the Hungarian regulatory environment but also the changes in global strategic orientation of the multinational companies.

The main direction of the incumbent companies' lobbying activity clearly orientated to sell the equity. The government, which appeared as the only potential buyer in many cases, was able to apply the raise of possibility for acquisitions extremely well for remedy the waves of discontentment emerged periodically in the sector. The binding audit of invoicing system cited previously is a good example for it, where the industrial players expressed their disapproval through their professional association in November 2014, but the wave of protests organized by the Association died away quickly as the dominant traders started to back out from this initiative.

5.6.2. Adaptation with an improvement in financial efficiency

The other adaptation strategy is to improve efficiency, to maximize cash-flow and the maintenance or possible increasing of the dividend rate from former cumulative retained earnings. After the incumbent companies shocked by the utility price cut carried out in 2012, almost all of the incumbent service providers improved or at least stabilized their retained earnings in 2013, while after the successes of 2012, the dominant companies with domestic management (particularly MVM and FŐGÁZ playing an increasing political role) worsened their return figures.

An improvement in corporate efficiency is theoretically a continual management task but, in practice, the management's focus does not necessarily reflect this in well performing years. The government measure, which shocked companies in 2012, strongly stimulated managements to focus even more intensely on the improvement of organizational efficiency than before. During an informal background conversation, one of the leading companies' chief-managers described this adaptation as being to screen and organize the company's activities; and the government's roughness did not go wrong - oddly enough - because it forced companies to rethink their processes, which would have been left unchanged if the decreases in profit had not pressured them.[46]

[46] The (not literal) citation can be found in an interview done by me.

5.6.3. Adaptation with a rethinking of growth strategy

The third adaptation form is a rethinking of an earlier defined corporate growth strategy. In general, the basic orientation of corporate strategy in the sector remain stable, i.e. the generalist (mainly the earlier incumbent) companies continue to follow an integrated strategy extended for the whole industry which can be mainly characterized by stability and the protection of the market positions achieved. New entrants follow a focusing strategy typically targeting narrower market segments. However, the individual strategic aims of certain firms contradict any presumption of stability in the studied period. MVM declared several times that it intends to strengthen its role among household services, but it remained a free market provider in practice during the whole of the analyzed period. Magyar Telekom was that new entrant company, which undoubtly tried to change the former status quo and entered the household energy service marketplace. Yet the company has had to give up its strategic position in this segment due to worsening institutional conditions by 2015. Moreover, it continues its free market activity in a new form, in a company established with MET, with 50-50% common ownership.[47]

Asset stripping and preparation of an exit is a kind of defensive strategy. TIGÁZ is an example here - it had lost almost all of its equity value by 2014. An exit strategy is obvious behind the steps of GdF-SUEZ in 2014-2015, which I also presented earlier. These steps led to a full exit from the Hungarian energy market by the summer of 2015.

It seems, that the foreign-controlled companies recognized, that they are not able to permanently face up to governmental pressure, but they realized at the same time, that government's financial possibilities do not ensure a background for a significant increase in state ownership. Since 2013, the MVM Partner has been able to contribute to the financial income of MVM Holding with only a HUF 524 million dividend, while it still paid HUF 22.8 billion as a dividend in 2012. The worsening of FŐGÁZ's stable profitability was similarly drastic - the company achieved HUF -611 million negative earning before interest in 2013 - as opposed to HUF 9.8 billion positive EBIT in 2012. The dividend paid by the company decreased to HUF 1.2 billion from HUF 7 billion.

[47] http://www.telekom.hu/rolunk/sajtoszoba/sajtokozlemenyek/2015/marcius_11

The acquisition of universal service activities of EDF-DÉMÁSZ and TIGÁZ of 2016 could be the last transactions on the trading market that one might see in the upcoming time period tdue to the drying-up of state financial recourses, but there is still a significant rearrangement between private companies. I have summarized the strategic adaptation steps followed by five analyzed MNEs in the period between 2009 and 2015 in Table 12.

Table 12. Adaptation strategies for incumbent energy traders with a multinational background (compiled by the author)

Company	Focus	Organizational model	Organizational changes	Mergers and other transactions	Strategy
E.ON	Electricity and gas	Strategic holding	Universal service in lagally separate unit from january 2014. Declaration of termination the gas universal services April 2015.	Selling of gas-wholesale and storage units to the Hungarian state in 2013. Selling gas USP unit to ENKSZ/FŐGÁZ.	Focus on free market trading and network services. "wait and see" strategy in electricity USP segment, financial optimalization.
RWE	Electricity (and gas)	Operative holding (ELMŰ és ÉMÁSZ)	Free-market trading unit legally separated and owned by ELMŰ and ÉMÁSZ	Selling of FŐGÁZ minority stake in 2014 to a state owned bank.Selling of Mátrai Power Plant in 2017.	Similar to E.ON, some structural questionmarks. Selective development of electricity free market segment with concentrating on some innovative activities.
EDF	Electricity	Operative holding	Selling of EDF-DÉMÁSZ holding company to the state owned NKM Zrt in 2017.	Selling of Budapesti Power Plant (BERT) to EPH (2015) As a part of the holding, electricity DSO also sold to NKM (2017)	Leaving the HU market
GDF-SUEZ	Gas (and electricity)	Mixed governing structure (two separate mother	Selling of free-market electricity (2014) and gas(2015)positions to MET. Declaration of termination the gas universal services April 2015.	Selling of Dunamenti Power Plant to MET (2014)	Leaving the HU market
ENI	Gas	Operative holding	Selling gas USP unit to ENKSZ/FŐGÁZ in 2016.	Selling TIGÁZ Zrt including the gas DSO nad the free marejt trading to MET.	Depletion of assets, leaving the market.

Two players seem to be strengthening in the Hungarian market. One of them is NKM Nemzeti Közművek Zrt. (formerly named ENKSZ) supported by state strategy which has become the exclusive supplier of the entire household gas market by now and it has also gained positions in the retail electricity trade by the acquisition of DÉMÁSZ. Among the private market players, MET strengthened its position the most by acquiring the free market portfolio of GDF SUEZ and TIGÁZ and it also purchased significant infrastructure assets (Dunamenti Erőmű, TIGÁZ distribution network). The also state-owned MVM strengthened as well, but not in the retail segment. Nevertheless, the Group has gained major positions in gas wholesale segment by the acquisition of Magyar Földgázkereskedő Zrt and Magyar Földgáztároló Zrt. from

E.ON. However, the strategic direction pursued by MNEs acquiring Hungarian interests during privatization markedly divided into two parts. This is in line with the position of Kolk et al. (2014) according to which the company-specific factors have a strong impact on the regional strategy of companies. It seems, that not only the changed political environment in Hungary encouraged some companies to exit. The opinion about the strategic importance of Central Eastern Europe within the firms' global strategy is just as essential. The adaptation paths chosen by the companies clearly show that the German firms which are in much closer contact with the region have implemented restructuring but retained their key activities, while French and Italian owned firms opted for exit. Undoubtedly, there was a serious rearrangement on the trading market, but, sooner or later, the necessary market consolidation could improve the business possibilities of remaining multinational service providers (primarily E.On and ELMŰ-ÉMÁSZ).

Regardless of the strategic path chosen, the earlier incumbent international companies have responded very intensively and quickly to the changing political environment since 2011. Either they decided on exit from the country (EdF, GDF SUEZ, ENI), or made restructuring and selective developments (E.On, RWE), a number of organizational restructuring carried out during the past five years justifies the assumptions defined in hypothesis H5.

6. THESIS SUMMARY AND MAIN CONCLUSIONS

In my thesis, I strove to give a complex overview about the interconnections between firms and their surrounding institutional environment by reviewing the theoretical approaches to the topic. My objective was to illustrate the theories through concrete example. My example was the study of trends in the Hungarian energy trading sector in the period between 2008 and 2015. I considered this sector as an excellent empirical research field for several reasons. On the one hand, new sector specific regulation has come into force in the energy trading sector from 2008 and in the gas sector from 2009, which rearranged the internal relationships within the industry. The changes in regulations affected all of the sector players and all of them were forced to adaptation. On the other hand, it is fortunate from researcher's point of view that the studied energy trading companies are relatively well comparable due to unbundling rules required by the European Union from 2007. This is due to the fact, that they engaged in activities subject to authorization and cannot be directly involved in other activities of the value chain (e.g. generation or distribution) according to the regulations.

In the theoretical chapter of my dissertation I review a number of approaches describing the correlation between corporate strategy and institutional system. I opted for co-evolutionary approach as a main framework model of my thesis. The co-evolutionary framework provided an excellent theoretical tool for the complex study of the impacts of macro-level industry-wide and internal factors on the adaptation mechanisms of individual firms and the entire industry.

The co-evolutionary researches do not set the drawing of clear causal conclusions as primary goal during the study of complex relationships. Their purpose is much rather to explore the interrelated factors in complex systems and to understand the mutual interconnections.

The co-evolutionary model worked out by Rodrigues and Child (2003) combines different analyzing methods. I also aimed to present this variability of methods in my own research. In my thesis, I strove to combine inductive and deductive approaches and the simultaneous application of qualitative and quantitative methods. The study of energy trading sector relating to the almost one-decade period of the past revealed the effects of complex two-way mechanisms influencing the strategies pursued by firms

on strategy, organizational structure, performance and the elements of macro-level and industrial environment.

As I have already mentioned in describing the research model and methodology, the first phase of research basically had discovery objectives. Although I defined some hypotheses, these should be more seen as preliminary research questions than cause and effect correlations to be proved or disproved.

The "Performance" dimension of the model allowed me to the best application of quantitative research methods. I have studied three issues based on preliminary hypotheses according to which assumptions have been formulated regarding EBITDA, working capital management and taxation.

During the formulation of hypothesis H1A, I expected that the changes in political environment (sector regulation philosophy and legislative environment characterized the period before and after 2011) had an impact on the profitability of firms depending on fact whether they are involved in universal service under strong state control or not. Quantitative analyses have not justified this hypothesis. It could not be justified that the institutional environment changed from 2012 resulted a considerably less favourable situation for the companies providing universal service than companies solely active on free market, so I rejected this hypothesis.

In the frame of hypothesis H1B, I studied the impacts of sectoral characteristics of the companies' trading activities (i.e. whether they are active on electricity or gas market or both of them) on their average EBITDA. The analysis of data justified the expectation which assumed, that electricity traders achieved higher profit margin than their gas or mixed profile competitors in the studied period, so I maintained this hypothesis based on quantitative analyses.

I analyzed the working capital management, as another area of corporate management through the comparison of accounts receivable in hypothesis H2. According to my assumption, the performance of foreign-owned firms has exceeded of the domestic, mainly state-owned competitors. Based on comparison of the rotation time of accounts receivable and the trends in net working capital, I arrived at a conclusion that the hypothesis can be maintained and the difference between the companies with different ownership background is observable regarding working capital management. This is because of the diverse strategies of domestic and foreign firms. Foreign incumbents

pursuing defender strategy preparing for exit from the market in many cases were characterized by cash-flow-centered management which preferred the internal efficiency-centered operation.

Hypothesis H3 concerning taxation also affected two dimensions of the co-evolutionary framework as it can be analyzed within the dimensions of "Performance" and System dynamics - processes" simultaneously. According to my hypothesis, the system of sector-specific taxes increased the tax burdens on the entire energy trading sector from 2009, but no direct competitive disadvantage can be identified for any of the industrial groups against the others.

Regarding taxation, the period is characterized by many changes and increase of tax burdens for the market players. According to the hypothesis, the system of sector-specific taxes was a significant additional tax burden for the sector firms. However, I suppose that these changes were not obviously discriminative, as any of the groups of companies did not suffer more from them than others. Based on my analyses I arrived at the conclusion that the same tax rules have been applied to the studied firms, irrespective of their nationality or focus of activities throughout the analyzed period, so there was no positive or negative discrimination. Nevertheless, it should not be forgotten that the tax environment of the firms (mainly incumbents) that were interested in other elements of the value chain besides trade was affected by the taxes levied on energy generation and distribution in addition to taxes levied on trade.[48] Probably this circumstance would have led to the fact that, although the quantitative analysis did not show any differences between the taxation of domestic and foreign-owned companies, the managers of foreign-owned companies considered this situation more gloomy than the domestic-controlled firms. Perhaps, the use of co-evolutionary model providing complex analysis framework was justified the most by the analysis of taxation. In this case it clearly revealed that the declarations appearing at the level of political system and policies expressing social-economical ideology have as much influence on corporate behaviour as the characteristics of the sector.

[48] Public utility tax levied on distribution firms of which amount is HUF 125 per metre placed the foreign-owned gas distributors into more unfavourable situation that supply in sparsely populated areas as their main part of revenue is flow-based but their taxation is proportional to built-up infrastructure. There is no doubt, that FŐGÁZ supplying gas in the far more populated Budapest less suffered from this tax levying method than the foreign-owned firms.

I could examine the abovementioned hypotheses well by quantitative methods too with using the financial data collected from the firms' annual reports. The results of quantitative research have often proved the existence of two-way interactions between companies and the institutional environment around them. Continual adaptation pressures on companies are obvious from the analyzed data, which arises from environmental criteria.

However, the hypotheses H4 and H5 in the dimensions of the "Objectives and Policies" and "Organizational Structure" of the research model could be analyzed almost exclusively by qualitative methods. I am convinced that the questionnaire developed by the Competitiveness Research Center and the interviews with company executives have contributed significantly to the more widespread methodological basis that can lead to more reasoned conclusions. I find it important that all of my interviewees were executives at decision-making level (chief executive or deputy chief executive) so the facts described during the interviews reflect well the strategic directions followed by their firms.

In the frame of hypothesis H4, I studied whether it can be justified that the state-owned companies override their objectives relating to profitability in order to meet the political expectations. Time series of financial performance have also confirmed that the assumption may be justified. But the interviews with company executives served as the most powerful evidence. All of the interviewees working for state-owned companies indicated that although they are basically similar to a for-profit company, there may be overriding objectives and political expectations that need to be taken into account when making decisions.

According to hypothesis H5, multinational companies respond with more intense organizational structure adaptation to institutional environmental challenges than do companies with a domestic background. This hypothesis was also approached primarily with qualitative methods. I could identify three typical adaptation mechanisms which were tried to adapt by the companies with multinational background to the changed environment. (1) *Lobbying*, (2) *improvement of financial efficiency* and (3) *rethinking of an earlier defined corporate growth strategy* were these mechanisms. Regarding the turbulent strategic changes in the period between 2011 and 2015 and the speed of adaptation, I believe that the hypothesis (taking into account

the limitation of the sample and the limitations of analythical methods) can be maintained and justifies the extremely rapid adaptation capability of MNEs.

At the end of the thesis, I whish to mention two aspects that draw the attention to the limits of my analysis. On the one hand, I have narrowed down my analysis to the Hungarian strategies of energy trading companies. I have mentioned in several occasions that energy trading is an international system, markets are interoperable, most trading companies are present in several markets, and, moreover, the market diversification is an important aspect in reducing trading risks. So, the conclusions I have drawn based on the corporate behavior in Hungary are not without the regional or global strategic considerations of the companies. Recognizing the limits resulting from this, I still think that regarding the heterogeneous ownership composition of the Hungarian market players, there is scientific value in analyzing the Hungarian market processes. The different adaptation strategy of the German and French-owned companies is a good example for this as they have given completely different organizational and strategic responses to the same environmental challenges.

The second critical aspect is the definition of the time frame involved in the analysis. I also indicated in the introduction of the thesis that I consider the closure of the research at the year of 2015 somewhat contingent, as the reorganization of the ownership structure (the state and certain domestic and regional private investors' acquisitions and the decreasing ownership of the former incumbent multinational companies) has not yet completed in the sector. Nevertheless, regarding the change in political direction of 2011-2012, I consider that the period between 2008 and 2015 provides an adequate background to demonstrate the impacts of the changing institutional environment on the development of the sector.

When I decided to write my dissertation on this topic, I did not think that by the time I would have finished it, the sector would develop in a completely different direction than the direction which have been designated by the frames of liberalization. I thought that the new entrant private companies would be the main competitors of the incumbent multinational companies, which had acquired two-decade monopoly positions through privatization, that would inspire the incumbent companies for organizational adaptation and improvement of effectiveness through their aggressive strategy of gaining market shares and flexibility. However, the environmental

challenge did not originate from here but rather from policy direction. At present, the gas service provider for the entire population of Hungary is the same company and similar plans were formulated in connection with electricity as well. The change of political ideology, i.e. the strengthening of state-ownership, essentially excluded 30 % of electricity market and 40 % of gas market from the market processes. In the short term, it basically posed a very similar challenge to multinational companies following strategies aimed at protecting their own positions, as if the challenge had been originated from the direction of new-entrant market competitors. The strategic responses were also very similar: financial focus, selective developments, partial or complete exit.

Nevertheless, the longterm effects may differ significantly in Hungary and in those countries where the new entrant private companies have been cutting an increasing slice of the sector cake. The future of energy trading in Hungary will be fundamentally determined by the fact whether the increasing state-controlled operation will be capable to achieve similar business performance in the long run for energy trading companies of those countries where the share of the private sector dominates. This issue may be responded only from decade-long perspective giving new tasks for the analysts studying the development of the sector.

7. APPENDICES

Appendix Appendix 1 - The main financial data of companies in the database at the end of 2013

Appendix Appendix 2 - Correlation table

Appendix 3 - The list of questions in the structured interview and the relevant questions from the survey

Appendix 1 - The main financial data of companies in the database at the end of 2013

Name of Company	Main Ultimate Shareholder	Country of origin	Main owner's stake of shares	Date of foundation	Short Name in Dataset	Product focus	DSO in the same group	Universal service	HU power plants in group	Revenue in 2013	Base equity in 2013	Corrected equity in 2013	EBIT 2013	EBIT/ Sales 2013	Corrected Profit after Tax in 2013	PAT/ Sales 2013
Alteo Nyrt.	Wallis Asset Management Zrt.	HUN	94,9%	2008	ALTEO	electricity			Y	2 256	1 593	-926	-129	-5,72%	-103	-4,55%
Budapesti Energiakereskedő Kft.	B.E.K. GROUP s.r.o.	SVK	100,0%	2003	BEK	electricity				1 952	98	98	-114	-5,83%	38	1,92%
CEZ Magyarország Kft.	CEZ a.s.	CZE	100,0%	2005	CEZ	electricity				17 557	106	106	-327	-1,87%	-349	-1,99%
CYEB	ArtProgram Srl. Cluj	ROU	100,0%	2010	CYEB	combined				5 218	96	96	47	0,90%	38	0,72%
E.ON Energiaszolgáltató Kft.	E.on Energie AG.	GER	100,0%	1991 (2007)	EON	combined	Y	Y	Y	485 150	16 609	16 609	-678	-0,14%	-1 610	-0,33%
Econgas	EconGas GmbH. (ÖMV)	AUT	100,0%	2007	ECONGAS	gas				23 578	257	257	20	0,08%	5	0,02%
EDF-DÉMÁSZ Zrt.	EDF International S.A.S.	FRA	100,0%	1991	EDF	electricity	Y	Y	Y	123 628	122 016	9 147	2 056	1,66%	1 912	1,55%
ELMŰ Nyrt.	RWE Energy Beteiligungs	GER	55,3%	1991	ELMU	electricity	Y	Y	Y	191 597	201 090	-24 990	-2 309	-1,21%	-3 416	-1,78%
ÉMÁSZ Nyrt.	RWE Energy Beteiligungs	GER	54,3%	1991	EMASZ	electricity	Y	Y	Y	74 811	83 930	-3 312	-1 957	-2,62%	-2 385	-3,19%
E-OS Zrt. & E-OS Gáz Kft.	Közgép Zrt.	HUN	100,0%	2006 / 2011	EOS	combined				6 794	227	227	29	0,43%	46	0,68%
FŐGÁZ Zrt.	Municipality of Budapest	HUN	50,0%	1993	FOGAZ	gas	Y	Y		218 803	34 885	11 649	-611	-0,28%	-905	-0,41%
GDF-SUEZ Energia Magyarország Zrt.	GDF International S.A.S.	FRA	100,0%	1993 (2006)	GDF	gas	Y	Y	Y	184 260	19 487	19 365	-998	-0,54%	-25	-0,01%
GDF-SUEZ Energia Holding Zrt.	GDF SUEZ International Holdings B.V.	NLG	100,0%	2010	GDF-EH	gas	Y		Y	4 053	47	47	-98	-2,43%	-96	-2,36%
Greenergy Trade Kft.	Greenergy Holdings LLC	USA	100,0%	2009	GREENENERGY	electricity			Y	1 901	67	67	13	0,71%	3	0,18%
JAS Budapest Zrt.	Hungarian private individuals	HUN	100,0%	2002	JAS	combined				14 782	745	745	61	0,41%	55	0,37%

Name of Company	Main Ultimate Shareholder	Country of origin	Main owner's stake of shares	Date of foundation	Short Name in Dataset	Product focus	DSO in the same group	Universal service	HU power plants in group	Revenue in 2013	Base equity in 2013	Corrected equity in 2013	EBIT 2013	EBIT/ Sales 2013	Corrected Profit after Tax in 2013	PAT/ Sales 2013
Magyar Telekom Nyrt.	Deutsche Telekom AG	GER	59,2%	(2011)	MTEL	combined				48 000	-7 168	-7 168	-4 153	-8,65%	-4 244	-8,84%
Magyar Áramszolgáltató Kft.	RWE Energy Beteiligungs	GER	54,3%	2002	MASZ	electricity	Y		Y	144 841	450	450	4 200	2,90%	1 836	1,27%
MET Magyarország(MOL) Energiakereskedő Zrt.	offshore companies	CHE	60,0%	2009	MET	gas				232 489	5 873	5 873	3 590	1,54%	-1 723	-0,74%
MVM Partner Zrt. & MVM Trade Zrt.	Hungarian State	HUN	99,9%	1991 (2002/2005)	MVM	combined			Y	609 407	22 099	22 099	1 968	0,32%	524	0,09%
Nordest Energy Kft.	Hungarian private individuals	HUN	100,0%	2010	NORDEST	combined				2 169	-2	-2	-40	-1,86%	-18	-0,83%
IFC Energy (Optenergy) Kft.	Hungarian private individuals	HUN	100,0%	2006	IFC	combined				27 622	1 325	1 325	269	0,97%	91	0,33%
TIGÁZ Zrt.	ENI SPA.	ITA	100,0%	1994	TIGAZ	gas	Y	Y		240 413	26 087	-21 658	-16 080	-6,69%	-20 774	-8,64%
VPP Erőmű	Hungarian private individuals	HUN	100,0%	2011	VPP	electricity			Y	11 865	186	186	-28	-0,23%	-42	-0,35%

Appendix 2 - Correlation table

		DIV_15	DIV_14	DIV_13	DIV_12	DIV_11	DIV_10	SIZE_15	SIZE_14	SIZE_13	SIZE_12	SIZE_11	SIZE_10	EBIT_15
DIV_15	Pearson Correlation													
	Sig. (2-tailed)													
	N													
DIV_14	Pearson Correlation	**,904****												
	Sig. (2-tailed)	**,000**												
	N	**22**												
DIV_13	Pearson Correlation	,884**	**,955****											
	Sig. (2-tailed)	,000	**,000**											
	N	22	**22**											
DIV_12	Pearson Correlation	,351	,157	,179										
	Sig. (2-tailed)	,110	,485	,426										
	N	22	22	22										
DIV_11	Pearson Correlation	,480*	,397	,440*	**,595****									
	Sig. (2-tailed)	,028	,075	,046	**,004**									
	N	21	21	21	**21**									
DIV_10	Pearson Correlation	,411	,426	,489*	,292	**,653****								
	Sig. (2-tailed)	,102	,089	,046	,255	**,004**								
	N	17	17	17	17	**17**								
SIZE_15	Pearson Correlation	**,454***	,418	,366	,521*	,729**	,610*							
	Sig. (2-tailed)	**,039**	,060	,103	,016	,000	,012							
	N	**21**	21	21	21	20	16							
SIZE_14	Pearson Correlation	,435*	,408	,358	,408	,694**	,541*	,974**						
	Sig. (2-tailed)	,043	,059	,102	,059	,000	,025	,000						
	N	22	22	22	22	21	17	21						
SIZE_13	Pearson Correlation	,440*	,428*	,386	,379	,688**	,532*	,951**	,978**					
	Sig. (2-tailed)	,041	,047	,076	,082	,001	,028	,000	,000					
	N	22	22	22	22	21	17	21	22					
SIZE_12	Pearson Correlation	,418	,371	,334	**,468***	,719**	,490*	,929**	,963**	,980**				
	Sig. (2-tailed)	,053	,089	,128	**,028**	,000	,046	,000	,000	,000				
	N	22	22	22	**22**	21	17	21	22	22				
SIZE_11	Pearson Correlation	,414	,389	,354	,402	**,722****	,482	,900**	,940**	,949**	,968**			
	Sig. (2-tailed)	,055	,074	,106	,064	**,000**	,050	,000	,000	,000	,000			
	N	22	22	22	22	**21**	17	21	22	22	22			
SIZE_10	Pearson Correlation	,311	,336	,303	,172	,587*	**,490***	,707**	,804**	,854**	,868**	,939**		
	Sig. (2-tailed)	,209	,172	,222	,496	,013	**,046**	,002	,000	,000	,000	,000		
	N	18	18	18	18	17	**17**	17	18	18	18	18		
EBIT_15	Pearson Correlation	,388	,387	,525*	,572**	,348	,196	,240	,188	,234	,275	,235	,096	
	Sig. (2-tailed)	,075	,075	,012	,005	,122	,450	,295	,402	,295	,215	,292	,703	
	N	22	22	22	22	21	17	21	22	22	22	22	18	
EBIT_14	Pearson Correlation	,113	,194	,222	,463*	,007	-,094	,010	-,101	-,138	-,096	-,108	-,213	,416
	Sig. (2-tailed)	,616	,387	,320	,030	,976	,719	,964	,654	,539	,670	,634	,395	,054
	N	22	22	22	22	21	17	21	22	22	22	22	18	22
EBIT_13	Pearson Correlation	,042	,072	,049	,298	,243	,281	-,091	-,174	-,213	-,202	-,202	-,242	-,111
	Sig. (2-tailed)	,853	,750	,827	,178	,288	,275	,694	,438	,340	,368	,367	,333	,622
	N	22	22	22	22	21	17	21	22	22	22	22	18	22
EBIT_12	Pearson Correlation	-,005	-,119	-,016	**,666****	,547*	,535*	,229	,115	,086	,153	,093	-,023	,267
	Sig. (2-tailed)	,982	,597	,945	**,001**	,010	,027	,318	,612	,704	,498	,681	,929	,230
	N	22	22	22	**22**	21	17	21	22	22	22	22	18	22
EBIT_11	Pearson Correlation	-,012	-,082	-,099	,650**	**,498***	,573*	,516*	,377	,343	,401	,329	,195	,118
	Sig. (2-tailed)	,957	,718	,663	,001	**,022**	,016	,017	,084	,119	,064	,134	,438	,601
	N	22	22	22	22	**21**	17	21	22	22	22	22	18	22
EBIT_10	Pearson Correlation	-,127	-,108	-,170	,327	,313	**,540***	,446*	,373	,373	,390	,343	,265	-,010
	Sig. (2-tailed)	,574	,632	,449	,138	,167	**,025**	,043	,087	,087	,073	,118	,287	,964
	N	22	22	22	22	21	**17**	21	22	22	22	22	18	22

		DIV_15	DIV_14	DIV_13	DIV_12	DIV_11	DIV_10	SIZE_15	SIZE_14	SIZE_13	SIZE_12	SIZE_11	SIZE_10	EBIT_15
DOM_CTRL	Pearson Correlation	-,259	-,386	-,332	,270	,031	-,036	-,113	-,163	-,262	-,197	-,286	**-,502***	-,058
	Sig. (2-tailed)	,244	,076	,131	,225	,894	,890	,625	,469	,239	,380	,197	**,034**	,798
	N	22	22	22	22	21	17	21	22	22	22	22	**18**	22
UNIV	Pearson Correlation	**,525***	**,588****	**,560****	-,045	**,437***	,163	**,609****	**,698****	**,711****	**,666****	**,709****	**,645****	,093
	Sig. (2-tailed)	**,012**	**,004**	**,007**	,842	**,048**	,532	**,003**	**,000**	**,000**	**,001**	**,000**	**,004**	,682
	N	**22**	**22**	**22**	22	**21**	17	**21**	**22**	**22**	**22**	**22**	**18**	22
PROD	Pearson Correlation	,247	,186	,150	-,084	,236	,300	,153	,282	,295	,279	,285	,448	-,074
	Sig. (2-tailed)	,267	,406	,506	,710	,304	,243	,508	,203	,183	,208	,198	,062	,744
	N	22	22	22	22	21	17	21	22	22	22	22	18	22
DSO_IN_GROUP	Pearson Correlation	**,458***	**,580****	**,538****	-,074	,420	,361	**,656****	**,734****	**,749****	**,686****	**,734****	**,680****	,073
	Sig. (2-tailed)	**,032**	**,005**	**,010**	,742	,058	,155	**,001**	**,000**	**,000**	**,000**	**,000**	**,002**	,746
	N	**22**	**22**	**22**	22	21	17	**21**	**22**	**22**	**22**	**22**	**18**	22
AVG_E_13_15	Pearson Correlation	-,373	-,310	-,337	,148	,304	,048	,106	,124	,095	,113	,111	,047	-,349
	Sig. (2-tailed)	,087	,160	,126	,511	,180	,854	,649	,583	,675	,617	,622	,852	,111
	N	22	22	22	22	21	17	21	22	22	22	22	18	22
AVG_E_10_12	Pearson Correlation	-,260	-,183	-,248	,096	,470*	-,020	,465*	,500*	,512*	**,535***	**,534***	,435	-,122
	Sig. (2-tailed)	,242	,416	,266	,670	,032	,940	,034	,018	,015	**,010**	**,011**	,071	,588
	N	22	22	22	22	21	17	21	22	22	**22**	**22**	18	22
AVG_EBIT_13_15	Pearson Correlation	,209	,260	,303	,576**	,249	,217	,026	-,102	-,128	-,090	-,111	-,223	**,436***
	Sig. (2-tailed)	,351	,242	,170	,005	,277	,402	,911	,653	,570	,692	,623	,373	**,042**
	N	22	22	22	22	21	17	21	22	22	22	22	18	**22**
AVG_EBIT_10_12	Pearson Correlation	-,042	-,117	-,083	**,631****	**,524***	**,603***	,391	,271	,246	,304	,239	,117	,174
	Sig. (2-tailed)	,854	,605	,713	**,002**	**,015**	**,010**	,080	,222	,269	,169	,284	,645	,438
	N	22	22	22	**22**	**21**	**17**	21	22	22	22	22	18	22
INKUMBENT	Pearson Correlation	**,449***	**,523***	**,496***	,063	**,632****	**,598***	**,765****	**,832****	**,851****	**,805****	**,830****	**,772****	,098
	Sig. (2-tailed)	**,036**	**,012**	**,019**	,780	**,002**	**,011**	**,000**	**,000**	**,000**	**,000**	**,000**	**,000**	,664
	N	**22**	**22**	**22**	22	**21**	**17**	**21**	**22**	**22**	**22**	**22**	**18**	22

		EBIT_14	EBIT_13	EBIT_12	EBIT_11	EBIT_10	DOM_CTRL	UNIV	PROD	DSO_IN_GROUP	AVG_E_13_15	AVG_E_10_12	AVG_EBIT_13_15	AVG_EBIT_10_12	INKUMBENT
EBIT_13	Pearson Correlation	**,439***													
	Sig. (2-tailed)	**,041**													
	N	**22**													
EBIT_12	Pearson Correlation	,225	**,600****												
	Sig. (2-tailed)	,314	**,003**												
	N	22	**22**												
EBIT_11	Pearson Correlation	,075	,431*	**,843****											
	Sig. (2-tailed)	,739	,045	**,000**											
	N	22	22	**22**											
EBIT_10	Pearson Correlation	-,244	,295	,539**	**,824****										
	Sig. (2-tailed)	,275	,183	,010	**,000**										
	N	22	22	22	**22**										
DOM_CTRL	Pearson Correlation	,203	,289	**,496***	,388	,103									
	Sig. (2-tailed)	,364	,193	**,019**	,075	,649									
	N	22	22	**22**	22	22									
UNIV	Pearson Correlation	-,100	-,406	-,380	-,222	-,201	**-,428***								
	Sig. (2-tailed)	,659	,061	,081	,320	,370	**,047**								
	N	22	22	22	22	22	**22**								
PROD	Pearson Correlation	**-,538****	-,219	-,188	-,018	,257	-,283	,356							
	Sig. (2-tailed)	**,010**	,327	,403	,936	,248	,201	,104							
	N	**22**	22	22	22	22	22	22							
DSO_IN_GROUP	Pearson Correlation	-,096	-,271	-,357	-,131	,044	**-,500***	**,904****	**,449***						
	Sig. (2-tailed)	,671	,222	,103	,562	,844	**,018**	**,000**	**,036**						
	N	22	22	22	22	22	**22**	**22**	**22**						
AVG_E_13_15	Pearson Correlation	,118	**,597****	,504*	,470*	,360	,257	-,087	-,174	-,090					
	Sig. (2-tailed)	,599	**,003**	,017	,027	,100	,249	,699	,438	,690					
	N	22	**22**	22	22	22	22	22	22	22					
AVG_E_10_12	Pearson Correlation	-,289	-,054	,146	,321	,391	-,050	,357	,217	,306	,644**				
	Sig. (2-tailed)	,191	,812	,516	,145	,072	,825	,103	,332	,166	,001				
	N	22	22	22	22	22	22	22	22	22	22				
AVG_EBIT_13_15	Pearson Correlation	**,841****	**,782****	,572**	,362	,095	,260	-,288	-,400	-,205	,295	-,229			
	Sig. (2-tailed)	**,000**	**,000**	,005	,098	,673	,242	,194	,065	,360	,183	,305			
	N	**22**	**22**	22	22	22	22	22	22	22	22	22			
AVG_EBIT_10_12	Pearson Correlation	,072	,531*	**,926****	**,967****	**,808****	,405	-,323	-,026	-,212	**,505***	,281	,438*		
	Sig. (2-tailed)	,749	,011	**,000**	**,000**	**,000**	,061	,143	,909	,343	**,017**	,205	,041		
	N	22	22	**22**	**22**	**22**	22	22	22	22	**22**	22	22		
INKUMBENT	Pearson Correlation	-,295	-,200	-,058	,188	,347	-,388	**,821****	**,540****	**,909****	,057	**,490***	-,232	,124	
	Sig. (2-tailed)	,182	,372	,797	,402	,114	,074	**,000**	**,009**	**,000**	,800	**,021**	,298	,582	
	N	22	22	22	22	22	22	**22**	**22**	**22**	22	**22**	22	22	

DIV_n means the dividend paid in the year n;

SIZE_n measured as the natural log of revenue of year n;

EBIT_n means the earning before interest and taxes of year n;

DOM_CONTROL (dummy) =1 if the company controlled by local ultimate owners;

UNIV (dummy) = 1 in case of universal service activities;

PRODUCTION (dummy) = 1 in case of ownership production entities (power plants);

DSO_IN_GROUP (dummy) = 1 if the firm belongs to a group which also has ownership in a DSO.

AVG_E_n to m means the average corrected equity of the firm

INKUMBENT means the former inkumbent status of the company.

8. LIST OF RELATED PUBLICATION

Articles, studies and conference papers

[1] Felsmann, Balázs, Mezősi, András és Szabó, László: *Market versus bureaucracy – price regulation in the electricity retail sector.* Conference paper (p. 1-12). Conference title: The importance of Kornai's research today". Feb. 21-22. 2018. Budapest, Corvinus University of Budapest.

[2] Do institutions matter in business strategy? – The changing focus of strategic management to institutions: a literature review. *Vezetéstudomány / Budapest Management Review,* 2016. 47 (5). pp. 2-11. ISSN 0133-017

[3] *Az európai villamosenergia-árak központi szabályozásának hatása a fogyasztói árakra.* [The impacts of the price regulation on the level of retail electricity prices in Europe] In: Valentiny Pál, Kiss Ferenc László, Nagy Csongor István (szerk.) *Verseny és szabályozás, 2013.* Budapest, MTA KRTK Közgazdaság-tudományi Intézet, 2014. pp. 145-164.

[4] Winners and Losers in the Liberalized Energy Retail Sector in Hungary: A Co-evolutionary Approach. *Theory Methodology Practice (TMP),* 10(02) 2014. pp. 25-36.

[5] *Az elektromos járművek elterjedésének energiapiaci hatásai.* In: Szakál Anikó (szerk.) IX. Energetikai Konferencia "Energiastratégiák". Konferencia helye, ideje: Budapest, Magyarország, 2014.11.03-2014.11.14. Budapest: Óbudai Egyetem, 2014. pp. 43-53.

Other academic publications, working papers

[1] *Can the Paks-2 nuclear power plant operate without state aid? A business economics analysis.* Working Paper. Energiaklub, June 2015. pp.1-36.

[2] *Energiapolitika és árszabályozás Európában és Magyarországon.* Tanulmány a Szabad Piac Intézet részére. 2014. június 25.

[3] Felsmann Balázs, Kádár Péter és Munkácsy Béla (2014) *A fenntarthatósági szempontok érvényesülése a paksi atomerőmű bővítése kapcsán.* pp. 1-6.. Műhelytanulmány, Corvinus Kutatások. Csak repozitóriumban hozzáférhető.

[4] *Legitimáció, az érdekcsoportok nyomása és változás a kialakuló intézményekben: a külföldi befektetők és a fogadó országok kormányainak esete.* In: Fejezetek a nemzetközi üzleti gazdaságtanból 4. [Chapters in International Business. Reviews on Selected Papers on International Business 4]. Ed.: Czakó, E. BCE 2011. november. pp. 29-36.

[5] *Közgazdasági dilemmák a megújuló energiatermelés támogatásában.* Műhelytanulmány a TÁMOP-4.2.1/B-09/1/KMR-2010-0005 kutatási projekthez kapcsolódóan. BCE 2011. május.

Other publications

[1] *Hol a határ? A megújuló áramtermelés fejlődése.* HVG FENNTARTHATÓ FEJLŐDÉS PLUSZ 2018: pp. 42-46. (2017)

[2] *Az elektromobilitás lehetőségei a városi logisztikában.* VÁROSI KÖZLEKEDÉS 2017/2. pp. (2017)

[3] *Árletörés állami energiaholdinggal? - A magyar áram- és gázpiacról.* FIGYELŐ: GAZDASÁGPOLITIKAI HETILAP 2014:(44) pp. 30-32. (2014)

[4] *A tiszta lemarad?: Energiaárak és európai versenyképesség.* HVG FENNTARTHATÓ FEJLŐDÉS PLUSZ 2015: pp. 30-33. (2014)

[5] *Az évszázad üzlete? - A paksi bővítésről.* Figyelő, 2014. (58. évf.) 4. sz. 13-14. oldal.

[6] *Hol a profit? – Az energiakereskedelmi szektor átalakulása.* Figyelő, 2013/39.

[7] *Elmaradnak az energetikai beruházások - A lakossági energiaszolgáltatás központi árszabályozása.*FIGYELŐ: GAZDASÁGPOLITIKAI HETILAP 57:(15) pp. 20-23. *(2013)*

[8] *A zöld áram rögös útja.* In: Fenntartható Fejlődés Plusz - HVG Kiadványok 2013; szerkesztő: Szabó Gábor ISSN 2062-4085 ISSN 2063-1669. 48-53. oldal

[9] *Tovább leng az inga.* Világgazdaság, 2012. február 10.

[10] *Energiapolitika új utakon.* In: Fenntartható Fejlődés Plusz - HVG Kiadványok 2012; szerkesztő: Szauer Péter ISSN 2062-4085 ISSN 2063-1669. 20-28. oldal, 30. oldal, 43. oldal.

[11] *Az okos hálózatok Magyarországon.* in: Megújuló energia megállás nélkül : a klímaváltozás megfékezéséhez szükséges infrastruktúra. Szerk. Rebecca Short et al., Budapest, 2011. - 77 p. 620.91 [AN 3290495] 33-46. oldal

[12] *Állam és atomenergia* – Világgazdaság 2011. május 19.

[13] *Negyedéves gázügyeink* – Világgazdaság 2010. augusztus 31.

[14] *Hatósági energiaár-keringő* – Világgazdaság 2010. június 17.

[15] *Kell-e független Magyar Energia Hivatal?* – Világgazdaság 2010. március 11.

[16] *Program helyett* – Figyelő 2009. szeptember 17.

[17] *Nézetek a magyar energiapolitikáról* – Portfolio.hu 2009. szeptember 9.

[18] *Miért drágult az áram*? - Világgazdaság 2009. július 16.

[19] *Miért éppen a távhőszolgáltatás forgalmi adója csökken az általános megszorítások közepette? I-II.* - Portfolio.hu 2009. május

[20] *Felejtsük el az olcsó atomerőművi áram mítoszát! Gondolatok egy új atomerőmű közgazdasági hátteréhez* – Portfolio.hu 2009. március 27.

[21] *Még keserűbb a narancs* - Figyelő 2009. február 26.

[22] Felsmann-Kaderják: *Újragondolva Talán Pótolható* – Figyelő 2008. október 16.

[23] *Áramütés* – Figyelő 2008. augusztus 4.

[24] *Atombiztosan* – Figyelő 2008. április 17.

Conference presentations

[1] *Mi az energiapolitikai olvasata az Európai Bizottság Paks II beruházást érintő döntésének?* Előadás az MTA TK Jogtudományi Intézetének konferenciáján. Budapest, 2017. április 20.

[2] *Electricity and gas price (de)regulation in the context of national energy markets - Hungary*. (De)regulating electricity and gas supply prices – what's in it for consumers? European Commission, DG Energy, Brussels, 3 June 2016

[3] *Policy ideas from the V4 region: Hungarian and CEE examples*. University of Pretoria, Innovative Energy Workshop. Pretoria, 1-2 September, 2015.

[4] *Az európai és a hazai energiapolitika kapcsolódásai: Európai helyzetkép.* Előadás az MTA Társadalomtudományi Kutatóközpont Jogtudományi és Politikatudományi Intézetei, valamint a Magyar Politikatudományi Társaság Közpolitikai Szakosztálya által szervezett „A közpolitikai döntéshozatal jogi környezete az energiapolitikában." című kerekasztal-konferencián, 2015. június 16.

[5] *Verseny és versenyképesség az energiaszektorban – számítanak-e az intézmények?* Budapesti Corvinus Egyetem, GTK Kari kutatási hét, 2015. május 11.

[6] *Az európai energiaunió és hatásai Magyarországra – változó állami szabályozói szerep Európában.* Előadás a Magyar Energiakereskedők Országos Szövetsége III. Országos Konferenciáján. 2015. március 5.

[7] *A villamosenergia-termelő beruházások aktuális közgazdasági kérdései.* Magyar Tudományos Akadémia, „Villamosenergia-ellátás Magyarországon a XXI. században." Szakmai konferencia, Budapest, 2014. február 18.

[8] *Small steps forward. How to change the dominant trends of the Hungarian energy sector to increase the share of RES in the energy mix?* – European Wind Energy Assotiation 5th Hungary Policy Workshop, Budapest 1st October 2013.

[9] *Versenypiac és hatósági árak - hogyan lehet fenntartható a lakossági energia árazása?* - Napi Gazdaság - Hungarian Energy Investors Forum Budapest, 2013. május 16.

[10] *Megújulók és atomenergia a világban és Magyarországon.* A Heinrich Böll Stiftung és az Ökopolisz Alapítvány Nemzetközi Konferenciája – Budapest, 2012. október 10.

[11] *Innováció és állami támogatások összefüggései – hatások az energiaszektor megújulásának lehetőségeire.* Előadás az „Innováció a KKV szektorban" konferencián, BCE Budapest, 2012. március 8.

[12] *Adalékok egy atomerőművi beruházási döntés meghozatalához.* A Heinrich Böll Stiftung és az Ökopolisz Alapítvány Nemzetközi Konferenciája – Pécs 2011. november 24-26.

[13] *Finanszírozható-e az energia[forradalom]? Pénzügyi és szabályozói kihívások* - CEU – 2011. november 17.

[14] *„Háztáji energiatermelés" közgazdász szemmel.* Konferencia a tudomány napja alkalmából – Óbudai Egyetem 2011. november 10.

[15] *Renewing the old-fashioned structures: new trends in the energy sector*. 2nd Eisenhower Day of Fellowship in Budapest – 14th October 2011.

[16] *Az energiapolitika szerepe és kihívásai.* Előadás az Óbudai Zöld Szabadegyetemen. 2011. május 19.

[17] *Electricity Market Outlook from CEE perspective.* Data Centre Europe Conference, Nice, France 2011. május 7.

[18] *Klímavédelem és megújuló energiák.* Vitaindító előadás és szekcióvita-vezetés; 3. Energiastratégiai Konferencia, Energiagazdálkodási Tudományos Egyesület, Herceghalom, „2010. november 11-12.

[19] *Will new technologies revolutionize the electrical power industry?* Panel debate on the Plenary Session of the XX Economic Forum, Krynica-Zdrój, Poland September 8-11, 2010

[20] *Developing and deploying technologies to meet future energy requirements – National Programs: Hungary*. Előadás az US-EU Dialog on Sustainable Energy Security konferencián, Prága 2010. június 17.

[21] *Lehetne zöldebb a magyar energiarendszer? Tények és lehetőségek a hazai költségvetés tükrében.* Energia – Másképp II. Konferencia, 2010. március 10.

[22] Előadás a Magyar Közgazdasági Társaság *„Beszélgetni kell: Függés és függetlenség az energetikában"* című szakkonferenciáján 2010. március 4.

[23] *Helyzetértékelő előadás és háttérbeszélgetés az MKIK Energetikai Kollégiumának alakuló ülésén*; 2009. június 12.

[24] *Fenntartható energiarendszer, avagy mennyiben képes hozzájárulni az energiaszektor "zöldítése" a gazdasági válságból való kilábaláshoz.* Előadás a Jövő Nemzedékek Országgyűlési Biztosa által szervezett konferencián, 2009. június 11.

BIBLIOGRAPHY

Acemoglu, D. (2008): Growth and institutions. In: *The New Palgrave Dictionnary of Economics*, Second Edition, 2008. Ed.: Durlauf S. N. & Blume L. E. Palgrave Macmillan, 2008, pp. 1-9. (online edition, http://www.dictionaryofeconomics.com)

ACER & CEER (2016). *Annual Report on the Results of Monitoring the Internal Electricity and Gas Markets in 2015. Retail Markets.* Ljubljana, Brussels, November 2016.

Alston, L. J. (2008). The „Case" for Case Studies in New Institutional Economics. In: Brousseau, E., & Glachant, J. M. (eds.). N*ew Institutional Economics: a Guidebook*. Cambridge University Press. pp. 103-121.

Augier, M., & March, J. G. (2008). Realism and comprehension in economics: A footnote to an exchange between Oliver E. Williamson and Herbert A. Simon. *Journal of Economic Behavior & Organization*, 66(1), 95-105.

Bakos, Gábor (2001). Privatizing and Liberalizing Electricity, The Case of Hungary. *Energy Policy* 29(13) pp.1119-1132.

Balaton, K. (2005): Attitude of Hungarian companies towards challenges created by EU accession. *Journal for East European Management Studies*, Hampp, Mering, Vol. 10, Iss. 3, pp. 247-258.

Balaton, K. (2007). *Organizational Strategies and Structures Following the System Turnaround.* Akadémiai Kiadó, Budapest.

Balaton, K. (2010): Stratégiaalkotás, stratégiai tervezés és stratégiai menedzsment. In: Balaton és szerzőtársai (2010): *Stratégiai menedzsment.* Aula Kiadó, Budapest

Balaton, K. (szerk.) (2014). Közgazdaság-tudomány és gazdálkodástudomány – elmélet, módszertan és gyakorlat. *Magyar Tudomány* (175) 8. pp. 898-929.

Barney, J. B. & Arikan, A. M.(2001): The Resource-based View: Origins and Implications. In Hitt M. A., Freeman R. E. & Harrison J. S. (Eds.), *The Blackwell Handbook of Strategic Management.* (pp. 124-187). Oxford: Blackwell Publishers.

Bettis, R., Gambardella, A., Helfat, C., & Mitchell, W. (2014). Quantitative empirical analysis in strategic management. *Strategic Management Journal*, 35(7), 949-953.

Birkinshaw, J. M., Young, S. & Hood, N. (2004): Subsidiary entrepreneurship, internal and external competitive forces, and subsidiary performance. *International Business Review*, 14: 227-248.

Bower, J. L., Leonard H. B. & Paine L. S. (2011): Global Capitalism at Risk: What Are You Doing About It? *Harvard Business Review*, pp. 105-112.

Bremmer, I. (2014). The new rules of globalization. *Harvard Business Review*, 92(1), 103-107.

Breslin, D. (2011). Reviewing a Generalized Darwinist Approach to Studying Socio-economic Change. *International Journal of Management Reviews*, 13(2), 218-235.

Bromiley, P., & Rau, D. (2014). Towards a practice-based view of strategy. *Strategic Management Journal*, 35(8), 1249-1256.

Camerer, C. (1985). Redirecting research in business policy and strategy. *Strategic Management Journal*, 6(1), 1-15.

Carlton, D. W. & Perloff, J. M. (2003): *Modern piacelmélet.* [Modern Industrial Organization]. Panem, Budapest.

Cave, M., & Stern, J. (2013). Economics and the development of system operators in infrastructure industries. *Utilities Policy*, 26, pp. 56-66.

CEER (2012). *CEER Status Review of Customer and Retail Market Provisions from the 3rd Package as of 1 January 2012*. Council of European Energy Regulators, C12-CEM-55-04. Brussels, 7 November 2012.

CEER (2015). *Position paper on well-functioning retail energy markets.* Council of European Energy Regulators, C15-SC-36-03. Brussels, 14 October, 2015.

Chikán A. & Czakó E. (2002): Kis nemzetgazdaságok versenyképessége a globális gazdaságban – a magyar példa. In.: Chikán A.-Czakó E.-Zoltayné Paprika Z.: *Vállalati versenyképesség a globalizálódó magyar gazdaságban.* Akadémiai Kiadó, Budapest, pp. 27-39. (Chikán, A., Czakó, E., & Zoltay-Paprika, Z. (Eds.). (2002). *National competitiveness in global economy: the case of Hungary* (Vol. 4). Akadémiai Kiadó.)

Chikán A. & Czakó E. (2009): Versenyképesség vállalati nézőpontból. In. Chikán A.-Czakó E. (ed.): *Versenyben a világgal – Vállalataink versenyképessége az új évezred küszöbén*. Akadémiai kiadó, Budapest, pp.35-95.

Chikán, A., Czakó, E. & Wimmer, Á. eds. (2014). Kilábalás göröngyös talajon-Gyorsjelentés a 2013. évi kérdőíves felmérés eredményeiről. Budapesti Corvinus Egyetem, Vállalatgazdaságtan Intézet, Budapest.

Child, J., Rodrigues, S. B. & Tse, K-T. K. (2012) The Dynamics of Influence in Corporate Co-Evolution. *Journal of Management Studies*, Volume 49, Issue 7: 1246–1273.

Child, J., Tse, K. K. T., & Rodrigues, S. B. (2013). *The dynamics of corporate co-evolution: A case study of port development in China.* Edward Elgar Pub.

Christensen, C. M., & Carlile, P. R. (2009). Course research: Using the case method to build and teach management theory. *Academy of Management Learning & Education*, 8(2), 240-251.

Coase, R. H. (1937). The nature of the firm. *Economica*, 4 (16), pp. 386-405.

Coase, R., & Wang, N. (2012). Saving economics from the economists. *Harvard Business Review*, 90(12), 36.

Conner, K. R. (1991). A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm? *Journal of management*, *17*(1), 121-154.

Csesznák, A. & Wimmer, Á. (2014). *Vállalati jellemzők és összefüggéseik – A "versenyben a világgal" kutatási program 2013. évi felmérésében résztvevő vállalatok jellemzése.*

Versenyképesség könyvsorozat, 1. kötet. BCE Vállalatgazdaságtan Intézet, Versenyképesség Kutató Központ. ISBN 978-963-503-584-7. (in Hungarian)

Czakó, E. (2000). *Versenyképesség iparágak szintjén – a globalizáció tükrében.* PhD disszertáció, BKÁE Vállalatgazdaságtan tanszék, Budapest. (Czakó, E. (2000). *Competitiveness at Industry Level In the Light of Globalization* (Doctoral dissertation, PhD Thesis, BUESPA).

Dacin, M. T., Ventresca, M. J., & Beal, B. D. (1999). The embeddedness of organizations: Dialogue & directions. *Journal of management*, *25*(3), pp. 317-356.

Deák, A. (2006): Diversification in Hungarian Manner: The Gyurcsány Government's Energy Policy. *International Issues & Slovak Foreign Policy Affairs* (03-04/2006) pp. 44-55.

DiMaggio, P. J., & Powell, W. W. (2000). The iron cage revisited - Institutional isomorphism and collective rationality in organizational fields (Reprinted from the *American Sociological Association* vol 48, pp. 147-160, 1983). *ADVANCES IN STRATEGIC MANAGEMENT*, VOL 17, 2000, 17, pp. 143-166.

Dobák, M. és munkatársai (1992): *Szervezeti formák és koordináció [Organizational forms and coordination]*. Közgazdasági és Jogi Könyvkiadó. Budapest.

ENTSO-E (2014). *Yearly Statistics & Adequacy Retrospect 2013.* ENTSO-E, Avenue de Cortenbergh 100, Brussels, Belgium.

ERGEG (2010): *Status Review of End-User Price Regulation as of 1 January 2010*. European Regulators Group for Electricity & Gas. Ref: E10-CEM-34-03. Bruxelles, 8 September 2010.

European Commission (2008). *Commission requests Hungary to end long-term power purchase agreements and recover state aid from power generators.* Press Release, IP/08/850. European Commission, Brussels, 4 June 2008.

European Commission (2009a). Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC. *Official Journal of the European Union*, 14.8.2009.

European Commission (2009b). Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC. *Official Journal of the European Union*, 14.8.2009.

European Commission (2014). *Energy prices and costs report*. Comission Staff Working Document, SWD(2014) 20 final/2. European Commission, Brussels, 17 March.

Eurpoean Commission (2016). Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity. COM(2016) 864 final, Brussels, 30 November.

Felsmann, B. (2011). Legitimáció, az érdekcsoportok nyomása és változás a kialakuló intézményekben: a külföldi befektetők és a fogadó országok kormányainak esete. In: *Fejezetek a nemzetközi üzleti gazdaságtanból 4. [Chapters in International Business. Reviews on Selected Papers on International Business 4]*. Ed.: Czakó, E. BCE 2011. november. pp. 29-36.

Felsmann, B. (2014a). Az európai villamosenergia-árak központi szabályozásának hatása a fogyasztói árakra. [The impacts of the price regulation on the level of retail electricity prices

in Europe] In: Valentiny Pál, Kiss Ferenc László, Nagy Csongor István (szerk.) *Verseny és szabályozás, 2013.* Budapest, MTA KRTK Közgazdaság-tudományi Intézet, 2014. pp. 145-164.

Felsmann, B. (2014b). Winners and Losers in the Liberalized Energy Retail Sector in Hungary: A Co-evolutionary Approach. *Theory Methodology Practice (TMP)*, *10*(02), 25-36.

Felsmann, B. (2014c). *Energiapolitika és árszabályozás Európában és Magyarországon.* Tanulmány a Szabad Piac Intézet részére. Elérhető: http://www.szabadpiacalapitvany.hu/files/files/SZPA_Tanulmany_Energia_EU_Mo_140725.pdf. Letöltve: 2015.08.12. 14:21

Felsmann, B. (2016). Do institutions matter in business strategy? – The changing focus of strategic management to institutions: a literature review. *Vezetéstudomány/Budapest Management Review*, *47*(5), 2-11.

Fiáth, A. & Megyes, J. (2010): A hálózatos iparágak szabályozási környezete. *Vezetéstudomány* (46) 5. pp. 4-11.

Foxon, T. J. (2011): A coevolutionary framework for analysing a transition to a sustainable low carbon economy. *Ecological Economics*, Vol. 70: 2258-2267.

Frydman, R., Gray, C., Hessel, M., & Rapaczynski, A. (1999). When does privatization work? The impact of private ownership on corporate performance in the transition economies. *Quarterly journal of economics*, 1153-1191.

Füstös, L., Kovács, E., Meszéna, G., & Simonné, M. N. (2004). Alakfelismerés–Sokváltozós statisztikai módszerek. *Budapest: ÚMK*.

Gelei, A. (2006). A szervezet interpretatív megközelítése (The Interpretive Approach to Organization). *Vezetéstudomány* 38 (különszám), pp. 79-97.

Ghemawat, P. (2010). Finding your strategy in the new landscape. *Harvard Business Review*, 88 (3), 54-60.

Glachant, J. M., Khalfallah, H., Perez, Y., Rious, V., & Saguan, M. (2012). *Implementing incentive regulation and regulatory alignment with resource bounded regulators.* EU Working Papers, RSCAS 2012/31. European Universitiy Institute.

Granovetter, M. (1985). Economic action and social structure: the problem of embeddedness. *American journal of sociology*, 481-510.

Grant, R. M. (1991). The Resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, 33 (2) pp. 114–135.

Grant, R. M. (2008). *Contemporary Strategy Analysis.* Sixth Edition. Oxford: Blackwell Publishing.

Gulati, R., Nohria, N., & Wohlgezogen, F. (2010). Roaring out of recession. *Harvard Business Review*, 88(3), 62-69.

Haar, L. N., & Marinescu, N. (2011). Energy policy and European utilities' strategy: Lessons from the liberalisation and privatisation of the energy sector in Romania. *Energy Policy*, 39(5), pp. 2245-2255.

Hannan, M. T., & Freeman, J. (1993). *Organizational ecology.* Harvard University Press.

Hannon M. J., Foxon T. J. & Gale W. F. (2013). The co-evolutionary relationship between Energy Service Companies and the UK energy system: Implications for a low-carbon transition, *Energy Policy*, Vol. 61:1031-1045.

Heidenreich, M. (2012). The social embeddedness of multinational companies: a literature review. *Socio-Economic Review*, mws010.

Helwege, J. & Packer, F. (2008): *Private Matters.* BIS Working Papers No 266, Monetary and Economic Department, December 2008.

Henisz, W. J. & Zelner, B. A. (2005). Legitimacy, Interest Group Pressures, and Change in Emergent Institutions: The Case of Foreign Investors and Host Country Governments. *Academy of Management Review*, 30: 361–382.

Henisz, W. J., & Zelner, B. A. (2010). The hidden risks in emerging markets. *Harvard Business Review*, 88(4), 88-95.

Hymer, S. (1960). On multinational corporations and foreign direct investment. *The Theory of Transnational Corporations.* London: Routledge for the United Nations.

Index (2013): Nem nyerészkedtek a lakosságon az áramcégek. (The electricity companies did not profiteer on households.) 2013.02.22. 23:41. Retrieved: December 30. 2014. from: http://index.hu/gazdasag/2013/02/22/nem_nyereszkedtek_a_lakossagon_az_aramcegek/ (in Hungarian)

IEA (2014). *Energy Policies of IEA Countries: European Union. 2014 Review.* International Energy Agency, 9 rue de la Fédération 75739 Paris Cedex 15, France

Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 602-611.

Johnson, G. & Scholes, K. (2002). *Exploring corporate strategy: Text and cases.* Pearson Education.

Joskow, P. L. (2008). Introduction to New Institutional Economics: A Report Card. In: Brousseau, E., & Glachant, J. M. (eds.). N*ew Institutional Economics: a Guidebook*. Cambridge University Press. pp. 1-19.

Kaderják, P. (2014). *Fenntartható és fenntarthatatlan elemek a hazai közműszektorra vonatkozó rezsicsökkentési politikában.* Konferenciaelőadás a Magyar Közgazdasági Társaság Vándorgyűlésén. Nyíregyháza, 2014. szeptember 5.

Kaderják P., Mezősi, A., Paizs, L. & Szolnoki, P. (2010). Energiapolitikai ajánlások 2010 – A hazai árampiaci szabályozás kritikája és javaslatok a továbblépésre. Műhelytanulmány.

Kapás, J. (2007). Hogyan fejlődik a vállalat? A fizikai és a társadalmi technológia kölcsönhatásos evolúciós folyamata [How do firms develop? The mutual evolutionary process of physical and social technology]. *Közgazdasági Szemle (Economic Review-monthly of the Hungarian Academy of Sciences),* 54(1), 49-66.

Kapás, J., & Komáromi, G. (2004). Régi és új hangsúlyok az új intézményi közgazdaságtanban. Institutions and Change. ISNIE 7. konferenciája, Budapest, 2003. szeptember 11-13. *Közgazdasági Szemle (Economic Review-monthly of the Hungarian Academy of Sciences)*, 51(1), 90-98.

Kaplan, R. S., & Porter, M. E. (2011). How to solve the cost crisis in health care. *Harvard Business Review,* 89(9), 46-52.

Kerényi A. Ödön (2006): A magyar villamosenergia-ipar története 1888-2005. Tények és személyes élmények. Magyar Villamos művek Zrt, Budapest 2006.

Kieser, A. (Ed.). (1995). *Szervezetelméletek*. Aula, Budapest.

Kis, G. (2014): Az erősödő állami szerepvállalás értékelése a magyarországi elektronikus hírközlő hálózati fejlesztésekben. *Vezetéstudomány* (45), 2014. április pp. 30-40.

Kolk, A., Lindeque, J., & Buuse, D. (2014). Regionalization strategies of European Union electric utilities. *British Journal of Management*, 25(S1), pp. 77-99.

Kornai, J. (1983): Bürokratikus és piaci koordináció. *Közgazdasági Szemle,* 30(9), 1025-1038.

Kornai, J. (1999). A rendszerparadigma. Fogalmi tisztázás [The system paradigm.] *Közgazdasági Szemle*, 46(7-8), 585-599.

Kornai, J. (2010). Innováció és dinamizmus. Kölcsönhatás a rendszerek és a technikai haladás között. [Innovation and dynamism. Reciprocal effect between systems and technical advance.] *Közgazdasági Szemle,* 57(1), 1-36.

Korsnes, O. (2000). Towards a relational approach to the study of variety in situated creativity of economic actors. In: Maurice, M., & Sorge, A. (Eds.). *Embedding Organizations: Societal analysis of actors, organizations and socio-economic context* (Vol. 4). John Benjamins Publishing.

Kotek, P., Mészégetőné Keszthelyi, A., Szabó, L. & Szajkó, G. (2013). *Vihar a rezsiben: A REKK elemzése a 2013. januári rezsicsökkentésről.* REKK-1/2013 Műhelytanulmány, Budapest.

Kozenkow, J. (2012) *Rendszerváltás, intézmények és gazdasági növekedés. Az intézmények szerepe Lengyelország és Magyarország gazdasági teljesítményében 1990 és 2010 között (Transition, institutions and economic growth The role of institutions in the economic performance of Poland and Hungary from 1990 to 2010).* Doktori (PhD) értekezés, Budapesti Corvinus Egyetem, Nemzetközi Kapcsolatok Doktori Iskola.

Kóbor, Gy. (2017.): A Nemzeti Közművek továbbfejlesztésének stratégiai irányai 2017-2020. Előadás a Magyar Energiakereskedők Szövetségének V. Országos Konferenciáján. Visegrád, 2017. március 3.

LaBelle M. & Georgiev A. (2014): *The Socio-Political Capture of Utilities: The expense of law energy prices in Bulgaria and Hungary.* Manuscript.

Lockett, A., Thompson, S., & Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International Journal of Management Reviews*, 11(1), 9-28.

Magretta, J. (2013). *Understanding Michael Porter: the essential guide to competition and strategy.* Harvard Business Press.

Mahoney, J. T. (1993). Strategic management and determinism: sustaining the conversation. *Journal of Management Studies,* 30(1), 173-191.

March, J. G., & Olsen, J. P. (1998). The institutional dynamics of international political orders. *International organization*, 52(04), 943-969.

MEH (2009): Beszámoló a Magyar Energia Hivatal 2008. évi tevékenységéről. Magyar Energia Hivatal, [Hungarian Energy Office], Budapest.

MEH & MAVIR (2010) *A magyar villamosenergiarendszer (VER) 2009. évi statisztikai adatai. Statistical Data of the Hungarian Power System,* 2010.

MEH (2012): *Report on the activities of the Hungarian Energy Office in 2011*. ISSN 1418-7299. Magyar Energia Hivatal, [Hungarian Energy Office], Budapest.

MEKH & MAVIR (2014): A magyar villamosenergiarendszer (VER) 2013. évi statisztikai adatai (Statistical Data of the Hungarian Power System, 2013). Magyar Energetikai és Közmű-szabályozási Hivatal (MEKH) & MAVIR Zrt., Budapest.

Mezősi, A. (2014). Drága-e a megújuló? – A hazai megújuló villamosenergia-termelés hatása a villamos energia árára. [Is the renewable energy expensive? – Impact of the Hungarian renewable based power generation on electricity price]. *Vezetéstudomány / Budapest Management Review*, 45 (7-8). pp. 40-52.

Mezősi, A. & Szabó, L. (2014). A kelet-közép-európai villamosenergia-átviteli hálózatok költség-haszon elemzése. In: Valentiny Pál, Kiss Ferenc László, Nagy Csongor István (szerk.) *Verseny és szabályozás, 2013.* Budapest, MTA KRTK Közgazdaság-tudományi Intézet, 2014. pp. 319-347.

Miles, R. R. & Snow, C. C. (1978). *Organizational Strategy, Structure, and Process.* McGraw-Hill, New York

Mihályi, P. (1999). *A magyar privatizáció krónikája 1989-1997* (Chronicle of the Hungarian privatization, 1989-1997), Budapest, Közgazdasági és Jogi Könyvkiadó.

Mihályi, P. (2015): A privatizált vagyon visszaállamosítása Magyarországon 2010-2014 (The renationalization of privatized assets in Hungary, 2010-2014). IEHAS Discussion Papers, No. MT-DP - 2015/7, ISBN 978-615-5447-65-5

Mintzberg, H. (2012): Managing the myths of health care. *World Hospitals and Health Services.* Vol. 48. No. 3 pp. 4-7.

NFM (2012). *Nemzeti Energiastratégia 2030.* ISBN 978-963-89328-1-5. Nemzeti Fejlesztési Minisztérium, Budapest.

North, D. C. (1990): Institutions, Insitutional Change and Economic Performance. Cambridge University Press.

Nye, J. (2008). Institutions and Institutional Environment. In: Brousseau, E., & Glachant, J. M. (eds.). N*ew Institutional Economics: a Guidebook*. Cambridge University Press. pp. 67-80.

Osterwalder, A. & Pigneur,Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers.* Wiley Desktop Editions, Wiley, Hoboken.

Pandurics, A. (2017). Egyszer fenn, egyszer lenn?–A magyar kötelező gépjármű-felelősségbiztosítási piac elemzése. *Vezetéstudomány/Budapest Management Review*, 48(1), 2-17.

Pálinkás, J. (2010). Nyitóelőadás az *Energia – másképp II.* konferencián. Magyar Tudományos Akadémia, 2010. március 10.

Pápai, Z., Nagy, P. & Micski, J.(2013). Az összehasonlító költségvizsgálatok módszertani kérdései és használata az energiaelosztók szabályozásában. In: Valentiny, P., Kiss, F., L. & Nagy, Cs. I.(szerk.): *Verseny és szabályozás, 2012.* MTA KRTK Közgazdaság-tudományi Intézet, Budapest, pp. 222–255.

Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The Institution-Based View as a Third Leg for a Strategy Tripod. *The Academy of Management Perspectives*, 23(3), 63-81.

Pollitt, M. G. (2012). Lessons from the history of independent system operators in the energy sector. *Energy Policy*, 47, 32-48.

Popper, K. R. (1999/1969): Három nézet az emberi tudásról. In: Forrai Gábor – Szegedi Péter (szerk.), *Tudományfilozófia: Szöveggyűjtemény.* Budapest: Áron Kiadó, 1999.

Porter M. E. (1980). *Competitive Strategy*. New York: The Free Press.

Porter, M. E. (1981). The contributions of industrial organization to strategic management. *Academy of management review*, 6(4), 609-620.

Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62-77.

Priem, R. L. & Butler, J. E. (2001). Is the Resource-Based "View" a Useful Perspective for Strategic Management Research? *The Academy of Management Review*, 26: 22-40.

Quinn, J. B. (1980). An incremental approach to strategic change. *The McKinsey Quarterly*, 16(4), 34-52.

Ramachandran, J., Manikandan, K. S., & Pant, A. (2013). Why conglomerates thrive (outside the US). *Harvard Business Review*. Volume Number 91. Issue Number 12. Pages 110-119.

Rappaport, A. (2002). *A tulajdonosi érték: útmutató vállalatvezetőknek és befektetőknek*. Alinea. [Eredeti mű: *Creating shareholder value: a Guide for Managers and Investors*. Free press, 1998.]

REKK (2013): *Földgáz nagykereskedelmi modell-alternatívák 2015 után Magyarországon.* Tanulmány a Nemzeti Fejlesztési Minisztérium részére. REKK Energiapiaci Tanácsadó Kft., Budapest, 2013. március.

Reszegi, L. és Juhász P. (2014). *A vállalati teljesítmény nyomában: Nem csak tulajdonosoknak és menedzsereknek!* Alinea Kiadó, Budapest

Rodrigues, S. B. & Child, J. (2003). Co-evolution in an Institutionalized Environment. *Journal of Management Studies,* Vol. 40: 2137-2162.

Rosta, M. (2012). *Az Új Közszolgálati Menedzsment intézményi meghatározottsága Institutional determinants of New Public Management* (Doctoral dissertation, Budapesti Corvinus Egyetem).

Rugman, A. M. & Verbeke, A. (1998). Multinational enterprises and public policy. *Journal of International Business Studies*, 115-136.

Rumelt, R. P., Schendel D. & Teece D. J. (1991). Strategic Management and Economics. *Strategic Management Journal*, 12 (Special Issue, Winter): 5-29.

Simon, H. A. (1993). Strategy and organizational evolution. *Strategic Management Journal*, 14(S2), 131-142.

Spiller P. T. & Liao S. (2006). *Buy, Lobby or Sue: Interest Groups' Participation in Policy Making - A Selective Survey.*NBER Working Paper No. 12209.

Suhomlinova, O. (2006). Toward a Model of Organizational Co-Evolution in Transition Economies. Journal of Management Studies, 43, (7): 1537–1558.

Szabó, Zs. R. (2008): Adaptációs stratégiák a kialakuló bioetanol-iparágban. [Adaptation Strategies: the Case of the emerging bioethanol industry]. *Vezetéstudomány* (39) 2008. november, pp.54-63.

Szabó, Zs. R. (2010): *Strategic Adaptation, Ambidexterity, and Competitiveness in Hungary between 1992 and 2010.* PhD Thesis Work. Corvinus University of Budapest, Institute of Management, Department of Strategic Management.

Szepesi, B. & Czakó, E.(2012) *National Competitiveness Policy: Actions and Actors – a Concept for Implementation.* Competitiveness Studies, Working Paper No. 103. Corvinus University of Budapest, Competitiveness Research Centre. ISSN 1787-6915 (Online). http://www.uni-corvinus.hu/index.php?id=55998

Tari, E. (2010): A stratégiai menedzsment elméleti és gyakorlati fejlődésének főbb állomásai… In: Balaton és szerzőtársai (2010): *Stratégiai menedzsment.* Aula Kiadó, Budapest.

Teece, D. J. (1988). *Contributions and impediments of economic analysis to the study of strategic management.* Produced and distributed by Center for Research in Management, University of California, Berkeley Business School.

Valentinyi, P. (2014). Változások a hálózatos közszolgáltatások szabályozási rendszerében. In: Valentiny Pál, Kiss Ferenc László, Nagy Csongor István (szerk.) *Verseny és szabályozás, 2013.* Budapest, MTA KRTK Közgazdaság-tudományi Intézet, 2014. pp. 281-318.

Vedres, B. (2007): Pathways from Postsocialism: Ownership Sequence and Performance of Firms in Hungary, 1991–1999. *European Management Review*, Vol. 4, 93–105.

Vernon, R. (1966). International investment and international trade in the product cycle. *The quarterly journal of economics*, 190-207.

Victor, M. & Martins, M.(2008). *Sustainable energy systems: Theory of regulation.* MIT Portugal, course presentation.

Vince Péter (2012). Árszabályozás és versenyhelyzet a magyarországi energiapiaci nyitás után. (Price regulation and competition after market opening of the Hungarian energy sector.) In.Valentiny P. – Kiss F. L. & Nagy Cs. I. (eds.): *Verseny és szabályozás, 2011.* (pp. 303–326). Budapest, MTA KRTK Közgazdaság-tudományi Intézet. (in Hungarian).

Vince, P. (2013): *Érdekek egybeesése és ütközése: Szemelvények a MOL államhoz fűződő kapcsolataiból.* IEHAS Discussion Papers, No. MT-DP - 2013/11, ISBN 978-615-5243-64-6

Volberda, H. W. & Lewin, A. Y. (2003). Co-evolutionary dynamics within and between firms: from evolution to co-evolution. *Journal of Management Studies*, 40 (8): 2105-2130.

Voszka, É. (1997): *A dinoszauruszok esélyei.* Pénzügykutató Rt. és a Perfekt Pénzügyi Szakoktató és Kiadó Rt. közös kiadása, Budapest.

Voszka, É. (2015): Államosítás, privatizáció és gazdaságpolitika – a főirány széttöredezése. *Közgazdasági Szemle* (62) 7/8: 717-748.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, *5*(2), 171-180.

Williamson, O. E. (1985): *The economic intstitutions of capitalism*. Simon and Schuster.

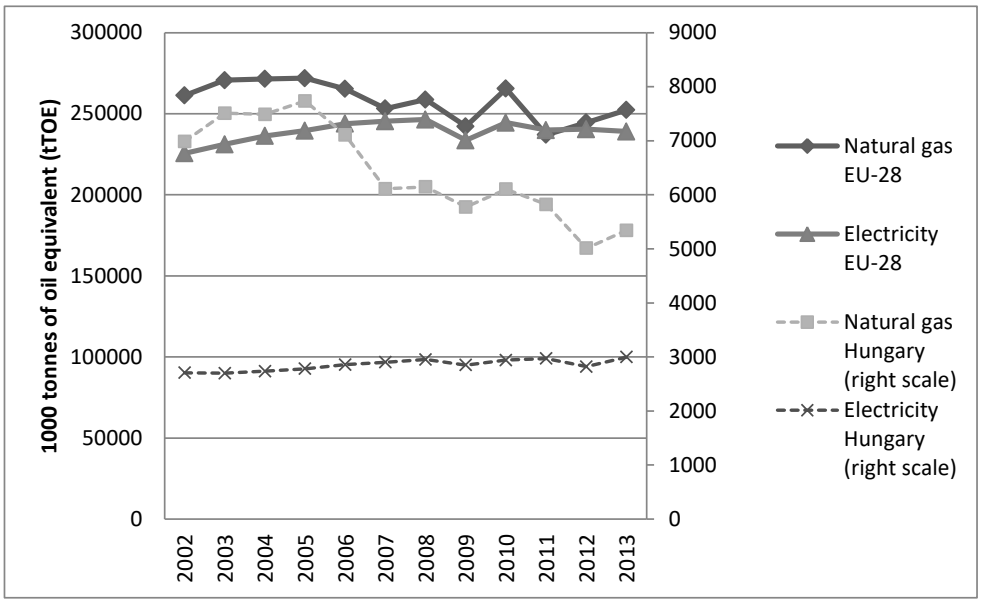
Wilson J. & Hynes N. (2009). Co-evolution of firms and strategic alliances: theory and empirical evidence. *Technological Forecasting and Social Change,* 76 (5): 620-628.

APPENDIX 1: ENERGY COMSUMPTION AND PRODUCTION TRENDS OF THE EUROPEAN UNION AND HUNGARY IN THE FIRST HALF OF THE 2010 DECADE

Although the European energy sector has been greatly influenced by various internal and external factors in the last decade, the overall demand for electricity and natural gas seems relatively stable at the EU level (see Figure 46).

The European final consumption of electricity moderately increased to the level of 239 million tonnes of oil equivalent (Mtoe)[49] in 2013 compared to 226 Mtoe in 2002 ($CAGR^{50}_{(Electricity;\ 2002\text{-}2013;EU28)}$=0.53%), while the demand for natural gas went down slightly in the same period to a level of 252 Mtoe in 2013 compared to 261 Mtoe in 2002 ($CAGR_{(Gas;\ 2002\text{-}2013;\ EU28)}$=-0.32%).

Figure 46. Final energy consumption of electricity and natural gas in the EU-28 and in Hungary from 2002 until 2013 (Source: EUROSTAT)



[49] Tonne(s) of oil equivalent, abbreviated as toe, is a normalized unit of energy. By convention it is equivalent to the approximate amount of energy that can be extracted from one tonne of crude oil. It is a standardized unit, assigned a net calorific value of 41 868 kilojoules/kg and may be used to compare energy coming from different sources. The conversion factor used by the IEA for electricity is 1 TWh=0.086 Mtoe (EUROSTAT, OECD).

[50] CAGR means the compound annual growth rate. The formula for a CAGR calculation is the following: $CAGR_{(t_0,t_n)} = (V(t_n)/V(t_0))^{\frac{1}{t_n - t_0}} - 1$, when $V(t_n)$ means the end value, $V(t_0)$ means the start value and t_n-t_0 means the number of years under examination.

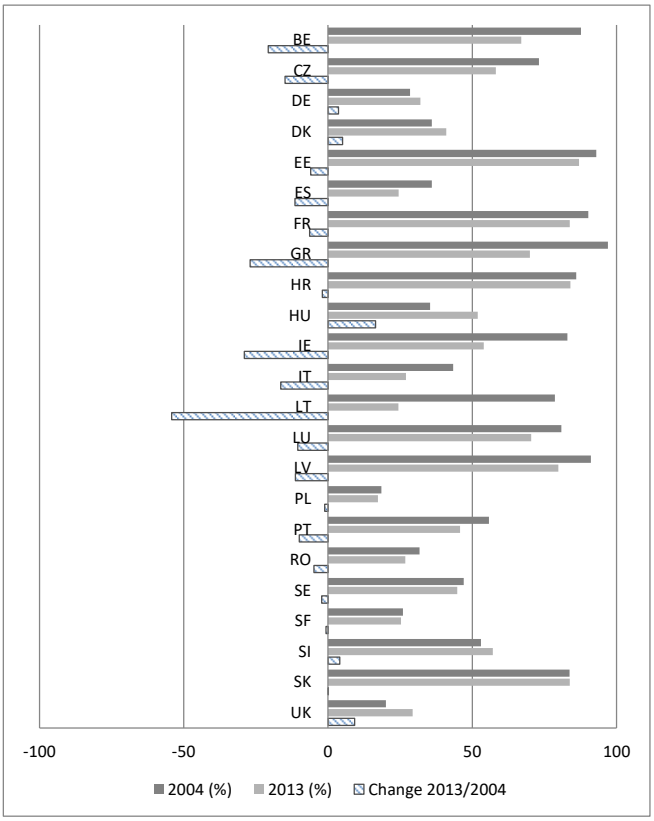
The results of EU level energy efficiency policy goals are reflected in the consumption decrease seen in recent years. The $CAGR_{(Electricity;\ 2010\text{-}2013;\ EU28)}$ went down to a level of -0.74% for final electricity consumption. The decreasing demand trend relating to natural gas also accelerated over the same period ($CAGR_{(Gas;\ 2010\text{-}2013;EU28)}$=-1.69%). The weak demand, the increasing share of renewable sources and the increased volume of cross-border energy exchanges has had a strong effect on the working capacities of EU-based power plants. The share of electricity coming from renewable sources was 24.1% in 2012, up from 16% in 2007 (IEA, 2014). The share of RES achieved 983 TWh in 2013, which represents a 12% increase compared with 2012 data from 35 member countries of ENTSO-E (see Table 13).

Table 13. Yearly electricity production and consumption of ENTSO-E member states from 2010 until 2013. (Source: ENTSO-E, 2014)

TWh	2011	2012	2013	Change 2013 to 2012	
				Absolute value	%
Total Generation	**3 377.3**	**3 363.9**	**3 324.6**	**-39.3**	**-1.2%**
Fossil fuels generation	1 641.1	1 542.9	1 429.3	-113.7	-7.4%
Nuclear generation	886.6	862.8	857.4	-5.4	-0.6%
Non-renewable hydro generation	65.0	70.0	44.6	-25.5	-36.4%
RES generation (incl. renewable hydro)	774.8	878.1	983.3	105.2	12.0%
Not clearly identifiable energy sources gen.	9.8	10.1	10.2	0.1	0.9%
Energy exchanges	**5.8**	**-2.5**	**-4.4**	**-1.9**	**75.8%**
Energy import	398.9	417.9	407.1	-10.8	-2.6%
Energy export	393.1	420.5	411.5	-8.9	-2.1%
Pumping	**43.7**	**44.8**	**45.8**	**1.0**	**2.2%**
Consumption	**3 339.4**	**3 316.6**	**3 274.4**	**-42.2**	**-1.3%**

Electricity producers are facing a more competitive industrial environment. The market share of the largest generator in the electricity market shows a reduction in the majority of EU member states, which refers to a strengthening of competition (see Figure 47). The strong competition between producers provides many new possibilities for traders especially by connecting the growth of cross-border capacities and organized markets in international trade.

Figure 47. Market share of the largest generator in the electricity market (Source: EUROSTAT, compiled by the author)



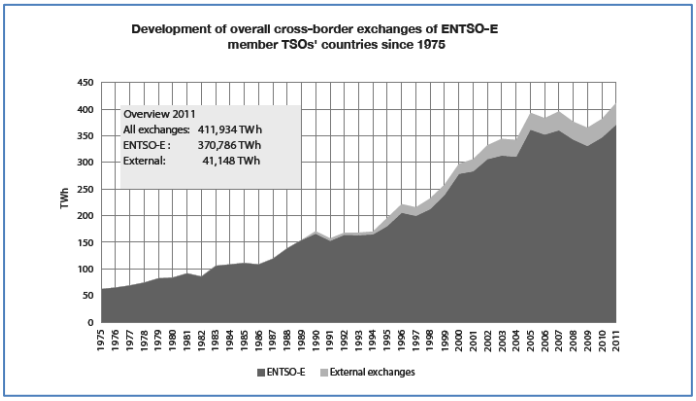
Hungarian energy consumption trends are different in part from the European average's. Final electricity consumption increased with a near 1% annual growth rate between 2002 and 2013. Though the yearly increase in electricity demand slowed down after 2010 ($CAGR_{(Electricity;\ 2010\text{-}2013;\ HU)}$=0.63%), the growth rate is still significantly above the European average's. In contrast, Hungarian gas consumption went down significantly in recent years ($CAGR_{(Gas;\ 2010\text{-}2013;\ HU)}$=-4.36%). The main factor in the decreasing demand for natural gas is the marginalization of the gas-based electricity production of the country. While the share of natural gas-based electricity production made up 35.3% of domestic production in 2008, its proportion went down to 14.94% in 2013 (MEH & MAVIR, 2010, MEKH & MAVIR 2014).

Even though the decreasing share of natural gas in the Hungarian energy system has notably worsened the business outlooks of gas wholesaler and retailer companies, it has opened new opportunities for electricity traders who are substituting the reduced local electricity production with imports.

The growth in international trade is shown by long-term statistics. According to the statement of ENTSO-E, the cross-border electricity trade increased more than eight

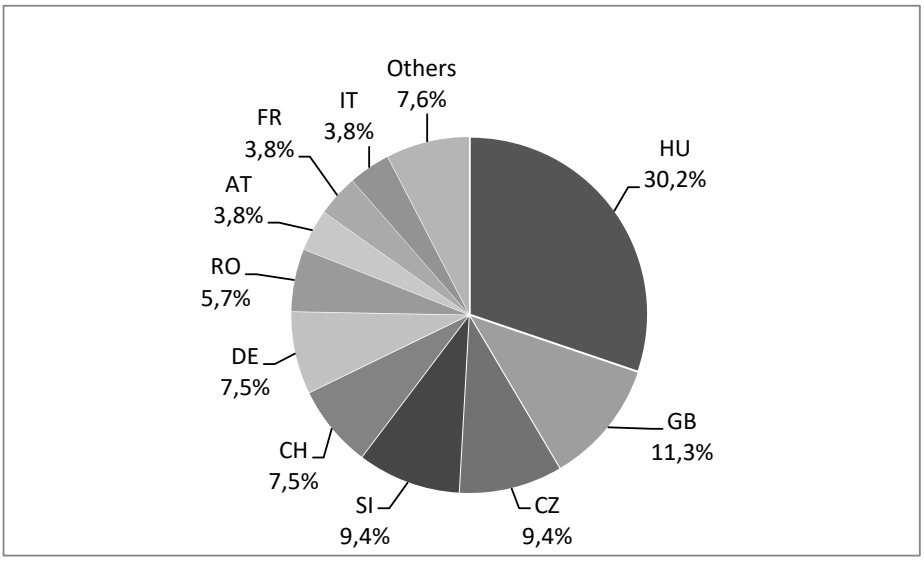
times in Europe in the past four decades. The international trade of the European cooperative electricity system had increased to 420 TWh by 2012 - close to three times more than the 150 TWh that had characterized the first part of 1990s. The increasing trade fostered the development of relevant institutions. The European electricity and gas exchanges strengthened, which provides a growing transparency of price indications for the players.

Figure 48. Development of the cross-border electricity trade from 1975 to 2011 (Source: ENTSO-E Statistical Yearbook 2011)



The Central and Eastern European region is taking part especially intensively in the development of the cross-border electricity trade. Cross-border capacity building and market coupling also helped the region to be the most dynamically developing electricity trading one in 2013, showing a 15% increase regarding day-ahead performance. Regional market coupling is proceeding dynamically - and it first led to the launch of common trading on Czech, Hungarian and Slovakian day-ahead markets on September 11, 2012. In 2014, Romania joined the initiative and the network of market coupling will grow later with Poland's accession.

Figure 49. National representation of HUPX companies (Source: hupx.hu)



The internationalization of trade is well indicated via the nationality composition of HUPX companies, which shows that the 53 companies involved in domestic power exchanges are represented by 14 different countries.

APPENDIX 2: THEORETHICAL MODELS OF PRICE REGULATION

During the operations of energy systems, the physical and trading actors in the value chain can be distinguished. Producers (power plants and gas producing companies), TSOs, DSOs and system operators of the whole integrated system are part of the first group. In the gas system, the companies providing commercial and security storage are also actors of the physical value chain. The most important players of the commercial value chain are the gas wholesaler and retailer companies, which give a service to specific consumer segments via their business policy. The so-called universal service providers are of great importance regarding price regulation. These companies, in accordance with EU regulations, provide the population and micro-enterprises with energy having fixed conditions.

Fixed prices can be found all along the value chain (Cambini & Rondi, 2010, Cave & Stern, 2013, Pollit, 2012, Pápai et al., 2013). Input operations and output control are able to be distinguished in line with the degree of regulation. Selection of a regulating method by a regulatory authority depends on the controllability, predictability and monitorability of the activity (Glachant at al., 2012). If these conditions are partly fulfilled, the authorities generally regulate inputs through the approval of the cost actually incurred with the effective service provider. If the activity of a service provider is predictable, the authority can choose to have either partial or total control of prices. A price cap or revenue cap are examples of partial control, though official price fixing ensures exclusive control of the regulated activity.

8.1.1. Theoretical models of price regulation

The fixing of network prices are generally within the scope of regulation by authorities, including the prices of the system operator, TSOs and DSOs. The two ways of official price fixing of naturally monopoly services are the Rate of Return & Costs Pass-through (RoR) as well as incentive-based regulation for efficiency improvement in the proportion of initial prices.

The core equation for calculating the RoR:

$$RR_n=OE_n+D_n+T_n+(RAB*RoR)_n$$

where: RR_n means the expected (accepted by the regulator) income of the service provider in period "n"; OE means the accepted operational cost; D means the depreciation; T means the taxes; RAB

means the justified (necessary for the regulated activity) asset base, and RoR means the justified rate of return.

The main point of this model is that the regulating authority can check the costs and investments of the supervised company from time to time. It distinguishes between necessary and unnecessary (i.e. its own decision) equipment and costs for the activity. The service provider is entitled to income on the basis of a previously calculated rate of return for the thus calculated net asset, while the costs (including depreciation and taxes) are seen as pass-through factors according to the model. The regulating authorities generally apply a two-cycle mechanism in their practices. For a long-term period (generally 3-6 years), a single method is used for an accounting of the items which are published prior to the regulation period. The review of periodical costs accords with the methodology made use of in the relevant time period. With electricity, the regulatory cycle lasts four years in case of Hungary, while in the case of natural gas, the cycle is from two to six years long; and these are regulated by Act LXXXVI of 2007 dealing with Electrical Energy (AEE) and ACT XL of 2008 on Natural Gas (ANG), as follows:

> Due to Article 142a of AEE, network access fees are set within the framework of four-year price regulation cycles, with prices fixed according to the periods within a price regulation cycle. Before opening the price regulation cycle, the Office will carry out a cost review. The regulations pertaining to the price regulation cycle will be laid down by the Minister before the opening of the price regulation cycle in a decree mentioned in Article 142(2).
>
> (1) As regards network access fees, the special fee referred to in Article 106, initial connection fees and the price of universal services, their components as defined in a ministerial decree will be regulated via a minimum two and maximum six-year price regulation cycle, the opening date and duration of which will be determined by the president of the Authority [Hungarian Energy and Public Utility Regulatory Authority] by means of a decree. Before opening the price regulation cycle, and after the date when the decree determining the opening date and duration of the price regulation cycle is published, the Authority shall carry out a cost review.

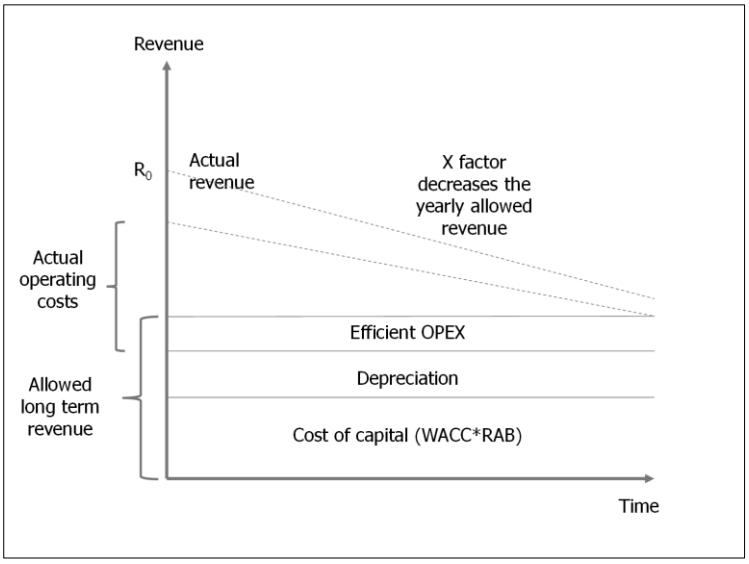
Most European Union countries use the first methodology, similarly to Hungary, to regulate the natural monopoly service companies. However, some European countries do alter the RoR regulation by using incentives for operational efficiency. The core equation for the incentive mechanism is the followings:

$$R_n = R_{(n-1)} * (1 + RPI_n - X_n) \pm Z_n$$

where: R_n means the revenue cap or price cap for period "n"; RPI menas the retail price index; X means the efficiency factor incentivizing the better efficiency of a service provider; Z means the extraordinary events that affect the costs of the service provider.

Figure 50 illustrates the theory background for incentives. It shows that the objective of the model is to improve the cost structure of a service provider over time.

Figure 50. Theoretical background of incentive regulation (Source: Victor, M and Martins M., 2008, compiled by the author)



Several studies (Glachant et al., 2012, Cambini & Rondi, 2010) have analyzed the advantages and disadvantages of the two theoretical models. The RoR model supports the investments necessary for operations as if an investment has been approved as a justified asset by the regulating authority, and the RoR regulation represents a regular income for the service provider. The disadvantage of this, though, is that the regulation might stimulate 'over-investing'. Inspiration for continuous efficiency improvement is the benefit of the incentive - while reducing the possibilities for investments in a case of doubtful economic predictability is its disadvantage.

8.1.2. Price regulation in energy production

The above-mentioned regulatory models are used mainly by the authorities for defining the price of naturally monopoly services; yet the model is still applicable in the case of actors in the commercial value chain (some groups of producers with guaranteed prices and universal service providers). The producing of electricity and natural gas is basically free of official price fixing - the producers sell their products via market mechanisms. However, the authorities do intervene in the operations of the

market to support some production technologies. Implementation of the feed-in tariffs of renewable energy and the guaranteed offtake of green energy gives protection to the producers of renewable energy. According to plans, the future nuclear power plant in Hinkley Point in Great-Britain will be similarly protected; it will be able to guarantee income while ensuring a return of investment, regardless of later market developments on the basis of the strike price model.[51] With the exception of the above examples, energy production could be described to be free of direct interventions by price regulators; while liberalization initiatives did put major constraints on the chances of price fixing in production during the 2000s in the EU.

[51] The main point of the price mechanism's being regulated for 35 years is that if British market prices are far from what is required and profitable - 92.5 GBP/MWh (today, market price is less than 50%) - British consumers will compensate for the income of the power plant up to this level. Conversely, if the market price exceeds this level, the power plant returns the difference to the consumer.

APPENDIX 3: QUESTIONNAIRE AND INTERVIEW QUESTIONS

Questionnaire is based on the survey of comptetitiveness reserach of CUB. With filling the form, answers will comparable with the country focused survey results.

Company .....

Date of response: .....

Position of interviewee .....

EXTERNAL ENVIRONMENT OF THE FIRM

(V10.) How do you feel the uncertainty of your company's external environment? Please, grade it with a five-grade scale, where 5 means, that predictable and stable, 1 means, that unpredictable and uncertain. You can make your opinion more subtle with using the grades in between.

unpredictable, very uncertain — predictable, stable

1 2 3 4 5

(V11.) Please, evaluate on a five-grade scale, how did your firm's condicitions change from 2009 because of the impacts of the elements of the environment. Grade 5 means, that radically and grade 1 means, that not at all.

		not at all ← moderately → radically					
a.	Scientific and technical environment (innovations of competitora, implementation of new research results)	1	2	3	4	5	X
b.	Legislation and changes in policies	1	2	3	4	5	X
c.	Changes in requirements of buyers	1	2	3	4	5	X
d.	Market behaviour of competitors, new entrants	1	2	3	4	5	X
e.	Changes in ecological environment (new policies, norms, environmental problems)	1	2	3	4	5	X
f.	Changes in social requirements	1	2	3	4	5	X

(V12.) How did influence your company's business successes the following factors between 2009 and 2013? Please, evaluate it on a five-grade scale,

where 5 means, that very favourably and 1 menas, that very unfavourably. 3 means, that the impact was neutral.

	very unfavourably ← neutrally → very favourably					
a. level of the national bank's prime rate	1	2	3	4	5	X
b. fluctuation of the exchange rate of the forint	1	2	3	4	5	X
c. level of inflation	1	2	3	4	5	X
d. loan opportunities	1	2	3	4	5	X
e. changes in the tax system	1	2	3	4	5	X
f. level of minimal wages	1	2	3	4	5	X

(V13.) How did influence your company's business successes the following impacts of the social environment between 2009 and 2013? Please, evaluate it with using the grades.

	very unfavourably ← neutrally → very favourably					
a. the operation of the central / local administration	1	2	3	4	5	X
b. the system of higher education	1	2	3	4	5	X
c. Vocational education system	1	2	3	4	5	X
d. presence of black economy	1	2	3	4	5	X
e. corruption	1	2	3	4	5	X

(V14.) Please, evaluate your firm's current situation compared to 2009.

	Significantly deteriorated ← → Significantly improved					
a. domestic sales opportunities	1	2	3	4	5	X
b. export sales opportunities	1	2	3	4	5	X
c. import costs	1	2	3	4	5	X
d. economic situation of suppliers	1	2	3	4	5	X

(V15.) How do you evaluate the impacts of the following factors on your company's performance?

	significantly hindered		neutral		significantly supported	
a. general operation of the government	1	2	3	4	5	X
b. economic policy	1	2	3	4	5	X
c. domestic political situation	1	2	3	4	5	X
d. general economic situation	1	2	3	4	5	X
e. most important market trends on the domestic market	1	2	3	4	5	X
f. most important market trends on the export markets	1	2	3	4	5	X

V26. How valid were the statements below for your company between 2009 and 2014?

(1 – not truth at all; 5 – fully truth)

a) We had an appropriate strategy.	1		2	3	4	5
b) Our strategy was broken down into detailed action plans.	1		2	3	4	5
c) Our strategy has designated several visions at the same time, so when conditions changed, we could react quickly.	1		2	3	4	5
d) We didn't have written strategy, but we had a strong future vision.	1		2	3	4	5
e) We adapt quickly.	1		2	3	4	5

V27. Which of the following statements characterized your strategy between 2009 and 2014? Please mark the most relevant number for each year.

(Mark only one number per year!)

	2009	2010	2011	2012	2013	2014
a) Followed a defender strategy (concentrated its resources to defend the positions acquired).	1	1	1	1	1	1
b) Followed an analyser / stability strategy: concentrated resources to strengthen current positions.	2	2	2	2	2	2
c) Followed a prospector (growth) strategy: concentrated resources to build up new strategic positions and to weaken the positions of competitors..	3	3	3	3	3	3
d) Followed a focusing strategy: focused on a narrow market segment.	4	4	4	4	4	4
e) Did not follow a consequent strategy.	5	5	5	5	5	5

V34. How important are the following items of the business network in the execution of firm's strategy?

(1 – not at all, 3 – average, 5 – priority)

a)	long term relationships with suppliers	1	2	3	4	5
b)	long term relationships with buyers	1	2	3	4	5
c)	long term relationships with logistic partners	1	2	3	4	5
d)	licence contracts	1	2	3	4	5
e)	strategic alliance with suppliers	1	2	3	4	5
f)	strategic alliance with buyers	1	2	3	4	5
g)	strategic alliance with logistic partners	1	2	3	4	5
h)	establishment of joint company	1	2	3	4	5
i)	outsourcing agreements	1	2	3	4	5
j)	relationships with local institutions	1	2	3	4	5
k)	relationship with the state	1	2	3	4	5

V35. Please, evaluate how the following characteristics of the company have changed between 2009 and 2013?

(1 – significantly reduced; 3 – didn't change 5 – significantly increased)

a)	Investments	1	2	3	4	5
b)	R&D cost	1	2	3	4	5
c)	Number of target markets	1	2	3	4	5
d)	Number of key buyers	1	2	3	4	5
e)	Quality of products/services	1	2	3	4	5

The planned time to fill the questionnaire is 20-25 minutes. After the completion, open questions cover the following three topics:

a) relationships between institutional environment and the company
b) Industrial environment and corporate strategy
c) Structural dimensions.

Outline of the thematic blocks of open questions:

1) What are the most important milestones in the company's life in the post-2008 period, in terms of the relationship between the institutional environment and the company?
2) How do you see the intensity of market competition? Did it change during the period concerned? Who is your most important competitor? How does your company's performance compare to the major competitors?
3) Did the organizational structure change during the analysed period? How do you see the fit between your strategy and corporate structure? Are external environmental factors (especially institutional factors) in the background of the change of strategy and structure?

The time for open questions is 3x10 minutes. A voice recording is being made on the conversation.

The total time of the interview is 55-60 minutes.