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Institute of Economic Research and Policy

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**Trading Sovereignty for Profit? A Critical Assessment of Corporate Ownership Structures in the German Energy Sector.**

A thesis submitted for the degree of

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# Abstract

# Table of Contents

[Abstract 2](#_Toc77521745)

[Table of Contents 3](#_Toc77521746)

[Preface 4](#_Toc77521747)

[Introduction 5](#_Toc77521748)

[Literature Review 10](#_Toc77521749)

[Ownership Structures 10](#_Toc77521750)

[Secrecy Jurisdictions 13](#_Toc77521751)

[The Case of the Energy Sector in Germany 13](#_Toc77521752)

[Hypothesis Development 14](#_Toc77521753)

[Data & Methodology 15](#_Toc77521754)

[Discussion 16](#_Toc77521755)

[Conclusion 17](#_Toc77521756)

[Publication bibliography 20](#_Toc77521757)

# Preface

# Introduction

In the course of the last century, complex international ownership structures have become an inevitable tool for large firms to stay competitive on globally accessible markets. Benefits like low transaction costs, economy of scale effects, accumulation of skills and experience, tax and regulation design, widespread and flexible sales opportunities, as well as the option to profit from arbitraging and transfer pricing (Dunning and Lundan 2008) give international firms immense advantages when competing with one another, often making it nearly impossible for local competitors to keep up with their pricing options and/or quality standards. Consequently, international companies have become experts to engage in increasingly sophisticated ownership structures pushing their cost-efficiency to the possible limit.

On the consumer side, however, the effects of international firm structures can be a lot more ambiguous. Even though it should be widely undisputed that most consumers would be happy to buy affordable high-quality products from highly efficient international firms, some other objectives of large multinational enterprises are not necessarily of mutual benefit. Examples of those cases are oligopolistic pricing policies, corporate tax avoidance, untransparent finance and asset structures, national sovereignty issues (like private control of infrastructure and basic supply sectors). Besides, a broader conflict may arise between market power and profit maximization, on the one side, and equality, human rights, and social justice on the other. Conflicts of interest of these kinds are often best solved by appropriate governmental moderation, allowing MNE’s to grow and progress as market competitors but also set boundaries for predatory or unethical behavior. Eventually, this is not always an easy task as MNE’s often have strong bargaining positions coming with their size, financial strength, market influence and role as an employer (Dunning and Lundan 2008).

This case becomes even more delicate when MNEs occupy central positions in essential industries like the food sector, telecommunications or energy supply. As we know from contemporary research, complex ownership structures are indeed nowadays common practice not only in production, retail or tech industries, but also in basic supply like the energy sector, concentrating corporate ownership in a few groups of internationally investing countries (Li et al. 2017). Since the basic needs of its citizens are widely seen as a governments responsibility, governments are put in a difficult situation when international firms take over industry parts designated to cover these basic needs. Ensuring the supply of its citizens essential goods and services is part of a nations sovereignty and should in the eyes of many be shielded from both geopolitical conflicts and the systemic risk of a global financial system. When allowing foreign investors to control large amounts of equity, the effected sector is exposed to both of these risk factors. In times of foreign political unrest, the question arises, how independent a nation can be, if a large share of its supply system is ultimately owned by another nation (Rugman and Kobrin 2009).

Regarding financial stability, we are still scarred by the events of 2006, when the world witnessed how a bursting housing bubble in the USA sparked a chain reaction of credit defaults leading to a global financial crisis and what we call “the Great Recession” today. International ownership structures usually come hand in hand with highly entangled international financing schemes. International financing, especially if so-called secrecy jurisdictions are involved, can lead to dangerous “off the book” liabilities circumventing regulatory boundaries and increasing financial fragility, which becomes particularly threatening in the case of an economic slump (Loomer and Maffini 2009; van Fossen 2003). This risk is currently highly relevant, since the corona pandemic of 2020 caused a worldwide recession that tops the events of 2006 in many respects. The more an industrial sector is enmeshed in the international finance system, the more it is exposed to its systemic risks. Consequently, to ask how safe even the basic supply system of a nation will eventually be in the prospect of global financial instability appears to be an unpleasant but urgent question. Moreover, ownership chains, often by using secrecy jurisdictions as a vehicle, are a common instrument to avoid not only regulations, but also taxes (Tørsløv et al. 2018; Garcia-Bernardo et al. 2017). For basic supply sectors, this seems particularly delicate regarding social justice as these sectors regularly receive subsidies of state money.

In this thesis, I want to highlight the German energy sector as a particular interesting case for showing and discussing the aforementioned problems coming with MNEs involvement in the basic supply system of a national economy. Currently, even though there is plenty of good literature about ownership structures, their development and dependencies overall and for the energy sector (Grosskurth 2019; Garcia-Bernardo et al. 2017; Li et al. 2017), the problem of tax avoidance and financial instability (Tørsløv et al. 2018; Hanlon et al. 2015; Loomer and Maffini 2009) and the impact of MNEs on national sovereignty (Rugman and Kobrin 2009), literature yet misses an attempt to assess the implications of these issues together and project them on the basic supply sector of a national economy. Furthermore, there is no attempt to evaluate the condition of a nation’s basic supply sector influenced by these factors as an indicator of governmental quality regarding social justice and security. In this sense, the German energy sector is an excellent example to illustrate such an assessment as central conflicts between MNEs and consumers (ergo most of a country’s citizens) are represented in this sector in a particularly demonstrative form for the following reasons.

German politicians have taken ambiguous political positions regarding its energy sector throughout the last decade, indicating difficulties to moderate conflicting interests between large multinational firms and other stakeholders. As an example, there has been an ongoing dispute about Chinese investments in German infrastructure or the German-Russian Nord-Stream 2 project over the last years. German politicians fear those investments might compromise so-called energy security (the uninterrupted availability of energy sources at an affordable price). Nevertheless, Germany has (in part to comply to European Union directives) progressively liberalized and privatized its energy sector since 1996 (Brandt 2006), allowing new international competitors to access the German energy infrastructure, which had formerly been occupied by a relatively static system of territorial monopolies.

This trend gathered even more pace when the “Energiewende”(Germanys transition to green energy) attracted international investors by offering investment options of a way lower volume (a wind farm, a single wind turbine or even small amounts of solar cells on the top of owns own residential building) than traditional energy investments (like a coal or nuclear power plant) (Hall et al. 2016). Of course, the liberalization of the German energy sector came with benefits like weaker market entry barriers and lower end-consumer prices. It also made the energy market more dynamic, consequently supporting structural changes like the Energiewende, which certainly has a lot of positive ecologic externalities. On the other hand, it made the market far more complex and, at many spots, less transparent. This lack of transparency comes with all the previously discussed issues.

Germany is furtherly known as a country offering a lot of location specific advantages (good infrastructure, asset protection, reliable legal institutions and skilled labor) to MNEs but also collecting relatively high corporate tax from them. Researchers have shown that the combination of these two characteristics motivate MNEs to use opportunistic tax policy options, shifting away a considerable share of local earnings to low tax countries (Tørsløv et al. 2018).

Lastly, because of its stepwise liberalization, the German energy sector allows us to examine the impact (in terms of energy safety, market transparency and finally social justice) of its liberalization and consequently internationalization progress by means of a solid referential timeline. It is therefore the purpose of this thesis to thoroughly unveil, describe and discuss the development and scale of today’s underlying ownership structures in the German energy sector and analyze their impact on Germany as a national economy. These results will then be used to contribute to the broader discussion about the pros and cons of ownership structures in general and for the particular case of basic supply industries. To maintain a precise and controllable structure throughout our work, we formulated three overarching research questions:

1. How have the current ownership structures in the German energy sector developed over time?

As already mentioned, ownership chains tend to develop “hubs”, meaning that some countries take special roles in the ownership structure of certain industries. This has already been shown for MNE’s in Europe (Grosskurth 2019) and the energy sector overall (Li et al. 2017). The identification of hubs or countries taking special roles in the ownership network is an important step for further analysis since countries usually embody their special roles for specific reasons. Identifying important countries in the ownership network can therefor give us information about which factors contribute to a country becoming an investor in Energy capital on the one hand or create attractiveness as a destination for foreign energy investments on the other hand.

1. What factors and/or events have driven or hindered the building of international ownership structures?

In order to answer this question, we will use the timeline of the liberalization process in Germany as well as the Energiewende to discover which steps caused changes in the ownership structure of the German energy sector. We will also consider other known dynamic factors of influence being e.g. tax differentials, political decisions about information exchange (Hanlon et al. 2015) or data leaks of secrecy jurisdictions (O’Donovan et al. 2019). The aim is to find out which factors promote which countries to increase/decrease their investment activities in the network to get deeper knowledge about the function and importance of certain countries. As already described, MNEs can extend their assets for many different reasons and not all of them have negative external effects. If e.g. a known traditional energy investor like Canada, Sweden or Finland sees the liberalization of the German energy sector as a chance to expand their business and diversify their product, that would have different consequences for the German economy in terms of energy safety than a couple of risk friendly investors buying a wind park without having any expertise in the energy business, maybe even shielding their investment from tax and regulation by using secrecy jurisdictions. A detailed selection of all factors considered and the rationale behind that choice can be found in the according chapter of this thesis.

1. How should the results of question one and two be evaluated in terms of energy safety, market transparency and finally social justice? How can we use the insights of those results to create an effective policy to foster the positive effects and diminish the negative effects of an internationally open energy market?

Like mentioned, some forms of ownership chains and their main function for an MNE can be controverse to the public interest. Question one and two will give us information about the shape of the ownership network behind the German energy sector and show which influence factors mattered the most in its building process. In order to answer question three, we will use this information to estimate to which degree ownership structures are used for purposes causing the negative side effects mentioned earlier. To sum them up concisely:

* 1. Financial instability: As said, secrecy jurisdictions are an instrument to avoid regulations and thereby cause financial instability. (Loomer and Maffini 2009; van Fossen 2003). How strong is the involvement of secrecy jurisdictions in the German energy sector? How large are ownership information voids, making ownership structures untransparent and hard to regulate? Can this lack of transparency and the involvement of secrecy jurisdictions be a thread to systemic financial instability of the global financial system and therefore ultimately endanger energy safety?
  2. Tax avoidance and social justice: To what extend is the German energy sector exposed to the problem of tax avoidance? Is this an especially delicate case of tax injustice because of the subsidies the energy sector (particularly in the case of renewable energy) receives? Do German consumers and employees benefit from the tax savings and overall cost efficiency of large Energy corporates by receiving higher loans or cheaper energy supply?
  3. National sovereignty: “The hierarchical or Fordist structure of the traditional MNE reinforces the core values of the modern international political system: state sovereignty and mutually exclusive territoriality” (Rugman and Kobrin 2009). How is the Energy Sector influenced by hierarchical MNE structures? Are state sovereignty and mutually exclusive territoriality endangered by the ownership structure of the energy supply sector as it is?

Then, we will use these insights to create an effective policy recommendation to foster the positive effects and diminish the negative effects of an internationally open energy market. Eventually, the quality of a democratic government can be measured by its effectiveness to realize the interests of its electorate as political decisions (Adsera 2003). In reference to the results from question one and two and the first part of question three we will evaluate if this is still the case for the political decisions made in the German energy sector and if not, which political actions could increase political effectiveness on a German as well as on the European Level.

Considering the aim and main objects of our research, a combination of network analysis and macroeconomic regression models appears to suite best as research methods. Network analysis, which was first used in social science, has become increasingly popular in economics over the last decades (Garcia-Bernardo et al. 2017; Grosskurth 2019). By displaying individual entities (in our case countries) as nodes and their relations (in our case foreign ownership links) as edges, researchers are able to get information about an entities’ position and role in a complex network. The strength and direction of these links can be used to apply measures of centrality, identifying nodes as hubs or gateways. This approach suites very well to answer research question one and two. Unfortunately, high quality ownership information is not easy to come by. This is especially the case for time periods before 2010. Even though we will use Bureau van Dijk’s Orbis as a main data source for this, which is known as one of the most reliable and sophisticated provider of historical ownership data, some gaps still remain in the data set. Fortunately, these data restrictions still allow the application of network analysis by means of identifying important actors in the network and analyzing which influence factors led to their position. It will also still be possible to display the shape of the network as a whole, which can be interpreted as a valuable result already. However, when it comes to the analysis of quantitative data like foreign investment volume of a certain country, value of foreign assets or similar figures, data voids sharply restrict the validity of a model.

In this thesis, we will therefore use economic macro level data to fill that gap. While network analysis allows us to picture the ownership network behind the German energy sector in a vivid way and gain information about the centrality characteristics of involved countries, macro level data provides us with solid, quantifiable data to apply a panel data regression. Panel data regression comes with certain advantages for our purpose. First, it is well suited to discover causalities between quantitative figures. Second, it is especially suited for dynamic regression models of medium-length time ranges (Kennedy 2008). In our case, this method will be used to measure the quantitative effects of influence factors mentioned above (like political decisions about market liberalization) on economic figures representing international investments and income, being e.g. foreign affiliate statistics (FATS) or foreign direct investment (FDI) statistics. Panel data regression (Ramb and Weichenrieder 2005) as well as FDI and FATS data (Tørsløv et al. 2018) have already been successfully applied to uncover macroeconomic causalities very similar to those relevant for our topic. We are therefore convinced that this method can provide valuable information to answer our research questions. We furthermore hope to contribute to the current literature by showing a new and interesting application of the method.

The Chapters of this thesis will be structured as follows. Chapter one will dive deeper into the literature of ownership structures and give more details about the characteristics of the German energy sector. The reader will be introduced to how political decisions stepwise liberalized and privatized the sector and how the Energiewende furtherly fueled this trend. We will also highlight which benefits and downsides of ownership structures are particularly relevant for the energy sector as a part of the basic supply system. Chapter two explains how we applied our chosen methods on the data set in order to answer our central questions. Chapter three documents our data collection, explains why we chose our data sources and discuss the strengths and weaknesses of each source. Here, we will describe the conducted analysis technically detailed and show how it gives us the information we need to answer the research questions. Chapter four presents the results of the conducted model; chapter five discusses central findings and limitations and discusses the meaning and consequences of our results in order to offer new starting points for both political actions and further research.

# Literature Review

## Ownership Structures

*“The motive of business is pecuniary gain, the method is essentially purchase and sale. The aim and usual outcome is an accumulation of wealth.” – Thorstein Veblen 1904[[1]](#footnote-1)*

The assumption that businesses in general aim to maximize their profits and individuals aim to maximize their utility is a central premise in neoclassical economics (Weintraub 2002). Even though we nowadays know that neoclassical theory at its very beginnings suffered a lot of shortcomings, this fundamental hypothesis has transitioned over to what we call “mainstream economics” today, which builds the major basis for academic teaching in both business science and economics (Mankiw 2014; Dunning and Lundan 2008). Despite meaningful critique that profit does not always have to be monetary in the form of personal wealth, but can also be interpreted as the psychological reward of entrepreneurial success (Scitovszky 1943), a firm operating in a competitive market must compete for and consequently maximize (or at least optimize) its monetary profits in order to preserve itself from extinction, even if it attempts to meet other, non-profitable goals (mainly stakeholder interests of various kinds) besides (Jensen and Meckling 1976). In this thesis, it will be taken as a fact that the German energy sector is a competitive market, profit maximization therefore is a central (direct or indirect) goal of the firms competing in it and ownership structures are accordingly an instrument to reach that goal.

Unlike these expositions, which were mentioned primarily for the sake of argumentative integrity and might appear self-evident to many, the question of *how* ownership structures are used to maximize profits requires a more thorough examination. In fact, it was until the 1970’s that business research and economic science provided a general theory to explain the behavior of multinational corporations (MNCs) to acquire, accumulate and, most importantly, *control* value generating capital beyond their home country borders (Buckley 2011). Following neoclassical logic, international *trade* was formerly explained mainly by factor-cost models stating that businesses located in different countries produce their commodities at different costs of labor and capital. Because businesses offering equal or substitutable goods compete with one another on an international market, those businesses having access to price-efficient production factors outperform their competitors as soon as their cost savings extend accruing transportation costs. On the long run, this systematic inevitably results in a spatial specialization of each trading nation depending on which goods can be produced at the most favorable factor costs (Samuelson 1948). Some authors, even in those early stages of international trade theory, did consider not only commodity, but also capital movement between nations. (Ohlin 1935), who was as well a general proponent of the factor-cost theory, explained the relocation of capital from one country to another mainly by differences in interest rates, motivating multinational corporates (as well as banks) to transfer capital (or even borrow it) from countries with low interest rates to those with high interest rates in order to maximize rate of return. [[2]](#footnote-2)

These theories do, by all means, incorporate a strong and plausible logic and their basic concepts still underpin influential theories of international and interregional trade (Krugman 1991). However, factor and transportation costs (or transaction costs in a wider sense) or difference in interest rates alone cannot explain why businesses would undergo the managerial risk of acquiring a majority stake in off-border capital instead of just engaging in trade with foreign companies or investing in a minority share under the prospect of monetary returns. The sheer occurrence of this behavior can be interpreted as an empirical phenomenon contradicting basic neoclassical principles and had therefor been categorically ignored by most of then established scholars (Williams 1929).

The key turnaround of early foreign direct investment (FDI) theory (which implies controlling shares in foreign businesses) was the assumption of imperfect markets, primarily driven by the contributions of Stephen Hymer. As it is widely accepted today, Hymer assumed that most markets are far from perfect. On the contrary, oligopolistic structures, entry barriers and applications of market power[[3]](#footnote-3) by large competitors distort the allocation mechanism of the market as it was understood by neoclassical theorists. To adapt to or even exploit these market imperfections, international corporations would therefore aim to build market power themselves in order to reap the maximum possible benefit from business operations abroad (Hymer 1976).

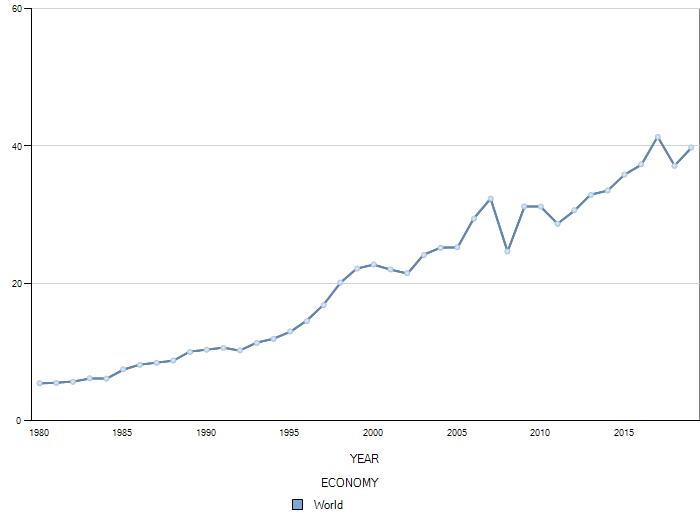


Figure 1: World outward FDI stock as percentage of GDP. Source: UNCTAD

As FDI skyrocketed since the 1980’s, explanatory literature became more copious and precise. Today’s scholarly consensus assesses the motivations behind FDI as diverse but systematic. A widely accepted, though not undisputed, theoretical system is Dunning’s eclectic paradigm. Dunning refers to and refines the assumptions of Hymer and converges it together with other attempts to explain FDI. He concludes and augments a large number of heterogenous theories that were previously not necessarily seen as connected (Vernon 1966; Lessard 1976; Johanson and Vahlne 1977; Penrose 1956; Aliber 1970) to what he calls an “envelope for economic and business theories of MNE activity” (Dunning 1977, 2000).

According to Dunning, composition and priority FDI incentives differ case specific but can be categorized in[[4]](#footnote-4):

*Ownership specific advantages* are advantages subsidiaries can profit from by being owned by a larger enterprise, or those the enterprise as whole profits from because it has built an “ownership portfolio” of diverse international assets. These advantages include property rights, intangible assets (know-how, intellectual property etc.), organizational advantages (efficiency gains caused by common corporate governance, knowledge transfer, minimization of intra-firm transaction costs, risk reduction through diversification) and institutional assets (incentive systems, corporate culture).

*Location specific advantages* are accessible by firms and/or their subsidiaries through the environmental conditions of geographic locations. Those include access to factor and recourse markets, infrastructure (also education), knowledge spillovers and jurisdictional benefits (investor protection, property protection etc.).

*Internalization advantages* primarily result from imperfect markets and can roughly be described as the capability to circumvent or exploit market failure by internalizing and controlling what would otherwise be sourced (firm-)externally. Examples being the avoidance of search and negotiation costs, control of recourse supply channels and market outlets or prevention of price discrimination.[[5]](#footnote-5)

It should be apparent that these advantages, especially in their combination, offer exceptional value to multinational corporations. In line with that reasoning, the expansion and sophistication of geographical and transnational ownership configurations (complex ownership chains) constitute an almost inevitable consequence. As of 2011, (Vitali et al. 2011) come to the conclusion that the lion share (roughly 80%) of MNCs’ worldwide value is controlled by 737 *top holders* via a complex configuration of entangled, multilevel ownership relations and the 147 top holders alone control roughly half of this 80%.

## Secrecy Jurisdictions

## The Case of the Energy Sector in Germany

# Hypothesis Development

*Ownership network visualization and network indicators*

* H1: Germany’s average position in international ownership chains has changed from “top to central” over the last X centuries.
* H2: Countries known as established players in ownership chain related firm policy are also represented in the German energy sector.
  + States known for entertaining “conduit firms” (like Luxembourg, Netherlands, Swiss etc.) show a high betweenness centrality.
  + States known for entertaining “sink firms” (like UK Virgin Islands, Bermuda, the Cayman Islands etc.) mostly take top positions of ownership chains.
* H3: As conduits, nations with a high betweenness centralities are as well regularly connected to sink states and vice versa.

*Characteristics of foreign affiliates*

* H4: Foreign affiliates with upward ownership links to tax haven states are object to significantly lower effective tax rates than their domestic (German) counterparts.
* H5: Foreign affiliates with upward ownership links to tax haven states report significantly less profits in relation to the average factor profitability of the overall sector than their German counterparts.

*Evolution and dependencies of ownership chains*

* H6: The number of ownership chains passing through (H6.1) or ending at (H6.2) tax haven states is positively related with political decisions towards a liberalization of the energy market.
* H7: The number of ownership chains passing through (H7.1) or ending at (H7.2) tax haven states are positively related to the number of renewable energy providers located in Germany.

# Data & Methodology

# Discussion

# Conclusion

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1. Veblen 1904, first page of chapter two [↑](#footnote-ref-1)
2. In fact, Ohlin even mentioned single cases of companies holding controlling shares in foreign branches to ensure constant supply of foreign raw materials (Ohlin 1935 Those considerations can be interpreted one of the first recognitions of internalization motives. The author, however, did not systematically define foreign direct investment (controlling shares) from portfolio investment (minority, yield driven share), neither did he attempt to generalize a theory of foreign direct investment. [↑](#footnote-ref-2)
3. In this case competitive market power such as predatory pricing, control over recourse channels or bargaining power towards governments or industry partners resulting in favorable or privileging regulations. [↑](#footnote-ref-3)
4. Based on Dunning and Lundan 2008 p. 101 f. [↑](#footnote-ref-4)
5. Tax avoidance strategies, especially transfer pricing, mainly fall into this category but will be discussed later. [↑](#footnote-ref-5)