

Behavioral effects of corporate governance reforms and their legal implications

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Summary / Zusammenfassung

Die Anwendung empirischer Forschung auf rechtliche Fragen der Corporate Governance hat in den letzten Jahren an Akzeptanz gewonnen. Empirische Forschung wird immer öfter in der rechtswissenschaftlichen Literatur rezipiert. In meiner Dissertation beschreibe ich zwei eigene experimentelle Untersuchungen, die für die Beantwortung von Fragen der Corporate Governance von großer Bedeutung sein können. Im ersten Kapitel führe ich die experimentelle Methode ein. Ich beschreibe die wichtigsten Bausteine als auch die Vor- und Nachteile der experimentellen Forschung.

Im zweiten Kapitel der Dissertation beschäftige ich mich mit den rechtlichen Fragen der Amtszeit und Abberufung von Vorstandsmitgliedern. Ich werte die deutsche Rechtsprechung aus, die sich mit dem Zweck und der Entstehung dieser Normen befasst, stelle aber auch alternative rechtliche Lösungen dar, die in anderen Rechtssystemen gelten. Außerdem verweise ich auf empirische Daten, die eine Diskrepanz zwischen den gesetzlichen Regeln und der tatsächlichen Dauer der Amtszeit zeigen. Weiterhin setze ich mich mit der ökonomischen Theorie und empirischer Forschung auseinander, die die Auswirkung der Amtszeit als auch der Abberufungsregeln auf das menschliche Verhalten in einer Prinzipal-Agent-Beziehung untersuchen.

Nach der Finanz- und Wirtschaftskrise in den Jahren 2007-2009 gab die rechtswissenschaftliche Expertengruppe „Reflection Group on the Future of EU Company Law“ eine Reihe von Empfehlungen zur Änderung der gesellschaftsrechtlichen Vorschriften bezüglich der Amtszeit und Abberufung von Vorstandsmitgliedern einer Aktiengesellschaft ab. Die Expertengruppe empfahl, dass die EU-Mitgliedstaaten Aktiengesellschaften die Wahl zwischen verschiedenen Amtslaufzeiten erlauben sollten (von einem bis zu mehreren Jahren). Des Weiteren sollten Aktiengesellschaften die Möglichkeit haben, die Abberufungsregelung für den Vorstand auf eine Abberufung aus wichtigem Grund zu beschränken. Wie sich eine solche gesetzliche Regelung auf das Verhalten der Vorstandsmitglieder auswirkt, ist eine empirische Frage. Insbesondere ist es wichtig zu

untersuchen, welche Konsequenzen Amtszeit und Abberufungsregel für die Entscheidungen eines Vorstandsmitglieds hätte, wenn Aktiengesellschaften zwischen verschiedenen Optionen wählen könnten, zum Beispiel zwischen einer langen Amtszeit mit Abberufung ohne Grund und einer Berufung für eine sehr kurze Amtsdauer mit Verlängerungsmöglichkeit.

Das dritte Kapitel der Dissertation befasst sich mit der experimentellen Forschung, die ich durchgeführt habe, um die Verhaltenseffekte von zwei ähnlichen Regelungen der Amtszeit zu vergleichen. Ich habe die Auswirkung von einer sehr kurzen Amtsdauer, die verlängert werden konnte, im Vergleich zu einer sehr langen Amtsdauer, die jederzeit gekündigt werden konnte, in einem Laborexperiment untersucht. Aus Sicht der ökonomischen Standardtheorie erscheinen die beiden Regeln gleichwertig. Sie können aber unterschiedliche Verhaltenseffekte verursachen. Insbesondere könnte eine Option von den Experimentalteilnehmern in der Rolle des Agenten als eine freundlichere Option wahrgenommen werden. Dies könnte dazu führen, dass sich die Agenten mehr für den Prinzipal engagieren. Die Ergebnisse meiner Studie zeigen, dass beide Alternativen sehr ähnliche Auswirkungen auf das Verhalten haben, wenn nur eine Option als einzige Wahlmöglichkeit vorhanden ist. Sobald der Prinzipal zwischen beiden Varianten wählen kann, verhalten sich die Agenten aber unterschiedlich. Die lange Amtszeit ohne Kündigungsschutz führt zu langfristigen erfolgreichen Prinzipal-Agent-Beziehungen, während die kurze verlängerbare Amtsdauer mit kurzfristigen und weniger profitablen Beziehungen verbunden ist. Das Experiment dient als ein Beispiel dafür, wie normative Fragen der Rechtspolitik mithilfe von empirischer Forschung beantwortet werden könnten. Der Gesetzgeber, der eine Rechtsreform plant, muss oft entscheiden, welche rechtliche Lösung geeignet wäre, den rechtspolitischen Zweck zu verwirklichen. Dabei sollte der Gesetzgeber verschiedene mögliche Folgen, die durch die beabsichtigte Reform verursacht werden könnten, berücksichtigen.

Das zweite Experiment gibt ein Beispiel dafür, wie empirische Forschung für die Verhältnismäßigkeitsprüfung einer Vorschrift aus dem Bereich der Corporate Governance informativ sein könnte. Ergebnisse empirischer Studien können nämlich eine Rolle bei der Abwägung zwischen dem gesetzlich verfolgten Ziel und dem beeinträchtigten Grundrecht spielen. Die empirische Forschung kann dabei helfen, das Ausmaß der Beeinträchtigung festzustellen. In 2015 hat der deutsche Gesetzgeber die starre Frauenquote für Aufsichtsräte

von börsennotierten und mitbestimmungspflichtigen Aktiengesellschaften eingeführt. Die EU-Kommission hat schon 2012 in einer Richtlinie die starre Frauenquote vorgeschlagen. Sowohl der deutsche Gesetzgeber als auch die EU-Kommission haben argumentiert, dass die Frauenquote nicht nur zur gleichen Vertretung von Frauen und Männer in der Führungspositionen führen würde, sondern sich auch positiv auf die Leistung der Gesellschaften auswirken würde. In dem vierten Kapitel der Dissertation stelle ich die deutsche gesetzliche Regelung und die europarechtlichen Vorschläge dar. Anschließend bespreche ich die rechtlichen Fragen bezüglich der potenziellen Beeinträchtigung der Grundrechte. Ich zeige, dass es für die Abwägung wichtig ist, die genauen Folgen der neuen Regelung festzustellen. Der Gesetzgeber sollte nicht nur die Wirkung von Geschlechtervielfalt in den Aufsichtsräten auf die Leistung der Aktiengesellschaften untersuchen, sondern auch die Effekte der Regulierung in Form einer Frauenquote berücksichtigen. Ich bespreche die empirische Forschung zu den Konsequenzen der norwegischen Frauenquoten als auch die experimentellen Studien, die sich mit der Quote und Gruppenzusammenarbeit beschäftigt haben.

In dem fünften Kapitel stelle ich dann meine eigene experimentelle Untersuchung zur Frauenquote und Gruppenkooperation dar. In einem Laborexperiment habe ich getestet, wie sich die leistungsabhängige Beförderung im Vergleich zur quotenbasierten Beförderung aufgrund des Geschlechts (oder einer in dem Experiment geschaffenen Kategorie) auf die Kooperation in der Zielgruppe auswirkt. Die Ergebnisse haben gezeigt, dass die quotenbasierte Beförderung einen negativen Effekt auf die Kooperation hat. Das quotenbasierte Verfahren wird auch als ungerecht wahrgenommen. Der negative Effekt auf Kooperation wird aber nicht dadurch getrieben. Die Studie zeigt, dass die Frauenquote die Gruppenzusammenarbeit nachteilig beeinflussen kann. Das Resultat kann auch für das Funktionieren von Aufsichtsräten von Bedeutung sein, da es sich dabei um ein kollegiales Gremium handelt, dessen Entscheidungen oft von der Zusammenarbeit innerhalb des Gremiums abhängen.

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List of Abbreviations

AFEP	French Association of Large Companies
AG	<i>Aktiengesellschaft</i> German public company
AktG	<i>Aktiengesetz</i> German Stock Corporation Act
AMF	<i>Autorité des Marchés Financiers</i> French Financial Markets Regulator
BGB	<i>Bürgerliches Gesetzbuch</i> German Civil Code
BGBL	<i>Bundesgesetzblatt</i>
BGH	<i>Bundesgerichtshof</i> German Federal Court of Justice
BVerfGE	<i>Entscheidungen des Bundesverfassungsgerichts</i> Decisions of the German Federal Constitutional Court
CEO	Chief Executive Officer
DCGK	<i>Deutscher Corporate Governance Kodex</i> German Corporate Governance Code
ECJ	European Court of Justice
ECR	European Court Reports
EU	European Union
FLLCA	Finnish Limited Liability Companies Act
fMRI	Functional Magnetic Resonance Imaging
FTSE	Financial Times Stock Exchange
GSOEP	German Socio-Economic Panel
HGB	<i>Handelsgesetzbuch</i> German Commercial Code
IA	Impact Assessment
IAB	Impact Assessment Board
ID	Identification Number
LG	<i>Landesgericht</i> German State Court
MK-AktG	<i>Münchener Kommentar zum Aktiengesetz</i>
OLG	<i>Oberlandesgericht</i> German Higher State Court
Oyj	<i>Julkinen osakeyhtiö</i> Finish public company

R&D	Research and Development
RGBL	<i>Reichsgesetzblatt</i>
S.p.A	<i>Società per Azioni</i> Italian public company
SA	<i>Société Anonyme</i> French public company
SA	<i>Sociedad Anónima</i> Spanish public company
SE	<i>Societas Europea</i> European Company
SVO	Social Value Orientation
TFEU	Treaty on the Functioning of the European Union

Note on Citations

In the dissertation I refer to the English- and German-language literature from various areas of research. Since the citation styles differ considerably between disciplines and countries, I decided to adopt the following rules of citation in my thesis:

1. When I refer to a particular article in the main text, I use only the names of the authors. The exact reference is always indicated in a footnote. To distinguish between two articles of the same author, I add the year of publication when referring to the article in the main text.
2. When referring to articles published in German legal journals, I indicate the abbreviation of the journal title as well as the year of publication and the number of the first page of the article. For instance:

Bosse/Hinderer, NZG 2011, 605.

This is an article by *Christian Bosse & Florian Hinderer*. *Vorzeitige Wiederbestellung des Vorstands auf dem Prüfstand*, *Neue Zeitschrift für Gesellschaftsrecht* 2011, p. 605-609.

The citation style of German legal articles should facilitate the literature search in German literature databases. Below I indicate all abbreviations I used for German legal journals in the dissertation.

3. Other sources (i.e. articles, book sections, books) are cited by indicating the name of the authors (or of two of the authors in case of 4 or more authors), title and year of publication. Book sections and books are cited in a similar way. In case of book sections I additionally indicate the title of the section as well as the title of the book.

4. German court rulings are cited by indicating the name of the court, the abbreviation of the journal in which the ruling was published as well as the publication year and the first page. For instance:

BGH, NZG 2012, 1027 stands for the ruling of the *Bundesgerichtshof* (German Federal Court of Justice) that can be found in the journal *Neue Zeitschrift für Gesellschaftsrecht* from 2012 on page 1027.

5. The decisions of the German Constitutional Court are cited by indicating the respective publication in the collection of court rulings “Entscheidungen des Bundesverfassungsgerichts”. For instance:

BVerfGE 50, 290 stands for the decision of the Constitutional Court from March 1, 1979 that can be found in the volume 50 on page 290 of the collection of court rulings “Entscheidungen des Bundesverfassungsgerichts”.

6. The decisions of the European Court of Justice are cited in the following way:

Case C-491/01 *British American Tobacco* [2002] ECR I-11550. This indicates the case number, the name of at least one of the parties, the publication year as well as the number of the ruling in the European Court Reports.

7. The German statutory commentaries are cited in the following way:

Koch in: Hüffer, AktG 2014 §84 sec. 20

This indicates the author’s name, names of editors, title of the commented statute, publication year as well as the commented paragraph of the statute.

List of abbreviations of the German-language journals:

ZIP	Zeitschrift für Wirtschaftsrecht
NZG	Neue Zeitschrift für Gesellschaftsrecht
JZ	JuristenZeitung
ZGR	Zeitschrift für Unternehmens- und Gesellschaftsrecht
FS Buchner	Festschrift für Herbert Buchner zum 70. Geburtstag
AG	Die Aktiengesellschaft
DB	Der Betrieb

RW	Rechtswissenschaft: Zeitschrift für rechtswissenschaftliche Forschung
BB	Betriebs-Berater
ZHR	Zeitschrift für das gesamte Handelsrecht und Wirtschaftsrecht
GWR	Gesellschafts- und Wirtschaftsrecht
NJW	Neue Juristische Wochenschrift

Chapter 1

Experimental methods in corporate governance legal research

A. Introduction

Legislative initiatives in the area of corporate governance trigger many normative questions. Empirical method has been increasingly recognized as a tool providing valid insights into these issues.¹ First, the empirical research might be particularly useful for policy decisions.² For instance, empirical evidence can inform the legislator whether the policymaker's goal can be achieved with a particular policy measure.³ It helps to identify which of the possible regulations could fulfill the normatively specified criteria of the best legislative solution, given its impact on individual behavior.⁴ My experiment described in chapter 3 might serve as an example of empirical research informing policy choices. In this study I investigated the influence of appointment lengths and dismissal rules on agents' behavior and observed that even seemingly equivalent rules might have a different impact on agents' performance. Second, a new regulation might be suitable to achieve one goal, but at the same time interfere with individual rights. In such case, the constitutional courts apply a proportionality test to evaluate whether a given legal provision impose a justified restriction on a fundamental right. The empirical research might provide evidence crucial for this

¹ *Hamann*, Evidenzbasierte Jurisprudenz: Methoden empirischer Forschung und ihr Erkenntniswert für das Recht am Beispiel des Gesellschaftsrechts 2014, pp.38-52; *Fleischer* Gesellschafts- und Kapitalmarktrecht als wissenschaftliche Disziplin - das Proprium der Rechtswissenschaft in: Engel, Das Proprium der Rechtswissenschaft 2007; *Merkel*, AG 2003, 126; *Eidenmüller*, ZGR 2007, 484; *Bhagat/Romano* Empirical studies of corporate law in: Polinsky/Shavell, Handbook of law and economics 2007; *Strine Jr*, The inescapably empirical foundation of the common law of corporations 2002; *Pacces* The law and economics of corporate governance: Changing perspectives 2010.

² *Engel* Verhaltenswissenschaftliche Analyse: Eine Gebrauchsanweisung für Juristen in: Engel et al., Recht und Verhalten 2007, p. 383.

³ *Eidenmüller*, JZ 1999, 53, p.54.

⁴ *Engel* in: Engel et al., Recht und Verhalten 2007, p.384.

assessment.⁵ For instance, one of the elements of the proportionality test requires balancing positive and interfering effects of a measure. Empirical studies can explore potential adverse side effects of a given legal solution on the interests protected by the fundamental rights.⁶ One example of such a study is my experimental investigation regarding the impact of quota rules on group cooperation which is described in chapter 5.

My experimental research was motivated by two recent legislative initiatives. The first one is a reform proposal made in a reaction to the economic and financial crisis 2007-2009 to counteract the observed market failures. In 2011, the Reflection Group on the Future of EU Company Law recommended, among others, the introduction of a Directive which would allow all public companies to define executive directors' appointment terms (one-year or multiple-year terms not exceeding 4-6 years) and to restrict dismissal at-will.⁷ The Group claimed that dismissal and appointment rules might influence the decision-making of directors in various ways.⁸ Thus, the role of the Directive should be to enable public companies making a choice between different options rather than limit it to one particular solution.⁹ This proposal inspired my first research question on the impact of seemingly equivalent appointment and dismissal rules on individual behavior in a principal-agent relation. More specifically, I investigated whether short-term renewable appointment term differently influences individual behavior as compared to indefinite appointment at-will. Additionally, I examined whether these reactions differ depending on the menu of available options (only short-term appointment, only indefinite appointment or both options available). These results could help to evaluate the consequences of the solution proposed by the Reflection Group.

Another legislative initiative that motivated my second experimental research is a reform introducing mandatory gender quota for corporate boards. In Germany, mandatory quotas were implemented in 2015 with a statute on equal participation of men and women in executive positions in the private and public sector.¹⁰ The EU (European Union) Commission also proposed mandatory quotas in a Directive on improving the gender balance

⁵ *Petersen*, Braucht die Rechtswissenschaft eine empirische Wende? 2010, p.11.

⁶ *Petersen*, Braucht die Rechtswissenschaft eine empirische Wende? 2010, pp.7-9.

⁷ *Antunes/Baums et al.*, Report of the reflection group on the future of EU company law 2011, p.52.

⁸ *Antunes/Baums et al.*, Report of the reflection group on the future of EU company law 2011, p.51.

⁹ *Antunes/Baums et al.*, Report of the reflection group on the future of EU company law 2011, p.51.

¹⁰ *Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst* from April 24, 2015, BGBl. I S. 642 [hereinafter: the Equal Participation Act].

among non-executive directors of companies listed on stock exchanges.¹¹ Both – the German legislator and the EU Commission – claimed that mandatory quotas will not only increase the share of women on corporate boards but also improve corporate and board functioning.¹² In my experimental research, I investigated whether mandatory quotas indeed might improve corporate performance. In particular, I studied whether a quota rule might influence one particular aspect of group behavior (i.e. group cooperation). I compared behavioral reactions towards a promotion procedure based on performance versus a procedure based on quota rules. I measured cooperation between an incumbent member of a group and a new coming member promoted according to one of the rules. This experimental study allowed me to identify potential negative side effects of a mandatory quota on group cooperation. The evidence provided by my experiment would be helpful in evaluating proportionality of mandatory quotas for corporate boards.

The experimental method is one of several empirical methods used in social sciences (other examples might be field research or surveys). All these methods might potentially be applied to the legal context.¹³ They come however with advantages and limitations. Therefore, the method should be selected carefully depending on the research question and the conclusions one would like to draw from the results of an investigation. Before I present the details of my experimental studies, I would like to introduce the experimental method shortly.

¹¹ European Commission, Proposal for a Directive of the European Parliament and of the Council on improving the gender balance among non-executive directors of companies listed on stock exchanges and related measures, COM (2012) 614 final, available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52012PC0614> [hereinafter: the Directive].

¹² European Commission, Impact assessment on costs and benefits of improving the gender balance in the boards of companies listed on stock exchanges, SWD(2012) 348, available at: http://ec.europa.eu/justice/gender-equality/files/womenonboards/impact_assesment_quotas_en.pdf. [hereinafter: Impact Assessment or IA], p.13; *Drucksache 18/3784 "Gesetzentwurf der Bundesregierung. Entwurf eines Gesetzes für die gleichberechtigte Teilhabe von Frauen und Männer an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst"* from January 20, 2015, available at: <http://dipbt.bundestag.de/dip21/btd/18/037/1803784.pdf> [hereinafter, *Regierungsentwurf*], p.50 and 62.

¹³ For an overview of the key empirical methods used in law see: Engel, Behavioral law and economics: Empirical methods 2013. For a more detailed discussion of empirical methods applied to legal issues: Hamann, Evidenzbasierte Jurisprudenz 2014.

B. Empirical methods

I. Field research

Field research allows studying behavior in a real world setting.¹⁴ Because the field data reflects the natural environment, this approach is characterized by a high external validity – “the extent of generalizability or certainty that results can be applied to other respondent groups, different settings, and different ways of operationalizing the conceptual variables.”¹⁵ For instance, a researcher can analyze the existing data, which comprises a large number of observations collected in the real world.¹⁶ However, the analysis of existing data usually provides evidence only for a correlational relationship between variables of interest.¹⁷ Additionally, field research does not allow a full control of the measured variables which might be subject to unmeasured noise (i.e., confounding factors or reverse causality).

Another form of field research that might be especially informative for a legal scholar is a natural experiment.¹⁸ It occurs when only a particular group of individuals is subject to a treatment (i.e. a legal intervention) whereas another group of comparable individuals constitutes a control group (i.e. does not need to comply with a regulation of interest).¹⁹ Such comparison is very useful because it allows studying reactions to the particular legal change in a natural environment. A crucial limitation is that legal interventions are not assigned randomly to the individuals or corporate actors. It is, therefore, possible that a difference observed between addressees of a new regulation and a group which does not need to comply with it is a consequence of different features of these two groups and does not result from a legal reform itself. Furthermore, it is often impossible to collect observations on all variables of interest that might be crucial for the observed effects and identification of underlying mechanisms of reactions towards the examined legal rule.²⁰

¹⁴ *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, p.126.

¹⁵ *Crano/Brewer/Lac*, Principles and methods of social research 2015, p.27.

¹⁶ *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, p.125ff.

¹⁷ *Crano/Brewer/Lac*, Principles and methods of social research 2014, pp.159-161.

¹⁸ *DiNardo* Natural experiments and quasi-natural experiments in: Durlauf/Blume, The new palgrave dictionary of economics 2008; *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, pp.118-121.

¹⁹ As an example see the regulation on mandatory quota rules in Norway examined in *Ahern/Dittmar*, The changing of the boards: The impact on firm valuation of mandated female board representation 2012; *Matsa/Miller*, A female style in corporate leadership? Evidence from quotas 2013.

²⁰ As an example see an article on the impact of female directors on board functioning and company performance: *Adams/Ferreira*, Women in the boardroom and their impact on governance and performance 2009.

II. *Survey studies*

A survey is a set of questions used to gather information on people's self-reported attitudes, preferences or opinions.²¹ It is a useful tool to examine the characteristics of a given population.²² However, it does not allow studying individuals' real but only declared reactions towards different legal interventions.²³ A similar method is a vignette study.²⁴ In a vignette study participants are presented with various scenarios describing a specific situation in the real world.²⁵ They are asked questions aimed at evaluating their perception and attitudes towards the situation outlined in the scenario. Importantly, two scenarios which differ in only one small feature are distributed among the people. The vignette method allows identifying the impact of this difference on the answers provided by participants.²⁶

III. *Laboratory experiments*

A laboratory experiment is an empirical method increasingly popular in social sciences.²⁷ I will describe it in more detail because it is a method which I decided to implement in my studies. I will focus on economics experiments, but I will also explain the differences between economics and psychology experiments, each of which might be useful in providing insights for a legal scholar. The typical elements of an experimental study are (1) formulation of a research question, (2) specification of the hypothesis, (3) experimental design, (4) statistical analysis as well as (5) interpretation of the results and conclusions. Each of these elements will be described below in separate sections. As an illustration for discussing the experimental method, I will employ an experiment reported by Cain, Lowenstein and Moor in the paper "The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest" published in *The Journal of Legal Studies* in 2005.²⁸ The authors investigated the influence of disclosure on the individual behavior when there exists a conflict of interests between interacting persons (in the paper called an advisor and an

²¹ *Crano/Brewer/Lac*, Principles and methods of social research 2014, p.219.

²² *Rea/Parker*, Designing and conducting survey research : A comprehensive guide 2014, p.3ff.

²³ As an example of a survey study see: *Storvik*, Women on boards : Experience from the norwegian quota reform 2011.

²⁴ Vignette study can be also seen as a mixture of a survey and a laboratory experiment.

²⁵ *Atzmüller/Steiner*, Experimental vignette studies in survey research 2010

²⁶ As an example of a vignette study see: *Heilman/Block/Lucas*, Presumed incompetent? Stigmatization and affirmative action efforts 1992.

²⁷ For a review see: *Falk/Heckman*, Lab experiments are a major source of knowledge in the social sciences 2009.

²⁸ *Cain/Loewenstein/Moore*, The dirt on coming clean: Perverse effects of disclosing conflicts of interest 2005.

estimator). They found that advisors give more biased advice to estimators when these are informed about the existing conflict of interests compared to a situation when no such information is provided. This experimental study might be of high relevance for corporate governance regulations imposing disclosure obligations on the management board of a public company (i.e. § 325 German Commercial Code²⁹ – *Handelsgesetzbuch* [HGB]). It is of a particular importance since it shows that a relatively nonintrusive legal regulation on disclosure might also have some adverse effects on both – these who disclose information and these who are supposed to benefit from disclosure.

Many people when hearing a word “laboratory experiment” imagine some chemical or animal experiments. Others picture brain research experiments involving, for instance, an fMRI (Functional Magnetic Resonance Imaging) scan. An economic laboratory experiment is, in fact, much simpler. It usually takes place in a computer room in which each workstation is situated in a separate cubicle. This should guarantee privacy for experimental participants when performing experimental tasks. Participants are typically students registered in a special database from which they are recruited for single experimental sessions. Maintaining the database allows specifying special requirements regarding characteristics of participants recruited for a particular experiment. For instance, it is possible to restrict the pool to the participants who have no experience with a given type of a decision-making problem. Upon arriving at the laboratory, participants are randomly assigned to separate cubicles. They are instructed that they cannot communicate with each other. Next, an experimenter typically reads aloud the instructions describing in details all features of the experimental task to make sure that all participants have the same information about the task and that they know all the details of the task beforehand. Usually, an experiment starts with a short quiz to make sure that all participants understand the instructions. Afterward, participants perform an experimental task by entering their answers using computers. The task might be either individual or interactive.

An example for an individual decision-making experimental task is a lottery implemented to elicit risk attitudes. In such a lottery participants are asked to make a series of choices between two options. For instance, there are two options: (1) “option A” gives either \$2.00 or \$1.60 payoff, (2) “option B” gives either \$3.85 or \$0.10 payoff. In each

²⁹ *Handelsgesetzbuch* from Mai 10, 1897, RGBI. S. 219.

option, the probability of receiving the higher payoff is 1/10. The task is to choose either “Option A” or “Option B”.³⁰ Afterward, the lottery is realized depending on the selected option.

A simple illustration of an interactive task is a dictator game used to study social preferences. In the simplest version of a dictator game participants are randomly matched in pairs. One of them is randomly given the role of a dictator and the other – the role of a recipient. The dictator is endowed with 10 €. Dictator’s task is to decide whether to make an even (5€, 5€) or an uneven (8€, 2€) split between him and the recipient.³¹

At the end of an experiment, participants are informed about their total payoffs. The money earned in the experiment is paid out in private so that participants do not see how much money the other participants receive.

These experimental procedures might seem at first very artificial. They are however introduced to keep control over other factors which might potentially influence individual behavior. For instance, the payment in private should control for potential effects of social pressure - participants might care about what other would think about them seeing their payoffs and accordingly change their behavior in the experiment. The main advantage of a lab experiment is precisely this controlled environment. All the details, such as payoffs, information or timing of decisions, are designed and controlled by an experimentalist. Ideally, there should be only one difference between two conditions implemented in an experimental study. This way an experimentalist can conclude that the observed differences between experimental conditions are a consequence of the change in the variable of interest instead of some third, not controlled, variable (confound). Additionally, participants taking part in a laboratory experiment are randomly selected from a large pool. Imagine that participants would not be randomly selected and only women would come to the experiment. In this case, an experimentalist would not be able to generalize from the behavior of women observed in a laboratory to the behavior of men (selection bias). Importantly, in a laboratory experiment participants are also randomly assigned to the experimental conditions. Random assignment assures that the differences in behavior observed between two experimental conditions are not a result of particular characteristics of a group which took part in one of

³⁰ *Holt/Laury*, Risk aversion and incentive effects 2002.

³¹ *Kahneman/Knetsch/Thaler*, Fairness and the assumptions of economics 1986.

the conditions. These features – controlled environment, random selection and random assignment - are obviously not possible in case of natural experiments. Furthermore, in contrast to survey or vignette studies the decisions made in the lab experiments are not only hypothetical but have real consequences for participants affecting their payoffs.

1. Research questions

An experimental study starts with the formulation of a clear and testable research question which differs considerably from a typical legal issue.³² The context of a legal question is often very complex. Additionally, legal issues are frequently of a normative character. For instance, a legal question relevant to corporate governance regulations might ask “Should the policymaker impose disclosure obligations on public companies regarding the financial situation of a company?” or “Is it more important to introduce transparency of the corporate performance or to decrease the costs of disclosure obligations?”. In contrast, a research question is a question “which can be answered by making observations that identify the conditions under which certain events occur”.³³ It is, therefore, crucial that both – the “conditions” and “events” – are observable and verifiable. Thus, a research question which might provide insights relevant to a legal issue will usually ask about the relationship between a legal rule and individual behavior. Also, the complex legal environment needs to be translated into a simple question which asks, for instance: “Does disclosure of conflict of interests induce agents to reveal their private information truthfully?”

For what kind of legal issues does the experimental method provide valuable insights? First, these are the questions related to legal interventions, which are entirely novel, and there are no comparable policy measures which have been already introduced. Second, even if there is an existing similar regulation it is difficult to study its causal effects on individual behavior as it is typically introduced endogenously and in a non-random way. The benefit of an experiment is that it allows an exogenous and random implementation of legal regulations to different groups of participants. As such it allows testing the behavioral

³² *Lawless/Robbennolt/Ulen*, *Empirical methods in law* 2010, p.10: “Legal analysis places a premium on argumentation and appeals to authority, is frequently geared toward proving a particular view, is often focused on the particulars of an individual case, and is directed at reaching a definitive conclusion. In contrast, empirical analysis places a premium on observation, challenges assumptions, is oriented toward the testing of hypotheses, is usually focused on describing patterns that operate in the aggregate, and is a continuing enterprise in which new work builds on that which came before and generates even more questions for further investigations”.

³³ *Singleton/Straits*, *Approaches to social research* 2010, p.21.

consequences that might be caused by the introduction of a certain policy. Third, experimental research might be particularly beneficial for legal questions because it provides insights not only into the effect of a legal intervention on individual behavior but also into its underlying mechanisms. Understanding of the mechanisms might be valuable for designing alternative policy measures which would avoid potentially undesirable consequences.

2. Hypotheses

A hypothesis is a statement about a relationship between two or more variables. It is typically derived from a theory that is “a set of interconnected propositions” describing individual behavior “at a general or abstract level”.³⁴ For instance, in the experiment by Cain et al. one of the hypotheses was formulated as follows: “Advisors with conflict of interest will give more biased advice under conditions with disclosure than without disclosure.”³⁵ The dependent variable measured is advice provided by the advisors to the estimators. The variable manipulated by the experimentalist is a disclosure of conflict of interests.

What are then the theories from which the economic experimentalist derives the hypotheses? The very first economics experiments aimed at testing the hypothesis derived from the “rational choice theory” in both - individual and strategic decision-making settings.³⁶ The “rational choice theory”³⁷ is usually described as consisting of the following elements:

- people maximize their expected utility function,
- people update probabilities according to the Bayes rule,
- people are self-interested in a narrow sense (do not care about the utility of others),
- people discount future outcomes exponentially.³⁸

³⁴ Singleton/Straits, *Approaches to social research* 2010, p.24.

³⁵ Cain/Loewenstein/Moore, *Perverse effects of disclosing* 2005, p.8.

³⁶ Camerer/Talley Chapter 21 experimental study of law in: Polinsky/Shavell, *Handbook of law and economics* 2007, p.1629; Roth Introduction to experimental economics in: Kagel, *The handbook of experimental economics* 1995.

³⁷ Korobkin and Ulen stressed that in the literature there is, in fact, no coherent understanding of what the “rational choice theory” exactly is: *Korobkin/Ulen, Law and behavioral science: Removing the rationality assumption from law and economics* 2000, p.1060.

³⁸ Rabin, *A perspective on psychology and economics* 2002, p. 660; *Wilkinson/Klaes, An introduction to behavioral economics* 2012, p. 10.

One other concept crucial for the “rational choice theory” in the context of strategic decision-making is the notion of equilibrium. It refers to a condition when “all players choose an optimal response given beliefs about the others’ choices which are accurate.”³⁹

A series of experiments testing these “standard” assumptions gave rise to behavioral economics research which has incorporated insights from psychology to understand and predict human behavior better. As a consequence, behavioral economics has relaxed the standard assumptions of “rational choice theory”. An example of such a departure is the “prospect theory” which states that people evaluate and make decisions not based on absolute utility levels but rather by comparing current and possible future states (and perceiving it as gains or losses).⁴⁰ Another example of a departure from “standard” assumptions is the “theory of social preferences” which assumes that people care not only about own utility but also about the well-being of others.⁴¹

In the illustrative experiment on the impact of disclosure of conflict of interests on individual behavior, the authors referred first to the theoretical model of Crawford and Sobel.⁴² This model is based on the assumption that individuals act in their self-interest. It predicts that if there is a conflict of interests between advisors and estimators, estimators should ignore messages sent by advisors since they are uninformative. The model, however, does assume that estimators are aware of a conflict of interests. It does not specify any predictions when a conflict is not revealed to estimators. Cain et al. refer to psychological mechanisms such as “moral licensing” and predict that advisors will give more biased advice if a conflict of interests is disclosed to estimators than when estimators are not informed about it.⁴³ The authors reasoned that “disclosing conflicts of interest can potentially backfire by reducing advisors’ feelings of guilt about misleading estimators and thereby giving advisors moral license to bias advice even further than they would without disclosure.”⁴⁴ This argument illustrates the use of psychological insights in developing hypotheses about the behavior of individuals in economics experiments.

³⁹ *Camerer/Talley* in: *Polinsky/Shavell*, Chapter 21 experimental study of law 2007, p. 1630.

⁴⁰ *Kahneman/Tversky*, Prospect theory: An analysis of decision under risk 1979.

⁴¹ For instance, *Fehr/Schmidt*, A theory of fairness, competition, and cooperation 1999; *Bolton/Ockenfels*, Etc: A theory of equity, reciprocity, and competition 2000.

⁴² *Crawford/Sobel*, Strategic information transmission 1982; *Cain/Loewenstein/Moore*, Perverse effects of disclosing 2005, p. 8.

⁴³ *Cain/Loewenstein/Moore*, Perverse effects of disclosing 2005, p. 7.

⁴⁴ *Cain/Loewenstein/Moore*, Perverse effects of disclosing 2005, p. 7.

3. Experimental design

The experiment is designed to test a specific hypothesis. Thus, all abstract variables have to be “translated” – operationalized – into variables which can be measured and manipulated in an experimental setting. Recall that in the Cain et al. study the general research question asked how disclosure of a conflict of interests affects the content of information provided by advisors. In this study participants were assigned either a role of an advisor or estimator.⁴⁵ The experimental task of estimators was to assess the value of coins in a jar which was presented to all participants. The task of advisors was to send a report to estimators about the value of coins in the jar. Advisors were informed that this value lies in the range between \$10 and \$30. Thus, they had additional information compared to estimators. This situation should reflect an abstract concept of the asymmetry of information which is typical for many real life relations such as between a financial advisor and an investor, an executive director and shareholders, a doctor and a patient. The authors implemented three treatments which represented three environments of an advisor-estimator interaction. In the first treatment, there was no conflict of interests between estimators and advisors. Both – an advisor and an estimator - were rewarded for the accuracy of estimators’ predictions (accuracy treatment). In the two other treatments (conflict treatments) a conflict of interests was introduced. Advisors’ reward increased the higher evaluations were made by estimators. Thus, in the accuracy treatment advisors were incentivized to give their best estimation of the value of the jar. In the conflict treatments, advisors had an incentive to overestimate this value. The second manipulation was introduced between the two conflict treatments. In one treatment (conflict/disclosure treatment) estimators were informed about the payoff function of advisors. In the other treatment (conflict/no disclosure treatment) estimators did not know how advisors are rewarded.

There are four features of an economics experimental design which are particularly relevant to a legal scholar.

1. **Controlled experimental environment.** It is an important aspect of an experimental method⁴⁶ that allows making statements about the causal relationship between an independent variable manipulated (i.e. disclosure of conflict of interests) by the

⁴⁵ For an experimental design in the study by Cain et al.: *Cain/Loewenstein/Moore*, Perverse effects of disclosing 2005, pp. 9-12.

⁴⁶ As Vernon Smith famously stated: “Control is the essence of experimental methodology”: *Smith*, *Experimental economics: Induced value theory* 1976, p. 275.

experimentalist and a dependent variable (value of coins in the jar reported by advisors to estimators) measured in the experiment. Controlled experimental environment means that the experimentalist changes ideally exactly one thing between the treatments.⁴⁷ For instance, in the Coin et al. study both conflict treatments differed only regarding the information provided to estimators on the payoff function of advisors. All other features in the procedure of the experiment were the same. “The idea of control is to employ procedures that effectively rule out all explanations except the one in which the researcher is interested.”⁴⁸

2. **Random assignment.** This rule is closely related to the controlled environment feature. “True random assignment requires that any person in [the] sample is equally likely to participate in any of the experimental conditions.”⁴⁹ With random assignment, the experimentalist makes sure that even if participants are different from each other regarding some aspects (such as intelligence, personality, social preferences), each of these features should be equally frequent in each of the treatments.⁵⁰ Imagine, for instance, that instead of random assignment, all participants who come to the laboratory first would be assigned to one treatment and all latecomers to the other treatment. The early birds might differ considerably from the latecomers – they might be more hardworking or diligent. In this case, the experimentalist would not be able to tell apart whether the behavioral difference observed in the study is due to the treatment manipulation or different characteristics of participants.
3. **No deception policy.** In contrast to psychology experiments, economics experiments do not use deception. The rule was introduced to limit participants’ “second-guessing about the purpose of the experiment”.⁵¹ Economists want to make sure that the observed reactions of participants are “motivated by the induced monetary rewards rather than by psychological reactions to suspected manipulation.”⁵² According to Ariely and Norton “... deception merely masks the true nature of the experiment, impeding participants’ ability to make informed decisions about their roles, payoffs,

⁴⁷ *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, p. 93.

⁴⁸ *Singleton/Straits*, Approaches to social research 2010, p. 39.

⁴⁹ *Crano/Brewer/Lac*, Principles and methods of social research 2015, p. 110.

⁵⁰ *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, pp. 101-106.

⁵¹ *Hertwig/Ortmann*, Experimental practices in economics: A methodological challenge for psychologists? 2001, p.384.

⁵² *Davis/Holt*, Experimental economics 1993, p.24.

and rules.”⁵³ Despite a unanimous view on “no deception” policy within experimental economists’ community, there is no agreement on what deception exactly means. Some researchers claim that deception is only an intentional provision of misinformation but not an omission of some information.⁵⁴ This controversy is very nicely illustrated by the experimental design implemented by Cain et al. In the no disclosure/conflict treatment estimators are not informed about the payoff function of advisors. According to some experimental economists such an experimental feature would be perceived as deception – it is information which might considerably influence estimators’ payoffs. There is, however, a growing number of researchers who support the less restrictive definition of deception as suggested by Hey.⁵⁵ They introduce, for instance, surprise restarts in the experiment (participants know that there are more parts of the experiment, but they are informed about the rules of the game separately for each part of the experiment).⁵⁶ In general, the no deception rule implies that an experimentalist needs to design an experiment in a way so that participants are not misled about any details of the procedure that could affect their payoffs.⁵⁷

4. **Monetary incentives.** Differently from psychology experiments, in economics experiments participants’ payments are directly linked to their behavior and decisions. In the illustrative experiment the advisor received higher payoffs in the accuracy condition, the closer the estimator was to the actual value. For instance, if the estimator was within the range 0.00 - 0.50 dollars from the real value, the advisor received \$5.00. If the estimation was within 0.51 – 1.00 dollars from the actual value, the advisor received \$4.50.

Hertwig and Ortmann list four objectives of the monetary incentives. First, “... salient payoffs (rewards or punishments) reduce performance variability.” Second, in comparison to other rewards schemes financial incentives are easy to implement.

⁵³ Ariely/Norton, *Psychology and experimental economics: A gap in abstraction* 2007, p.226.

⁵⁴ Hey, *Experimental economics and deception: A comment* 1998: “...there is a world of difference between not telling subjects things and telling them wrong things. The latter is deception, the former not. I am advocating the former, not the latter.”, p.397.

⁵⁵ For a discussion: *Hertwig/Ortmann, Experimental practices in economics: A methodological challenge for psychologists?* 2001; *Hertwig/Ortmann, Deception in experiments: Revisiting the arguments in its defense* 2008; *Hersch, Experimental economics' inconsistent ban on deception* 2015.

⁵⁶ *Krawczyk, Delineating deception in experimental economics: Researchers' and subjects' views* 2013.

⁵⁷ *Hertwig/Ortmann, Deception in experiments: Revisiting the arguments in its defense* 2008.

Third, “most of us want more of it [money] (so it is fairly reliable across participants) and there is no satiation over the course of the experiments.” Fourth, “... most economic experiments test economic theory, which provides a comparatively unified framework built on maximization assumptions (of utility, profit, revenue, etc.) and defines standards of optimal behavior.”⁵⁸

4. Data analysis

A detailed explanation of statistical data analyses is beyond the scope of this dissertation. However, I would like to introduce one important principle that will help the reader to understand and interpret the experimental results. In the illustrative experiment on the impact of disclosure, the mean values of estimates suggested by advisors to the estimators were 16.48 in the accuracy treatment, 20.16 in the conflict/no disclosure treatment and 24.16 in the conflict/disclosure treatment. The authors reported that advisors’ estimates were significantly greater in the high/disclosure condition than in the other two conditions ($p < .05$). What does it mean that the estimates are “significantly” greater? How to interpret the indicated p-value?

The average values reported in the article describe only the behavior of individuals who took part in this experiment (descriptive statistics). One can clearly see that the values in two conflict treatments are greater than the value in the accuracy treatment. An experimentalist, however, is interested not only in describing how the individuals who took part in a particular experiment behaved, but to make inferences about the behavior of the population (inferential statistics). To this end, an experimentalist tests the reliability of the hypothesis. In Cain et al. one of the hypothesis stated that advisors with a conflict of interests will give more biased advice (higher mean estimations) under conditions with disclosure than without disclosure. In the group of people who participated in the experiment this is indeed the case (as evident by the means). Does this, however, generalize beyond the group to a larger population? In other words, is the effect reliable when measuring the behavior of another group? The inference statistics which is usually used to provide such information requires an experimentalist to specify two exclusive hypotheses: the null and the

⁵⁸ Hertwig/Ortmann, *Experimental practices in economics: A methodological challenge for psychologists?* 2001, p.390.

alternative hypothesis.⁵⁹ The former states there is no difference between compared means, the latter states there is a difference. In the considered example the null hypothesis states that there is no difference in the advisors' estimations under both conditions. Subsequently, the data from the experiment is used to test if this hypothesis can be rejected in favor of the alternative hypothesis. To this end, a researcher calculates the probability that the observed data indeed come from two distributions with different means.⁶⁰ The two means observed in the experiment are usually interpreted as indeed coming from two distributions when the probability of making a mistake here is below 5%. This probability is reflected by the p-value. The statistical convention is to reject the null hypothesis and to accept the alternative hypothesis when the p-value is lower than 0.05. What does it mean however if the p-value equals .06? Does it mean that the null hypothesis is true and the alternative hypothesis is false? This is a very common misconception. It is important to understand that the p-value greater than 0.05 only means that there is not enough evidence to reject the null hypothesis. This, however, by no means indicates that the alternative hypothesis can be accepted. In fact, the p-value of .06 means that if I repeat the same experiment 100 times, I will observe the same results about six times by chance. The lower the p-value, the lower is the probability that the difference observed in the experiment is spuriously observed only by chance. A low p-value and highly significant effect also do not mean that the effect is big but only that it is reliable. In the illustrative study a p-value <0.05 means that there is strong evidence that estimations given in conflict/disclosure are indeed higher than in conflict/no disclosure treatment.

5. Conclusions from the experimental research

The laboratory experiments, like all empirical methods, also do have some limitations. One criticism refers to the experimental subject pool composed mostly of students who usually participate in lab experiments. It has been raised that students might behave differently than professional agents. Therefore, it is not clear whether laboratory findings can be applied to the behavior of individuals in a corporate setting. One could imagine overcoming this limitation by conducting studies with corporate agents, whenever

⁵⁹ For a short description of hypotheses testing see: *Lawless/Robbennolt/Ulen*, Empirical methods in law 2010, pp.227-242.

⁶⁰ For an accessible explanation of how to interpret p-value (although in a medical context) see: *Goodman*, A dirty dozen: Twelve p-value misconceptions 2008.

the behavior of students and agents is expected to diverge.⁶¹ A further limitation of laboratory experiments is a simplified experimental environment which only resembles the real world situations. This criticism of an experimental method often is a consequence of common misuses of experimental results when drawing implications for legal issues. It can be however countered by understanding the objectives of conducting economics experiments.

In the article “Caution on the use of economics experiments in law”, Kathryn Zeiler mentioned two most common misapplications of the experimental results for answering legal questions.⁶² First, some commentators tend to apply directly the experimental results rather than theories developed on their basis. This might be problematic since a given experiment might be based on very specific assumptions which might not hold in the real world situation a commentator has in mind. Second, even if there are many experiments concerning the given matter, there is a tendency to cherry pick the results which are most convenient for the policymaker. This bears the risk of introducing policy measures which, for instance, might lead to some negative side effects not mentioned in the cherry-picked studies.⁶³

Camerer and Talley listed three objectives for using experiments in economics.⁶⁴ First, experiments are conducted to test theories of human behavior. They are particularly useful for testing theories which are based on the assumptions requiring careful control of the environment, e.g., the precise scope of information the individuals are given. Second, experiments are often conducted to provide data on a behavioral regularity which has not been yet explained by any existing theory. In this case, experimental findings constitute a basis for developing new theories. Finally, experiments might be implemented to test policy interventions. As Camerer and Talley vividly explain “[t]he inspiration here is very much akin to experimentation in the physical sciences, such as testing of airplane wing designs in wind tunnels, or testing ship designs in “tow tanks” with simulated oceanic waves. These experiments do not guarantee that a wing or ship which performs well in a wind tunnel or

⁶¹ For a review of studies with subjects different than students: *Charness/Kuhn* Chapter 3 - lab labor: What can labor economists learn from the lab? in: Orley/David, Handbook of labor economics 2011, p.54.

⁶² *Zeiler*, Cautions on the use of economics experiments in law 2010.

⁶³ *Zeiler*, Cautions on the use of economics experiments in law 2010, pp.178-179.

⁶⁴ *Camerer/Talley* in: Polinsky/Shavell, Chapter 21 experimental study of law 2007, p.1624ff.

tow tank will be the best design in the air or at sea, but they can weed out bad designs at a low cost.”⁶⁵

In sum, Camerer and Talley suggest that experiments might be useful for testing human reactions to legal rules. However, one should stay aware of limitations and objectives of the experimental method. Consider the illustrative experiment on the disclosure of conflicts of interests and biased advice - the following aspects might be taken into account when applying its insights for answering legal questions:

1. The results of Cain et al. showed that disclosure of a conflict of interest might also have some adverse effects leading to more biased advice. For making legal implications it would be however useful to consider also the later studies, which not only replicated the initial results but tested it under different conditions.
2. The ‘moral licensing’ as specified in the Cain et al. is rather a behavioral regularity than a theory. Cain et al. did not clearly identify conditions under which the ‘moral licensing’ of disclosure would occur. However, the later study by Loewenstein et al. made the moral licensing predictions more precise.⁶⁶ Several further experiments tested the moral licensing effect in different environments (reputation building⁶⁷, punishment⁶⁸). Additionally, in an article “A Meta-Analytic Review of Moral Licensing” Blanken et al. report results of a number of experimental studies testing moral licensing under different conditions.⁶⁹ The exact predictions and assumptions of ‘moral licensing theory’ should be considered when making implications for legal questions.
3. It would be ideal if the experimental results were accompanied by results obtained with other methods (i.e., field research testing the predictions of ‘moral licensing’ theory in the real world setting).

⁶⁵ Camerer/Talley in: Polinsky/Shavell, Chapter 21 experimental study of law 2007, p.1625

⁶⁶ Loewenstein/Cain/Sah, The limits of transparency: Pitfalls and potential of disclosing conflicts of interest 2011.

⁶⁷ Koch/Schmidt, Disclosing conflicts of interest – do experience and reputation matter? 2010.

⁶⁸ Church/Kuang, Conflicts of interest, disclosure, and (costly) sanctions: Experimental evidence 2009.

⁶⁹ Blanken/van de Ven/Zeelenberg, A meta-analytic review of moral licensing 2015.

C. Conclusions

Applying economic analysis to legal questions has a long, though also controversial, tradition in both – the United States and European legal scholarship.⁷⁰ However, the economic models implemented to predict human behavior in a legal context rely on very specific assumptions. For example, the “standard economic model” assumes that a goal of an individual is to maximize his or her expected utility and that a person considers only own utility and does not care for the utility of others. Experimental studies have tested this model and refined its assumptions. These refinements turned out to be particularly informative for a legal decision maker and developed into the behavioral law and economics approach.⁷¹

The experimental method, despite some of its limitations discussed above, allows me to investigate and compare basic behavioral reactions to different legal settings in a controlled environment. In particular, unlike other empirical methods, it enables me to draw conclusions on the causal relationship between a specific legal intervention and the observed behavior.⁷²

The experimental studies I conducted extend the current discussion in the field of corporate governance. In particular, they show that some legal interventions might affect human behavior in a way unexpected by the legislator. In the first project, I observed that at-will contracts in contrast to fixed-term contracts foster long-term successful principal-agent relation. The effect is particularly pronounced when both contract types are available. It suggests that it is important to consider the impact of different legal solutions not only in

⁷⁰ For foundations of economic analysis of law: *Posner*, Economic analysis of law 1973. For economic analysis of law in Germany: *Schäfer/Ott*, Lehrbuch der ökonomischen Analyse des Zivilrechts 2012. For a critical discussion on the application of economic analysis of law in Germany see, for instance: *Fleischer/Zimmer* Effizienzorientierung im Handels- und Wirtschaftsrecht in: *Fleischer/Zimmer*, Effizienz als Regelungsziel im Handels- und Wirtschaftsrecht. 2008; *Jörn Lüdemann* in the introduction to *Engel*, Recht und Verhalten: Beiträge zu Behavioral Law and Economics 2007; *Lüdemann* Die Grenzen des Homo Oeconomicus und die Rechtswissenschaft in: *Engel*, Recht und Verhalten: Beiträge zu Behavioral Law and Economics 2007; *Fleischer* in: *Engel*, Das Proprium der Rechtswissenschaft 2007.

⁷¹ Generally on the behavioral law and economics approach: *Jolls/Sunstein/Thaler*, A behavioral approach to law and economics 1998; *Englerth* Behavioral law and economics—eine kritische Einführung in: *Engel*, Recht und Verhalten: Beiträge zu Behavioral law and Economics 2007. On behavioral and economics approach in corporate law: *Schmolke/Fleischer/Zimmer* Verhaltensökonomik als Forschungsinstrument für das Wirtschaftsrecht in: *Fleischer/Zimmer*, Beitrag der Verhaltensökonomie (Behavioral Economics) zum Handels- und Wirtschaftsrecht 2011; *Greenfield* The end of contractarianism? Behavioral economics and the law of corporations in: *Zamir/Teichman*, The Oxford handbook of behavioral economics and the law 2014; *Camerer/Malmendier* Behavioral organizational economics in: *Diamond/Vartiainen*, Behavioral economics and its applications 2007; *Langevoort* Behavioral approaches to corporate law in: *Hill/McDonnell*, Research handbook on the economics of corporate law 2012.

⁷² *Engel*, Legal experiments: Mission impossible? 2013.

isolation but also as endogenously chosen from possible available options. In the second study, I showed that the quota-based promotion compared to the performance-based promotion negatively affects group cooperation. I concluded that for evaluating the consequences of legal intervention, it is crucial to examine the direct impact of the intervention itself rather than of the desired outcome of the intervention (gender diversity) on group behavior.

Chapter 2

Appointment length and dismissal rules of executive directors

A. Introduction

Appointment and dismissal procedures of executive directors belong to corporate governance matters that cannot be freely arranged by shareholders but are subject to mandatory legal rules in many European legal systems. Depending on the structure of the board,⁷³ executive directors are elected and removed either directly by the shareholders or supervisory board. The extent of control over executive directors' position is also determined by a maximum appointment term and dismissal protection regulated by the company law. In some legal systems (e.g., Denmark or France) the company law sets a maximum appointment term but at the same time allows dismissal at-will. In other jurisdictions (e.g., in Germany or Austria) members of the management board are strongly protected (removal only for good cause), but there are limits on appointment terms (maximum five years). In contrast, no term limits and no dismissal restrictions are imposed in the UK or Finland, although the corporate governance codices recommend one-year appointments. The design of appointment and dismissal rules reflects the tendency either to shield directors from shareholders' pressure (long appointment term, dismissal for good cause) or to grant shareholders or the supervisory board a constant and direct control over directors (short appointment term, dismissal at-will).⁷⁴

⁷³ The board of directors has either a one-tier or a two-tier structure. In one-tier boards supervisory and management power is concentrated in one body – executive and non-executive directors operate in one unified organ. In two-tier boards the supervisory board and the management board are separate organs. The supervisory board is composed of non-executive directors whose task is to control executive directors who form the management board and are responsible for day-to-day operational decisions.

⁷⁴ *Gerner-Beuerle/Paech/Schuster*, Study on directors' duties and liabilities 2013, pp.20-29; For a short overview of jurisdictional differences in the distribution of power between the board of directors and the

Appointment and dismissal rights of corporate directors have been viewed as one of the “key strategies for controlling the enterprise”.⁷⁵ They have received, however, surprisingly little attention in the European corporate governance literature.⁷⁶ The issue of directors’ appointment lengths has been brought up only recently in the corporate law debate at the European level. The Reflection Group on the Future of EU Company Law suggested that the EU should require “...the Member States to grant the option to allow either one year or multiple year terms (e.g. not exceeding 4-6 years) and not to make directors and/or management of companies dismissible at-will (“*ad nutum*”) - e.g. by explicitly stating the causes for dismissal.”⁷⁷ In contrast, in the United States, the issue of directors’ removal has been hotly debated in the context of staggered boards.⁷⁸ Empirical studies also investigated the relation between the actual directors’ tenure and firm performance⁷⁹ as well as company performance before and after directors’ removal.⁸⁰

In this chapter, I suggest that appointment term and dismissal procedures constitute both - a control tool and an incentive mechanism. Next to severance pay and contractual protection, appointment term and dismissal rules define the security of executive directors’ position as well as the expected length of tenure. As such they might *ex ante* influence decisions made by company directors.⁸¹

In publicly held corporations a great share of the decision-making power is vested in the hands of the board of directors or a similar collective body.⁸² Shareholders are typically not involved in the day-to-day operations of a company as well as its long-term plans.⁸³ In

shareholders: *Kraakman/Armour et al.*, *The anatomy of corporate law: A comparative and functional approach* 2009, pp.82-87.

⁷⁵ *Kraakman/Armour et al.*, *The anatomy of corporate law* 2009, p.42.

⁷⁶ *Fleischer*, AG 2006, 429, p. 29.

⁷⁷ *Antunes/Baums et al.*, *Report of the reflection group on the future of EU company law* 2011, p.51.

⁷⁸ *Bebchuk/Cohen*, *The costs of entrenched boards* 2005; *Cohen/Wang*, *How do staggered boards affect shareholder value? Evidence from a natural experiment* 2013; *Cremers/Sepe*, *The shareholder value of empowered boards* 2016.

⁷⁹ *Miller*, *Stale in the saddle: CEO tenure and the match between organization and environment* 1991; *Henderson/Miller/Hambrick*, *How quickly do ceos become obsolete? Industry dynamism, CEO tenure, and company performance* 2006; *Kim*, *Long-term firm performance and chief executive turnover: An empirical study of the dynamics* 1996.

⁸⁰ I.e. *Kaplan/Minton*, *How has CEO turnover changed?* 2012; *Weisbach*, *Outside directors and CEO turnover* 1988.

⁸¹ For a discussion on *ex post* and *ex ante* corporate governance strategies see: *Kraakman/Armour et al.*, *The anatomy of corporate law* 2009, pp.44-45.

⁸² *Kraakman/Armour et al.*, *The anatomy of corporate law* 2009, p.13.

⁸³ *Bainbridge*, *Corporation law and economics* 2002, p.192; *Marks* *The separation of ownership and control in: Bouckaert*, *The regulation of contracts* 2000.

economic terms, the relation between shareholders and directors can be viewed as an agency relationship. Such a relation is defined “as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent.”⁸⁴ The objectives of individuals who own shares in a company might, however, differ from the objectives of people who manage it. Shareholders might strive to maximize shares’ value whereas directors might aim at maximizing own utility (for instance, by maximizing own income).⁸⁵ These objectives are often misaligned what leads to the conflict of interests between directors and shareholders – directors realizing their objectives might not always act in the best interests of the shareholders.⁸⁶

According to the agency theory, the relationship between shareholders (principal) and directors (agents) is perceived as a contract.⁸⁷ This contractual relationship might be, however, governed not only by the company law and a formal contract but also by a relational contract. Relational contracts are “informal agreements sustained by the value of future relationship”.⁸⁸ Furthermore, “(...) a relational contract can be based on outcomes that are observed by only the contracting parties ex post, and also on outcomes that are prohibitively costly to specify ex ante.”⁸⁹ In this chapter, I will argue that appointment term and dismissal rules might indeed influence the performance of directors given that the relation between directors and a company has features of a relational contract. I will show that two aspects of this relation – length of interaction and termination threat – are crucial for achieving efficiency in relational contracts through self-enforcement mechanisms (i.e., reputation, the value of future relation). I will further suggest that any policy intervention (i.e., involving the length of appointment term or dismissal restrictions) should take into account its effect on self-enforcement mechanisms of relational contracts.

I will start by presenting the German company law rules on appointment term limits and removal procedures since they constitute an interesting border case in comparison to other European legal systems. I will review the legislator’s rationale for introducing the five-

⁸⁴ *Jensen/Meckling*, Theory of the firm: Managerial behavior, agency costs and ownership structure 1976, p.308.

⁸⁵ *Jensen/Meckling*, Theory of the firm 1976. p.308.

⁸⁶ *Kraakman/Armour et al.*, The anatomy of corporate law 2009, p.35.

⁸⁷ *Jensen/Meckling*, Theory of the firm 1976, p.308.

⁸⁸ *Baker/Gibbons/Murphy*, Relational contracts and the theory of the firm 2002, p.40.

⁸⁹ *Baker/Gibbons/Murphy*, Relational contracts and the theory of the firm 2002, p.40.

year appointment limits and dismissal for good cause. I will shortly compare the German provisions with the rules implemented in other European countries. In the second part of this chapter, I will introduce the literature on relational contracts – the theoretical and empirical findings on self-enforcement mechanisms. Finally, I will discuss empirical research investigating the impact of provisions regulating the length of interaction and dismissal procedure on principals' and agents' behavior in relational contracts.

B. Appointment term and dismissal rules in the company law

I. Legislative measures in Germany - §84 AktG

Appointment term and dismissal procedures of executive directors in public companies are subject to §84 German Stock Corporation Act (*Aktiengesetz* - AktG).⁹⁰ According to §84 (1) AktG, an appointment term of executive directors should not exceed five years. Section 3 of §84 AktG specifies that an executive director might be removed from office only for good cause before the tenure expires. Appointment and removal rights are exercised by the supervisory board (§84 (1) and (3) AktG).

The origins of this provision can be traced back to the German Stock Corporation Act from 1937 (AktG 1937). Previous rules allowed directors' appointment for life and dismissal at-will.⁹¹ In contrast, the AktG 1937 restricted the appointment term to five years (§75 (1) sentence 1 AktG 1937). The legislator recognized that a long-term contract with an executive director would impose an excessive burden on a company.⁹² At the same time, removal of an executive director was allowed only for good cause to prevent the supervisory board from exerting undue influence on the decision-making of the management board.⁹³ Gross breach of duties or inability to manage a company properly were named as examples of good cause for removal (§75 (3) sentence 2 AktG 1937).

The AktG 1937 did not explicitly regulate whether it is allowed to renew the five-year term of office automatically. The German Federal Court of Justice (*Bundesgerichtshof* - BGH) decided in 1951 that such an automatic renewal of the appointment is not permissible

⁹⁰ *Aktiengesetz* from September 6, 1965, BGBl. I S. 1089 [hereinafter: AktG].

⁹¹ § 231 German Commercial Code from 1897 (*Handelsgesetzbuch*), accessible <https://www.gesetze-im-internet.de/hgb/BJNR002190897.html>.

⁹² *Klausing*, Gesetz über Aktiengesellschaften und Kommanditgesellschaften auf Aktien Aktiengesetz: Nebst Einführungsgesetz u. 'Amtlicher Begründung' 1937.

⁹³ *Klausing*, Gesetz über Aktiengesellschaften 1937.

even if the director's contract included an automatic renewal clause.⁹⁴ In contrast to the AktG 1937, the German Stock Corporation Act from 1965 included a provision on the renewal procedure. According to §84 (1) sentence 2 AktG, a renewal of the appointment is admissible no earlier than one year before the current tenure is over. The new rule ensured that the supervisory board evaluates the performance of each executive director at least every five years.⁹⁵ A regular check of the performance should provide a basis for a separate and non-automatic decision on whether to renew the appointment.⁹⁶ According to the legislator, a five-year period is long enough for a director to "earn" a re-appointment.⁹⁷

The German Stock Corporation Act 1965 also included an additional example of good cause for removal. A vote of no confidence by the shareholders' meeting would constitute good cause for removal unless such a vote is made for manifestly arbitrary reasons (§84 (3) sentence 2 AktG).

Besides specifying the maximum length of term and causes for dismissal §84 AktG addresses other closely related issues. According to §84 (1) sentence 4 an automatic renewal is permitted as long as the current term of office is shorter than five years and the total length of appointment (together with renewal) does not exceed five years. Director's relation with a company is defined not only by an appointment act but also by a civil law contract between a company and a director. Under the German law, an appointment act grants an executive director the power to represent a company.⁹⁸ Furthermore, an appointment act establishes directors' rights and duties regarding the management of a company.⁹⁹ An appointment act is a legal act which is distinct from a civil law contract between a director and a company (*Trennungstheorie*).¹⁰⁰ A civil law contract governs obligations such as compensation or non-compete clauses.¹⁰¹ Under §84 (1) sentence 5 AktG, all provisions on the length and renewal of appointment also applies to the executive director's contract concluded according

⁹⁴ BGH NJW 1951, 881.

⁹⁵ *Kropff*, Aktiengesetz: Textausgabe des Aktiengesetzes vom 6. 0. 1965 (Bundesgesetzbl. I S. 1089) und des Einführungsgesetzes zum Aktiengesetz vom 6. 9. 1965 (Bundesgesetzbl. Is 1185) mit Begründung des Regierungsentwurfs, Bericht des Rechtsausschusses des Deutschen Bundestags, Verweisungen und Sachverzeichnis 1965.

⁹⁶ *Fleischer*, AG 2006, 429, p.430; *Kropff*, Aktiengesetz 1965; BGHZ 10, 187 = NJW 1953, 1465, p.1466.

⁹⁷ *Kropff*, Aktiengesetz 1965; *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec. 3.

⁹⁸ *Thüsing* §4. Bestellung und Anstellung des Vorstands in: *Fleischer*, Handbuch des Vorstandsrechts 2006, p.102.

⁹⁹ *Thüsing* in: *Fleischer*, Handbuch des Vorstandsrechts 2006, p.102.

¹⁰⁰ *Koch* in: Hüffer, AktG 2014 §84 sec.2.

¹⁰¹ *Thüsing* in: *Fleischer*, Handbuch des Vorstandsrechts 2006, p.119.

to the civil law. There is one exception – a contract might include an automatic extension clause. According to this paragraph, once a company decides to renew the director’s appointment, the contract is automatically extended.

§84 (3) AktG also states that the dismissal is enforceable unless it is declared null and void in front of the court. Furthermore, any claims arising from the executive director’s contract in connection with the dismissal are governed by the general provisions of the civil law (§84 (3) sentence 5).

The German law-on-the-books does not provide the whole picture of directors’ position in a public company as regulated by appointment and dismissal rules defined by the company law. For instance, §84 AktG does not prescribe the minimum appointment duration. It is also not clear what is the exact relation between causes for dismissal specified in §84 (3) and termination of the civil law contract typically regulated by §626 German Civil Code (*Bürgerliches Gesetzbuch – BGB*). If a cause for dismissal does not constitute a cause for contract termination, it might happen that a contract continues but a director loses power to manage and represent a company. To provide a comprehensive view on the legal aspects of directors’ term of office, I present the discussion in the literature and judicial decisions on the core issues of directors’ appointment and dismissal procedure which are not explicitly regulated by the company law.

1. Appointment length

§84 (1) AktG sets only a maximum but not a fixed duration of appointment. It is a prerogative of the supervisory board to decide about the exact length of the term in each case.¹⁰² Therefore, a fixed duration cannot be prescribed in the articles of association, even if it is within the maximum duration defined in §84 (1) AktG.¹⁰³ A five-year period is treated however as a default rule. For instance, if the supervisory board fails to set the length of tenure, an appointment is valid, and it is interpreted as a five-year appointment.¹⁰⁴ The same

¹⁰² Koch in: Hüffer, AktG 2014 §84 sec.20; Lutter/Krieger, Rechte und Pflichten des Aufsichtsrats 2008, p.146; Fleischer in: Spindler/Stilz, AktG2014, §84 sec.14.

¹⁰³ Koch in: Hüffer, AktG 2014 §84 sec.20; Lutter/Krieger, Rechte und Pflichten des Aufsichtsrats 2008, p.146; Fleischer in: Spindler/Stilz, AktG 2014, sec.14. Different regulations apply to SE (*Societas Europaea* - European company): see art. 46 Council Regulation (EC) No 2157/2001 on the Statute for a European Company.

¹⁰⁴ Koch in: Hüffer, AktG 2014 §84 sec.20; Lutter/Krieger, Rechte und Pflichten des aufsichtsrats 2008, p.146.

applies if an appointment is made for longer than five years.¹⁰⁵ Some scholars claim that the five-year default should not apply if, given the circumstances, it is clear that the appointment term deviates from the period of five years, e.g., an executive director was previously elected for three years.¹⁰⁶

There is no explicit rule regarding a minimum term of office.¹⁰⁷ It is not specified in §84 AktG, and it is disputed in the legal doctrine. A minimum term of office might be defined in the articles of association.¹⁰⁸ A decision of the supervisory board would nevertheless be valid even if an executive director was appointed for a period shorter than the minimum duration specified in the articles of association.¹⁰⁹ Still, an appointment for an extremely short period could be interpreted as a breach of the supervisory board's duties. Legal scholars posit that an executive director appointed for a very short period will not be able to fulfill his or her duties, i.e., manage a company under own responsibility (a duty imposed by § 76 (1) AktG).¹¹⁰ In this case, an executive director would be overly dependent on the supervisory board that could decide not to renew the tenure once a short appointment term is over.¹¹¹ This could constitute a circumvention of company law rules on dismissal for good cause since these rules were introduced to guarantee a certain level of independence to executive directors.¹¹² Some scholars claim that the length of appointment should not be shorter than one¹¹³ or two years.¹¹⁴ Others point out that the supervisory board has to justify its decision each time an executive director is appointed for a period shorter than five years.¹¹⁵ The shorter this period, the better explanation should be provided.¹¹⁶ For instance, a short tenure would be admissible if it serves as a transition period before retiring.¹¹⁷ It has

¹⁰⁵ *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec.38.

¹⁰⁶ *Fleischer* in: Spindler/Stilz, AktG 2014, § 84 sec.13.

¹⁰⁷ *Koch* in: Hüffer, AktG 2014, §84 sec.20.

¹⁰⁸ *Thüsing* in: Fleischer, Handbuch des Vorstandsrechts 2006, §4 p.116.

¹⁰⁹ *Fleischer* in: Spindler/Stilz, AktG 2014, §84 sec.12. For a different view: *Krieger*, Personalentscheidungen des Aufsichtsrats 1981, p.120: *Krieger* claims that a too short appointment term should be void.

¹¹⁰ *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec.37.

¹¹¹ *Willemer*, AG 1977, 133, p.133.

¹¹² *Krieger*, Personalentscheidungen des Aufsichtsrats 1981, p.120.

¹¹³ *Fleischer* in: Spindler/Stilz, AktG 2014, §84 sec.12, arguing that one year is in line with the international practice. It is however only a guideline and special cases should be considered separately.

¹¹⁴ *Krieger* refers to the business literature showing that some business strategies require a longer period to develop and that the appointment of 15 years would be the optimal one in these cases. He thinks that this is a plausible explanation why the practice to appoint directors for the maximum possible five-year period is so common: *Krieger*, Personalentscheidungen des Aufsichtsrats 1981, p.119.

¹¹⁵ *Lutter/Krieger*, Rechte und pflichten des Aufsichtsrats 2008, p.147.

¹¹⁶ *Lutter/Krieger*, Rechte und pflichten des Aufsichtsrats 2008, p.147.

¹¹⁷ *Lutter/Krieger*, Rechte und pflichten des Aufsichtsrats 2008, p.147.

also been raised that it is not possible to define a minimum one-size-fits-all appointment term and therefore each case should be evaluated individually.¹¹⁸

The supervisory board should pay particular attention when deciding on the length of the first appointment.¹¹⁹ The German Corporate Governance Code (*Deutscher Corporate Governance Kodex – DCGK*) recommends in Section 5.1.2 para. 2 sentence 1 that the maximum five-year period should not be a rule in case of the first appointment. It is been suggested that a new executive director should be appointed for three years.¹²⁰ Some scholars argue that long appointment terms pose a certain risk for a company since an early dismissal of a director involves high costs for a company in the form of severance pay.¹²¹ The risk of a forced removal is particularly high in case of the first appointment.¹²² On the other hand, many talented executive directors would not accept an offer if the appointment is made for a short period.¹²³ Such situation is even more likely if the candidate has previously served in other company with a five-year term of office.¹²⁴ Also, internally promoted executive directors do not need to be selected for a shorter period as the supervisory board usually knows them already quite well. Thus, the risk of an early removal is lower than in the case of an outsider.¹²⁵ Taking into account such scenarios the DCGK does not specify any limit for the first appointment term but only recommends avoiding the maximum five-year term.¹²⁶

Although the term of five years is not a mandatory rule and the DCGK explicitly recommends shorter tenure in the case of the first appointment, almost 75% of the German companies set the appointment term at five years.¹²⁷ Another 10% elect executive directors for a term of three years.¹²⁸

¹¹⁸ *Thüsing* in: *Fleischer, Handbuch des Vorstandsrechts 2006*, §4 p.116, *Spindler* in: *Goette/Habersack, MK-AktG 2014*, § 84 sec.37.

¹¹⁹ *Koch* in: *Hüffer, AktG 2014*, §84 sec.20.

¹²⁰ *Koch* in: *Hüffer, AktG 2014*, §84 sec.20; *Fleischer* in: *Spindler/Stilz, AktG 2014*, § 84 sec. 14

¹²¹ *Spindler* in: *Goette/Habersack, MK-AktG 2014*, § 84 sec.34.

¹²² *Spindler* in: *Goette/Habersack, MK-AktG 2014*, § 84 sec.34, *Fleischer* in: *Spindler/Stilz, AktG 2014*, §84 sec.14

¹²³ *Kremer* in: *Ringleb, Deutscher Corporate Governance Kodex 2014*, 5.1.2 sec.902.

¹²⁴ *Kremer* in: *Ringleb, Deutscher Corporate Governance Kodex 2014*, 5.1.2 sec.902.

¹²⁵ *Kremer* in: *Ringleb, Deutscher Corporate Governance Kodex 2014*, 5.1.2 sec.902.

¹²⁶ *Kremer* in: *Ringleb, Deutscher Corporate Governance Kodex 2014*, 5.1.2 sec.903.

¹²⁷ *Mutter* in: *Marsch-Barner/Schäfer, Handbuch börsennotierte AG 2005*, §19 p.762; *Fleischer* in: *Spindler/Stilz, AktG 2014*, § 84, sec.13: criticizing that the maximum appointment term has become a default norm for the appointment length.

¹²⁸ *Mutter* in: *Marsch-Barner/Schäfer, Handbuch börsennotierte AG 2005*, §19 p.762.

2. Appointment renewal

A recent case on an early reappointment of executive directors¹²⁹ has revived the debate on the objectives of the five-year limits.¹³⁰ §84 (1) sentence 2 AktG permits the supervisory board to reappoint an executive director or to extend the current term of office. The supervisory board can decide about the renewal no earlier than one year before the current tenure is over (§84 (1) sentence 3 AktG). A practice has been developed to prolong the appointment for another five years even if there is still more than one year of the current tenure left - the current executive director resigns from the position and the supervisory board immediately reelects him or her for the new five-year tenure.¹³¹

There has been no unanimous view in the German literature concerning the compliance of the described practice with company law provisions. The prevalent view used to be that this practice is not in conflict with objectives of §84 (1) sentence 3 AktG.¹³² In the 2000s, some legal scholars started to contest the early reappointment practice.¹³³ Some of them claimed that this procedure is prohibited.¹³⁴ It has been raised that such an appointment act is not valid as it is made based on an agreement to terminate the previous appointment concluded in an expectation of a subsequent reappointment.¹³⁵ Besides, the core objective of a five-year limit of tenure is to induce the supervisory board to make a choice between reappointing the incumbent director and electing a new one.¹³⁶ The board's decision should not be reduced to an automatic extension of the current term without considering hiring a new director – a situation which takes place in case of an early reappointment.¹³⁷ Furthermore, the supervisory board should decide about the reappointment after a period long enough to properly evaluate the performance of an executive director.¹³⁸

¹²⁹ LG Frankenthal BeckRS 2010, 15165; OLG Zweibrücken NZG 2011, 433; BGH, NZG 2012, 1027.

¹³⁰ Willemer, AG 1977, 133, p.130; Werner, AG 1990, 1, p.19.

¹³¹ Götz, AG 2002, 305, p.305.

¹³² Willemer, AG 1977, 133, p.130; Werner, AG 1990, 1, p.19.

¹³³ Götz, AG 2002, 305, p.305; Peltzer, NZG 2002, 593, p.596; Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006, §4 p.115.

¹³⁴ Götz, AG 2002, 305, p.305, Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006, §4 p.115.

¹³⁵ Götz, AG 2002, 305, p.306.

¹³⁶ Thüsing in: Fleischer, Handbuch des vorstandsrechts 2006, §4 p.114.

¹³⁷ Thüsing in: Fleischer, Handbuch des vorstandsrechts 2006, §4 p.114.

¹³⁸ Semler/Peltzer Arbeitshandbuch für Vorstandsmitglieder 2005.

Other scholars state that an early reappointment is admissible only if the supervisory board provides good reasons for its decision.¹³⁹ This argument is in line with the recommendation of Section 5.1.2 German Corporate Governance Code. It prescribes that a reappointment earlier than one year before the end of the appointment period with a simultaneous termination of the current appointment shall only take place in exceptional circumstances. Hölter and Weber list a few examples.¹⁴⁰ For instance, an early reappointment might be necessary if there is a high competition for a particularly talented executive director.¹⁴¹

According to an alternative view in certain circumstances, an early reappointment might constitute an abuse of law.¹⁴² One example of an abusive reappointment is provided by Fastrich, who refers to the Karstadt Quelle AG case where an executive director was reappointed. Shortly afterward he resigned due to “health problems” and received a high severance pay.¹⁴³ Thus, an early reappointment would be deemed an abuse of law if it is conducted only to secure high severance pay to the re-appointed director.¹⁴⁴

The discussed practice has been the subject of the German Federal Court of Justice (*Bundesgerichtshof* – BGH) ruling from July 17, 2012 (II ZR 55/11). In its decision, the BGH stated that a reappointment earlier than one year before the end of the appointment period does not constitute an inadmissible circumvention of §84 (1) sentence 3 AktG.¹⁴⁵ The BGH reached this conclusion after examining whether the described practice is in conflict with the goals of the company law provisions on executive directors’ reappointment. The BGH identified three objectives of this rule. The first one refers to the legislator’s rationale provided when introducing the norm in 1965 – at least every five years the supervisory board should decide whether to keep or remove the current executive director.¹⁴⁶ Also, it prevents situations in which a company is bound to an executive director for longer than five years.¹⁴⁷

¹³⁹ Hölter/Weber, AG 2005, 629; Lutter/Krieger, Rechte und Pflichten des Aufsichtsrats 2008; Bosse/Hinderer, NZG2011, 605; Priester, ZIP 2012, 1781; Wedemann, ZGR 2013, 316.

¹⁴⁰ Hölter/Weber, AG 2005, 629, p.634.

¹⁴¹ Hölter/Weber, AG 2005, 629, p.634.

¹⁴² Fastrich Zur vorzeitigen Neubestellung von Vorstandsmitgliedern vor dem Hintergrund der 5-Jahres-Frist des § 84 Abs.1 Satz 3 in: Bauer, Festschrift für Herbert Buchner zum 70. Geburtstag 2009; Fleischer, DB 2011, 861.

¹⁴³ Fastrich in: Bauer, FS Buchner 2009, 209, p.209.

¹⁴⁴ Fleischer, DB 2011, 861, p.864.

¹⁴⁵ BGH NZG 2012, 1027.

¹⁴⁶ BGH NZG 2012, 1027, p.1029.

¹⁴⁷ BGH NZG 2012, 1027, p.1029.

According to the second objective defined by the BGH the supervisory board should have a possibility to remove the current executive director at least every five years without providing a good reason for removal.¹⁴⁸ Finally, restrictions imposed on the reappointment procedure should also prevent situations in which a new coming supervisory board would need to tolerate the old executive director for a five-year period.¹⁴⁹ This might happen if the previous supervisory board reappoints an executive director for a new term of five years just before the new supervisory board is elected.¹⁵⁰ The conclusion of the BGH is that the supervisory board is allowed to terminate the existing appointment any time in agreement with the director and set a new five-year appointment term.¹⁵¹ The BGH stated that this practice does not restrict any of the described objectives of § 84 (1) sentence 3 AktG.¹⁵² In a given case the supervisory board also did not abuse the law as there were no abusive motives for an early re-appointment of the management board.¹⁵³

3. Removal for good cause

Under §84 (3) sentence 1 AktG, an executive director might be removed only for good cause. The objective of the removal restriction is to protect the management board from the undue influence of the supervisory board.¹⁵⁴ Dismissal at-will could lead to situations in which the management board would follow the guidelines of the supervisory board to avoid an immediate dismissal.¹⁵⁵ A constant threat of dismissal would have an adverse impact on the initiative and decisiveness of executive directors.¹⁵⁶

The removal right is exercised by the supervisory board and cannot be restricted or delegated to another corporate body.¹⁵⁷ Removal rights specified in the company law cannot be altered through the articles of association or the director's contract.¹⁵⁸ There is no legal definition of 'good cause' in the company law, but §84 (3) sentence 2 AktG includes a non-

¹⁴⁸ BGH NZG 2012, 1027, p.1029.

¹⁴⁹ BGH NZG 2012, 1027, p.1030.

¹⁵⁰ BGH NZG 2012, 1027, p.1030.

¹⁵¹ BGH NZG 2012, 1027, p.1029; The BGH decision did not bring more clarity in the literature. Although some scholars agree with the BGH and find the re-appointment practice in line with the provisions of company law (i.e., *Bürgers/Theusinger*, NZG 2012, 1218; *Schult*, GWR 2012, 411), others are more skeptical and criticized at least parts of the BGH argumentation (*Priester*, ZIP 2012, 1781; *Wedemann*, ZGR 2013, 316).

¹⁵² BGH, NZG 2012, 1027, p.1029.

¹⁵³ BGH NZG 2012, 1027, p.1030

¹⁵⁴ *Fleischer* in: Spindler/Stilz, AktG 2014 sec.5.

¹⁵⁵ *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec.5.

¹⁵⁶ *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec.5.

¹⁵⁷ *Fleischer* in: Spindler/Stilz, AktG 2014, §84 sec.95.

¹⁵⁸ *Spindler* in: Goette/Habersack, MK-AktG 2014, §84 sec.125.

exhaustive list of examples. A definition, repeatedly occurring in the court rulings and literature, specifies that good cause for removal exists if it would be unreasonable for the company to keep the director until the end of the appointment term.¹⁵⁹ It is not clear whether only the interests of a company or also the interests of a director should be taken into account when evaluating the existence of good cause.¹⁶⁰ The literature gives numerous examples of circumstances which might be qualified as good cause, e.g., corruption, manipulation of the financial statement, long-term illness, irreconcilable differences between the supervisory board and management board on fundamental issues of corporate strategy.¹⁶¹

4. Appointment, removal and executive director's contract

The director's actual tenure in a company might also depend on the contract. Since this is not a main focus of the current research, I will only briefly discuss the role of a contract for determining director's tenure. More specifically, restrictions imposed on termination of a contract together with severance pay might considerably raise the costs of director's removal, effectively leading to a longer tenure. According to the legal doctrine, the appointment of a director should be treated separately from a contractual relation governed by civil law rules (*Trennungstheorie*).¹⁶² Despite a formal separation, an appointment and director's contract are closely interrelated.¹⁶³ §84 (1) sentence 5 AktG stipulates that the rules on the appointment term should also be implemented to the contract length. The contract can be, however, automatically extended in case of the appointment renewal. In contrast, § 84 (3) sentence 5 stipulates that the director's claims in connection with dismissal should be governed by the civil law rules. Thus, the termination of the director's contract is regulated by provisions of the German Civil Code (*Bürgerliches Gesetzbuch – BGB*), which distinguish between termination with and without notice (§620 and 626 BGB respectively). Termination without notice is allowed only for good cause. Although the legislator used the

¹⁵⁹ Koch in: Hüffer, AktG 2014, §84 sec.70; Spindler in: Goette/Habersack, MK-AktG 2014, §84 sec.127; Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006, §5 sec.8, OLG Stuttgart: Urteil vom 13.03.2002 - 20 U 59/01 = AG 2003, 211, p.212.

¹⁶⁰ Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006 § 5, sec.8-9.

¹⁶¹ Spindler in: Goette/Habersack, MK-AktG 2014, §84 sec.131-136.

¹⁶² Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006, pp.100-101.

¹⁶³ Thüsing in: Fleischer, Handbuch des Vorstandsrechts 2006, p.101.

same term, an interpretation of good cause for contract termination is more stringent than for directors' removal.¹⁶⁴

II. *Legislative solutions in other European jurisdictions*

The German appointment and dismissal rules are rather unusual comparing to other European legal systems.¹⁶⁵ The limits imposed on the term of office and removal procedure in different jurisdictions can be classified from the most to the least protective for executive directors. The German provisions grant the highest protection to executive directors – relatively long appointment term, unlimited re-election, and removal for good cause. A majority of European countries implemented an intermediate solution – longer appointment term and removal without cause.

In France, for instance, the term of office should be defined in the articles of association within two- to six-year period (Article L 225-61 French Commercial Code).¹⁶⁶ If there is no provision, the default appointment term for the management board is four years (Article L 225-62 French Commercial Code). Also, the AFEP (French Association of Large Companies) Corporate Governance Code for Listed Corporations recommends that the maximum directors' term of office should not exceed four years (Article 14 AFEP Corporate Governance Code).¹⁶⁷ Although board members can be dismissed at-will, they might be awarded damages if the removal was unjustified.¹⁶⁸ According to the AMF (Autorité des Marchés Financiers) 2012 Annual Report on Corporate Governance and Executive Compensation only 16.7% of 60 companies which apply the AFEP Corporate Governance Code did not comply with the four-year recommendation. The actual average tenure of directors is above six years, ranging from two to more than twelve years.¹⁶⁹ Italian and Spanish company law provision on appointment term and dismissal procedures are further examples of intermediate solutions. In Italy directors are appointed for maximum three years

¹⁶⁴ *Thüsing* §5. Abberufung und Kündigung der Anstellung des Vorstands in: *Fleischer, Handbuch des Vorstandsrechts* 2006, p.161.

¹⁶⁵ *Fleischer*, AG 2006, 429, p.442: “Das deutsche Vorstandsrecht nimmt mit seiner Kombination einer langen Bestellungshöchstdauer von fünf Jahren (§84 Abs. 1 Satz 1 AktG) und dem Widerruf der Bestellung nur aus wichtigem Grund (§84 Abs. 3 Satz 1 AktG) international eine Sonderstellung ein.“

¹⁶⁶ Reporting the regulation in France I referred to the English translation of the *Code de Commerce*, available at: http://www.wipo.int/wipolex/en/text.jsp?file_id=180801.

¹⁶⁷ AFEP Corporate Governance Code of listed companies 2013, available at: http://www.ecgi.org/codes/documents/afep_medef_code_revision_jun2013_en.pdf

¹⁶⁸ *Pietrancosta/Romain* in: *Davies et al., Corporate boards in law and practice* 2013, p.209.

¹⁶⁹ *Financiers*, AMF2012 Annual report on corporate governance and executive compensation 2012, p.46

and might be re-elected.¹⁷⁰ They might be removed by the shareholders' meeting any time without particular cause in which case a director might, however, claim damages.¹⁷¹ In Spain the term of office should be specified in the articles of association.¹⁷² It has to be uniform for all directors and cannot exceed six years (Section 221.2 Corporate Enterprise Act). Section 223.1 Corporate Enterprise Act stipulates that directors may be dismissed any time without stating a cause for dismissal. However, according to the Recommendation 21 of the Good Governance Code of Listed Companies, non-executive directors should be removed only for a justified cause to protect their freedom of judgment.¹⁷³

On the other end of the spectrum regarding regulations of appointment terms and dismissal procedures are, for instance, company law provisions in Finland and UK. In Finland the default appointment term of directors in a one-tier and two-tier board structure is one year.¹⁷⁴ A company might stipulate a different appointment term (even indefinite) in its articles of association (Chapter 6 Section 11 FLLCA). However, the Finnish Corporate Governance Code also recommends the maximum appointment term of one year (Recommendation 10).¹⁷⁵ According to the Nordic Corporate Governance Project 2012, only 7 out of 120 evaluated companies deviated from the one-year recommendation for the director's term of office.¹⁷⁶ In the UK Companies Act 2006 does not regulate the limits of appointment term. The UK Corporate Governance Code in the provision B.7.1 recommended the annual re-election of all directors of the FTSE (Financial Times Stock Exchange) 350 companies.¹⁷⁷ This recommendation was criticized as promoting "short-term mentality amongst directors".¹⁷⁸ Nevertheless, in 2013, all but two of the FTSE 350

¹⁷⁰ *Ferrarini/Peruzzo/Roberti* Corporate boards in Italy in: Davies et al., *Corporate boards in law and practice: A comparative analysis in Europe 2013*, pp.392-393.

¹⁷¹ *Ferrarini/Peruzzo/Roberti* in: Davies et al., *Corporate boards in law and practice 2013*, p.393.

¹⁷² Reporting the regulation in Spain I referred to the English translation of the Spanish Corporate Enterprise Act, available at:

http://law.au.dk/fileadmin/www.asb.dk/omasb/institutter/erhvervsjuridiskinstitut/EMCA/Spanish_Act.pdf

¹⁷³ Good Governance Code of Listed Companies from February 2015, available at:

http://www.cnmv.es/DocPortal/Publicaciones/CodigoGov/Good_Governanceen.pdf

¹⁷⁴ Reporting the regulation in Finland I referred to the English translation of the Finnish Limited Liability Companies Act, available at: <http://www.finlex.fi/en/laki/kaannokset/2006/en20060624.pdf>.

¹⁷⁵ Finnish Corporate Governance Code from June 15, 2010, available at: <http://cgfinland.fi/files/2012/01/finnish-cg-code-2010.pdf>.

¹⁷⁶ The NASDAQ OMX Group, Nordic corporate governance project 2011, available at: http://www.nasdaqomx.com/digitalAssets/85/85404_cgnordicproject2011.pdf.

¹⁷⁷ The UK Corporate Governance Code from September 2014, available at: <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-2014.pdf>

¹⁷⁸ Institute of Directors' reaction to UK Corporate Governance Code Revision, May 28, 2010; available at:

companies implemented the annual re-election practice.¹⁷⁹ Additionally, 43% of Small Cap and Fledgling companies did so, although the Code provision did not apply to them.¹⁸⁰ The Companies Act 2006 in Section 168.1 allows dismissal at-will before the current term of office expires. Still, a dismissed director might claim compensation or damages resulting from the breach of a service contract.¹⁸¹

Figure 1: Average number of years on the board



Adopted from *European Corporate Governance Report* by Heidrick&Struggles 2013

Interestingly, longer appointment terms and dismissal protection do not seem to go in line with a longer tenure. An average tenure varies considerably across European countries, ranging from 2.8 years in Norway to 8.6 in Spain (Figure 1).¹⁸² For example, in Germany, a maximum appointment term of five years is permitted, and 75 % of companies follow this

<http://www.iod.com/influencing/press-office/press-releases/iod-reaction-to-uk-corporate-governance-code-revision>

¹⁷⁹ Financial Reporting Council, *Developments in corporate governance 2013. The impact and implementation of the UK corporate governance and stewardship codes 2013*, p.12.

¹⁸⁰ Financial Reporting Council, *Developments in corporate governance 2013*, p.12.

¹⁸¹ *Davies* in: *Davies et al., Corporate boards in law and practice 2013*, p.745.

¹⁸² *Struggles, Towards dynamic governance 2014. European corporate governance report. 2014*, p.28.

maximum duration,¹⁸³ but executive directors serve on average 5.4 years on the board.¹⁸⁴ In contrast, in the United Kingdom (maximum one-year appointment term recommended and dismissal at-will) the average tenure is 6.7 years.¹⁸⁵ Also in Sweden, where directors are granted the least protection (dismissal at-will, no compensation for an early dismissal),¹⁸⁶ executive directors hold their position for 5.9 years on average.¹⁸⁷

A misalignment of removal protection, long appointment terms and the actual length of tenure might result from different factors. First, the rules of dismissal protection are likely not the only provisions of corporate law which effectively facilitates or hinders directors' removal. Next to severance pay, Davies et al. mention also the rules of voting.¹⁸⁸ For instance, it might be difficult to achieve a majority of votes in the shareholders' meeting, particularly if the voting is not only for removal of a single director but of the entire board.¹⁸⁹ Second, an actual removal threat might also depend on the shareholders' activity and engagement in the functioning of the company. For example, dismissal protection might be lower with a large active shareholder compared to disperse share ownership.

III. *Summary*

According to the prevailing view in Germany, the main objectives of appointment term limits and removal restrictions are to ensure both - sufficient monitoring and the necessary level of independence for the management board. On one hand, a limited appointment term should induce the supervisory board to evaluate the management board performance at least every five years. It should also rule out situations in which a company has to tolerate an executive director for an extended period without having a chance to remove a director for no reason and no severance pay. On the other hand, limitations imposed on removal should guarantee an adequate amount of independence to manage a company under own responsibility. The independence of an executive director would also be endangered in case of a very short appointment term. Furthermore, longer appointment

¹⁸³ *Mutter* in: Marsch-Barner/Schäfer, Handbuch börsennotierte AG 2005, §19 p.762; *Fleischer* in: Spindler/Stilz, AktG 2014, § 84, sec.13 criticizing that the maximum appointment term has become a norm for an appointment length.

¹⁸⁴ *Struggles*, Towards dynamic governance 2014 2014, p.28.

¹⁸⁵ *Struggles*, Towards dynamic governance 2014 2014, p.28.

¹⁸⁶ *Davies/Hopt et al.* Boards in law and practice: A cross-country analysis in Europe in: Davies et al., Corporate boards in law and practice: A comparative analysis in Europe 2013, p.43.

¹⁸⁷ *Struggles*, Towards dynamic governance 2014 2014, p.28.

¹⁸⁸ *Davies/Hopt et al.* in: Davies et al., Boards in law and practice 2013, p.43.

¹⁸⁹ *Davies/Hopt et al.* in: Davies et al., Boards in law and practice 2013, p.43.

lengths facilitate a proper evaluation of director's performance - it would be hard to assess the management board if its work has been observed only for a short period.

The short overview of corporate law provisions in selected European jurisdictions demonstrates a variety of legal solutions available to regulate appointment term and dismissal protection of corporate directors. In all discussed systems non-executive directors are appointed by the shareholders. In contrast, the management board in the two-tier system and executive directors in one-tier system countries are selected either by non-executive directors or by the supervisory board. Differences in appointment term and dismissal protection seem to reflect various approaches to the allocation of power within a company. There are company law systems which are shareholder-friendly (e.g., Finland or the UK). They grant strong power to the shareholders' meeting and provide for annual re-elections and dismissal at-will. The other group of systems is more board-centric (e.g., Germany). In these systems, the independence of the management board is at the core of legal regulations specifying long terms of office or permitting removal only for good cause.¹⁹⁰

Here I explore the impact of different regulations of appointment term and dismissal protection on directors' performance and their actual length of tenure. I start with a short introduction to the role of the interaction length and termination threat in a principal-agent relation. Since the Reflection Group recommended that the Member States should enable the companies to choose between different regulations of appointment term and dismissal protection, I focus thereafter on research investigating the effects of these provisions when various options (e.g. one-year and multiple-year appointment terms)¹⁹¹ are made available by law. First, I present empirical research measuring the influence of staggered boards on a company value. Next, I introduce experimental research examining behavioral effects of dismissal protection and appointment terms in a principal-agent relation.

¹⁹⁰ *Gerner-Beuerle/Paech/Schuster*, Study on directors' duties and liabilities 2013, pp.22-23.

¹⁹¹ Please note that in many countries a large majority of companies adopt either the recommended appointment term (e.g., one year in Finland or UK, four years in France) or the maximum allowed appointment term becomes a default option (e.g., Germany). Thus, although other options are available, usually only one of them dominates in practice.

C. Economic perspective on the directors' role in a company

I. *The principal-agent relation and the role of law*

In economic terms, the relationship between an executive director and a company (or its shareholders as the owners of a company) is referred to as a principal-agent relation.¹⁹² The principal (i.e. the shareholders) delegates a task (i.e. managing the company) to the agent (an executive director) who performs it on behalf of the principal. The principal-agent relation between an executive director and shareholders is governed by a contract and provisions of company law defining director's obligations resulting from the appointment. The main duty of a director is to act in the best interest of the company (or in the best interest of its shareholders).¹⁹³ In exchange for the fulfillment of these duties the agent receives a payment (i.e. director's compensation).

The principal-agent relation is of a strategic nature. The principal decides to whom to delegate the managing task. Subsequently, the agent, who was selected to perform the task on behalf of the principal, decides whether to perform it in the best interests of the principal or to shirk. This type of situations is called a moral hazard situation. The agent needs to determine whether to carry out the task in a way which makes the agent better off but is not necessarily in line with the best interests of the principal. The moral hazard of an executive director can take different forms. For instance, an executive director might avoid engaging in particular tasks such as wage negotiations or reallocation of the workforce.¹⁹⁴ Although the consequences of these tasks might be beneficial for a company, a director might find them "unpleasant or inconvenient."¹⁹⁵ Pet projects are another illustration of the moral hazard problem. The success of a project might be doubtful, but a director might want to pursue it

¹⁹² *Jensen/Meckling*, Theory of the firm 1976. Becht et al. point out that "the corporate governance problem can also be described as a "common agency problem", that is an agency problem involving one agent (the CEO) and multiple principals (shareholders, creditors, employees, clients...)", *Becht/Bolton/Röell* Chapter 12 Corporate law and governance in: Polinsky/Shavell, Handbook of law and economics 2007, p.842.

¹⁹³ The duty of the director to act either in the best interest of the company or in the best interest of shareholders depends on the legal system. It relates also to the long-lasting debate on shareholder vs. stakeholder primacy. For a discussion from the legal and economic viewpoint see i.e. *Fleischer* Shareholders vs. Stakeholders: Aktienrechtliche Fragen in: Hommelhoff et al., Handbuch Corporate Governance: Leitung und Überwachung börsennotierter Unternehmen in der Rechts- und Wirtschaftspraxis 2009; *Schmidt/Weiß* Shareholder vs. Stakeholder: Ökonomische Fragen in: Hommelhoff et al., Handbuch Corporate Governance: Leitung und Überwachung börsennotierter Unternehmen in der Rechts- und Wirtschaftspraxis 2009; *Hansmann/Kraakman*, The end of history for corporate law 2001.

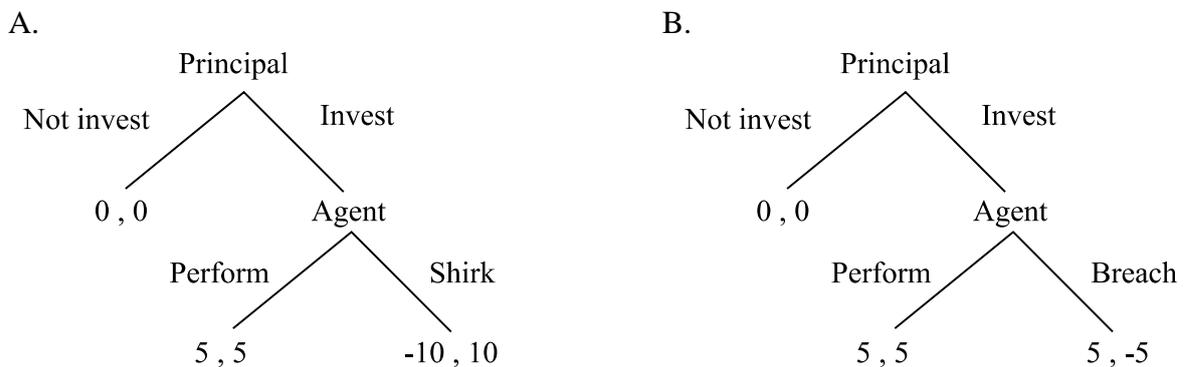
¹⁹⁴ *Tirole*, The theory of corporate finance 2006, pp.16-20.

¹⁹⁵ *Tirole*, The theory of corporate finance 2006, p.16.

nevertheless because it is a personal favorite.¹⁹⁶ A director might also engage in accounting manipulation to make a company outcomes look better or overconsume personal benefits (i.e. personal jet or luxuriously furnished office).¹⁹⁷

The game theory conceptualizes strategic situations such as the principal-agent relation. Importantly, the game-theoretic representation of the principal-agent relation might

Figure 2: Agency game



be used to study the impact of legal rules on actions and decisions of persons involved in a strategic interaction (e.g., by facilitating an efficient outcome of an interaction - in terms of the total surplus). For example, in the ‘agency game’¹⁹⁸ (Figure 2 A) two players – the agent and the principal – interact with each other. Players know exactly the possible actions and payoffs of the other player (i.e., there is no asymmetry of information). Players observe each other actions but act sequentially. Both can choose one out of two actions. The principal decides first whether to delegate the managerial power to the agent or not. Next, the agent decides whether to select an action which is in the best interest of the principal (i.e. perform the task) or to shirk. The players’ payoffs are displayed in Figure 2 A (the first number is the payoff of the principal, the second – of the agent). For instance, if the principal decides to invest and the agent performs the task in the best interests of the principal both players receive the payoff of 5. If the principal invests and the agent shirks – the principal obtains - 10 and the agent 10. In this game, an efficient outcome is achieved if the principal invests and the agent performs. However, if both players care only about their payoffs and are

¹⁹⁶ Tirole, The theory of corporate finance 2006, p.16.

¹⁹⁷ Tirole, The theory of corporate finance 2006, p.17.

¹⁹⁸ I use as an example the agency game as described in Cooter/Ulen, Law & economics 2008, pp.203-205.

rational, the Nash equilibrium¹⁹⁹ of this game predicts that the principal does not invest, in which case both players receive 0. The principal does not invest anticipating that the agent's best response for investing would be to shirk since shirking gives the agent higher payoff than performing the task. The Nash equilibrium outcome is, however, inefficient, since the potential surplus of 10 is achieved if the principal invests and the agent performs.

One may imagine that the goal of law in such a case would be to “enable people to convert games with inefficient solutions into games with efficient solutions.”²⁰⁰ This might be achieved by introducing an enforceable contract in which the agent promises to perform the task in the best interest of the principal and to pay damages in case of failing to do so (Figure 1 B). With an enforceable contract, if the principal invests and the agent shirks the agent receives -5 and the principal 5. In this game, the best response to the agent if the principal invests is to perform, which gives payoff of 5 to both of them. Therefore, the introduction of an enforceable contract helps to achieve the efficient solution (the principal invests and the agent performs).

In the real world, the relation between an executive director and a company is much more complex than the one assumed in the ‘agency game’ described above. The shareholders typically do not have full information about the agent's performance. For instance, the shareholders do not know managerial skills of an appointed director (adverse selection), they cannot observe director's performance (moral hazard with hidden action), or they do not have all information about investment decisions made by the director (moral hazard with hidden knowledge).²⁰¹ The standard principal-agent theory suggests how different contractual provisions might provide incentives for the agent to perform in the best interests of the principal, although the exact skills, actions or decisions are not observed. For instance, the director's compensation might include stock ownership or profit-sharing arrangements to align directors' and shareholders' interests.²⁰² One of the crucial assumptions of the standard

¹⁹⁹ Nash equilibrium is a concept from the game theory. It is “a profile of strategies for which each player is choosing the best response to the strategies of all other players.”(*Tadelis*, Game theory: An introduction 2013, p.80). An important requirement for Nash equilibrium is that players are choosing their actions according to their beliefs about best responses of others players and that these beliefs are correct. (*Tadelis*, Game theory: An introduction 2013, pp.80-81) .

²⁰⁰ *Cooter/Ulen*, Law & economics 2008, p.205.

²⁰¹ For a short and informative comparison of different problems resulting from asymmetry of information and its game theoretic representation: *Rasmusen*, Games and information: An introduction to game theory 2007, Chapter 7-11.

²⁰² *Jensen/Murphy*, Performance pay and top-management incentives 1990, p.231.

principal-agent model states that the contract governing the principal-agent relation is ‘comprehensive’²⁰³ (i.e. all future contingencies which might emerge in the principal-agent relation are foreseen in the contract). This assumption of the standard principal-agent model is violated if a contract is incomplete, i.e. includes “gaps and missing provisions”.²⁰⁴ Since it is hard to specify *ex ante* all features of directors’ performance that is in the best interests of shareholders, the relationship between shareholders and directors is governed by such an incomplete contract.²⁰⁵ As an illustration imagine a director whose responsibility is to establish a network of reliable suppliers.²⁰⁶ To fulfill this task a director might use personal contacts. What if a director does not rely on personal connections to develop this network and, as a result, a company does not get the best suppliers? Although shareholders might observe it, a third party would not be able to verify whether a director did act in the best interests of shareholders or not. It is also not possible to specify *ex ante* in a contract how exactly the network of suppliers should be developed by a director. I will refer again to the “agency game” example (Figure 2 B) to illustrate the consequences of non-verifiability of performance. With an enforceable contract, the agent pays damages to the principal in case of shirking. If it is not verifiable in front of the court that the agent shirked, this contract cannot be enforced, and the agent might refuse to pay damages. Given that legal enforcement of a contract is not available, are there other mechanisms which would make an executive director behave in line with shareholders’ interests?

II. *Relational contracts*

A lack of verifiability of certain aspects of executive director’s behavior has particular consequences – a contract between an executive director and a company is, in fact, a mixture of a formal (enforceable) and relational contract.²⁰⁷ Relational contracts are “informal agreements sustained by the value of future relationship”.²⁰⁸ They “create unique, interdependent relationships, wherein unknown contingencies or the intricacy of the required

²⁰³ Hart, Corporate governance: Some theory and implications 1995, pp.678-689

²⁰⁴ Hart, Corporate governance: Some theory and implications 1995, p.680.

²⁰⁵ Almazan/Suarez, Entrenchment and severance pay in optimal governance structures 2003, p.520; Cremers/Sepe, The shareholder value of empowered boards 2016, p.122: “As is well known, the shareholder-manager contract is mostly implicit, as the shareholders’ corporate interests are so broad to be largely noncontractible.”

²⁰⁶ Hart, Corporate governance: Some theory and implications 1995, p.680.

²⁰⁷ Baker/Gibbons/Murphy, Relational contracts and the theory of the firm 2002, p.73; Cebon/Hermalin, When less is more: The benefits of limits on executive pay 2014.

²⁰⁸ Baker/Gibbons/Murphy, Relational contracts and the theory of the firm 2002, p.39.

responses may prevent the specification of precise performance standard”.²⁰⁹ In contrast “a formal contract must be specified *ex ante* in terms that can be verified *ex post* by the third party (...)”.²¹⁰

Relational contracts were initially studied by legal scholars – Stewart Macaulay and Ian R. Macneil. Macaulay examined contractual relations by interviewing businessmen and their lawyers. He observed that a considerable share of business relations is not governed by a formal contract but rather by some non-legal norms (e.g. “commitments are to be honored in almost all situations”).²¹¹ Macneil, who coined the term “relational contract”, made a clear distinction between discrete specific transactions and contracts understood as an “exchange relation.”²¹² According to Macneil to understand and analyze any transaction, one needs to consider all aspects of a complex contractual relation and not only a formal contract.²¹³ What are then the mechanisms which help to achieve and sustain an efficient outcome in a relational contract? What is the role of law in such a relation? In particular, how the provisions specifying the appointment term and dismissal protection affect the mechanisms of a relational contract?

Williamson pointed out that relational contracts play a major role in governing inter- and intra-firm relations.²¹⁴ Since this work, the economists have focused on explaining why the relational contracts exist and how they influence a decision on conducting some transactions within and others between the firms.²¹⁵ Furthermore, the economic literature provided theoretical explanations of the self-enforcement mechanisms of incomplete contractual provisions.²¹⁶ Due to these mechanisms the agent behaves in line with the principal’s interests in relational contracts. Empirical insights into individual behavior in relational contracts have been provided by experimental studies rather than field data

²⁰⁹ *Goetz/Scott*, Principles of relational contracts 1981, p.1092.

²¹⁰ *Goetz/Scott*, Principles of relational contracts 1981, p.1092.

²¹¹ *Macaulay*, Non-contractual relations in business: A preliminary study 1963.

²¹² *Macneil*, The many futures of contracts 1973.

²¹³ *Macneil*, Relational contract theory: Challenges and queries 2000, p.881.

²¹⁴ *Williamson*, Markets and hierarchies, analysis and antitrust implications: A study in the economics of internal organization 1975; *Williamson*, The economic institutions of capitalism: Firms, markets, relational contracting 1985.

²¹⁵ *Williamson*, The economic institutions of capitalism: Firms, markets, relational contracting 1985; *Grossman/Hart*, The costs and benefits of ownership: A theory of vertical and lateral integration 1986; *Baker/Gibbons/Murphy*, Relational contracts and the theory of the firm 2002.

²¹⁶ *Bull*, The existence of self-enforcing implicit contracts 1987; *MacLeod/Malcomson*, Implicit contracts, incentive compatibility, and involuntary unemployment 1989; *Levin*, Relational incentive contracts 2003. For a review: *Malcomson* Relational incentive contracts in: The handbook of organizational economics 2012.

analysis, which investigated mostly relational contracting between and not within firms.²¹⁷ Below I will present experiments which tested theoretical predictions regarding people behavior in relational contracts. I will review research on both - one-shot and repeated interactions. Finally, I will discuss how the insights on self-enforcement mechanisms might contribute to defining the role of law in relational contracts.

III. *One-shot interactions*

Agents' behavior in incomplete contracts has been studied experimentally using the framework of a gift-exchange game.²¹⁸ In contrast to the "agency game" presented above which is a binary choice game (delegate or not to delegate a task, perform or not to perform a task), in the gift-exchange game the choice set of players is larger. A larger choice set allows collecting more information on individual behavior. In a gift-exchange game, two players – a "principal" and an "agent" interact with each other in a sequential move game. First, the principal makes a wage offer w to the agent. The agent observes the offer and decides whether to accept or reject it. If the offer is rejected, the game ends and both players earn nothing. If the offer is accepted, the agent decides how much effort e ($e > 0$) at the cost $c(e)$ to provide. The principal's payoff depends on the wage offer and worker's effort level and takes the following form:

$$\pi_p = ve - w.$$

The principal's payoff function reflects two intuitions typical for incomplete contracts such as employment or CEOs' contracts. On the one hand, a principal receives the extra surplus generated by the agent's effort and represented by a positive multiplier v . On the other hand, the principal bears the risk of hiring the agent, since the wage declared in the offer is always paid to the agent, irrespective of the effort level provided. For instance, if the agent provides no effort, the principal earns a payoff of $\pi_p = -w$.

²¹⁷ For instance, *Gil/Marion*, Self-enforcing agreements and relational contracting: Evidence from California highway procurement 2012; *Gil*, The interplay of formal and relational contracts: Evidence from movies 2013. Recently also on CEO bonuses (relational contracts within the firm): *DeVaro/Kim/Vikander*, Pay-for-(persistent)-luck: CEO bonuses under relational and formal contracting 2014.

²¹⁸ *Akerlof*, Labor contracts as partial gift exchange 1982; *Fehr/Kirchsteiger/Riedl*, Does fairness prevent market clearing? An experimental investigation 1993. The gift-exchange game is commonly used to study labor and principal-agent relations, for a review see: *Charness/Kuhn* in: Orley/David, Chapter 3 - Lab labor: What can labor economists learn from the lab? 2011; *Dohmen*, Behavioral labor economics: Advances and future directions 2014.

The agent's payoff depends on the wage offered w , the chosen effort level e , and the cost of effort represented by the function $c(e)$. The agent's profit is calculated in the following way:

$$\pi_A = w - c(e)$$

The predictions for players' behavior in this game are based on the assumption that players are selfish and rational, and this is common knowledge. They are derived using backward induction. Irrespective of the wage level, agents choose an effort level which guarantees them minimum costs. Principals anticipating this behavior will never offer wages higher than the minimum wage an agent would accept.²¹⁹ The equilibrium solution derived based on standard assumptions is, however, inefficient. The efficient outcome (i.e., the sum of both players' material payoffs) is achieved if the agent provides the maximum effort, as long as marginal costs of agent's effort do not exceed the gains from an additional unit of effort represented by the multiplier v . For instance, let's assume that a wage is defined as $w \in \{1,2, \dots, 100\}$, effort as $e \in \{1,2, \dots, 10\}$, $v = 10$ and $c(e)$ is given as in Table 1.

Table 1: Cost of effort

Effort, e	1	2	3	4	5	6	7	8	9	10
Cost, $c(e)$	0	1	2	4	6	8	10	12	15	18

If the outside option (no transaction concluded) for the agent and the principal is zero, then in equilibrium the principal offers a minimum wage of $w = 1$ and the agent provides a minimum effort of $e = 1$. In this case the total profit from the exchange is 10 ($\pi_P = (10 * 1) - 1 = 9$ and $\pi_A = 1 - 0 = 1$). However, the efficient outcome can be achieved if the agent chooses $e = 10$. Then the total profit from the transaction is 82 ($10 * e - c(e) = 10 * 10 - 18$). The division of profits between the agent and the principal depends on the wage level.

Contrary to the standard predictions some experimental studies have shown that even in one-shot interactions players show cooperative behavior – principals tend to offer higher

²¹⁹ If the outside option for an agent (that what he receives if no contract is concluded) is 0 then the minimum wage an agent would accept is 0. However, if an outside option is higher than zero, then the minimum wage must be also higher and at least equal to the outside option. Also, the principal offers a positive wage only if a minimum effort agent can provide is higher than zero.

than minimum wage levels and agents provide high effort levels in exchange. This way both – principals and agents – receive higher payoffs than predicted according to the equilibrium based on standard assumptions. Furthermore, wage and effort levels are positively related – the higher the offered wage, the more effort is provided.²²⁰ The behavior observed in one-shot gift-exchange games has been explained by models incorporating other-regarding preferences according to which people do not care only about their payoffs but also about other people's well-being. The exact motives might be twofold: they can either be related to distributional (i.e., inequality-aversion) or intention-based concerns (i.e., reciprocity). Models of inequality-aversion²²¹ assume that people's utility depends on both - own payoffs and the comparison of own payoffs to the payoffs of others.²²² In contrast, reciprocity models posit that the utility function incorporates not only the outcome but also the perceived intentions of the other decision maker, which in turn may depend on his choice and his available options.²²³ Therefore, individuals will differently evaluate an unequal distribution when an equal allocation was available than when the same unequal allocation is the only available option. These models focus on one-shot interactions and do not consider repeated game effects when different incentives for reciprocating behavior are present (i.e. future benefits, reputation).

IV. *Repeated interactions*

Most of principal-agent relations do not happen in one-shot interactions but are rather repeated over time. In contrast to one-shot interactions in a repeated interaction incomplete provisions are enforced through mechanisms developed in the course of the relationship, such as reputation or termination threat. Theoretical predictions for behavior in a repeated gift-exchange game can be derived using a repeated game framework. Here I focus on

²²⁰ For a review: *Charness/Kuhn* in: Orley/David, Chapter 3 - Lab labor: What can labor economists learn from the lab? 2011; *Dohmen*, Behavioral labor economics: Advances and future directions 2014.

²²¹ The literature often uses also a term "inequity aversion" which is more normatively loaded.

²²² There are two main models of inequality aversion: Fehr-Schmidt (*Fehr/Schmidt*, A theory of fairness, competition, and cooperation 1999) and Bolton-Ockenfels (*Bolton/Ockenfels*, ERC: A theory of equity, reciprocity, and competition 2000) model.

²²³ Several models of reciprocity have been proposed i.e. Rabin model (*Rabin*, Incorporating fairness into game theory and economics 1993), Falk-Fischbacher model (*Falk/Fischbacher*, A theory of reciprocity 2006) or Dufwenberg-Kirchsteiger model (*Dufwenberg/Kirchsteiger*, A theory of sequential reciprocity 2004).

theoretical predictions for finitely repeated games²²⁴ which are of particular importance to understand interactions between an executive director and the shareholders.

The assumption of rationality, selfishness, and common knowledge leads to the same predictions in a finitely played gift-exchange game as in one-shot interactions. By backward induction, it is presumed that the agent has no incentive to provide effort higher than the minimum effort level for any wage offered by the principal in the last period. The principal, in turn, anticipating the agent's behavior offers the minimum wage in the last period. In the penultimate period the agent knowing that the principal will offer the lowest wage in the final period, chooses the minimum effort level irrespective of the wage offered. Going backward and repeating these steps from the last one to the first period leads to the conclusion that there is no room for cooperation in any period of the game.

The predictions change if one removes the assumption that selfishness is common knowledge and introduces incomplete information on the type of players. A seminal article by Kreps et al. provides a theoretical framework for explaining the emergence of cooperation in finitely repeated prisoner's dilemma game with incomplete information.²²⁵ Their model is based on the premise that, when interacting, individuals are not perfectly informed about the type of the other player. More specifically, both players attach some probability that the other player's strategy might be, for instance, a tit-for-tat strategy²²⁶ rather than a strategy to free-ride in each period of the game. An intuition of the model by Kreps et al. is that even selfish players, who in fact do not prefer to cooperate, will cooperate to uphold the other players' beliefs of interacting with a cooperative partner. They will build a reputation of a non-selfish individual. The key message of the model is that due to reputation concerns, people cooperate with each other even in finitely repeated games.²²⁷ In contrast to one-shot interactions, a repeated game with incomplete information about players' types provides incentives to cooperate even for self-interested players. Therefore, one should expect more cooperation in repeated than in one-shot interactions.

²²⁴ Similarly to *Brown/Falk/Fehr*, *Relational contracts and the nature of market interactions* 2004, who experimentally investigated behavior in relational contracts.

²²⁵ *Kreps/Milgrom et al.*, *Rational cooperation in the finitely repeated prisoners' dilemma* 1982.

²²⁶ The player following the tit-for-tat strategy will cooperate in the first period. In all subsequent periods this player will mimic behavior of his opponent in the previous period. If in the previous period, the opponent cooperated (defected) the tit-for-tat player will cooperate (defect) in the given period.

²²⁷ According to the model the cooperation decreases in last periods. For simplicity, I will refrain from discussing what exactly happens in the last periods.

High levels of cooperation have indeed been observed in experiments implementing repeated games.²²⁸ Research has also shown that the longer the interaction time is, the more cooperation is observed.²²⁹ In all these studies participants were matched in pairs exogenously and it was not possible to change the interaction partner. Thus, there was no termination threat that might serve as an additional mechanism for sustaining cooperation.

A threat of contract termination has been claimed to provide additional incentives for non-opportunistic behavior in relational contracts.²³⁰ This threat can be exerted if a principal can switch to another agent and stay away from the dismissed one. This is possible only if individuals interact on a market with several principals and agents as in a study by Brown et al.²³¹ This study investigated the endogenous emergence of long-term relationships when contracts are incomplete and negotiated on a market. The authors implemented an experimental design based on a repeated gift-exchange game in which seven firms and ten workers interacted on a market for 15 periods. Firms made offers to the workers, in which they specified the wage and the desired effort level. There were two types of offers – public offers directed to all workers available on a market and private offers addressed to a particular worker. The authors conducted three treatments varying completeness of contracts and identifiability of participants. In the treatment with complete contracts the desired effort level specified in the offer was automatically implemented as the agent's actual effort choice, once the offer was accepted. In the treatment with incomplete contracts, the agent was not bound by the desired effort specified in the accepted offer. He could freely choose his effort. This feature was implemented to reflect provisions of relational contracts which are non-enforceable in front of court – whether the agent provides effort equal to the desired effort specified in the offer depends only on the self-enforcement mechanisms. In both treatments firms and workers were assigned fixed ID numbers. This feature enabled firms and workers to build long-term contractual relationships and to stay away from undesirable workers. In the third treatment contracts were also incomplete but the ID numbers were

²²⁸ *Camerer/Weigelt*, Experimental tests of a sequential equilibrium reputation model 1988; *Andreoni/Miller*, Rational cooperation in the finitely repeated prisoner's dilemma: Experimental evidence 1993; *Gächter/Falk*, Reputation and reciprocity: Consequences for the labour relation 2002.

²²⁹ *Anderhub/Engelmann/Güth*, An experimental study of the repeated trust game with incomplete information 2002; *Cochard/Nguyen Van/Willinger*, Trusting behavior in a repeated investment game 2004; *Landeo/Spier*, Incentive contracts for teams: Experimental evidence 2014.

²³⁰ *MacLeod/Malcomson*, Implicit contracts, incentive compatibility, and involuntary unemployment 1989; *Shapiro/Stiglitz*, Equilibrium unemployment as a worker discipline device 1984.

²³¹ *Brown/Falk/Fehr*, Relational contracts and the nature of market interactions 2004.

assigned randomly in every period, such that the creation of long-term relationships was not possible.

The results revealed that in the incomplete contracts treatment with fixed ID numbers (ICF) firms formed more long-term relationships in contrast to the complete contract treatment (C). Both – ICF and C treatment – were more efficient regarding total earnings than the incomplete contract treatment with random ID numbers (ICR). Earnings were distributed far more equally between workers and firms in the ICF than in the C treatment. Due to the impossibility to form long-term relationships in the ICR treatment wages and effort levels were much lower than in the ICF and C treatment. The study shows that in the absence of third-party enforcement – when contracts are incomplete – forming long-term relationships is crucial for observing efficient trades. Furthermore, complete contracts lead to an unequal distribution of profits where a trading partner with a larger bargaining power reaps a greater share of benefits.

Brown et al. (2012) studied how an excessive demand for labor influences creation of long-term relationships and efficiency of trades when contracts are incomplete.²³² An implicit assumption for an effective termination threat is the existence of unemployment. If there are more principals than agents on the market, the disciplining effect of termination threat is much lower – if the agent misbehaves and the principal terminates the contract, the agent can still easily switch to the other principal. Thus, it is possible that even the agent who provides low effort levels will never be unemployed. The results of the study by Brown et al. (2012) indicate that long-term relations are still sustained with an excessive demand for labor, albeit at a lower frequency than in the case of an excessive supply of labor. This highlights that fear of dismissal is not the only motive that drives cooperation, but workers care about their reputation which upholds cooperation rates.

The theoretical and experimental literature provides valuable insights regarding informal mechanisms of enforcement in relational contracts. The existence of cooperative behavior (principals offering high wages, agents performing the task in the best interest of the principal) in one-shot interactions is explained by other-regarding preferences (i.e. inequity aversion, reciprocity). In repeated interactions the expectation of future gains

²³² *Brown/Falk/Fehr*, Competition and relational contracts: The role of unemployment as a disciplinary device 2012. To distinguish it from *Brown et al. (2004)* study I will indicate this article in the text by *Brown et al. (2012)*.

provides additional incentives for self-interested individuals to build a reputation as a cooperative person. Research has shown that relational contracts are the more efficient, the longer is the expected interaction, and that termination threat plays an important incentivizing role.

V. *Summary*

As argued in section C. II the relationship between an executive director and a company has features of a relational contract – some of executive director’s actions observable by shareholders are not in shareholder’s best interests, but it is hard to verify in front of the court. Many aspects of this relationship are regulated by provisions of company law such as the maximum appointment length and dismissal procedures discussed in this chapter. These provisions are likely to influence both – the expected duration of the interaction and termination threat – two elements of repeated interactions which have been shown to have an impact on efficiency in relational contracts. Law and economics scholars have suggested that the role of law in relational contracts is to “foster enduring relationships” and to provide a possibility for an exit from a contractual relation.²³³ Others claimed that restrictions of termination right should be imposed only “where the reduction in the social costs of improper termination is not overbalanced by concomitant increases in agency costs that result from the diminished efficacy of termination provisions as a form of contractual bonding.”²³⁴ Therefore, when evaluating different regulations of appointment term and dismissal procedures of executive directors it would be crucial to consider both - the goals mentioned by the legislator (e.g. independence of executive directors, regular control of executive director’s performance by the supervisory board), and also the impact of these regulations on the expected length of interaction and termination threat and - as a consequence – on behavior and decision-making of executive directors. Below, I discuss empirical research which implements field data analyses to investigate the impact of dismissal protection and appointment term on company performance. Next, I present experimental research to pin down the behavioral effects of appointment term and dismissal protection on behavior in relational contracts.

²³³ Cooter/Ulen, *Law & economics* 2008.

²³⁴ Goetz/Scott, *Principles of relational contracts* 1981, p.1147-1148.

D. Research on appointment terms and dismissal protection

I. Field data analyzes of the impact of staggered boards on company performance

Comparing the impact of appointment term and dismissal provisions on directors' behavior and the length of tenure across different legal systems is particularly challenging. This is due to difficulties in isolating the effect of a single statutory provision. For example, other differences in governance structure might also affect the decision-making of directors and their length of tenure. Alternatively, one may study different solutions adopted by companies within one jurisdiction, which comes, however, with own limitations. For example, the differences in appointment terms and dismissal protection implemented by the publicly listed companies within a single jurisdiction are rather small,²³⁵ and therefore usually do not provide sufficiently rich data. The dismissal rules are often mandatory. Additionally, the maximum appointment term allowed by company law has become a default followed by most of the companies (e.g., in Germany or UK). Also, this kind of empirical research faces a selection problem – companies with particular characteristics might be more likely to select specific provisions. In this case, any difference in performance would not necessarily be the effect of a legal rule but possibly reflect these particular features. Second, reverse causality might also be an issue when studying the introduction of specific provisions. It is likely that low performance causes some companies to adopt particular provisions (e.g. dismissal protection and long appointment terms). In this case, it is not the given provision which causes the low performance but rather the opposite.

Despite these difficulties, valuable insights on the effects of appointment term and removal protection are provided by the studies investigating the impact of staggered boards on the U.S. companies' performance. The staggered board is one of two possible board structures available to the U.S. companies. In the unitary board, the directors are appointed for one year and can be re-elected each year.²³⁶ In the staggered board, the appointment term is usually three years.²³⁷ Directors in staggered boards are divided into three classes – each year only one class of directors stands for re-election and might be replaced. The two structures of corporate boards allow measuring the impact of appointment term (one year vs.

²³⁵ See information provided in section B.

²³⁶ *Bebchuk/Cohen*, The costs of entrenched boards 2005, p.411.

²³⁷ *Cohen/Wang*, How do staggered boards affect shareholder value? Evidence from a natural experiment 2013, p.629; *Cremers/Sepe*, The shareholder value of empowered boards 2016, p.77.

three years) as well as dismissal protection (it is harder to remove directors with a staggered board structure²³⁸) on company performance and directors' behavior. It is worth to note that staggered boards not only protect the directors from removal in general but also play an important role in the antitakeover defense. Since only one-third of directors can be removed during an annual shareholder meeting, it would take at least two years for a bidder to get a majority on the board of directors. The defense effect is even stronger given that incumbent board members can issue 'poison pills' – special measures which make the takeover very costly to a hostile bidder. Some of the empirical studies examine the overall effect of the staggered board on company performance²³⁹ and directors' decision-making, whereas others investigate the staggered board in the context of an antitakeover defense.²⁴⁰ Here I discuss only the first one because it is of particular importance for exploring the impact of appointment terms and dismissal protection on directors' performance in general and not only in a very special hostile takeover situation.

The study by Bebchuk and Cohen focused on the influence of staggered board on a company value measured by Tobin's Q²⁴¹ in the period 1995-2002. The authors showed that staggered board structure is associated with a lower company value. The effect holds when controlling for various company characteristics such as other provisions protecting company directors, returns on assets or R&D (Research and Development) investments. Furthermore, the authors aimed at establishing the causal relationship between staggered boards and lower company Tobin's Q. To this end, they looked at the companies that went public before 1990 and had a staggered board in 1990. The authors argued that after 1990 very few companies adopted staggered board regulations and also very few dropped it since "the shareholders did not have the power to dismantle charter-based staggered boards."²⁴² Thus, a staggered board in companies which went public before 1990 and had it in 1990, is a result of the "initial

²³⁸ Assessment of the effective removal protection of directors in staggered boards needs a special consideration, see *Bebchuk/Cohen*, The costs of entrenched boards 2005, p.414. Additionally, a recent Delaware court ruling (*In re Vaalco Energy Shareholder Litigation* from December 21, 2015) stated that directors in unitary boards can be removed without cause (even if the bylaws or statute provides differently). If the board is staggered, the company's statute or bylaws might also permit removal only for cause. Therefore, even in staggered boards directors might be removed with or without cause, see a post by Philip Richter and Fried Frank on the Harvard Law School Forum on Corporate Governance and Financial Regulation from February 18, 2016 "Delaware Companies with non-classified boards".

²³⁹ For instance: *Bebchuk/Cohen*, The costs of entrenched boards 2005.

²⁴⁰ For instance: *Bebchuk/Coates/Subramanian*, The powerful antitakeover force of staggered boards: Theory, evidence, and policy 2002.

²⁴¹ Tobin's Q represents a ratio of a market value of a company to the replacement costs of its total assets.

²⁴² *Bebchuk/Cohen*, The costs of entrenched boards 2005, p.426.

condition” rather than a consequence of a firm with specific characteristics adopting a staggered board structure. The analysis revealed that companies with the staggered board in 1990 show lower firm value than these which did not have this provision back then. The approach adopted by Bebchuk and Cohen to identify causal relationship seems rather unconvincing, since adopting a board before 1990 might be a result of some previous specific characteristics of a company which still held in the period 1995-2002. In particular, bad performing companies might be more likely to adopt and to maintain a staggered board structure.²⁴³

Similar to Bebchuk and Cohen, Faleye showed a negative relation of staggered boards and company value.²⁴⁴ He also explored whether this effect holds for all types of companies and what are the potential underlying mechanisms of this adverse impact. Faleye found that companies with staggered boards have lower value than companies with unitary boards irrespective of “operational complexity”, i.e. R&D-intensive firms. Additionally, staggered boards are associated with lower R&D investments and lower sensitivity of CEO turnover to firm performance. The latter means that even if, for instance, a company observes lower returns, a CEO is less likely to be removed if a company has a staggered board structure compared to a company with a unitary board. The author suggested that companies with staggered boards tend to shield top managers from the market disciplining pressure. As a consequence, this strong managerial protection leads to decrease in firm value.

In a recent article Cremers and Sepe challenged the results of these empirical studies.²⁴⁵ Their procedure overcomes selection and ‘reverse causality’ problems which have been essential in most of the previous research investigating differences in firm value between companies with and without staggered boards.²⁴⁶ Unlike previous studies, Cremers

²⁴³ *Cohen/Wang*, How do staggered boards affect shareholder value? Evidence from a natural experiment 2013. Cohen and Wang used a particular event which allowed them to study the impact of the staggered board on shareholder value in a natural experiment setting. Within a short period of time two court rulings were issued – the first one weaken the importance of the staggered board as an antitakeover defense tool, the second one reversed this decision. This way the antitakeover power of the staggered board was recovered. The authors observed first an increase in the value of companies which were affected by the court ruling, i.e. the companies in which the power of staggered board as antitakeover defense was weaken as a result of the ruling. After the decision was reversed, the value of these companies decreased again.

²⁴⁴ *Faleye*, Classified boards, firm value, and managerial entrenchment 2007.

²⁴⁵ *Cremers/Sepe*, The shareholder value of empowered boards 2016.

²⁴⁶ *Bebchuk/Cohen*, The costs of entrenched boards 2005; *Faleye*, Classified boards, firm value, and managerial entrenchment 2007; *Zhao/Chen*, Staggered boards and earnings management 2008.

and Sepe examined how the firm value changes after the decision to adopt a staggered board had been made. Importantly, they compared this with a change in a firm value after the board had been de-staggered. It was achieved by conducting time-series analysis and implementing company fixed effects. According to the authors, this approach allows for “determining what change in firm value within the same firms occurred before or after a change in board structure.”²⁴⁷ Furthermore, they are not only interested in the effects of the staggered board on the overall firm value, but also investigate features of companies for which adoption of a staggered board might accrue the greatest benefits (e.g., level of R&D and intangible investments). The analysis revealed that the positive effect of a staggered board on firm value is stronger in companies with more R&D investment. In particular, the more the company invests in R&D, the higher increase in firm value in companies which had introduced the staggered board is observed. A similar result was observed for investments in intangible assets (such as know-how, patents, and trade secrets). In details, the more the company invests in intangible assets, the greater positive effect the staggered board has on firm value. A shortcoming of this analysis is that decisions to invest in R&D and intangible assets are likely to be influenced by the adoption of a staggered board. In this case, the effect of the staggered board on a firm value would not be stronger for firms with high R&D and intangible assets investments, but rather staggered board will influence firm value through these investments decisions.

The results of studies on the impact of staggered boards are mixed. There is some evidence that companies with staggered boards have a lower value than companies with unitary boards.²⁴⁸ Other research showed that adopting a staggered board might, in fact, lead to an increase in firm value.²⁴⁹ Although this research provides first empirical insights into the potential impact of directors’ removal protection and appointment lengths on company performance, it also has some shortcomings. First, although a staggered board provides strong removal protection since each director stands for reelection only every three years, some companies can adopt bylaws which permit removal at-will. Such a provision would effectively weaken the dismissal protection introduced with a staggered board. Importantly, this issue has not been taken into account in the discussed studies. Second, field data analysis

²⁴⁷ *Cremers/Sepe*, The shareholder value of empowered boards 2016, p.72.

²⁴⁸ For instance: *Bebchuk/Cohen*, The costs of entrenched boards 2005; *Faleye*, Classified boards, firm value, and managerial entrenchment 2007.

²⁴⁹ *Cremers/Sepe*, The shareholder value of empowered boards 2016.

do not allow studying more basic behavioral mechanisms of directors' reactions towards appointment length and dismissal protection. Some of these shortcomings might be addressed by experimental research presented in the following section.

II. *Experimental research on the role of appointment term and dismissal rules in relational contracts*

The study by Falk et al. investigated how dismissal barriers affect individual behavior in relational contracts, i.e., when contracts are incomplete, and people have to rely on informal enforcement mechanisms.²⁵⁰ As a baseline treatment, the authors implemented a procedure similar to the ICF treatment in the study by Brown et al.²⁵¹ Participants played a repeated gift-exchange game for 18 periods in groups with seven firms and ten workers. They were able to endogenously create long-term relationships by concluding a contract with the same partner as in the previous period. The baseline treatment was compared with a dismissal barrier treatment. In this condition, a one-sided dismissal barrier was implemented which means that the firm was not able to fire the worker, but the worker could leave any time. The barrier was effective once the same worker was hired for two consecutive periods by the same firm. The results of this experiment revealed that the efficiency of contractual relationships, as well as firm profits, were lower in the dismissal barrier treatment than in the baseline treatment. Workers' payoff did not differ, however, which seems to result from low wages paid in the dismissal barrier treatment. In this treatment firms started with very low wages and increased them over the course of the relationship. Since a termination threat could not be implemented as an incentivizing device in the dismissal barrier treatment, most likely firms used the increasing wage schemes to motivate workers to provide high effort levels. This study shows that it is crucial to examine different contract types, and not only wage agreements, in the context of incomplete contracts and repeated interactions. It also demonstrates that a policy intervention in a form of dismissal restriction might decrease efficiency in relational contracts.

The dismissal barriers implemented in the study by Falk et al. are absolute. After two periods the firm has no possibility to fire the worker irrespective of how the worker behaves. This setting is very different from real world situations in which dismissal can be restricted to good cause (or can be costly) but not completely excluded. This problem is partially

²⁵⁰ Falk/Huffman/Macleod, Institutions and contract enforcement 2015.

²⁵¹ See section D. IV. for a detailed description.

addressed in the study by Charness et al.²⁵² in which the authors implemented the baseline treatment similar to ICF treatment in Brown et al.²⁵³ However, in contrast to Falk et al., the authors introduced a treatment in which a contract had to be renewed with the same worker conditional on the effort level provided (i.e., given that the worker provides effort equal or higher to the desired effort specified in the offer). Thus, in this treatment, the dismissal barrier is not absolute, but the termination threat is restricted to the situation in which the worker does not fulfill some pre-specified criteria. The authors found that when dismissal barriers are not absolute but depend on effort, firms' and workers' profits, as well as workers' effort, are higher than in the baseline treatment (with no dismissal barriers). This result suggests that dismissal barriers which allow exiting from the relationship under specific conditions might positively affect the efficiency in relational contracts.

Besides specifying dismissal protection rules, company law provisions also restrict the maximum length of appointment. A company can appoint a director for a defined number of years within the limits permitted by a statute. Some of experimental studies have researched individual behavior in fixed partner matching (the same two persons interact with each other during the entire experiment) over a different number of periods.²⁵⁴ Additionally, in the study by Brown et al. firms and workers decide endogenously to interact with each other for a longer time but can do so only by renewing the one-period contract. There is no option of commitment to interacting with the same partner for more than one period. Similarly, in the study by Falk et al. the firm might have effectively entered into a long-term contract by concluding a contract twice with the same worker. In this case, the long-term contract was permanent - it lasted until the end of the experiment. Thus, there was no option to restrict the length of the interaction for a given period. In none of these studies, participants decided to commit endogenously to interacting with the same partner for a restricted period. This limits the conclusions on the impact of appointment terms' regulations, which allow contractual partners to choose endogenously the duration of their commitment within restrictions specified by law.

²⁵² Charness/Cobo-Reyes et al., Renewable dismissal barriers, job security, and long-term investment: An experimental analysis 2014.

²⁵³ See section D IV for a detailed description.

²⁵⁴ See for instance: Anderhub/Engelmann/Güth, An experimental study of the repeated trust game with incomplete information 2002; Brandts/Figueroas, An exploration of reputation formation in experimental games 2003.

There is some experimental evidence on individual behavior when people can endogenously choose the length of interaction within certain limits. These studies, however, investigate behavior in contexts slightly different than relational contracts. Anderhub et al. measured firm-specific investment of agents depending on the contract length offered by the principal.²⁵⁵ Imagine a manager who has just been hired by a company. In the beginning, the manager needs to invest lots of time and effort to familiarize with company's practices or develop good relationships with workers and clients. If the company decides to dismiss the manager, the time and effort invested would be lost.²⁵⁶ The question is how likely managers are to invest if they are offered short-term renewable contracts compared to the case when they are offered long-term contracts. This type of decision-making was studied by Anderhub et al. The results showed that firm-specific investments are much more frequent if the principal offers a long-term contract. Also, in long-term contracts agents receive more of the produced surplus than in short-term contracts. Furthermore, short-term contracts are chosen more often than long-term.

Schneider and Weber studied the impact of endogenous choice of the interaction length on cooperative behavior in prisoner's dilemma game.²⁵⁷ In this game, two persons interact with each other and simultaneously choose whether to cooperate or defect. The payoffs depend on actions chosen by both players and are displayed in Table 2. For instance, if both players decide to cooperate, each of them receives 40 units. However, if Player 1 defects and Player 2 cooperates then Player 1 receives 65 and Player 2 only 5. Assuming self-interested players, and common knowledge of rationality and self-interest, in this game both players should defect according to Nash equilibrium. Cooperation would be, however, more efficient since it would yield the total payoff of 80 units. In Schneider and Weber experiment participants played this game over 150 periods. In three treatments participants were matched for exogenously defined number of periods: (1) 1 period (2) 10 periods and (3) all 150 periods. In treatments 1 and 2 (i.e., one period, ten periods) participants were randomly rematched with another player after the matching time was over. In two additional treatments, participants could endogenously choose for how long they

²⁵⁵ *Anderhub/Königstein/Kübler*, Long-term work contracts versus sequential spot markets: Experimental evidence on firm-specific investment 2003.

²⁵⁶ This kind of situations, in which one of the contractual partners does not want to invest in the contractual relationship, is called a hold-up problem. For a more detailed and non-technical description, for instance: *Hart*, Firms, contracts, and financial structure 1997, pp.29ff.

²⁵⁷ *Schneider/Weber*, Long-term commitment and cooperation 2013.

would like to be matched with the same partner. In treatment 4 they could decide whether they would like to be re-matched every period with another partner or whether they would like to stay with the same partner in the next 10 periods. In treatment 5 participants could further decide to stay with the same partner for the duration of the whole experiment. An interesting feature of this design is that it allows testing the influence of endogenous choice of the interaction length on individual behavior. Additionally, it can be examined whether this impact depends on the available options (1 and 10 periods or 1, 10 and permanent option available).

Table 2: Payoffs in the prisoner's dilemma game

		Player 2	
		Cooperate	Defect
Player 1	Cooperate	40, 40	5, 65
	Defect	65, 5	20, 20

The results revealed that cooperation and earnings increase with the duration of the interaction. Cooperation rates are also higher when the choice is endogenous but only when the chosen length of interaction is the longest available (i.e., if participants are choosing between 1 period or 10 periods than cooperation is higher in 10 periods chosen than in 10 periods exogenously imposed). When the permanent option is available, endogenous choice of 10 periods does not have such a positive effect anymore. The highest cooperation is observed only in endogenously chosen permanent option. These results suggest that commitment has a positive impact on cooperation, particularly when it is not imposed but chosen by participants. Importantly, intermediate commitment option loses its meaning if there is a permanent option available. This indicates that the impact of the selected length of interaction depends on the menu of choices provided.

The results of experimental studies discussed in this section suggest that legal interventions (i.e. dismissal barriers, appointment length limits) might influence individual behavior in relational contracts. The impact of dismissal barriers seems to depend on their specific conditions. Whereas absolute dismissal barriers have a negative effect, the

conditional dismissal barriers positively affect agents' performance. It is as yet unclear what would be the impact of dismissal protection if the rules of termination are not so clearly specified as in the experiment by Charness et al. This question is important since the rules permitting only removal for good cause in the real world do not define clearly what a good cause is. Also, research in repeated strategic interactions has shown that endogenously chosen length of the interaction influences individual behavior differently than exogenously imposed duration. This impact further depends on the available options. In the study by Schneider and Weber, participants were randomly matched for a specified number of periods. It would be yet crucial to investigate behavior when not only the length of interaction but also an interaction partner can be chosen endogenously since this is an important feature of real-world interactions.

The experimental research simplifies the complexity of real-world relationships between executive directors and companies (e.g., it is not possible to directly translate the experimental periods into years of appointment). This helps to create well-controlled conditions which allow studying the influence of certain legal provisions on the behavior of principals and agents. These studies provide valuable insights and tests for theoretical predictions about individual behavior in repeated interactions. They also reveal causal relations between legal interventions (i.e. dismissal barriers, a menu of options) and efficiency in relational contracts.

To shed more light on individual reactions in relational contracts towards different regulations of the appointment length, together with my colleagues I have conducted an experimental study. In this experiment, I examined how the length of relation and agent's behavior is influenced by two particular types of contracts (fixed-term and open-ended at-will). The study is described in details in chapter 3.

E. Conclusions

In this chapter, I discussed the German rules on appointment term and dismissal protection of management board members in publicly listed companies. I introduced the legislator's rationale for designing these provisions in the current form and compared them with solutions implemented in other European countries. This corporate governance tool has been traditionally viewed as a control and monitoring device of the management behavior. The differences between regulations on appointment and dismissal procedure in the

European countries seem to reflect the general tendency of some legal systems either to grant more rights to the shareholders' meeting (short appointment term, dismissal at-will) or to protect the directors' independence (long appointment term, dismissal for good cause). These rules might yet also constitute a powerful tool influencing the behavior of executive directors *ex ante*. Field data studies show mixed results regarding the impact of removal protection in the form of a staggered board on a company value.²⁵⁸ Experimental research revealed that absolute dismissal protection has detrimental effects on efficiency, whereas conditional dismissal positively affects agent's behavior.²⁵⁹ Other studies have demonstrated that the impact of the length of interaction depends on whether it is endogenously chosen or exogenously imposed as well as on available options.²⁶⁰ Given these results, it is crucial for the legislator to take it into account when designing and implementing the corporate governance rules on appointment and removal of executive directors. For instance, it needs to be considered that making very long appointment terms (e.g. six years) available might diminish potential benefits of intermediate options (e.g. three years).

²⁵⁸ *Bebchuk/Cohen*, The costs of entrenched boards 2005; *Cremers/Sepe*, The shareholder value of empowered boards 2016.

²⁵⁹ *Falk/Huffman/Macleod*, Institutions and contract enforcement 2015; *Charness/Cobo-Reyes et al.*, Renewable dismissal barriers, job security, and long-term investment: An experimental analysis 2014.

²⁶⁰ *Anderhub/Königstein/Kübler*, Long-term work contracts versus sequential spot markets: Experimental evidence on firm-specific investment 2003; *Schneider/Weber*, Long-term commitment and cooperation 2013.

Chapter 3

Behavioral implications of contract duration for agents' behavior

A. Introduction

In the previous chapter, I discussed company law provisions on appointment length and dismissal rules for executive directors of public companies. A summary report on European corporate governance comparing the average length of tenure in different European countries suggests that fixed-term appointments and dismissal protection are not necessarily related to longer tenures than appointments at-will.²⁶¹ In fact, in some countries that allow dismissal at-will (e.g., Belgium, UK) executive directors on average serve more years on the board than in countries with dismissal protection (e.g., Germany, Austria).²⁶²

In this chapter, I show that appointment terms and dismissal rules have an impact on agents' behavior in relational contracts. More specifically, I present a study which compares two particular types of agreements defining the length of a principal-agent interaction. I investigate seemingly equivalent contract types – fixed-term renewable contracts and open-ended contracts terminable at-will. Why are these contracts so similar? Even if the parties define the length of their interaction as fixed-term, they can always prolong it once the defined term is over. In contrast, with an open-ended length each of the parties can exit any time. Thus, a fixed-term contract may eventually result in a similar length of a relation as an open-ended contract.

Despite the supposedly similar contract terms, I conjecture that both contract types will not induce the same rate of agents' effort. In particular, if both contract types are available, by choosing an open-ended contract the principal might indicate a willingness to

²⁶¹ *Struggles*, Towards dynamic governance 2014 2014, p.28.

²⁶² *Struggles*, Towards dynamic governance 2014 2014, p.28.

interact with a given agent for a longer period. In contrast, a principal who offers a fixed-term contract implies a lack of trust which may trigger opportunistic behavior. Thus, an open-ended contract might be perceived as kinder than a fixed-term contract and as a result lead to more reciprocating behavior and higher effort. It is also likely that due to the status-quo bias an open-ended contract will lead to longer relationships than a fixed-term contract. As longer relations have been shown to be more efficient than one-shot interactions,²⁶³ it is likely that an open-ended contract will enhance efficiency in a relational contract. In the current study, I compare the behavior of agents under a fixed-term and an open-ended contract when only one contract type and when both contract types are available.

The study was designed and the data analyzed together with Sebastian J. Goerg and Erich Cromwell.

B. Materials and methods

I. Design and participants

A repeated gift-exchange game framework developed by Brown et al.²⁶⁴ to study the endogenous emergence of relational contracts served as a benchmark for the experimental design. The experiment was programmed using Z-Tree²⁶⁵ and was conducted in June, July 2014 and in January, February 2015 at the University of Bonn. A total of 480 participants²⁶⁶ were recruited from the BonnEconLab subject pool consisting of students with various fields of study.²⁶⁷ Twenty participants took part in each of the 24 experimental sessions and interacted with each other in groups of five, resulting in four independent observations per session. In total, we collected 24 independent observations per treatment. No subject participated in more than one session. Each session lasted about 100 minutes. Subjects were initially endowed with 150 points. Each point was worth 4 euro cents. At the end of a session, subjects were paid in private the total amount of points earned (including the initial

²⁶³ *Gächter/Falk*, Reputation and reciprocity: Consequences for the labour relation 2002.

²⁶⁴ *Brown/Falk/Fehr*, Relational contracts and the nature of market interactions 2004.

²⁶⁵ *Fischbacher*, Z-tree: Zurich toolbox for ready-made economic experiments 2007.

²⁶⁶ These numbers include also participants from the *FixedTermDefault* treatment described in the Appendix 2.

²⁶⁷ Participants were recruited via the online recruitment tool ORSEE (*Greiner*, The online recruitment system orsee 2.0-a guide for the organization of experiments in economics 2004) and hroot (*Bock/Baetge/Nicklisch*, Hroot: Hamburg registration and organization online tool 2014). Subjects who had already participated in any gift-exchange experiments were excluded.

endowment), converted into Euros. The average payment was 18.8 EUR in the main part of the experiment.

In each experimental treatment subjects were randomly assigned to a group and a role with an identification number (ID). There were two principals and three agents in each group. Identification numbers were known to all members of the group. Group matching, roles, and ID numbers remained constant for the 15 periods of the experiment. Participants were informed that the experiment lasts 15 periods.

Each period consisted of three stages: the offers' stage, the effort stage, and the feedback stage. In the offers' stage, principals made contract offers to agents by sending two types of offers: private or public. Both types of offers specified a desired effort ($\tilde{e} \in \{1,2,3, \dots, 10\}$) and a wage $w \in \{1,2,3, \dots, 100\}$. Private offers included the ID number of the agent to whom the offer was directed. Private offers were only visible to the principal who sent it and the specified agent. Private offers could be used by principals to renew a contract with a specified agent. Public offers were displayed to all available agents. Principals could make as many offers as desired and agents could accept any available offer. Each principal and each agent could enter into only one contract.

As soon as an agent accepted an offer, a contract was concluded, and this agent could no longer accept any offers in this period. No private offers could be sent to this agent and the existing private offers directed to him were removed from the market. The principal who had concluded a contract could not send further offers and his existing offers were deleted. The offers' stage ended when both principals in a group concluded a contract or 150 seconds elapsed. It was possible for both – agents and principals – to conclude no contract in a given period. In this case, the principal made no profit, whereas the agent received his outside option of 5.

In the effort stage, agents who entered into a contract made an effort choice. Agents were not bound by the desired effort (e) specified in the accepted offer. This feature of the design was implemented in order to reflect the incompleteness of a contract. Therefore, agents could freely choose their effort level (e) at a cost $c(e)$ displayed in Table 1. Principals, however, were bound by the accepted wage offer. Regardless of the agent's choice, the accepted wage was subtracted from the endowment of the principal and paid to the agent.

After the effort stage, all subjects were informed about their payoffs in the feedback stage. The payoffs of principals were calculated according to the rule:

$$\pi_P = \begin{cases} 10e - w & \text{if a contract offer was accepted} \\ 0 & \text{if no contract was accepted} \end{cases}$$

and the payoffs of agents were calculated according to the following rule:

$$\pi_A = \begin{cases} w - c(e) & \text{if a contract offer was accepted} \\ 5 & \text{if no contract was accepted} \end{cases}$$

Principals and agents were informed about their payoffs. As the payoff rule was common knowledge, each principal could calculate the payoff of his agent and each agent could calculate the payoff of his principal. In each period, the history of previous interactions was displayed on the screen (own payoffs and ID number of a contractual partner in a given period, total payoffs).

II. Materials and procedures

1. Treatments

To investigate the influence of the contract type on the behavior of contractual partners, we implemented three treatments: *FixedTerm*, *OpenEnd*, and *Mixed*.²⁶⁸ In the *FixedTerm* treatment, each contract was concluded for one period and each period begins with the offers' stage. Principals, who want to continue a relationship with a given agent, could do so by sending private offers to a specific agent. If the agent had accepted such an offer, the contractual relationship continued.²⁶⁹

In the *OpenEnd* treatment, each contract was concluded for all remaining periods of the experiment. However, during the feedback stage at the end of each period, agents and principals with a contract could decide whether to terminate the contract or continue to the next period. If a contract was terminated by at least one of the partners, both the principal

²⁶⁸ A fourth treatment, *FixedTermDefault* contains elements of both *FixedTerm* and *OpenEnd* treatment. Results from this treatment largely overlap with the *FixedTerm* treatment and thus, the *FixedTermDefault* treatment has been excluded from the analyses. Details on a treatment manipulation as well as a summary of the results are included in Appendix 1.

²⁶⁹ This treatment closely resembles the ICF condition (incomplete contracts with identification) from Brown et al. The only differences to Brown et al. are the size of groups (2 principals instead of 7 and 3 agents instead of 10) and the knowledge of offers – in the current design principals are not informed about the offers made by other principals.

and agent started the next period with the offers' stage. If both agreed to continue, the next period began with the effort stage. The wage, the desired effort level, and the contractual partner remained the same as in the previous period.

In the *Mixed* treatment, principals could choose whether to offer a fixed-term or an open-ended contract. In this treatment offers also included the type of contract offered. If a fixed-term contract was formed, the contract was governed by the rules of the *FixedTerm* treatment. Thus, the subsequent period started with the offers' stage for both partners. Principals could decide to continue a relationship with the same agent by making a private offer. If an open-ended contract was formed, the contract was governed by the rules of the *OpenEnd* treatment. It extended for all remaining periods and could be terminated by either of contractual partners at the end of each period during the feedback stage. Principals in the offers' stage could freely choose the type of contract, irrespective of the types of contracts formed in the previous periods. This treatment was designed to explore whether the endogenous choice of different provisions on contractual duration change their meaning to the contractual partners.

2. Procedures

The experimental instructions were framed in a labor market language.²⁷⁰ Principals were called *firms*, agents – *workers* and contracts – *employment contracts*. Upon arrival, participants were randomly assigned to separate cubicles. Instructions for the experiment were read aloud by the experimenter, and a quiz was conducted to ensure that all subjects were familiar with the rules of the experiment. Before the start of the experiment, participants were allowed to ask questions which were answered privately by the experimenter. At the end of the experiment, participants completed a social value orientation test as well as a personality questionnaire. A 32-items test implemented by van Dijk, Sonnemans, and van Winden²⁷¹, who adopted a 'social value orientation' test developed originally by Liebrand²⁷², was used to elicit social preferences of participants. The personality questionnaire included the 10-item measure of the Big Five personality domains

²⁷⁰ The instructions were formulated in German. A translated copy of the instructions is included in the appendix.

²⁷¹ van Dijk/Sonnemans/van Winden, Social ties in a public good experiment 2002.

²⁷² Liebrand, The effect of social motives, communication and group size on behaviour in an n-person multi-stage mixed-motive game 1984.

as well as four questions on self-assessed trust and risk attitudes using questions from the German Socio-Economic Panel (GSOEP). The trust scale is generated from the following items: (1) *In general, you can trust people.* (2) *Nowadays, you cannot rely on anybody.* (3) *It is better to be cautious before trusting strangers* (Cronbach's $\alpha = 0.69$). Self-assessed risk preferences are measured with a question: *How do you see yourself: are you a person who is fully prepared to take risks or do you try to avoid taking risks?*

C. Theoretical background and hypotheses

In the following section, I will describe predictions for individual behavior in the current experimental setting. I will start with equilibrium predictions based on the assumption of self-interested and rational players as well as common knowledge of self-interest and rationality. Next, I will present the predictions assuming the existence of some inequality-averse players and incomplete information on the type of players. Finally, based on two behavioral phenomena – the reciprocity and status-quo bias – I will derive predictions for agents' effort choices and the length of principal-agent relations in the experimental treatments.

Given the standard assumptions of common knowledge of self-interest and rationality as well as the parameters of the experimental design, in equilibrium a principal offers a wage $w = 5$ ²⁷³ which renders an agent indifferent between accepting an offer or rejecting it and receiving an outside option, $\pi_A = 5$ guaranteed if no contract is concluded. If an offer is accepted, an agent chooses the minimum effort of 1. As a result, a principal receives the payoff $\pi_P = (10 * 1) - 5 = 5$ and an agent receives the payoff $\pi_A = 5 - 0 = 5$. In this case the whole benefit of a transaction is reaped by a principal.²⁷⁴ According to standard predictions the equilibrium behavior should not differ depending on the type of contract.

Based on the assumption that there exist a sufficient number of reciprocating agents one can predict cooperative behavior which is sustained almost until the last period of the

²⁷³ In the equilibrium also wage, $w = 6$ is possible. With $w = 6$ an agent is not anymore indifferent but prefers accepting an offer than having no contract at all.

²⁷⁴ The benefit of a transaction is the surplus achieved through a transaction in comparison to a situation when no contract is concluded. If no contract is concluded agents receive profit of $\pi_A = 5$ and principals $\pi_P = 0$. Therefore, the surplus of a transaction in non-cooperative equilibrium is 5 - the profit earned by principals.

game.²⁷⁵ In equilibrium both – selfish and reciprocating - agents provide high effort levels. They differ however in their motivation. A selfish agent accepts any offer and chooses an effort level equal to the desired effort as long as the costs of this effort do not exceed expected profits from future interaction with the same principal. In contrast, non-selfish agents reciprocate high wages offered by the principal. The level of effort depends on the level of wage. The expectation of future rents from the interaction is a main motive for a selfish agent to provide high effort. If principals believe that there are some reciprocating agents on the market they will offer high wages even in the last period of the game. Additionally, selfish agents are also disciplined by a belief that there are reciprocating agents available on the market which could replace them if a principal decides not to renew a contract. A contract will not be renewed as soon as an agent provides effort lower than the desired effort specified in the offer.

Given these predictions in the current study, one should observe effort levels and wages higher than in the equilibrium based on standard assumptions. According to this behavioral equilibrium, there should be no differences in cooperative behavior between the fixed-term and the open-ended contract type. Two behavioral phenomena – status quo bias and reciprocity – may yet lead to different behavior of agents and principals when interacting in a fixed-term compared to an open-ended contract.

I. *Agents' effort choices*

A simple model is proposed to derive predictions regarding agents' effort choices depending on the concluded contract type. The key assumption of the model is that the kindness of each contract type is evaluated differently by the agent in light of all contract types available to the principal. It is clear that the perception of principal's kindness by the agent depends not only on the contract type but also on a wage and desired effort level specified in the offer. However, in the model this is simplified to focus only on the impact of contract type on the perception of principal's kindness. The behavioral reactions of contractual partners to different contract types are modeled based on Falk and Fischbacher's theory of reciprocity.²⁷⁶ The underlying assumption of the theory is that people evaluate the

²⁷⁵ These predictions are based on the behavioral equilibrium suggested by Brown et al. A more formalized presentation can be found in the Appendix to Brown et al.

²⁷⁶ Falk/Fischbacher, A theory of reciprocity 2006.

final allocation not only by looking at the outcome itself but also by assessing intentions of a decision maker. How the intentions are evaluated depends on the options available to the decision maker. More specifically, to assess the intentions, the decision maker needs to have a possibility to choose between fair and unfair allocation.

According to the model each offer consists of three elements: wage, desired effort level, and contract type. The contract type offered is one of the available contract types, $c \in C$. When sending an offer to an agent a principal has a set of possible strategies: S_P , whereas $s_P \in S_P$ is his given strategy. Thus, each contract offer is principal's defined strategy ($s_P|w, \tilde{e}, c$). The payoff function of the agents is the following:

$$\pi_A = w - c(e)$$

Contract offers made by a principal are perceived by an agent regarding their kindness. In the model, it is assumed that there is a kindness term φ_A which represents how kind an agent perceives the principal's offer given the contract type. The parameter φ_A enters the utility function of the agent in the following way:

$$U(w, e, c) = w - c(e) + \varphi_A$$

Depending on the treatment a principal may initially offer different types of contracts – fixed-term, c_{FT} and/or open-ended, c_{OE} . According to the model, there is also a third type of a contract – a renewal contract, c_R , which is available only for the agent and principal who have interacted with each other in the directly preceding period. A renewal contract represents a contract between parties who decide to continue their contractual relationship either by renewing an initial fixed-term contract or by non-terminating an initial open-ended contract. In the first period of the experiment, the only possible contract types are the ones available by the experimental design. In all subsequent periods a renewal contract might be available.

Whether a contract type offered is interpreted as c_{FT} , c_{OE} or c_R depends on the treatment, timing and type of offer. In the *FixedTerm* treatment the contract types offered are defined as follows:

- Initial fixed-term contract type, c_{FT} :
 - in period 1:

- any contract offered irrespective of the type of offer (private or public),
- in period > 1 :
 - any contract offered publicly,
 - a contract offered privately to an agent not hired by the offering principal in a directly preceding period,
- Renewal contract, c_R (available only in periods > 1):
 - a contract offered privately to an agent hired by the offering principal in the directly preceding period.

In the *OpenEnd* treatment contract types are defined as in the *FixedTerm* treatment with an additional possibility for a renewal contract. A contract type offered is classified as a renewal contract if an agent and a principal mutually agree to extend the concluded contract without going to the offers stage. In the *Mixed* treatment an initial fixed-term contract c_{FT} and an initial open-ended contract c_{OE} are available from the beginning. Subsequently, from period > 1 , a renewal contract c_R enters the contract set. Its definition depends on whether a contract concluded in the preceding period is a fixed-term or an open-ended one. If it is a fixed-term contract, a renewal contract is defined as in the *FixedTerm* treatment. In the case of an open-ended contract in the preceding period, a renewal contract is defined as in the *OpenEnd* treatment.

Table 3: Contract sets by experimental treatment

Treatment	Period = 1	Period > 1
FixedTerm	C_{FT}	C_{FT}, C_R
OpenEnd	C_{OE}	C_{OE}, C_R
Mixed	C_{FT}, C_{OE}	C_{FT}, C_{OE}, C_R

Available contract sets are summarized in Table 3. Each contract set C depends on the treatment $X = [FT, OE, MX]$ and period t . The model assumes that agents will perceive

the kindness of any concluded contract not only in light of its wage and desired effort, but also depending on the type of contract given the contract set C_{xt} . The hypothesis on behavioral reactions towards different contract types are formulated given different contract sets made available in the experimental treatments.

The model is used as a framework to propose two hypotheses regarding agents' effort responses to various contract types available in the experimental treatments. The hypotheses are derived based on the assumptions about φ_A (kindness term) and holding wage and desired effort constant. More specifically, it is assumed that an initial contract of any duration type (c_{FT} or c_{OE}) is always perceived as less kind than a renewal contract. The perception of an initial contract changes when both contract types c_{FT} and c_{OE} are available. An open-ended contract might be perceived as a sign of trust and willingness to stay in one relationship for a longer period of time. In contrast, offering a fixed-term contract might be seen as a distrustful behavior showing no willingness to stay in a long-term relation. Therefore, in the presence of both types of contracts, it is assumed that an open-ended contract is perceived as kinder than a fixed-term contract. It is predicted that agents will reciprocate the kindness of a contract type and provide different effort levels depending on the contract set and the contract type concluded.

Behavioral prediction 1:

For a given wage and desired effort, an agent provides less effort under a new contract of any duration type than under a renewal contract, whenever a renewal contract enters the contract set.

Behavioral prediction 2:

For a given wage and desired effort, an agent provides less effort under an initial fixed-term contract than under an initial open-ended contract, if both contract types are available.

II. *The length of principal-agent relations*

Predictions regarding the share of contracts concluded in long-term relations under fixed-term compared to the open-ended contract are derived based on the status quo bias. Given the definition of contract types introduced above, a long-term relation is any contractual relation under a renewal contract.

The status quo bias is a behavioral phenomenon referring to peoples' tendency to uphold the current state of affairs which they perceive as a status quo rather than opt for an alternative state.²⁷⁷ Samuelson and Zeckhauser who coined the term "status quo bias" conducted a series of experiments in which they presented people with scenarios describing various decision problems.²⁷⁸ Subsequently, individuals were prompted to make decisions by choosing one of the alternative options introduced in the scenario. In some scenarios, one of the options was described as a status quo and the decision involved a choice between keeping the current option and switching to one of the alternatives. In other scenarios, participants chose between different options, but none of the options was described as a current one. The authors observed that people tend to choose an option more frequently when it is presented as a status quo than when it is presented as one of the alternatives, and no status quo option is given. This difference is larger when people are confronted with more alternative options.²⁷⁹

In the current study, an open-ended contract creates a status quo of being in a contractual relation with a given person until the end of the experiment. To change the status quo one of contractual partners has to opt for terminating the existing contract. In contrast, in a fixed-term contract, a status quo is that a contract ends after one period. In each period, contractual parties need to make a decision to extend the current contract. Given the empirical results on the status-quo bias, one could predict that people will tend to stay in a current contractual relation more often in open-ended than in fixed term contracts.²⁸⁰ This difference should be observed irrespective of the available contract types.

²⁷⁷ *Kahneman/Knetsch/Thaler*, Anomalies: The endowment effect, loss aversion, and status quo bias 1991.

²⁷⁸ *Samuelson/Zeckhauser*, Status quo bias in decision making 1988.

²⁷⁹ For a short review of the current findings and possible behavioral mechanisms underlying the status-quo bias see: *Zamir*, Law, psychology, and morality: The role of loss aversion 2014, pp. 17-21.

²⁸⁰ Omission bias is a related behavioral phenomenon often mentioned together with a status quo bias. It refers to people tendency to favor inaction over action (for a difference between status-quo and omission bias see: *Schweitzer*, Disentangling status quo and omission effects: An experimental analysis 1994). In case of the current experimental design omission bias should not play any role. As in the fixed-term contract in the open-end contracts participants has to be active in both cases – in order to terminate a contract as well as in order to continue to the next period with the same contractual partner.

Behavioral prediction 3:

More renewal contracts will be observed in the OpenEnd treatment than in the FixedTerm treatment. Also, in the Mixed treatment, more renewal contracts will be observed in the open-ended than in the fixed-term contracts.

D. Results

I. Descriptive statistics

Table 4 presents the key dependent variables by treatment (*FixedTerm* and *OpenEnd*) and contract type within the *Mixed* treatment. In the *Mixed* treatment, principals could choose between two types of contract. Therefore, the results are reported separately for each contract type. *Mixed (FT)* represents fixed-term contracts and *Mixed (OE)* represents open-ended contracts in the *Mixed* treatment.

The last line, starting from the bottom of Table 4, displays the number of concluded contracts in each treatment. For each treatment there existed a maximum of 720 possible contracts (2 principals * 15 periods * 24 groups in each treatment). “Unused Contracts” reports the number of times where a principal did not conclude any contract at all. For the *Mixed(FT)* and *Mixed(OE)*, the Unused Contracts represents the number of times no contract was entered into by one of the principals in the complete *Mixed* treatment. The low number of “Unused Contracts” (the largest number in the *FixedTerm* treatment is 17 “Unused Contracts”) indicates that principals almost always successfully used their opportunity to hire an agent.

Table 4 reports the percentage of contracts concluded as a result of a private offer. The low number in the *OpenEnd* treatment (18.7%) and *Mixed(OE)* contracts (19.6%) is related to the experimental design which allowed for extending the existing contract without entering into the offers' stage. More specifically, if both – the principal and the agent – agreed for continuing to the next period, their contract was upheld, and private offers were not needed to extend their contractual relationship.

Table 4: Descriptive statistics by treatment and contract type

	FixedTerm	OpenEnd	Mixed (FT)	Mixed (OE)
Effort	6.04	6.31	4.31	6.64
Wage	40.30	38.79	31.54	41.45
Desired Effort	7.59	7.43	6.21	8.17
Percent Private Offers	61.6%	18.7%	42.9%	19.6%
Percent Renewal Contracts	41.3%	66.6%	20.7%	70.5%
Unused Contracts	17	8	15	15
<i>N</i>	703	712	261	444

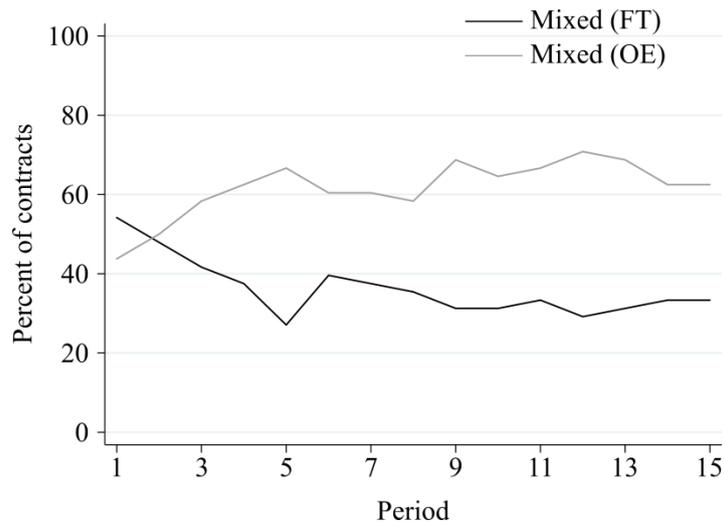
Furthermore, Table 4 displays the share of renewal contracts in each of the treatments. Recall that renewal contracts are defined as all contracts between a principal and an agent who interacted with each other in the directly preceding period. An additional condition for a contract to be classified as a renewal contract is that both contractual partners expressed willingness to extend their current contract. In the case of fixed-term contracts, it means that a renewal contract could be concluded only through a private offer. In the case of an open-ended contract a renewal contract is concluded if neither a principal nor an agent terminated a contract in the preceding period or if one of them ended a contract but in the next period, a new contract between the same principal and agent was concluded through a private offer.

Among all contracts, *Mixed(OE)* contracts have the largest renewal rate (70.5%) and *Mixed(FT)* contracts have the lowest renewal rate (20.7%). The treatments with exogenous contract type (*FixedTerm* and *OpenEnd*) show a similar pattern. The share of renewal contracts in the *FixedTerm* treatment (41.3%) is nearly 30% lower than in the *OpenEnd* treatment. However, it is still larger than in *Mixed(FT)* contracts. This is in line with the behavioral prediction 3 according to which due to the status quo bias more renewal contracts should be observed in the *OpenEnd* treatment than in the *FixedTerm* treatment. The same pattern should be observed comparing open-ended and fixed-term contracts in the *Mixed* treatment.

Results provided in Table 4 reveal that more contracts were concluded as open-ended than as fixed-term (444 vs. 261) in the *Mixed* treatment. Figure 3 shows a time trend in the percentage of contracts entered into either as open-ended or fixed-term. Whereas in the

initial periods *Mixed(FT)* contracts outnumbered the *Mixed(OE)* contracts by 54% to 44%, the proportion reversed in the later periods (33% *Mixed(FT)* contracts and 63% *Mixed(OE)* contracts).²⁸¹

Figure 3: Percentage of each contract type in the Mixed treatment



Note: Percentage of Mixed (FT) and Mixed(OE) contract types out of 48 contracts available in the Mixed treatment in each period.

The first three lines of Table 4 display means of wage, effort and desired effort level which look fairly similar in the *FixedTerm*, *OpenEnd* treatments and the *Mixed(OE)* contract type. Different values are observed only in *Mixed(FT)* contracts.

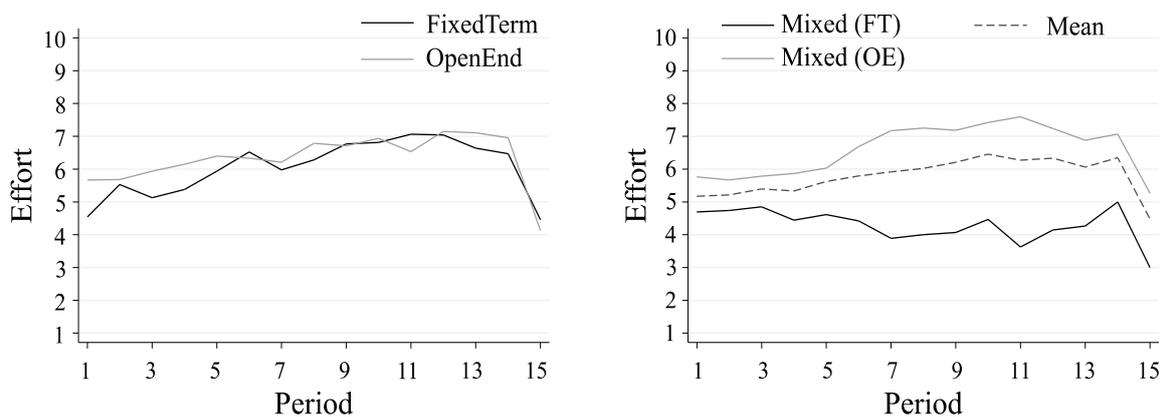
Agents who concluded *Mixed(FT)* contracts provided the lowest effort levels compared to *FixedTerm* and *OpenEnd* treatment as well as to *Mixed(OE)* contracts (two-sided Wilcoxon rank sum test: $p < 0.01$ in each of the three comparisons).²⁸² No other comparisons between the treatments and the *Mixed(OE)* contract type revealed significant differences in effort levels provided by agents. Figure 4 displays mean effort levels over the

²⁸¹ The percentage is a share of contracts of a given type out of 48 contracts available in the Mixed treatment in each period (there were altogether 24 groups with 2 principals in each group). The percentages of contract types do not sum up to 100% in some periods in which one or two principals did not conclude any contract at all.

²⁸² In the experiment participants interacted in groups of five. Therefore, all statistical non-parametric tests were conducted using group means. There were 24 groups in each treatment and in *Mixed(OE)* contract type and 23 groups in *Mixed(FT)* contract type as one group in the *Mixed* treatment did not experience any *Mixed(FT)* contract type.

course of the experiment. In all treatments the „end game” effect is observed – a typical sharp decline in effort provided in the last period of the experiment. Effort choices in the *FixedTerm* and *OpenEnd* treatment as well as under the *Mixed(OE)* contracts show similar positive time trend during periods 1-14. An interesting development over time can be noticed in the provision of effort under *Mixed(FT)* contracts. In the initial periods mean effort levels under *Mixed(FT)* contracts seem fairly similar to these observed in *Mixed(OE)* contracts. However, in contrast to *Mixed(OE)* contracts in which the effort levels slightly increase over time, in *Mixed(FT)* contracts, there is a downward trend in the later periods. The right-hand side of Figure 4 also displays mean effort levels in the *Mixed* treatment.

Figure 4: Mean effort over time



(a) Treatments FixedTerm and OpenEnd

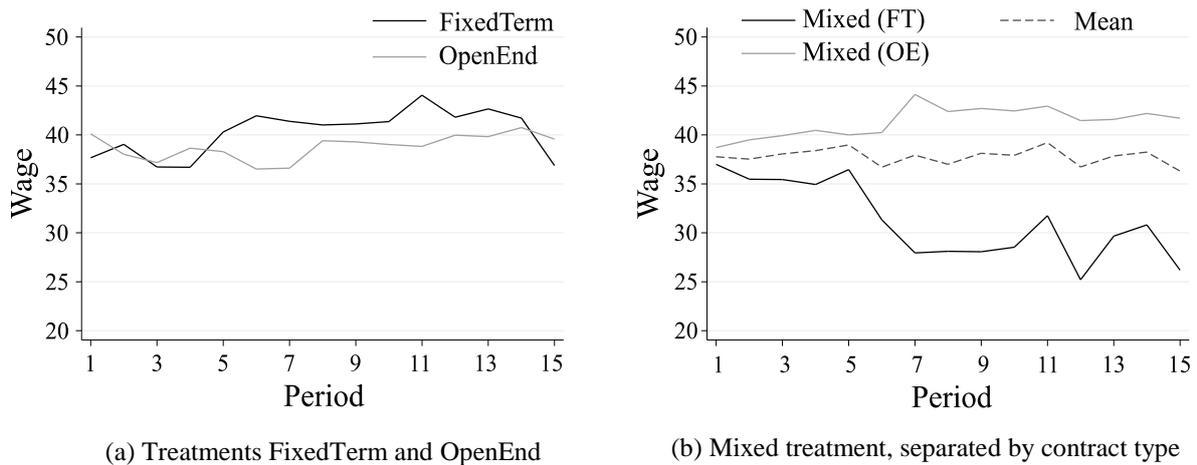
(b) Mixed treatment, separated by contract type

Note: The figure on the left-hand side displays group means of effort over all periods of the experiment in the *FixedTerm* and *OpenEnd* treatments. The figure on the right-hand side displays group means of effort over all periods of the experiment in the Mixed treatments and separately for *Mixed(OE)* and *Mixed(FT)* contract types

Similar patterns are observed when looking at wages paid by principals in all treatments and contract types. Figure 5 displays mean wage levels over the course of the experiment. Agents who concluded *Mixed(FT)* contracts are paid significantly lower wages compared to *FixedTerm* and *OpenEnd* treatments as well as to *Mixed(OE)* contracts (two-sided Wilcoxon rank sum test: $p < 0.01$). There are no other significant differences in wages between treatments and contract types. Time trends in wages correspond to time trends observed in effort levels. In *FixedTerm* and *OpenEnd* treatments as well as in *Mixed(OE)* contracts wages tend to rise slightly in the later periods in comparison to the early periods of

the experiment. This is, however, not the case in *Mixed(FT)* contracts. There is a striking decrease in wages paid under *Mixed(FT)* contracts starting with period five which coincides with a similar decline in effort provided by agents under *Mixed(FT)* contracts.

Figure 5: Mean wage over time



Note: The figure on the left-hand side displays group means of wages over all periods of the experiment in the *FixedTerm* and *OpenEnd* treatments. The figure on the right-hand side displays group means of wages over all periods of the experiment in the *Mixed* treatments and separately for *Mixed(OE)* and *Mixed(FT)* contract types

II. Effort choices

Regression analyzes were conducted to isolate further differences between treatments and contract types. As the dependent variable effort choice was restricted to the values from 1 to 10,²⁸³ a Tobit model with upper and lower censoring was implemented to inspect the impact of treatments and contract types on effort choices. Standard errors were clustered to correct for dependence at the group level. Table 5 reports the results.

²⁸³ Censoring was found in 27.5% of contracts with 258 left-censored at $e = 1$ and 324 right-censored at $e = 10$. Random effects model analyses conducted as a robustness check revealed the same significance levels of all treatment variables.

Table 5: Tobit regression on effort by treatment

	(1) Effort	(2) Effort	(3) Effort	(4) Effort	(5) Effort
FixedTerm	-0.35 (0.54)	-0.35 (0.54)	-0.61** (0.26)	-0.20 (0.23)	
Mixed(FT)	-2.64*** (0.56)	-2.55*** (0.56)	-1.21*** (0.34)	-0.75** (0.29)	
Mixed(OE)	0.37 (0.60)	0.32 (0.60)	-0.26 (0.31)	-0.14 (0.24)	
Period		0.15*** (0.03)	0.09*** (0.02)	0.06*** (0.02)	0.06*** (0.02)
Last Period		-3.74*** (0.43)	-2.99*** (0.40)	-3.01*** (0.43)	-3.01*** (0.43)
Wage			0.13*** (0.01)	0.10*** (0.01)	0.10*** (0.01)
Desired Effort			0.36*** (0.07)	0.32*** (0.05)	0.32*** (0.05)
Renewal Contract				0.80*** (0.14)	0.62*** (0.21)
First Effort				0.29*** (0.04)	0.29*** (0.04)
Period First Hired				0.03 (0.02)	0.03 (0.02)
FixedTerm*Renewal					-0.04 (0.28)
Mixed (FT)*Renewal					-0.21 (0.32)
Mixed (OE)*Renewal					-0.16 (0.27)
FixedTerm*Initial					-0.39 (0.27)
Mixed (FT)*Initial					-1.02*** (0.31)
Mixed (OE)*Initial					-0.10 (0.28)
Constant	6.50*** (0.35)	5.57*** (0.37)	-1.63*** (0.37)	-2.75*** (0.36)	-2.63*** (0.38)
N	2120	2120	2120	1907	1907
Clusters	72	72	72	72	72

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level

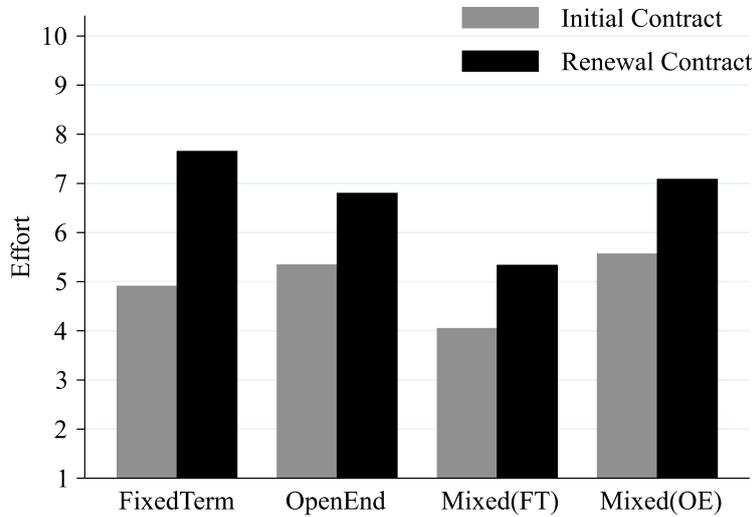
In each model, the *OpenEnd* treatment is the comparison group. The first model confirms the results of non-parametric tests showing significantly lower effort levels provided by agents hired under the *Mixed(FT)* contract type. Model 2 introduces the variables *Period* and *Last Period*, which control for time trends in effort provided by agents. The coefficient of the *Mixed(FT)* contract type remains negative and statistically significant.

In the repeated gift-exchange game implemented in this experiment, agents make effort choices in response to wage and desired effort level specified in the offer. Model 3 and 4 introduce in the regression analyzes these two variables – wage and desired effort – to control for their impact on the effort choices. Interestingly, when controlling for wage and desired effort level, a significant negative coefficient is observed for both – *Mixed(FT)* contract types and the *FixedTerm* treatment. This result seems to reflect the trend visible in the descriptive statistics presented in Table 4. Agents in the *FixedTerm* treatment provided a mean effort of 6.04 in response to mean wages of 40.30 whereas mean wages of 38.79 were reciprocated with a mean effort of 6.31 in the *OpenEnd* treatment. Independently comparing mean effort choices and wages does not reveal any significant differences between *FixedTerm* and *OpenEnd* treatment. However, when controlling for a wage, it is clear that wages paid in the *FixedTerm* treatment are not reciprocated with effort levels as high as in the *OpenEnd* treatment.²⁸⁴

Given the lower effort choices in *Mixed(FT)* contracts as well as lower effort responses to wages in *FixedTerm* treatment, further analyzes were conducted to investigate reactions of agents to renewal and initial contracts depending on treatment and contract type. Figure 6 displays mean effort choices in both treatments and contract types in *Mixed* treatment separately for initial and renewal contracts. Regardless of the treatment and contract type in the *Mixed* treatment renewal contracts are always related to a higher mean of effort than initial contracts.

²⁸⁴ This result might be represented in terms of principals' earnings. Per period principals receive 4.21 points more in the *OpenEnd* than in the *FixedTerm* treatment. This amounts to average 2.52€ earned additionally by each principal in the *OpenEnd* treatment. Given the average payment of 18.64€ for a principal in the experiment, this represents 7% increase in earnings.

Figure 6: Mean effort by contract type (Initial and Renewal contract)



Note: Means of effort provided in all periods of the experiment separately for Renewal and Initial Contracts over all conditions. The results from Mixed treatment are presented separately for Mixed(FT) and Mixed(OE) contracts.

It would be ideal to examine responses to each contract type – fixed-term, open-ended and renewal – in isolation since the agents, who are more reciprocal from the beginning, are also more likely to be offered a renewal contract. As a result, higher effort choices could potentially be not only the effect of a renewal contract type but also a consequence of a type of agents hired under renewal contracts. Two variables were included in the regression analyses to control for the type of agent: First Effort and Period First Hired. First Effort controls for effort choices made by agents in the first period of being hired. For agents who were unemployed in the first period, the variable First Effort takes the effort value of the first period they were employed. To avoid including effort variables on both sides of the regression equation, observations from the first period of the first contract for an agent were dropped in Model 4 and 5. To control for the potential impact of being unemployed in the first periods, a variable Period First Hired was included in the regression model. This variable takes the value of the period of the experiment in which an agent was hired for the first time. Model 4 in Table 5 reports results of a Tobit regression on effort including variables controlling for time trends (Period and Last Period), wage, desired effort and agent's type (First Effort, Period First Hired). Furthermore, Model 4 includes a dummy

variable indicating whether a contract was a renewal contract (Renewal Contract). Being in a renewal contract seems to have a positive impact on agents' effort choices. Interestingly, controlling for the impact of renewal contracts the coefficient indicating a negative impact of the *FixedTerm* treatment on agents' effort responses to wages becomes insignificant. The negative influence of *Mixed(FT)* contracts on effort is still observed. Do the agents response differently to renewal contracts depending on the treatment and contract type? Model 6 reported in Table 7 includes interaction terms for initial and renewal contracts: *Mixed(FT)*Initial*, *Mixed(OE)*Initial*, *FixedTerm*Initial*; *Mixed(FT)*Renewal*, *Mixed(OE)*Renewal* and *FixedTerm*Renewal*. The coefficients of interaction terms for renewal contracts reveal that agents do not distinguish between renewal contracts offered in different treatments. The results suggest that once contracts are renewed and both parties agree to continue their interaction, then the initial contract duration does not matter anymore. The ongoing relationship between the same agent and principal ensures higher effort responses of agents.

While all renewal contracts are viewed equally by agents irrespective of the treatment or contract type, initial contracts show important differences. The results of the regression analysis reveal strong negative and statistically significant result for *Mixed(FT)* contracts – effort responses in initial *Mixed(FT)* contracts are lower than in initial contracts in *OpenEnd* treatment. Although effort choices in initial *Mixed(OE)* contracts are not significantly different from initial contracts in the *OpenEnd* treatment, there are significantly higher than in initial *Mixed(FT)* contracts.²⁸⁵ This difference between *Mixed(OE)* and *Mixed(FT)* contracts disappears when both contractual partners decide to continue their interaction.

III. Wages

Table 6 reports results of a regression analysis on wages with standard errors clustered at the group level.²⁸⁶ It reveals that agents receive significantly lower wages under *Mixed(FT)* contracts than in the *OpenEnd* treatment (Model 1).

²⁸⁵ Coefficients compared using a two-sided t-test.

²⁸⁶ Although the experimental design restricts wage offers between 1 and 100, only 9 of the 2120 observations were observed at the end point. Analyses using a Tobit regression conducted to address this minor censoring reveal comparable results.

Table 6: Regression on wage by treatment

	(1) Wage	(2) Wage	(3) Wage
FixedTerm	1.23 (2.54)	1.23 (2.54)	2.34 (2.45)
Mixed (FT)	-5.33** (2.50)	-5.20** (2.53)	-3.24 (2.49)
Mixed(OE)	1.49 (2.38)	1.40 (2.38)	1.26 (2.32)
Period		0.15 (0.13)	-0.00 (0.13)
Last Period		-2.32** (1.03)	-1.74* (0.99)
Renewal			4.36*** (0.71)
Constant	38.62*** (1.75)	37.57*** (2.01)	35.85*** (1.96)
N	2120	2120	2120
Clusters	72	72	72

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level.

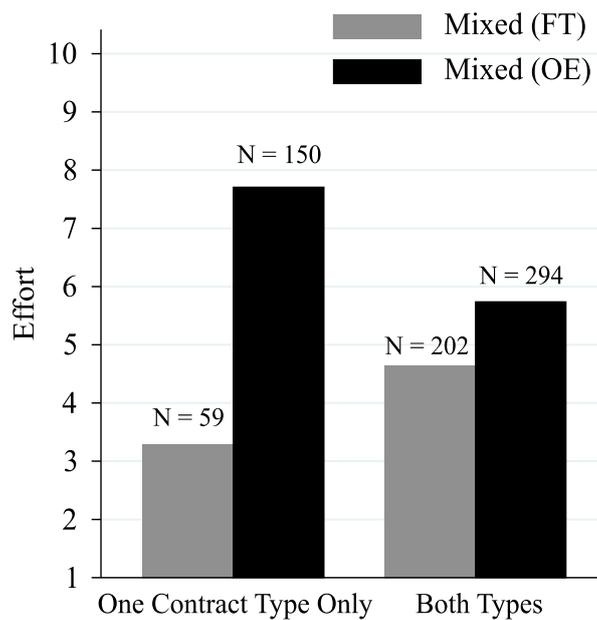
There are no significant differences between the *OpenEnd* treatment, the *FixedTerm* treatment and *Mixed(OE)* contracts in the *Mixed* treatment (Model 1). It seems that the main reason for the observed variation in wages is the use of renewal contracts which are far less prevalent in *Mixed(FT)* contracts. As a result, wages under *Mixed(FT)* contracts tend to be much lower. Including a dummy for a renewal contract (Model 3) shows a significant positive relation of a renewal contract and wage paid by the principal. Furthermore, the coefficient for *Mixed(FT)* contracts in Model 3 becomes less negative and insignificant.

IV. Behavior in the Mixed treatment

In this section, I take a closer look at the behavior of agents and principals in the *Mixed* treatment. If offers for both contract types – *Mixed(OE)* and *Mixed(FT)* – are available on the market, it is possible that high-reciprocating types would self-select into *Mixed(OE)* contracts and low-reciprocating agents would choose *Mixed(FT)* contracts. In this case, low effort choices observed in *Mixed(FT)* contracts would not be an effect of a

contract type but would rather reflect a selection effect: certain types of agents self-select into a particular contract type. This explanation can be excluded by analyzing the behavior of agents who experienced each type of contract at least for one period. Given the endogenous selection of contracts in the *Mixed* treatment, 50 agents experienced both contract types, and 21 agents experienced only one of the contract types.²⁸⁷ The first two bars of Figure 7 display means of effort provided by the agents who concluded either only the *Mixed(FT)* contract (10 agents) or only the *Mixed(OE)* contract (11 agents) during the whole experiment. The last two columns represent average effort choices by the agents who experienced each contract type for at least one period of the experiment. Figure 7 reports the average effort (mean of individual averages) of agents in a given contract type.

Figure 7: Mean effort over agent's concluded contract



Note: Means of effort provided by agents who experienced either only one or both contract types in the *Mixed* treatment over the type of contract - *Mixed(FT)* and *Mixed(OE)*. The numbers above the columns indicate the number of contracts concluded in each type of contract.

The results reveal that agents provide higher effort when hired under the *Mixed(OE)* contract than under the *Mixed(FT)* contract regardless of the agent's experience with only

²⁸⁷ One agent did not conclude any contract in the *Mixed* treatment.

one or two contract types. In particular, the comparison of effort levels provided by the agents who experienced both types of contracts reveals significantly higher effort choices under *Mixed(OE)* than under *Mixed(FT)* contracts (Wilcoxon signed-rank test: $p < 0.01$). Thus, it can be concluded that the difference in effort choices between the two contract types is not only a result of self-selection of different types of agents to a particular contract type. More specifically, the same agents provided higher effort when hired under the *Mixed(OE)* than under the *Mixed(FT)* contract.

This effect is examined in greater details using a Tobit regression on effort and restricting the sample to the agents who experienced both contract types in the *Mixed* treatment. The results are presented in Table 7. Model 1 confirms the results of a non-parametric test adding as a control Wage as well as Period and Last Period (variables catching time trends). Controlling for wages, agents provide lower effort when hired under the *Mixed(FT)* than under the *Mixed(OE)* contract. Model 2 adds a control variable for the desired effort level which appears to slightly mitigate the negative impact of the *Mixed(FT)* contract type as the coefficient for *Mixed(FT)* contract is still negative but not significant anymore. It seems that agents in the *Mixed(FT)* contract react positively to the desired effort specified in the offer although they are much less reciprocating. The size of the coefficient for *Mixed(FT)* contracts decreases when a control variable for a renewal contract is added in the regression model (Model 3). The coefficient of renewal contract is positive and significant. Model 3 and 4 includes variables First Effort and First Period Hired, which controls for the type of agent (similarly to Model 4 and 5 described in the Effort Choice section). To avoid the inclusion of effort variable on both sides of the regression equation, observations from periods which were the first period in the first contract for an agent were dropped in Model 3 and 4. Furthermore, Model 4 includes interaction terms representing initial and renewal contracts by contract types (*Mixed(FT)* or *Mixed(OE)*). The comparison group in Model 4 are *Mixed(OE)* renewal contracts. The regression analysis reveals that agents provide lower effort level in the initial *Mixed(FT)* contracts. The results imply that contract renewals are crucial for the contractual relationship in the experiment irrespective of the contract type. Continuing the relationship might overcome negative associations arising out of initially offering a fixed-term contract.

Table 7: Tobit regression on effort of agents who experienced both contract types

	(1) Effort	(2) Effort	(3) Effort	(4) Effort
Mixed (FT)	-0.56** (0.25)	-0.35 (0.23)	-0.26 (0.21)	
Wage	0.14*** (0.01)	0.12*** (0.02)	0.10*** (0.01)	0.10*** (0.01)
Period	0.08** (0.04)	0.08** (0.03)	0.05 (0.03)	0.04 (0.03)
Last Period	-2.40*** (0.61)	-2.34*** (0.62)	-2.60*** (0.65)	-2.61*** (0.65)
Desired Effort		0.22** (0.10)	0.10 (0.09)	0.11 (0.09)
First Effort			0.36*** (0.06)	0.38*** (0.07)
Period First Hired			-0.07** (0.03)	-0.07* (0.03)
Renewal Contract			0.53** (0.26)	
Mixed (FT) * Initial				-0.82*** (0.19)
Mixed (OE) * Initial				-0.16 (0.29)
Mixed (FT) * Renewal				0.48 (0.38)
Constant	0.02 (0.70)	-1.04* (0.58)	-0.87** (0.40)	-0.57 (0.45)
Observations	499	499	449	449

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level.

Given the negative impact of *Mixed(FT)* contracts on agents' effort choices, why do principals offer this type of contracts at all? Table 8 reports the results of a Probit regression analysis estimating the likelihood of a principal offering a *Mixed(FT)* contract.

Table 8: Probit regression on principals offering Mixed (FT)

	(1) Mixed (FT)	(2) Mixed (FT)	(3) Mixed (FT)	(4) Mixed (FT)
Effort $t - 1$	-0.28*** (0.04)	-0.28*** (0.04)	-0.27*** (0.04)	
Mixed (FT)*Initial	1.57*** (0.32)	1.48*** (0.34)		
Trust		-0.33 (0.24)	-0.53** (0.23)	-0.41* (0.24)
Risk		-0.07 (0.07)	-0.04 (0.09)	0.08 (0.09)
SVO		-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Constant	0.02 (0.36)	0.45 (0.57)	1.15 (0.71)	-0.28 (0.51)
Periods	2-15	2-15	2-15	1
N	658	658	658	47

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level. Models 1,2, and 3 estimate random effects probit and model 4 – a regular probit.

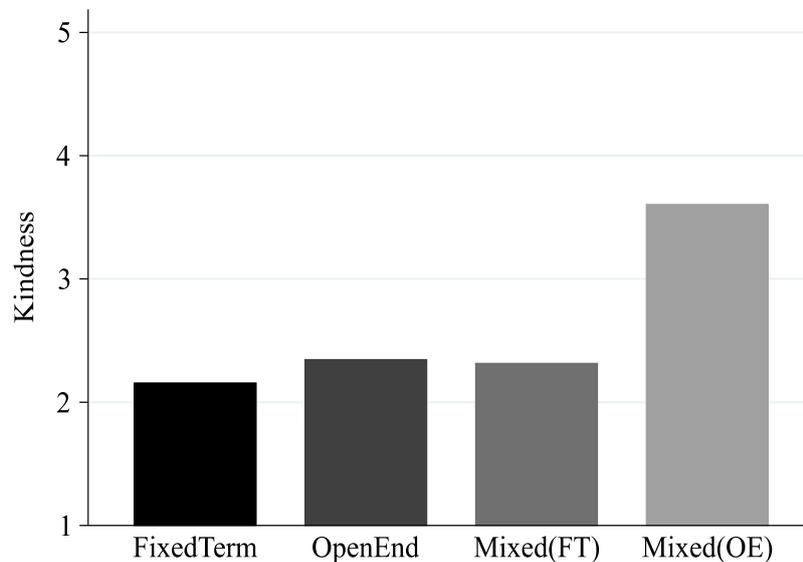
Models 1-3 are random effects estimations for periods 2-15. Model 4 examines principals' behavior in period 1. Model 1 shows that the lower effort the agent provided in the preceding period, the more likely the principal was to offer a *Mixed(FT)* contract in the current period. Furthermore, principals tend to stick to their initial choices. If a principal offered a *Mixed(FT)* contract in the first period of the experiment, it was also more likely that he offers a *Mixed(FT)* contract in the later periods. Models 2-4 look at principals' characteristics which could predict the choice of a contract type. As described in the Design subsection, after the main part of the experiment participants were asked to make allocation choices to elicit their Social Value Orientation. Additionally, they answered questions on

self-reported trust and risk attitudes. These variables have no impact on the selection of a contract type in Model 2. However, Model 4 which predicts the choice of a contract type in the very first period of the experiment reveals that trust is related to the selection of contract. The less trustful the principal is, the more the *Mixed(FT)* contract is chosen. The coefficient of trust remains negative and statistically significant in Model 3 which includes all variables indicating principal characteristics as well as agent's effort in the preceding period but drops the choice of contract in the first period.

V. Survey results – kindness of a contract type

As mentioned in section C the behavioral predictions were based on the assumption that a contract type is perceived differently concerning its kindness. Furthermore, according to the theory of reciprocity,²⁸⁸ the difference in kindness should be observed first when both contract types are available, as only then the choice of a contract type can reveal principal's

Figure 8: Average kindness response by treatment and contract



Note: Mean responses to the kindness questionnaire. The first two columns represent kindness perception of a contract type when only one contract is presented. The last two columns represent perception of *FixedTerm* and *OpenEnd* contract types when they are presented simultaneously.

²⁸⁸ Falk/Fischbacher, A theory of reciprocity 2006.

intentions. A survey was conducted to support the intuition on kindness perception of both contract types.²⁸⁹ Participants were randomly assigned to answer one of three questionnaires using a five-point Likert scale. Participants were asked about the kindness of contracts described in a short scenario. The first two scenarios described each of contract types reflecting the contracts in the *FixedTerm* and *OpenEnd* treatments. In these scenarios, participants were given information only on one contract type. The third scenario described both contract types as two options available to the principal as in the *Mixed* treatment. This way each scenario reflected the experimental environment implemented in the treatments. Participants were asked to assess the kindness of a contract type and to indicate whether they would work hard if hired under the respective contract type.

Results from the survey are displayed in Figure 8 which shows the average responses to two questions about the kindness of a contract type.²⁹⁰ *OpenEnd* contract was found to be perceived as kinder than *FixedTerm* contract but only in the third scenario when both contract types were presented as two available options. *OpenEnd* and *FixedTerm* contracts are perceived as equally kind, when described separately. The survey results are in line with the experimental findings. Each contract type does not alter agents' behavior in a meaningful way, when it is imposed exogenously. However, when both contracts are available, agents react with higher effort levels to the open-ended than to the fixed-term contract.

E. Discussion

When entering into a principal-agent relation, the parties can specify the duration of their interaction in two ways. Either they can precisely define it and conclude a fixed-term contract or they can leave it unspecified and enter into an open-ended agreement. A fixed-term contract does not preclude that once the defined term is over the parties can decide to renew the initial agreement. An open-ended contract, in turn, can be terminated any time. If the costs of renewing a fixed-term contract and terminating an open-ended contract are equal, then these two contract types are economically equivalent. Despite this apparent resemblance, each contract type can influence the behavior of contractual partners in a

²⁸⁹ The survey was conducted in experimental sessions in July and August 2015 after the subjects took part in an unrelated experiment.

²⁹⁰ One question asked how kind the contract type is. The second question was reverted and asked how unkind the contract type is perceived. Figure 6 displays the measure combining responses to both questions. Splitting the two questions generates identical results.

different way. This impact can be particularly pronounced in relational contracts when enforcement of contractual obligations is based on informal mechanisms such as reciprocity or trust.

This study reveals that the contract type has an impact on the contractual relation. Comparing behavior when only one type of contract is available, it was found that participants manage to form long-term beneficial relations under both types of contracts. However, open-ended contracts lead to longer interactions as compared to fixed-term contracts. Agents are also more reciprocating in long-term than in short relations. As a consequence, the less reciprocating behavior is observed when only fixed-term contracts are available than when open-ended contracts are the only option. Furthermore, when both contract types are available, fixed-term contracts turn out to be far less efficient than open-ended contracts. They are barely used to form long-term beneficial relations. Importantly, agents who experienced both types of contracts provide less effort under the fixed-term than under the open-ended contract.

The current results show that it is of particular importance to study not only the monetary incentives schemes (such as wages or bonuses) but also other elements of contractual terms such as contract duration in the context of relational (incomplete) contracts. Importantly, the impact of contractual terms on behavior in relational contracts should be investigated in the legal context that is given the contract types made available by law.

Based on the current research it is still not clear why exactly an open-ended contract is found kinder and, as a consequence, leads to more efficient relations when contrasted with a fixed-term contract. It would be an interesting extension of this study to examine in details the underlying reasons for the kindness perception of both contract types.

Furthermore, future research could consider bigger markets in which many firms and agents interact with each other. It is possible that the kindness of an open-ended contract would be reciprocated even stronger in such a setting, particularly with an excessive supply of labor. Also, the current simple experimental design did not allow for renegotiation before reentering the market. Extending the design to enable renegotiation could add to the conclusions on how the fixed-term contracts compared to open-ended contracts influence agents' behavior.

F. Legal implications

This experimental research project was inspired by a proposal of the Reflection Group on the Future of EU Company Law. The Reflection Group in its report from April 2011 suggested that the Member States should be required “to grant the option to allow either one year or multiple year terms (e.g. not exceeding 4-6 years) and not to make directors and/or management of companies dismissible at will.”²⁹¹ The proposed changes in appointment terms and dismissal protection have received relatively little attention from both – policymakers and corporate governance researchers.²⁹² In contrast, compensation structure of corporate directors has increasingly been subject to legal interventions. For instance, the European Union issued the Commission Recommendation on April 30, 2009, complementing Recommendation 2004/913/EC and 2005/162/EC as regards the regime for the remuneration of directors of listed companies (2009/385/EC). The Commission recommended that remuneration should promote long-term sustainability of a company. To achieve it remuneration should be based on performance and its variable components linked to measurable performance criteria which can also be of non-financial nature. The German legislator followed the Commission’s Recommendations and issued the *Gesetz zur Angemessenheit der Vorstandsvergütung* [Appropriateness of Executive Directors Compensation Act] on July 31, 2009.²⁹³ The goal of this statute was to ensure that the remuneration structure provides appropriate incentives for executive directors to manage the company in a sustainable and long-term oriented way.²⁹⁴ The supervisory board is obliged to design remuneration schemes according to the new provisions, i.e. by setting a several years long basis for calculation of remuneration components (§87 (1) sentence 2 AktG).

In chapter 2, I showed that regulation on appointment terms and dismissal procedures might also affect directors’ performance and decision making. Differently however from compensation structure which influences directors’ performance through its link to measurable performance criteria, appointment term and dismissal rules have an impact on informal mechanisms responsible for enforcement of relational aspects of directors’

²⁹¹ *Antunes/Baums et al.*, Report of the reflection group on the future of eu company law 2011, p. 51.

²⁹² Generally on little attention paid to appointment and dismissal rules in the German corporate governance literature: *Fleischer*, Ag 2006, 429, p. 429.

²⁹³ *Gesetz zur Angemessenheit der Vorstandsvergütung* from July 31, 2009, BGBl. I 2009 S. 2509 ff.

²⁹⁴ *Drucksache 16/12278 “Entwurf eines Gesetzes zur Angemessenheit der Vorstandsvergütung (VorstAG)”* from March 17, 2009, available at: <http://dip21.bundestag.de/dip21/btd/16/122/1612278.pdf>.

behavior. These relational elements might include directors' engagement in creation of corporate culture, development of good relationships with customers and suppliers or development of a management team. Experimental research has shown that agents are more willing to perform these kinds of tasks in a long-term principal-agent relationship. The longer the relationship is the better the agents' performance. In contrast, absolute dismissal barriers have adverse effects on agents' behavior, unless they are based on some pre-specified criteria. According to empirical research investigating the impact of longer appointment term as introduced by a staggered board, the benefits of a staggered board are particularly pronounced for companies with high level of investment in R&D and intangible assets. My study contributed to the empirical evidence by demonstrating that seemingly equivalent (with respect to dismissal protection) regulations of the interaction length – fixed-term renewable vs. indefinite at will appointments - might differently influence agents' behavior. Importantly, this impact depends on whether only one or both options are available.

The empirical evidence has two important implications for the policymaker. First, regulations of appointment term and dismissal rules might serve not only as a tool to define weak (short appointments, dismissal at will) or strong (long appointment, dismissal for good cause) position of a director in a company. The empirical research suggests that these provisions might play a major role in increasing the efficiency of the relationship between shareholders and directors. Specifically, an executive director who expects to manage a company for a longer tenure might perform better than the one who expects to stay only for a short period. At the same time, a director who is strongly protected from removal might not perform as good as a director who might be dismissed at-will or for a well-specified reason. Therefore, when considering improvement of incentives for corporate directors, the legislator should also take into account the potential and shortcomings of existing rules on appointment term and dismissal. In particular, it should be considered whether appointment term rules foster long-term relation between directors and a company but at the same time allow for exit from the relationship.

Second, it is not only the specific limit on appointment term or removal but the menu of options made available by the legislator which matter for directors' behavior. The Reflection Group suggested that the Member States should allow public companies to

choose between one-year and multiple year terms as well as to limit dismissal at will.²⁹⁵ Offering to a director a one-year appointment with dismissal protection and an option for re-election might seem very similar to multiple-year appointment with dismissal at-will. However, my experimental research suggests that the impact of these two options on directors' performance might differ depending on whether both of them are available. A director might perform better if a company offers an appointment term and dismissal protection which is perceived kinder. A legal reform as suggested by the Reflection Group is likely to change the kindness perception of appointment term and removal provisions offered to a director. For instance, dismissal at-will might be viewed less attractive for a director if dismissal for good cause is another available option. The Reflection Group's argumentation that there is no 'one-size-fits-all' solution and companies should be able to choose between various regulations of appointment term and dismissal rules²⁹⁶ seems plausible. Nevertheless, it should also be considered how certain rules might change their impact depending on which options will be introduced. On a more general level the results of my research and other empirical studies suggest that it is not only compensation schemes but also the length of appointment and dismissal rules which might potentially influence decision-making of executive directors.

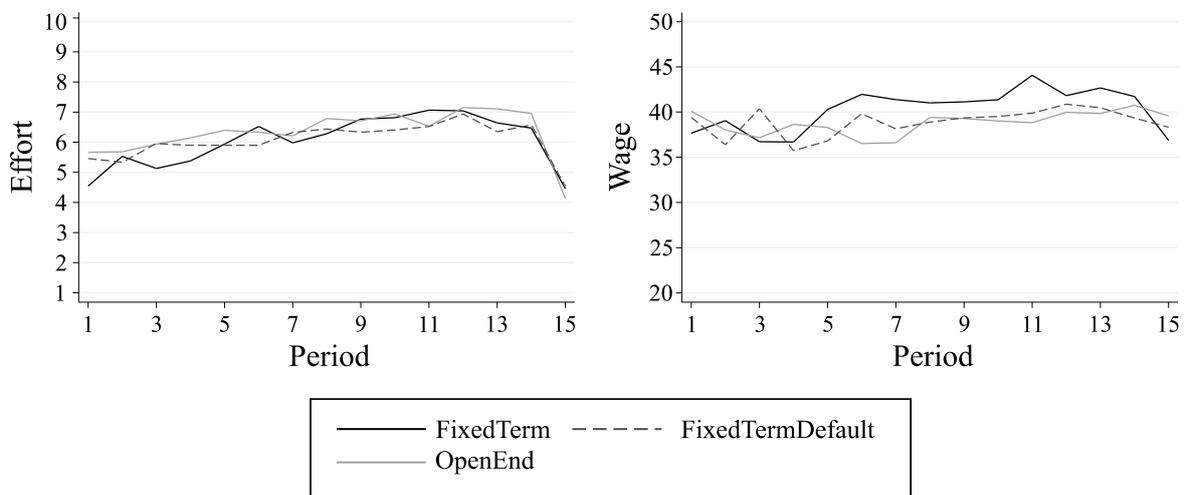
²⁹⁵ *Antunes/Baums et al.*, Report of the reflection group on the future of eu company law 2011, p. 51.

²⁹⁶ *Antunes/Baums et al.*, Report of the reflection group on the future of eu company law 2011, p. 51.

Appendix 1

Besides the three main treatments – *FixedTerm*, *OpenEnd* and *Mixed* – an additional *FixedTermDefault* treatment was conducted as a control treatment. It included features of both – *FixedTerm* and *OpenEnd* treatment. The important elements of the experimental design were as described in section B. Contracts were concluded for only one period as in the *FixedTerm* treatment. However, differently from the *FixedTerm* treatment and similarly to the *OpenEnd* treatment, at the end of each period a principal and an agent could decide whether they want to continue to the next period or renew the current contract. If they both chose to renew, the next period started with the effort stage – wage and desired effort remained the same as in the contract concluded in the preceding period. If either a principal or an agent decided to continue to the next period, the next period started with the offers' stage. Principals and agents were not bound by the contract from the preceding period. They

Figure 9: Mean effort and wage over time with FixedTermDefault treatment



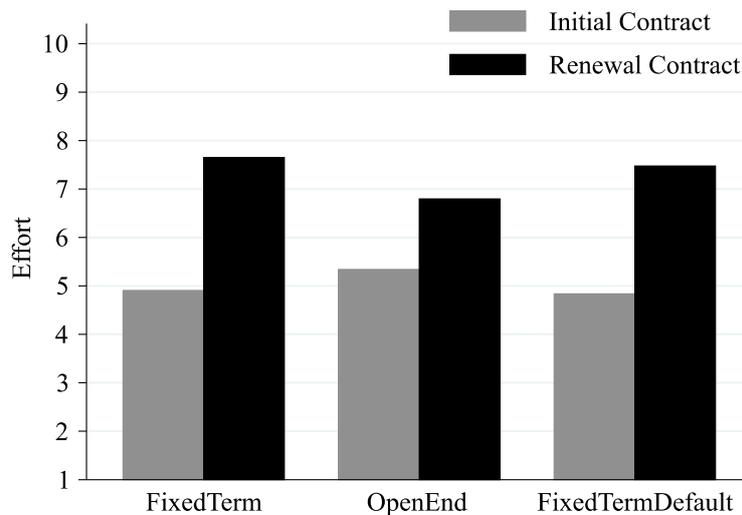
Note: The figure on the left-hand side displays group means of effort over all periods of the experiment in the FixedTerm, OpenEnd and FixedTermDefault treatments. The figure on the right-hand side displays group means of wages over all periods of the experiment in the FixedTerm, OpenEnd and FixedTermDefault treatments.

could enter into a new contract with a different contractual partner. The *FixedTermDefault* treatment similarly to the *FixedTerm* treatment set the duration of a contract as fixed. However, it allowed for renewing the contract before entering the offer stage. It was conducted to focus on a mere change of a default provision on contractual duration. Due to

the contractual duration similarities between *FixedTerm* and *FixedTermDefault* treatments, the behavioral predictions for the two treatments are identical.

By design, the *FixedTermDefault* treatment is a mixture of both – *FixedTerm* and *OpenEnd* treatment. The results for means of wage (38.88), effort (6.05), and desired effort (7.68) as well as percentage of private (30%) and renewal (46%) contracts are fairly similar to the results from the *FixedTerm* treatment with a slight tendency to lean into direction of the *OpenEnd* treatment, particularly with respect to wage levels. Comparisons of wage, effort and desired effort between *FixedTermDefault* treatment and the two other treatments revealed no statistically significant differences (two-sided Wilcoxon rank sum test). Figure 9 reports means of effort and wage over the course of the experiment for all three treatments.

Figure 10: Mean effort by contract type (Initial and Renewal contract) with *FixedTermDefault* treatment



Note: Means of effort provided in all periods of the experiment separately for Renewal and Initial Contracts in FixedTerm, OpenEnd and FixedTermDefault conditions

There are no clear differences between the treatments with respect to time trends in effort choices or wages. Figure 10 shows means of effort separately for initial and renewal contracts in all three treatments. The results from the *FixedTermDefault* seem to resemble closely the results from the *FixedTerm* treatment.

Table 9: Tobit regression on effort by treatment with FixedTermDefault treatment

	(1) Effort	(2) Effort	(3) Effort	(4) Effort	(5) Effort
FixedTerm	-0.36 (0.54)	-0.36 (0.54)	-0.61** (0.30)	-0.62** (0.26)	-0.30 (0.24)
FixedTermDefault	-0.35 (0.58)	-0.35 (0.58)	-0.35 (0.26)	-0.45* (0.24)	-0.21 (0.22)
Period		0.17*** (0.03)	0.11*** (0.02)	0.09*** (0.02)	0.05*** (0.02)
Last Period		-3.98*** (0.48)	-3.23*** (0.43)	-3.07*** (0.44)	-2.91*** (0.44)
Wage			0.17*** (0.01)	0.13*** (0.01)	0.12*** (0.01)
Desired effort				0.38*** (0.07)	0.36*** (0.06)
Renewal contract					1.13*** (0.16)
Constant	6.50*** (0.36)	5.44*** (0.38)	-0.71* (0.37)	-1.96*** (0.36)	-1.99*** (0.32)
N	2125	2125	2125	2125	2125
Clusters	72	72	72	72	72

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level

Regression analyses were conducted to investigate possible more nuanced treatment differences. Table 9 reports the results of a Tobit regression on effort by treatments. As in previous regressions, the *OpenEnd* treatment is a control group. The coefficients values for the *FixedTermDefault* treatment are negative and look very similar to the *FixedTerm* treatment. Controlling for time trends (Period and Last Period) wage and desired effort, the coefficient for the *FixedTermDefault* treatment becomes weakly significant, indicating lower reciprocating behavior by agents in the *FixedTermDefault* treatment than in the *OpenEnd* treatment.

Table 10 reports results of a random effects regression analysis on wage by treatment. The key finding of both regression analyses is that the coefficients of *FixedTerm* and *FixedTermDefault* are never statistically different from each other.²⁹⁷

Table 10: Regression on wages by treatment with FixedTermDefault treatment

	(1)	(2)	(3)
	Wage	Wage	Wage
FixedTerm	1.23 (2.54)	1.22 (2.54)	2.48 (2.44)
FixedTermDefault	0.07 (2.65)	0.07 (2.65)	1.07 (2.50)
Period		0.25** (0.12)	0.07 (0.12)
Last Period		-2.56** (1.04)	-1.83* (0.97)
Renewal contract			4.90*** (0.73)
Constant	38.62*** (1.75)	36.81*** (1.96)	34.96*** (1.93)
Observations	2125	2125	2125
Clusters	72	72	72

Notes: Three (***), two (**), and one (*) stars indicate statistical significance at the 1%, 5%, and 10% levels respectively. Standard errors, reported in parentheses, have been corrected for clustering at the group level

²⁹⁷ Coefficients compared using a two-sided t-test.

Appendix 2

The instructions below are a translation from German for the *Mixed* treatment which combines elements of all the other treatments discussed in section A.

General instructions for the participants

You are about to take part in an economic experiment. In this experiment you can earn a significant amount of money depending on your decisions and the decisions of other participants, you will interact with. For this reason, it is essential to read the instructions carefully.

The instructions you obtained are for your private use only. Please note that you are not allowed to communicate with other participants during this experiment. Should you have any questions, please ask us for assistance. If you do not comply with the rules, we will have to exclude you from the experiment and all payments.

During the experiment, we do not speak of euros but points. Thus, your total income will be calculated first in points. All the points that you gain during the experiment will be converted into money and paid to you in cash at the end of the experiment.

Today's experiment includes 4 phases:

1. Instructions: You have just received the instructions to the first part of the experiment (in this phase you are at the moment).
2. The experiment:
 - a) First part
 - b) Second part: The instructions to the second part of the experiment will be presented to you on the screen as soon as the first part of the experiment is over.
3. Questionnaire
4. Payments

Please note that decisions and payments in the first part of the experiment do not have any impact on decisions and payments in the second part of the experiment.

Instructions for the first part of the experiment:

In the first part of the experiment the following conversion rate from points into euros applies:

1 point = 4 Eurocents

At the beginning of the first part of the experiment, you receive a lump sum of 6 Euros (=150 points).

In this part of the experiment all participants are divided into groups of five. Two different roles are randomly assigned to the participants in each group. There are two participants with a role “firm” and three participants with a role “worker” in each group. Each participant receives a randomly assigned identification number. **To secure your anonymity the identification number you are assigned differs from the number of your cabin.** Your role and your identification number will be displayed on the screen at the beginning of the experiment. The groups, roles as well as the identification numbers do not change during this whole part of the experiment. During the entire first part of the experiment, you will interact with the same participants in your group.

The first part of the experiments lasts 15 rounds. Below you will find a detailed description of a round.

Each round includes three stages:

- Stage 1 “Recruitment”
- Stage 2 “Effort choice”
- Stage 3 “Income”

All three stages are presented below.

Stage 1 “Recruitment”

In the recruitment stage, each firm may hire only one worker. **There are two types of contracts, contract A and contract B. With contract type A an employment agreement is concluded for one period. In contract type B an employment agreement**

lasts for the duration of the remaining periods. However, a contract B might be terminated in every period. An employment offer includes a wage, a desired effort level as well as the type of the contract, either A or B. The following restrictions apply:

1. The wage offer may not be below 1 and higher than 100 points.

$$1 \leq \text{wage offer} \leq 100$$

2. The desired effort level may not be below 1 and higher than 10:

$$1 \leq \text{desired effort level} \leq 100$$

The wage offer is binding. It means that the worker receives the wage accepted, and the firm pays the wage at the end of each round.

The desired effort level stated in the offer is not binding. The worker decides freely about the level of his effort choice in stage 2.

In the recruitment stage, firms make wage offers and workers decide whether to accept an offer. The description of this process follows.

1. The firm makes an offer.

Two firms can make two types of offers to three workers in their group.

- a) **Private offers:** Private offer is made only to one worker, who decides whether to accept it. The two other workers and the other firm are not informed about this offer.
- b) **Public offers:** Public offer is made to all workers in a group, who can decide whether to accept it. The worker, who as first accepts it, concludes an employment agreement with the firm. The other firm is not informed about this offer.

To make a **private offer** the firm indicates the following information:

- wage
- desired effort level
- contract type (either A or B)

- identification number of the worker, the offer is addressed to

Private offers will be displayed on the right side of the screen under the title “private offers”.

To make a **public offer** the firm indicates the following information:

- wage
- desired effort level
- contract type (either A or B)

Public offers will be displayed on the left side of the screen under the title “public offers”.

2. The worker accepts an offer

Below is a description of how to accept private and public offers.

1. **Private offers:** To accept a private offer the worker has to highlight the private offer displayed on the screen and click on “Accept” to confirm.
2. **Public offers:** Each worker can accept public offers. To accept an offer one has to highlight the offer displayed on the screen and click on “Accept” to confirm.

3. Further rules

Each firm can submit an unlimited number of private and public offers. Firms and workers may enter only into one employment agreement in each period. That means that as soon as the firm hires the worker all other offers of this firm are deleted and the other workers cannot accept any further offers of this firm.

Firms are not obliged to submit offers and workers are not required to accept offers.

The recruitment stage lasts 150 seconds. No further offers may be sent and no further offers may be accepted after this time. The stage is also over as soon as all the firms in a group hire a worker. In this case, the recruitment stage may last less than 150 seconds.

Stage 2 “Effort choice”

Only workers who accepted an offer participate in this stage.

Each worker, who accepted an offer, makes an effort choice. An effort choice must fulfill the following criteria:

An effort choice may not be below 1 and higher than 10:

$$1 \leq \text{effort choice} \leq 100$$

The worker pays with points for his effort choice. The relation between effort choice and effort cost will be presented in stage 3 "Income"

Stage 3 "Income"

Income of firms and workers, who concluded an employment agreement as well as firms and workers, who did not enter into an employment agreement, is presented below.

1. Income of firms and workers who concluded an employment agreement

Income of a worker depends on a wage accepted as well as on his effort choice. It is calculated in the following way:

Worker's income: Wage – costs of effort (dependent on the effort choice)

The costs of effort increase with the effort choice. The costs are displayed in a table below:

Effort choice	1	2	3	4	5	6	7	8	9	10
Effort costs (in points)	0	1	2	4	6	8	10	12	15	18

Worker's income is higher,

- the higher is the wage accepted
- the lower is the effort choice and effort costs thereof.

Income of a firm depends on the wage accepted by the worker as well as on his effort choice. It is calculated in the following way:

Firm's income: 10 x effort choice - wage

Firm's income is higher,

- the higher is the worker's effort choice,
- the lower is the accepted wage.

Income of all workers and firms, who entered into an employment agreement, is calculated according to the rules described above. Each firm can calculate the income of a hired worker, and each worker can calculate the income of a hiring firm.

2. Income of firms and workers who did not conclude any employment agreement

Income of a worker is 5 points in a round without any agreement. Income of a firm is 0 point in a round without any agreement.

3. Further rules

Please note that firms as well as workers can make losses. The losses will be paid from the initial lump sum (150 points) or income earned in previous rounds.

As soon as the income in a current period is displayed on a screen, firms and workers, who concluded a contract B, can decide whether they want to continue the current agreement or terminate it.

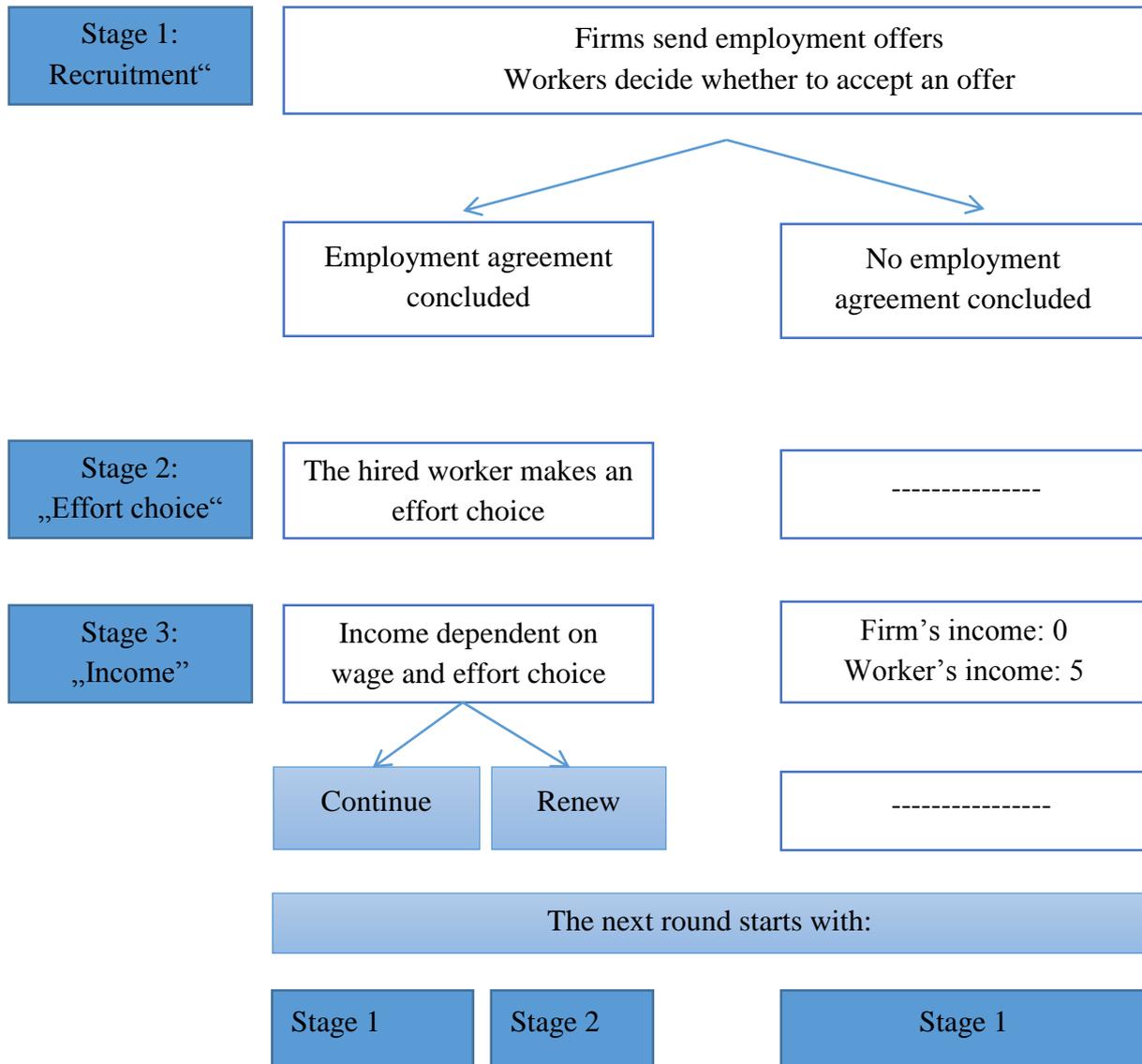
- If you want to continue the current agreement, please click on “Continue”
- If you want to terminate the current agreement, please click on “Terminate”.

Only if both parties, the worker and the firm, click on “Continue”, the agreement will be continued. In this case, the firm and the worker will skip the stage 1 “Recruitment” in the next period and start directly with stage 2 “Effort choice”. The contract and its conditions (wage and desired effort level) will remain the same in the next period.

If at least one of the parties, the worker or the firm, clicks on “Terminate”, the next period starts with the stage 1 “Recruitment”. Firms and workers are not bound and can enter into a new agreement.

As soon as the income in the current period is displayed on a screen, firms and workers, who concluded an agreement for the duration of one period, can click on “Continue” to start the next period.

Outline of a round



Chapter 4

Mandatory gender quotas and company performance

A. Introduction

Achieving gender equality in the workplace has been an important policy goal in the European countries for many years. Policymakers recognized that the gender inequalities in employment hinder full exploitation of the human resources available on the European labor market.²⁹⁸ The underuse of available workforce, in turn, might contribute to rendering the European Union incapable of establishing its status as the world leading economy.²⁹⁹ Furthermore, promoting gender equality has been acknowledged as one of the main objectives of the EU.³⁰⁰

As much as the need of establishing gender equality is approved and broadly recognized, the legislation implemented to achieve this goal is often controversial. Particularly, measures which actively support the underrepresented groups have been lively discussed. Such measures, called positive actions,³⁰¹ might take a form of vocational training, improved child care or preferential treatment in selection procedures.³⁰² From this broad range of actions, the particularly intrusive one is a mandatory quota rule which

²⁹⁸ Communication from the Commission ‘Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth’, COM(2010)2020.

²⁹⁹ Communication from the Commission ‘Strategy for equality between women and men 2010-2015’, COM(2010) 491.

³⁰⁰ Article 8 of the Treaty on the Functioning of the European Union (TFEU).

³⁰¹ For a definition of positive action see: *Commission*, International perspectives on positive action measures. A comparative analysis in the european union, canada, the united states and south africa 2009.

³⁰² *Commission*, Positive action measures to ensure full equality in practice between men and women, including company boards 2011.

imposes an obligation of achieving a fixed share of underrepresented group members in a target group within a specified period.

Disappointed by a slow growth of female participation in economic decision-making, the European Commission in 2012 proposed a Directive that would establish mandatory quotas for women on corporate boards.³⁰³ The German legislator did not wait until the Directive goes through the legislative procedure. On March 6, 2015, the German Parliament (*Bundestag*) passed a law that introduced a minimum requirement of 30% female participation on boards of listed and co-determined companies.³⁰⁴ Both legal acts - the Directive and the Equal Participation Act - have evoked intense political and legal debate.

In the following chapter, I will take a closer look at the Impact Assessment (IA)³⁰⁵ issued by the European Commission as an accompanying document to the Directive as well as at the legislative reasons (*Gesetzesbegründung*) provided for the German statute. In particular, I will challenge the assumptions of the European Commission and the German government about the positive influence of mandatory quotas on company performance and corporate governance. The Commission states that increased gender diversity in a boardroom improves corporate governance and company performance - the more gender diverse the board is the better the board's performance. Similar reasoning can be found in the government draft (*Regierungsentwurf*)³⁰⁶ of the Equal Participation Act. The German government makes a "business case" for mandatory quotas by claiming that more gender diverse boards will positively influence German companies and strengthen their competitiveness.³⁰⁷ Some scholars have already pointed out that the legislators

³⁰³ European Commission, Proposal for a Directive of the European Parliament and of the Council on improving the gender balance among non-executive directors of companies listed on stock exchanges and related measures, Com (2012) 614 final, available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52012PC0614> [hereinafter: the Directive].

³⁰⁴ *Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst* from April 24, 2015, BGBl. I S. 642 [hereinafter: the Equal Participation Act].

³⁰⁵ European Commission, Impact assessment on costs and benefits of improving the gender balance in the boards of companies listed on stock exchanges, SWD(2012) 348, available at: http://ec.europa.eu/justice/gender-equality/files/womenonboards/impact_assesment_quotas_en.pdf. [hereinafter: Impact Assessment or IA].

³⁰⁶ *Drucksache 18/3784 "Gesetzentwurf der Bundesregierung. Entwurf eines Gesetzes für die gleichberechtigte Teilhabe von Frauen und Männer an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst"* from January 20, 2015, available at: <http://dipbt.bundestag.de/dip21/btd/18/037/1803784.pdf> [hereinafter, *Regierungsentwurf*].

³⁰⁷ *Regierungsentwurf*, p.62.

misinterpreted the existing scientific evidence by assuming that an increase in the number of women on a corporate board will have a causal influence on company performance.³⁰⁸ Rather than discussing the effect of gender diversity on company performance I will argue that it is important to consider the way in which gender diversity is achieved. In particular, it is crucial to evaluate how the undertaken measure itself influences company performance and corporate governance.³⁰⁹ This evaluation is essential for assessing the compliance of the Directive and the Equal Participation Act with the EU Law and the German Basic Law (*Grundgesetz*). I will discuss selected aspects of the legal debate for which the empirical research might provide particularly fruitful insights. Next, I will describe two types of studies investigating the impact of mandatory quotas on company and board performance. First, I will introduce the research on Norwegian companies in a period following the implementation of mandatory quotas. I will present experimental studies and discuss their relevance for assessing the impact of mandatory quota on board performance. In the next chapter, I will discuss my experimental research and review implications of the empirical findings for the legal assessment of the Directive and the Equal Participation Act.

B. Legislative Measures

I. The Directive: state-of-the-art

On November 14, 2012, the European Commission proposed a Directive on improving the gender balance among non-executive directors of companies listed on stock exchanges. The Directive provides that all listed companies shall increase the proportion of the under-represented sex³¹⁰ among non-executive directors to 40% by 2020 (Article 4(1)). Moreover, the appointment rules shall be made transparent and clear. In the selection procedure candidates of the under-represented sex shall be preferred unless they are not equally qualified as candidates of the opposite sex (Article 4(3)). In case the preferential rule is not followed an unsuccessful candidate may challenge the selection procedure. The company shall prove that a better-qualified candidate was chosen (Article 4 (5)). Furthermore, companies not able to reach the objective of 40% must provide an appropriate

³⁰⁸ *Smith*, Quota regulations of gender composition on boards of directors 2014, p.43; *Szydło*, Gender equality on the boards of EU companies: Between economic efficiency, fundamental rights and democratic legitimisation of economic governance 2015, p.103.

³⁰⁹ Similar argument raised already in: *Koch*, ZHR 2011, 827, p.848.

³¹⁰ The Commission uses the term 'sex' in the text of the Directive and the term 'gender' in the Impact Assessment.

explanation for the noncompliance as well as demonstrate measures undertaken to achieve the objectives in the future (Article 5(3)). Otherwise, sanctions shall apply (Article 6).

Almost a year after issuing the Directive, the European Parliament adopted a position at first reading and communicated it in a resolution from November 20, 2013.³¹¹ In the resolution, the Parliament expressed its general approval for the Directive with only minor amendments. The Parliament stressed the importance of assuring that the appointments are made from a gender-balanced selection pool.³¹² Moreover, it proposed additional forms of sanctions for noncomplying companies.³¹³

In December 2014 and in June 2015 the Directive was discussed by the Council of the European Union. The Council did not reach a conclusion whether to approve the Directive in the current form.³¹⁴ To facilitate a compromise between representatives of all Member States, the Council suggested introducing a “flexibility clause” as well as extending implementation deadlines.³¹⁵ The “flexibility clause” would allow the Member States to choose their measure in order to achieve the goals stated in the Directive.³¹⁶ The Member States would need to ensure that those measures are equally effective and that sufficient progress is achieved.³¹⁷

II. *The Equal Participation Act*

On March 6, 2015, the German Parliament adopted the law for the equal participation of men and women in the leadership positions in the private and public sector. The Equal Participation Act changed the content of §96 (2) and (3) German Stock Corporation Act (*Aktiengesetz*)³¹⁸ on the appointment of the supervisory board (Article 3 Section 4b Equal

³¹¹ European Parliament legislative resolution of 20 November 2013 on the proposal for a directive of the European Parliament and of the Council on improving the gender balance among non-executive directors of companies listed on stock exchanges and related measures, 2012/0299(COD), available at: <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A7-2013-0340+0+DOC+PDF+V0//EN>.

³¹² European Parliament legislative resolution of 20 November 2013, p.118.

³¹³ European Parliament legislative resolution of 20 November 2013, p.47.

³¹⁴ Press release; Outcome of the Council Meeting on December 11, 2014; 16803/1/14 REV1, available at: <http://www.consilium.europa.eu/en/meetings/epsco/2014/12/11/>; Press release: Outcome of the Council Meeting on June 18 and 19, 2015; 10088/15, available at: <http://www.consilium.europa.eu/en/meetings/epsco/2015/06/18>

³¹⁵ Press release from December 11, 2014, p.9.

³¹⁶ Press release from December 11, 2014, p.9.

³¹⁷ Press release from December 11, 2014, p.9.

³¹⁸ *Aktiengesetz* from September 6, 1965, BGBl. I S. 1089.

Participation Act). As of 2016, the German companies listed on stock exchanges as well as companies subject to employees co-determination requirements will have to make sure that their supervisory board consists of at least 30 % men and 30% women. Any appointment of a board member which violates these conditions is void. In this case, the position remains vacant (*leere Stühle*). Article 3 Section 4b Equal Participation Act includes detailed procedural regulations for boards with employees' representation. The Equal Participation Act does not specify any requirements regarding equal qualifications of male and female candidates as well as provisions allowing for exceptions given an individual case of a male candidate. It also does not allow any exemptions from the quota rule in the case of exceptional circumstances, i.e., lack of qualified available female candidates.

III. *Impact Assessment, Regierungsentwurf and their critique*

The impact assessment procedure was introduced in the European legislature to promote good quality of the lawmaking process. The aim of an impact assessment is to enable the legislative decision makers to reach more informed judgments about the intended policy measures.³¹⁹ An impact assessment shall include “evidence [...] on the advantages and disadvantages of possible policy options”.³²⁰

The IA on costs and benefits of improving the gender balance on the boards of companies listed on stock exchanges was issued in November 2012. It formulates two general objectives: (1) “gender equality in economic decision-making” and (2) full exploitation of “the existing talent pool”.³²¹ Furthermore, the European Commission identified two specific objectives of the Directive: (3) reduction of “demand side” barriers women are confronted with when applying for leadership positions and (4) improvement of corporate governance and performance.³²²

Having stated the objectives, the Commission proceeded with examining different policy options (i.e., no action, voluntary quotas, or mandatory quotas for executive and non-executive directors) regarding their effectiveness in achieving the defined objectives. Here, I

³¹⁹ See, for instance: *Meuwese*, Impact assessment in eu lawmaking 2008; *Renda*, Impact assessment in the eu: The state of the art and the art of the state 2006.

³²⁰ European Commission, Impact Assessment Guidelines 2009, SEC(2009) 92, available at: http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf [hereinafter: Impact Assessment Guidelines 2009].

³²¹ Impact Assessment, p.31.

³²² Impact Assessment, p.31.

will focus only on the very last objective, which is the improvement of corporate governance and company performance.³²³ First, the Commission assessed to which extent the presence of women on boards of directors would increase as a result of each policy option.³²⁴ Next, it defined which indicators should be taken into account when evaluating corporate governance and company performance improvement. Based on the studies investigating gender diversity and company performance, the Commission identified nine non-financial criteria of corporate governance, which have been shown to be influenced by the presence of women on corporate board. These criteria include accountability, risk and audit, monitoring and control, innovation and creativity, work environment and values, direction and leadership, pay policies, corporate reputation and corporate social responsibility, understanding of the market, and board dynamics. As an indicator of company financial performance, the Commission adopted return on equity which represents the ratio of a company's net income to the book value of its equity.³²⁵ Finally, the Commission calculated the impact of each policy option assuming that the defined indicators and performance measures increase proportionally to the increase in female participation achieved by a given policy option.³²⁶

Likewise, the German government claimed that the Equal Participation Act will lead to better corporate governance and will foster the national and international competitiveness of the German companies.³²⁷ More specifically, it argued that gender diversity on corporate boards would have a positive impact on the decision-making processes resulting in a better economic performance of a company.³²⁸ The government referred to a study conducted by the Karlsruhe Institute of Technology in 2011.³²⁹ The study revealed no general effects of the presence of female directors on the performance of German companies.³³⁰ However, it

³²³ There is a growing body of literature on effects of mandatory quota rules on “demand side” barriers and “glass ceiling” women are confronted with in their corporate career, see, for instance.; *Bertrand/Black et al.*, *Breaking the glass ceiling? The effect of board quotas on female labor market outcomes in norway 2014*.

³²⁴ The details on the evaluation method described in this paragraph can be found in: European Commission, Annex 8. Impact assessment on costs and benefits of improving the gender balance in the boards of companies listed on stock exchanges, SWD(2012) 349, available at: http://www.parlament.gv.at/PAKT/EU/XXIV/EU/09/79/EU_97957/imfname_10383186.pdf, pp.73-112.

³²⁵ *Berk/DeMarzo*, *Corporate finance 2011*, p.32.

³²⁶ *Impact Assessment*, pp.41-42

³²⁷ *Regierungsentwurf*, p.62.

³²⁸ *Regierungsentwurf*, p.50.

³²⁹ Summary of the results: *Lindstädt/Wolff/Fehre*, *Frauen in Führungspositionen: Auswirkungen auf den Unternehmenserfolg 2011*, pp. 4-5.

³³⁰ *Lindstädt/Wolff/Fehre*, *Frauen in Führungspositionen: Auswirkungen auf den Unternehmenserfolg 2011*, p.5.

showed a positive impact of women directors on corporate performance of two types of companies: (1) companies with a high share of female workers, (2) companies offering products and services directly to consumers.³³¹ For the German government, this was sufficient evidence to conclude that increasing women's participation on corporate boards will result in a higher competitiveness of German companies.³³² Similarly to the EU Commission the German government, instead of evaluating the direct impact of the introduced measure, focused on the influence of gender diversity on corporate performance.

I claim that the Commission, as well as the German government, falsely assumed that gender diversity positively influences corporate governance and financial performance irrespective of the way it has been achieved. To properly evaluate the impact of a given policy measure, it is crucial to investigate how the policy itself will affect the company performance. In particular, a specific policy measure is likely to affect other than gender diversity aspects of board functioning relevant for firm performance. I will support my claim with empirical findings described in section D of this chapter as well as in chapter 5.

C. Legal questions

Both laws on mandatory quota rules – the Directive as well as the Equal Participation Act - are subject to a heated debate on their compatibility with the EU law and the German Basic Law (*Grundgesetz*).³³³ Proper evaluation of the impact of mandatory quotas on corporate governance and performance is relevant for some of the aspects touched upon in the legal discussion. The empirical findings on how the mandatory quotas affect corporate governance and company performance might be crucial for assessing both – the quality as well as conclusions of the evaluation conducted by the legislator. Here I will elaborate on these selected issues in light of the legal discourse.

³³¹ *Lindstädt/Wolff/Fehre*, Frauen in Führungspositionen: Auswirkungen auf den Unternehmenserfolg 2011, p.5.

³³² *Regierungsentwurf*, p. 50.

³³³ Before the Equal Participation Act was passed, mandatory gender quotas had already been discussed by numerous German legal scholars: *Papier/Heidebach*, ZGR 2011, 305; *Langenbacher*, JZ 2011, 1038; *Bachmann*, ZIP 2011, 1131; *Habersack/Kersten*, BB 2014, 2819; *Grünberger*, RW 2012, 1.

I. *Challenges of the Directive*

1. **Compliance with Impact Assessment Guidelines 2009**

The initial idea of impact assessments was to provide legislative decision-makers with high-quality advice. According to the Impact Assessment Guidelines 2009, the assessment should not be limited to the “direct effects” of a given policy option, but should also take into account the potential side or crowding out effects.³³⁴ The evidence included should be “transparent, comprehensive and balanced”.³³⁵ Such considerations are missing in the IA of mandatory quotas for women on boards. This view finds support in the opinion of the Impact Assessment Board.

In 2005, the European Commission launched the Impact Assessment Board (IAB) to guarantee high standards of analyzes presented in impact assessments. The Impact Assessment at hand was substantially criticized by the Impact Assessment Board. In its first opinion to the draft version of the IA from June 20, 2012, the Impact Assessment Board raised, among other objections, that the relation between higher participation of women on corporate boards and company performance should be presented and treated more cautiously.³³⁶ In particular, the evidence on the potential positive impacts should be presented “more transparently and in a more balanced manner.”³³⁷ The second opinion of the IAB to the second draft version from August 10, 2012, although not as critical as the first one, still questioned the evidence presented.³³⁸ More specifically, it was pointed out that “the robustness of the income estimates [impacts on company performance] presented should be further reviewed and qualified and presented with the necessary degree of caution.”³³⁹

It seems that the final version of the Impact Assessment did not improve much after the second critical opinion of the IAB. Indeed, the quality of the assessment regarding consequences of different policy options for corporate performance is still questionable. In

³³⁴ Impact Assessment Guidelines 2009, p.32.

³³⁵ Impact Assessment Guidelines 2009, p.4.

³³⁶ Impact Assessment Board ‘DG JUST-Impact Assessment on costs and benefits of improving the gender balance in the boards of companies and stock exchanges (draft version of 20 June 2012).’, available at: http://ec.europa.eu/smart-regulation/impact/ia_carried_out/cia_2012_en.htm, p.1.

³³⁷ Impact Assessment Board ‘DG JUST-Impact Assessment’ from 20 June 2012, p.2.

³³⁸ Impact Assessment Board ‘DG JUST-Impact Assessment on costs and benefits of improving the gender balance in the boards of companies and stock exchanges (resubmitted draft version of 10 August 2012).’, available at:

http://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2012/sec_2012_0592_en.pdf.

³³⁹ Impact Assessment Board ‘DG JUST-Impact Assessment’ from 10 August 2012, p.2.

particular, the evidence is presented in a selective manner and thus cannot be qualified as “transparent, comprehensive and balanced.” Furthermore, all evaluations of the impact on company performance and corporate governance are based on the assumption that gender diversity has positive influence irrespective of the policy measure. I claim that the evaluations should rather focus on empirical research investigating the impact of mandatory quotas (a measure finally suggested by the policymaker) rather than gender diversity on firm performance.

2. Procedural challenge

The drawbacks of the Impact Assessment might also call into question the legality of the Directive itself. One of the bases expressed in the article 263(2) of the Treaty on the Functioning of the European Union (TFEU) for questioning the legality of the EU acts is “infringement of an essential procedural requirement.” Potential procedural infringement rests on the assumption that the European Court of Justice (ECJ) would recognize binding effect of self-imposed rules such as Impact Assessment Guidelines. In this case, the Directive based on a poorly performed IA could be potentially deemed inconsistent with procedural requirements.³⁴⁰ It has to be mentioned however that, despite the EU Commission’s efforts to strengthen the meaning of the “Better Regulation” program, the ECJ has been so far rather reluctant to recognize a binding and judicially enforceable character of Impact Assessment Guidelines.³⁴¹

3. Substantive challenge

Given that shareholders’ and companies’ interests are at stake when complying with mandatory quotas for corporate boards, the legality of the Directive might be questioned concerning its compliance with the proportionality principle. According to Article 263(2) TFEU, the legality of an EU act might be revised on the grounds of “infringement of the Treaties or of any rule of law relating to their application.” The principle of proportionality is one such rule and states that any policy measure needs to be suitable and necessary to

³⁴⁰ *Alemanno*, The better regulation initiative at the judicial gate: A trojan horse within the commission's walls or the way forward? 2009; *Alemanno*, A meeting of minds on impact assessment 2011.

³⁴¹ *Rose-Ackerman/Egidy/Fowkes*, Due process of lawmaking: The United States, South Africa, Germany, and the European Union 2015, p.220.

achieve its objectives.³⁴² It is as yet unclear whether the proportionality principle applied in the EU law also entails the third element – proportionality *stricto sensu*.³⁴³ This component of the proportionality principle includes assessment of burdens imposed on individual interests and their proportionality to the objectives pursued by a policy measure.³⁴⁴ In principle, the European courts would examine the legal act in light of the proportionality *stricto sensu* given that this issue was explicitly raised by the challenging party.³⁴⁵

The policymaker defines the improvement of corporate governance and company performance as one objective of the Directive. For assessing the proportionality of mandatory quotas, it is important to identify whether this measure is indeed suitable and necessary to achieve the defined goal. Furthermore, the introduction of mandatory quotas might potentially lead to adverse effects on the functioning of companies. In this case, the proportionality test would also include weighing the competing interests – of companies on the one hand and of achieving gender equality in practice on the other hand. The Directive could potentially be challenged for imposing an excessive burden disproportionate to the desired objectives.

The ECJ has usually been reluctant to intervene into legislation within the EU competence in economic or social policy matters. It adopted the ‘manifestly inappropriate’ test for evaluating compliance of such measures with the proportionality principle. Instead of going into the substance of the case, the ECJ focuses only on the EU legislators’ assessment of the consequences of the challenged act.³⁴⁶ If the evaluation is not manifestly incorrect given the available information, the ECJ respects the broad discretion of the EU legislators and accepts the final conclusions of the assessment.³⁴⁷ Nevertheless, despite their extensive discretion, European institutions should be able to show before the Court that while exercising the discretion all “relevant factors and circumstances”³⁴⁸ were taken into account. In a recent judgment in *Vodafone* case the ECJ recognized that “even though it has a broad

³⁴² The scope of the principle was developed by the jurisdiction of the Union courts: C-11/70 *Internationale Handelsgesellschaft v Einfuhr- und Vorratsstelle Getreide* [1970]; C-331/88 *Fedesa and Others* [1991]. In addition, it is entailed in the Article 5 of the Protocol (No 2) on the Application of the Principles of Subsidiarity and Proportionality.

³⁴³ *Craig*, EU administrative law 2012, p.591-592.

³⁴⁴ *Craig*, EU administrative law 2012, p.591-592.

³⁴⁵ *Craig*, EU administrative law 2012, p.592.

³⁴⁶ *Tridimas*, The general principles of EU law 2007, p.143-144.

³⁴⁷ *Ibid.*, p. 144.

³⁴⁸ Case C-310/04 *Spain v Council* [2006] ECR I-7318.

discretion, the Community legislature must base its choice on objective criteria.”³⁴⁹ If the Community does not take into account all relevant information, the Court is not able to ascertain that the proportionality principle has not been violated.³⁵⁰ In such cases, the Court might conclude that the principle was infringed.³⁵¹

Finally, the Directive could be challenged based on infringement of the rights recognized in the EU Charter of Fundamental Rights: freedom to conduct business (Article 16) and the right to property (Article 17). The EU courts had already acknowledged property right³⁵² and freedom to conduct business³⁵³ as a fundamental EU right before the EU Charter of Fundamental Rights was incorporated into the European legal system. Nevertheless, the proportionality test regarding restrictions imposed by the EU policy measures on property rights and freedom to conduct business had been performed in a rather terse manner.³⁵⁴ An EU legal act will not be struck down unless it constitutes “a disproportionate and intolerable interference, impairing the very substance of the rights guaranteed”.³⁵⁵ However, since the EU Charter of Fundamental Rights became legally binding, the new developments have been observed in the EU case law.³⁵⁶ It is still too early to make any speculations on whether the EU Courts would be willing to engage in a more comprehensive review of the Directive regarding limitations imposed by mandatory quotas on the fundamental rights.

II. *Challenges of the Equal Participation Act*

The Equal Participation Act could potentially be challenged on substantive and procedural grounds. The German Federal Constitutional Court (*Bundesverfassungsgericht*) is willing to review procedural matters related to a legal act if it poses a potential threat to the constitutionally protected rights.³⁵⁷ Limitations imposed on the fundamental rights of shareholders and companies could constitute a basis for challenging the Equal Participation

³⁴⁹ Case C-58/08 *Vodafone and Others* [2010] ECR I-5026.

³⁵⁰ C-310/04 - *Spain v Council*.

³⁵¹ C-310/04 - *Spain v Council*.

³⁵² Case C-491/01 *British American Tobacco* [2002] ECR I-11550.

³⁵³ Case C-184/02 and C-223/02 *Spain and Finland v. European Parliament and Council* [2004] ECR I-7829.

³⁵⁴ See: Case C-491/01 *British American Tobacco*; Case C-184/02 and C-223/02 *Spain and Finland v. European Parliament and Council*.

³⁵⁵ Case C-491/01 *British American Tobacco*; Case C-184/02 and C-223/02 *Spain and Finland v. European Parliament and Council*.

³⁵⁶ Case C-236/09 *Test-Achats v Council of Ministers* [2011] ECR I-801

³⁵⁷ *Rose-Ackerman/Egidy/Fowkes*, *Due process of lawmaking* 2015, p.174.

Act. Specifically, the Equal Participation Act might violate Article 14 (1) Basic Law (property rights) of shareholders and a company (Article 19 (3) Basic Law),³⁵⁸ freedom of association (Article 9(1) Basic Law) as well as occupational freedom (Article 12(1) Basic Law).³⁵⁹

1. The Co-determination Act

In contrast to the ECJ, the Constitutional Court has been already confronted with a legislative intervention into the composition of corporate boards³⁶⁰ introduced with the Co-determination Act (*Mitbestimmungsgesetz – MitbestG*).³⁶¹ Although the Court finally deemed the Co-determination Act compliant with the Basic Law, the reasons stated in the judgment might be valuable for the assessment of the Equal Participation Act.

The Co-determination Act was issued in 1976 and required companies of specific legal forms with more than 2000 employees to have half of the supervisory board composed of employees' representatives. The goal of the Co-determination Act was different from the one of the Equal Participation Law. Its objective was to guarantee employees' participation in a decision-making process of a company. Nevertheless, the actual implications of co-determination rules for shareholders' and companies' rights were similar to mandatory quotas - they restricted shareholders' impact on a composition of the supervisory board and interfered with an internal organization of a company.

2. Review of procedural issues

In its judgment on the Co-determination Act, the Constitutional Court took a stand on the procedural requirements for generating legislators' predictions regarding the impact of the introduced regulation on constitutionally protected rights.³⁶² More precisely, the Constitutional Court defined the conditions for a plausible impact assessment given a high

³⁵⁸ According to Article 19(3) Basic Law fundamental rights are in principle (depending on the character of the fundamental right) granted also to juridical persons.

³⁵⁹ For a discussion see: *Papier/Heidebach*, ZGR 2011, 305; *Bachmann*, ZIP 2011, 1131; *Langenbucher*, JZ 2011, 1038; *Spindler/Brandt*, NZG 2011, 401; *Maunz/Dürig/Langenfeld*, Grundgesetz-Kommentar, Article 3 2015, sec.104-118.

³⁶⁰ BVerfGE, 50, 290.

³⁶¹ *Gesetz über die Mitbestimmung der Arbeitnehmer (MitbestG)* from Mai 4, 1976 BGBl. I S. 1153.

³⁶² Besides the Co-determination Decision there have been numerous other cases in which the Constitutional Court imposed specific requirements on legislative procedures for evaluating consequences of the proposed legislation affecting constitutional rights, e.g.: BVerfGE 39, 210; BVerfGE 57, 139; BVerfGE 88, 203; BVerfGE 94, 115. See also the discussion in: *Rose-Ackerman/Egidy/Fowkes*, Due process of lawmaking 2015; *Nolte*, Der Staat 2013, 245.

uncertainty of possible consequences. According to the Court, the legislator should base the assessment on a proper evaluation of all existing evidence.³⁶³ The available sources of information should be carefully analyzed to enable the most accurate assessment of any potential effects of a regulation and its conformity with the Basic Law.³⁶⁴ The Constitutional Court suggested that the legislator could learn from the experience made with similar legislation in Germany or other countries.³⁶⁵ If the evaluation procedure fulfills the requirements defined by the Court, it is within legislator's "margin of discretion" (*Einschätzungsprärogative*) to make a final decision on issuing a certain legal act.³⁶⁶ In such a case the Constitutional Court refrains from reviewing legislator's conclusions reached in the evaluation process. Instead, the Constitutional Court, based on the legislator's assessment, reviews the constitutionality of the legal act in question.

Analogously to the Co-determination Act, there is a high uncertainty regarding the consequences of the Equal Participation Act for corporate governance and company performance. The corporate environment is very complex, and the tools to investigate internal decision-making processes of corporate boards are limited. Furthermore, the attitudes and reactions towards positive action measures depend on how they are implemented. Nevertheless, the uncertainty does not justify flaws in the procedure of establishing a factual basis for evaluating the consequences of the Act. As described in section B the German government defined the improvement of corporate performance and competitiveness of German companies as a goal of the introduced measure. This goal was defined based on the assumption that gender diversity on corporate boards will positively influence company performance. Below I present empirical studies which undermine this assumption.

3. Review of substantive issues

The Co-determination Decision provides equally useful guidelines for a substantive review of the Equal Participation Act. As mentioned above mandatory quotas for corporate boards might potentially violate Article 14(1), 9(1) and 12(1) Basic Law.

³⁶³ BVerfGE 50, 290, p.334.

³⁶⁴ BVerfGE 50, 290, p.334.

³⁶⁵ BVerfGE 50, 290, p.334.

³⁶⁶ BVerfGE 50, 290, p.333.

Whether mandatory quotas indeed impose an unconstitutional restriction on property rights of shareholders and companies (Article 14(1) and Article 19(1) Basic Law) depends on the content and legal boundaries of a property right as well as on proportionality of the inflicted limitations. Property rights of shareholders have two dimensions.³⁶⁷ On the one hand, share ownership entitles shareholders to exercise their rights as members of a company (*mitgliedschaftsrechtliches Element*).³⁶⁸ On the other hand, it gives them the right to participate in company profits (*vermögensrechtliches Element*).³⁶⁹ Mandatory quotas do restrict shareholders' rights resulting from their membership in a company as they limit shareholders discretion regarding the appointment of supervisory board members. Moreover, the defined share of male and female directors in the corporate board has to be achieved even if there are not enough qualified candidates of the underrepresented gender available. According to some scholars limitations imposed by mandatory quotas should be evaluated together with limitations introduced by the Co-determination Act.³⁷⁰ The actual constraints of shareholders' appointment rights resulting jointly from both legal provisions could be assessed as too excessive³⁷¹ despite the Court's lenient approach towards restrictions imposed on the rights of shareholders in public companies.³⁷² Furthermore, an evaluation of how the challenged provision influences company profitability, dividend policy as well as the value of shares is required to conduct proportionality assessment of limitations imposed on shareholders' property rights within their financial dimension.³⁷³

Property rights protect not only shareholders but also a company (a legal person) as an owner of the enterprise (Article 19 (3) Basic Law).³⁷⁴ The scope of protection includes

³⁶⁷ *Maunz/Dürig/Papier*, Grundgesetz-Kommentar, Article 14, 2015, sec.195.

³⁶⁸ *Maunz/Dürig/Papier*, Grundgesetz-Kommentar, Article 14, 2015, sec.195.

³⁶⁹ *Maunz/Dürig/Papier*, Grundgesetz-Kommentar, Article 14, 2015, sec.195.

³⁷⁰ Deutscher Anwalt Verein, Stellungnahme des deutschen anwaltvereins zum referentenentwurf eines gesetzes für die gleichberechtigte teilhabe von frauen und männern an führungspositionen in der privatwirtschaft und im öffentlichen dienst 2014,p.31; *Habersack*, Staatliche und halbstaatliche eingriffe in die unternehmensführung : Gutachten e 2012,p.E37-E38, for a different view see: *Grobe*, AG 2015, 289, p.300; *Wieland*, NJW 2010, 2408, p.2409.

³⁷¹ The legal discussion is rather inconclusive with this respect. It has been argued that the Equal Participation Act impose less restrictive limitation on appointment rights than the Co-determination Act. Therefore, some scholars concluded that given the Co-determination Act was found constitutional so should the Equal Participation Act: see i.e. *Bachmann*, ZIP 2011, 1131, *Papier/Heidebach*, AG 2011, 305.

³⁷² The Court justified its lenient approach by an impersonal character and broad social function of shareholders property rights, see also: *Maunz/Dürig/Papier*, 2015, sec. 195.

³⁷³ BVerfGE 50, 290, 347.

³⁷⁴ BVerfGE 50, 290, 351.

procedures for decision making and organization of the enterprise.³⁷⁵ Any legal intervention leading to organizational dysfunction of a company could be found unconstitutional.³⁷⁶ A dysfunction occurs if company organs are not capable of reaching a decision or if decision-making process is disrupted by requiring more time and effort.³⁷⁷ Likewise, an infringement of Article 9(1) Basic Law and Article 12(1) Basic Law could be considered only as far as the challenged provisions lead to disruption in the functioning of the company and its organs.³⁷⁸

The introduction of mandatory quotas in listed companies in Germany was accompanied by a lively legal discussion. Many corporate legal scholars criticized it heavily, naming it a “foreign body” in company law.³⁷⁹ They objected to legislators arguments trying to make a “business case” for mandatory quotas on corporate boards.³⁸⁰ A proper evaluation of the consequences mandatory quotas have on the functioning of a company is important for two reasons. If the legislator states that improving company performance is the goal of the Equal Participation Act, then it has to be shown that this objective can be indeed achieved with mandatory quotas. Second, in light of the Constitutional Court’s case law the assessment of mandatory quotas impact on company performance is crucial for constitutionality check on potential infringement of Articles 14(1), 9(1) and 12(1) Basic Law. Below I discuss empirical research showing that there might be some negative side effects of gender quotas on company performance. These results should be taken into account when evaluating the constitutionality of the Equal Participation Act.

D. Research on mandatory quotas

Research suggests that quota rules might influence at least two other features of board functioning besides gender diversity. These are:

- Board structure, i.e. quotas induce change in board size, in the number of new members as well as their characteristics and leadership styles;

³⁷⁵ *Maunz/Dürig/Papier*, Grundgesetz-Kommentar, Article 14, 2015, sec.196.

³⁷⁶ *Maunz/Dürig/Papier*, Grundgesetz-Kommentar, Article 14, 2015, sec.196.

³⁷⁷ BVerfGE 50, 290, p.352.

³⁷⁸ BVerfGE 50, 290, pp.355-356.

³⁷⁹ *Habersack*, Staatliche und halbstaatliche Eingriffe in die Unternehmensführung : Gutachten E 2012, p.E36.

³⁸⁰ *Fleischer*, ZGR 2012, , p.167, *Koch*, ZHR 2011, 827, p.844-845.

- Team dynamics and group decision-making processes, i.e. group cooperation changes due to fairness perceptions of the selection procedure.

These features should be considered while evaluating whether corporate governance and companies' financial performance will benefit from mandatory quotas.

I. *“Natural experiment” in Norway*

In 2002 the Norwegian Trade Minister warned the Norwegian companies that if they did not change their policy of appointing predominantly male directors, a quota rule would be introduced. One year later a law was passed implementing 40% quotas for women on boards of public companies. At first, the quota rule was voluntary. However, since the rate of compliance was low, in 2006 mandatory quotas entered into force. According to the binding quota rule, the level of 40% female participation was to be reached by 2008. The sanctions for non-compliance would be very severe – dissolution of a company.

This event established a unique environment for research on the impact of quota rules on company performance as an exogenously imposed increase in the share of female directors (see Ahern and Dittmar,³⁸¹ Matsa and Miller³⁸² as examples). Both studies use different approaches to investigate the very same question regarding performance of Norwegian listed companies in the aftermath of the quota rule announcement.

Ahern and Dittmar investigated shifts in stock prices after the announcement made by the Norwegian Trade Minister in 2002. Additionally, they analyzed changes in Tobin's Q³⁸³ as a measure of firm performance. As a control group, they used listed companies which already had one or more female directors on board before the introduction of the mandatory quota was announced. These companies had to make smaller adjustments to comply with the new law. Therefore, they were only slightly affected by the 2002 announcement. As such, they constituted a control group for the companies which had no women on board in 2002 and had to make major changes to fulfill the new requirements. Ahern and Dittmar revealed a negative effect of the announcement of quota rules on stock prices. This negative effect is driven by the performance of companies with no women on

³⁸¹ Ahern/Dittmar, *The changing of the boards* 2012.

³⁸² Matsa/Miller, *A female style in corporate leadership* 2013.

³⁸³ Tobin's Q represents a ratio of a market value of a company to the replacement costs of its total assets.

boards in 2002. Furthermore, Ahern and Dittmar observed smaller Tobin's Q in the period 2003-2009 in companies with no female director compared to the control group, which indicates a negative impact of quota rules on firm performance. Ahern and Dittmar concluded that it is the forced change in board composition which drives the adverse effect of quotas. They stressed that new female directors are younger and less experienced than the directors they replaced, although alternative explanations are possible.

In contrast, Matsa and Miller focused on changes in accounting measures of affected public companies in 2006-2009. They also used a different approach to identifying a control group. They compared variation in profitability of listed companies with that of a matched sample of private companies which were not subject to the quota requirement. Overall, the profitability of listed companies in Norway decreases after the introduction of mandatory quotas in 2006. The decline is also observed when compared with changes in profitability of private companies. Matsa and Miller noticed that the decrease in profitability was mainly due to increased costs of employment and decrease in layoffs. They indicated that the leadership styles of new female directors might differ from that of previous board directors. Based on the studies regarding gender differences in preferences and attitudes of board directors³⁸⁴ as well as their analysis, they inferred that an increase in the share of female board directors influences corporate strategy. According to the authors, this effect is channeled by a specific corporate leadership style of women board directors.

Although the studies on Norwegian experiences with mandatory quotas provide valuable insights into the understanding of potential impacts of gender quotas on corporate performance, the results need to be interpreted with an adequate caution. First of all, other studies have shown different effects of mandatory quota on firm performance. For instance, Nygaard reported that the impact of mandatory quota on stock prices depends on the information structure of the corporation.³⁸⁵ More specifically, the author revealed that firms with more outside directors on the board are negatively influenced by mandatory quotas in contrast to companies with insiders on the board showing a positive impact. Storvik conducted interviews with board members to assess the impact of the quota legislation on

³⁸⁴ Adams/Ferreira, *Women in the boardroom* 2009.

³⁸⁵ Nygaard, *Forced board changes: Evidence from Norway* 2011.

perception and qualifications of new female directors.³⁸⁶ She concluded that the new female members are in general perceived as having the same formal qualifications as other directors and are not viewed as less competent. Furthermore, as Smith and Ferreira noticed, it is hard to draw unambiguous conclusions from the divergent effects observed. It is impossible to identify explicitly a driving force of the influence of mandatory quotas on company performance.³⁸⁷ The difficulty results from dissimilarities in approaches adopted in the studies on the Norwegian quota. The research described above focus on distinct time frameworks and performance indicators. Additionally, they adopt different selection criteria of control groups and identify different channels of quota impact. In addition to these issues, some concerns related to sample selection have been expressed.³⁸⁸ Bøhren and Staubo showed that many companies in Norway decided to change the organizational form to avoid the need of complying with quota rules.³⁸⁹ This evidence might be interpreted as an additional support for a claim that affected companies expected they might suffer costs resulting from compliance with mandatory quotas. To avoid these costs, companies were willing to change the organizational form. On the other hand, this suggests that the studies by Ahern and Dittmar as well as Matsa and Miller investigate a very specific sub-sample of all Norwegian companies as they refer only to the companies that decided to uphold the current organizational form. Furthermore, the data from Norway provides evidence only on short-term consequences. Therefore, it is as yet unknown what would be the long-term impact of the policy intervention introduced in Norway.

Regardless of its shortcomings, the research presented cast doubts on the Commission's and the German government's claim that an increase in female participation on corporate boards achieved through mandatory quotas would directly lead to better corporate governance and company performance.

II. *Experimental research on mandatory quotas*

One limitation of the field data gathered in Norway is that they do not allow investigating more basic mechanisms underlying the impact of quota rules on the functioning

³⁸⁶ *Storvik*, Women on boards 2011.

³⁸⁷ *Ferreira*, Board diversity 2015; *Smith*, Quota regulations of gender composition 2014.

³⁸⁸ *Ferreira*, Board diversity 2015.

³⁸⁹ *Bøhren/Staubo*, Does mandatory gender balance work? Changing organizational form to avoid board upheaval 2014.

of corporate boards. Thus, the insights from the field studies should be complemented with evidence from laboratory experiments.

In this section, I describe laboratory research showing that positive action policies might have some negative impact on individual attitudes and values. One possible theoretical explanation of negative responses is that positive actions might be perceived as unfair, given common standards of fair procedures (importance of ‘voice’, procedural consistency, meritocracy rule). Furthermore, I relate to the theoretical literature on procedural fairness and group cooperation. This literature implies that the most unfair procedure is, the less group cooperation is observed.

1. Effects of a positive action on individuals’ attitudes and values

Social psychology research examining positive action policies have focused mainly on psychological consequences thereof. The impact of positive action policies on different aspects of evaluations and attitudes has been investigated in experimental and vignette studies. These studies looked at self-perception of beneficiaries,³⁹⁰ evaluation of beneficiaries’ ability by others³⁹¹ or task choice following a preferential selection.³⁹² The first study revealed that when selected to be a leader based on gender and provided with no information on their ability women rated their leadership abilities lower than when they are selected based on performance.³⁹³ In contrast, male participants had lower self-perception only if chosen based on gender and provided with negative information about own performance.³⁹⁴ In another study participants were asked to evaluate the competence of male or female co-workers. The results showed that if participants associated a colleague with a positive action policy, they perceived him or her as being less competent.³⁹⁵ One study also focused on the task choice following a selection procedure based either on performance or gender. In this experiment, female participants who were selected based on a preferential

³⁹⁰ Heilman/Lucas/Kaplow, Self-derogating consequences of sex-based preferential selection: The moderating role of initial self-confidence 1990.

³⁹¹ Heilman/Block/Lucas, Presumed incompetent 1992.

³⁹² Heilman/Rivero/Brett, Skirting the competence issue: Effects of sex-based preferential selection on task choices of women and men 1991.

³⁹³ Heilman/Lucas/Kaplow, Self-derogating consequences 1990.

³⁹⁴ Heilman/Lucas/Kaplow, Self-derogating consequences 1990.

³⁹⁵ Heilman/Block/Lucas, Presumed incompetent 1992.

treatment subsequently chose a less demanding task than when chosen on the basis of performance. Selection method did not affect task choice of male participants.³⁹⁶

Other studies implemented surveys to demonstrate that positive action policies do not necessarily result in negative responses. Taylor examined the data from the General Social Survey. According to the results, positive action policies did not have a negative influence on job attitudes and preferences of workers hired by employers applying such policy measures.³⁹⁷ Pious provided further evidence showing that people do not have negative attitudes towards positive action policies.³⁹⁸ Contrary to those findings, a survey conducted with female managers who believed to be hired because of their gender revealed a negative influence of such beliefs on their job satisfaction and commitment.³⁹⁹

The more recent research investigated how the provision of additional information on the selection procedure might mitigate the negative impact of positive action policies on people's attitudes and preferences. Experimental results demonstrated that participants informed that merit played a role in a preferential selection procedure tended to perceive the selected women as more competent. Furthermore, women's self-perception did not suffer from preferential treatment if they knew that their performance was also considered in the selection for a leadership position.⁴⁰⁰

Another study by Ritov and Zamir suggested that attitudes towards positive action policies depend on identifiability of individuals who are adversely affected by the policy measure.⁴⁰¹ In the study participants were presented with different scenarios describing admission or selection procedures implementing positive action policies. Acceptance of positive action measure decreased when it was made clear in the scenario which individuals suffered from implementing such a procedure.

³⁹⁶ *Heilman/Rivero/Brett*, Skirting the competence issue 1991.

³⁹⁷ *Taylor*, Impact of affirmative action on beneficiary groups: Evidence from the 1990 general social survey 1994.

³⁹⁸ *Pious*, Ten myths about affirmative action 1996.

³⁹⁹ *Chacko*, Women and equal employment opportunity: Some unintended effects 1982.

⁴⁰⁰ *Heilman/Battle et al.*, Type of affirmative action policy: A determinant of reactions to sex-based preferential selection? 1998.

⁴⁰¹ *Ritov/Zamir*, Affirmative action and other group tradeoff policies: Identifiability of those adversely affected 2014.

The findings presented above concentrated on the impact of positive action on how people perceive themselves as beneficiaries of that action, how others evaluate them and how they feel when selected based on positive action. They showed that positive action did influence evaluations, views, and attitudes. This impact varies depending on the information provided either on the procedure itself, candidates' abilities or identifiability of individuals affected by a positive action policy.

2. Effects of a positive action on actual behavior

a) Individual performance

Given that people's evaluations and preferences are affected by positive action policies, it is likely that they will not remain without impact on individual's actual behavior. Research in social psychology has provided first insights on how people react when faced with a preferential procedure. In contrast to the studies presented above, this research measured performance or decisions in a task conducted in a laboratory environment instead of relying on results from questionnaires on self-reported evaluations or surveys. Nacoste and Hummels examined whether the behavior of decision makers in a hiring procedure is affected by a positive action policy.⁴⁰² In this study participants made hiring and salary recommendations for male and female candidates. The experimenters varied the significance of positive action policy in a selection procedure. Whereas positive action did not have any effect on the hiring recommendation decisions, it did influence salary recommendations. Female candidates perceived as being advantaged by a positive action policy received lower salary recommendations than their male competitors.

The findings on the influence of positive action policies on individual task performance are partially contradictory. Whereas Nacoste found no adverse impact of positive action on creative task performance,⁴⁰³ Turner and Pratkanis⁴⁰⁴ showed that female participants selected by gender performed worse in a creative task if they believed that it requires effort rather than capabilities. The opposite results were observed if women were selected based on their performance – they scored worse in a task if they believed that it rather requires capabilities than effort. The authors explained these somewhat counter-

⁴⁰² *Nacoste/Hummels*, Affirmative action and the behavior of decision makers 1994.

⁴⁰³ *Nacoste* Affirmative action and self-evaluation in: Affirmative action in perspective 1989.

⁴⁰⁴ *Turner/Pratkanis*, Effects of preferential and meritorious selection on performance: An examination of intuitive and self-handicapping perspectives 1993.

intuitive results by a “self-handicapping” strategy implemented by women who were preferentially selected and believed that the task requires effort instead of capabilities. According to this strategy preferentially chosen individuals do not perform high in an effort-requiring task because if they put in much effort and fail they cannot blame the lack of ability for that. In contrast, if they do not try hard and fail, they can always explain it by a lack of effort. Despite this vague explanation, the study delivers an important message – positive action policies do not have an exclusively negative impact on task performance, but rather depend on individual's conceptualization of the task character. A later study by Brown et al.⁴⁰⁵ showed that indeed positive action policies do not always decrease the performance of those preferentially treated. The authors conducted a laboratory experiment in which female participants performed a problem-solving task. The results revealed that if participants were informed to be selected solely by gender they solved fewer tasks than if they were informed to be selected randomly or by gender and performance. These results are in line with previous findings of Heilman et al.⁴⁰⁶ They confirm that the negative impact of positive action on the actual performance, similar to people's beliefs and evaluations, can be attenuated by providing additional information on the importance of performance in the selection procedure.

b) Individuals' interactions and group performance

Evidence on how the positive action policies influence interactions between individuals is as yet scarce. Recent economics experiments provided first insights on the impact of positive action on behavior in a group.⁴⁰⁷ Balafoutas and Sutter conducted a laboratory experiment to investigate how different positive policy measures affect competition, coordination and cooperation between individuals.⁴⁰⁸ In the experiment, participants formed groups of 6 composed of three male and three female persons. Participants in those groups competed against each other by performing a real effort task consisting of adding as many two-digit

⁴⁰⁵ Brown/Charnsangavej et al., Putting the "affirm" into affirmative action: Preferential selection and academic performance 2000.

⁴⁰⁶ Heilman/Battle et al., Type of affirmative action policy 1998.

⁴⁰⁷ There is also a growing experimental literature on the effects of positive action on competitive behavior and results of selection procedure, i.e., Niederle/Segal/Vesterlund, How costly is diversity? Affirmative action in light of gender differences in competitiveness 2013. This literature focuses on the behavior in the selection procedure. As I am interested in behavior following the selection procedure, I refrain from reviewing this literature here.

⁴⁰⁸ Balafoutas/Sutter, Affirmative action policies promote women and do not harm efficiency in the laboratory 2012, An extended version of a paper including some additional results: Balafoutas/Sutter, Gender, competition and the efficiency of policy interventions 2010.

numbers as possible within three minutes. Depending on the experimental condition the experimenters changed the rules of choosing two winners of the competition. In the baseline treatment, two persons who performed the best in a task were selected to be winners. In other treatments the winners were chosen according to different preferential rules:

- (1) at least one woman was chosen to be a winner irrespective of her performance,
- (2) female participants were added one additional point,
- (3) female participants were added two additional points,
- (4) the competition was repeated if no female participant was among the winners.

After the competition stage, participants in all treatments performed a cooperation and coordination task. In the cooperation task participants performed once again the same real effort task. This time, however, the number of correct calculations was relevant for the six-person group outcome. Correct calculations conducted by six persons in a group were added up and divided among all group members. In the coordination task subjects played a two-person coordination game with each member of a group. In the coordination game participants had to choose a number between 1 and 7.

The payoffs are determined by a number simultaneously selected by the other player. The outcome of both players is the most efficient if they both choose 7. The lower the number chosen by one of the players is, the lower the outcome they both receive. An additional feature of this coordination game is that a player who picked a lower number than the other player receives a higher outcome. For instance, if player 1 chose number 3 and player 2 chose number 4, player 1 receives €4.50 and player 2 receives €4.00. This poses an additional hurdle for reaching an efficient coordination outcome of both players choosing 7. Payoffs from a coordination game implemented in Balafoutas and Sutter experiment are displayed in Table 11.⁴⁰⁹

⁴⁰⁹This game is also known as a ‘weak-link’ game introduced by *Huyck/Battalio/Beil*, Tacit coordination games, strategic uncertainty, and coordination failure 1990. For an overview see: *Camerer*, Behavioral game theory: Experiments in strategic interaction 2003. Camerer gives an intuition for a dilemma players of such a game are facing. He compares it to a situation in professional organizations where one project needs to be done within strict time limits and there are several people working on it. If one of them fails to deliver his/her part on time, the whole project fails. Such a game has multiple equilibria – either all workers perform well and deliver the project on time or all workers do nothing and the project fails. Delivering on time

Table 11: Payoffs in the coordination game

		Other person's number						
		7	6	5	4	3	2	1
Your number	7	€6.50	€5.50	€4.50	€3.50	€2.50	€1.50	€0.50
	6	€6.00	€6.00	€5.00	€4.00	€3.00	€2.00	€1.00
	5	€5.50	€5.50	€5.50	€4.50	€3.50	€2.50	€1.50
	4	€5.00	€5.00	€5.00	€5.00	€4.00	€3.00	€2.00
	3	€4.50	€4.50	€4.50	€4.50	€4.50	€3.50	€2.50
	2	€4.00	€4.00	€4.00	€4.00	€4.00	€4.00	€3.00
	1	€3.50	€3.50	€3.50	€3.50	€3.50	€3.50	€3.50

Results from both tasks – coordination and cooperation - revealed no negative influence of positive action policies (irrespective of their type) on the outcome of interactions between winners and loser of competition.

In contrast, Mollerstrom showed that people cooperate less with each other when selection procedure favors members of one group.⁴¹⁰ In a laboratory experiment participants were assigned to either orange or purple color. This manipulation is based on a minimal group paradigm developed by Tajfel.⁴¹¹ According to Tajfel, even seemingly irrelevant basis for assignment to different groups (i.e. scores received in a simple visual task) might create discrimination between members of own and the other group. This discrimination might demonstrate itself in different performance when interacting with a member of the own group compared to the performance when interacting with a member of the other group. In Mollerstrom's study in each treatment, participants performed a math task which was a basis for promotion from a basic group (16 persons) to a high-stake group (8 persons). The promotion procedure varied depending on the treatment. In the quota treatment, there were 12 orange and four purple participants in the basic group. Out of them, four orange and four purple participants could be promoted to the high-stake group. As there was only four purple participants present in the basic group, all of them were promoted irrespective of performance in the math task. Orange participants had to compete against each other for

is the most efficient option for all workers. It is however not straightforward which action will be chosen by the players – doing nothing or delivering on time.

⁴¹⁰ Mollerstrom, Quotas and cooperation 2012.

⁴¹¹ Tajfel, Experiments in intergroup discrimination 1970.

being promoted to the high-stake group. In the control treatment, there were 8 participants assigned to orange and 8 assigned to the purple group. Four best orange and four best purple participants were selected to the high-stake group, which means that both – orange and purple participants had to compete for promotion. Two further treatments introduced different justifications of quota rule. They followed the same procedure as the basic quota treatment but were justified either with efficiency or with fairness arguments. In each treatment after the promotion procedure, participants selected to the high-stake group played two persons public good games with each member of the high-stake group. In a public goods game participants had to decide how much of his/her endowment to contribute to the common pool. Subsequently, contributions of both players were multiplied by 1.5 and divided equally between them. The study demonstrated that in the quota treatment participants contributed less than in the control treatment. Furthermore, contributions in both quota treatments with different justifications were also lower compared to the control treatment.

The results from the two economics experiments on the impact of positive action policies on group cooperation are inconsistent. Whereas Balafoutas and Sutter observed no adverse effects of different positive action policies on coordination and cooperation,⁴¹² Mollerstrom provided evidence on the negative impact of quota rules on group cooperation.⁴¹³ It is as yet not possible to draw any firm conclusions regarding the mechanism which would explain the contradictory results as the studies differ on some details of the experimental design. One crucial difference between the studies is the categorization criterion. In the Balafoutas and Sutter study participants were categorized based on gender and women were favored by positive action procedures.⁴¹⁴ In contrast, Mollerstrom implemented group membership based on a feature arbitrary assigned to the participants (colors) and members of one color group were benefited by a quota rule.⁴¹⁵ It is possible that positive action favoring female participants does not result in negative reactions (as in the Balafoutas and Sutter study) because it applies to a historically disadvantaged group. To examine this potential explanation, in the study presented below reactions towards quotas favoring women are directly compared with reactions towards quotas favoring

⁴¹² Balafoutas/Sutter, Gender, competition 2010; Balafoutas/Sutter, Affirmative action policies 2012.

⁴¹³ Mollerstrom, Quotas and cooperation 2012.

⁴¹⁴ Balafoutas/Sutter, Gender, competition 2010; Balafoutas/Sutter, Affirmative action policies 2012.

⁴¹⁵ Mollerstrom, Quotas and cooperation 2012.

members of experimentally created group membership (i.e. green color group). The design of the study is, however, distinct from previous experiments as it introduces initial discrimination concerning incentive schemes – underrepresented group members (females or participants assigned to a group with less frequent color) are selected to low-earnings groups. Furthermore, it focuses on the interaction of high-status group members formed as a result of a promotion procedure. In particular, it investigates how incumbent high-status group members interact with an incoming member promoted according to the quota- or performance-based procedure.

E. Conclusions

Superficially, the problem of group cooperation might seem unrelated to board processes. However, in the literature on corporate governance, the effort norms of board members are recognized as one of the main predictors of board task performance.⁴¹⁶ Board dynamics, and in particular effort norms, were also mentioned in the IA as one of the relevant factors of corporate governance.⁴¹⁷ The directors face a dilemma when preparing for and participating in board meetings. They can either actively contribute to tasks of a board or free ride and be passive, hoping that the other directors do the whole work. Furthermore, the group cooperation problem in corporate boards might demonstrate itself in putting personal over company best interest. Individuals face the same dilemma when deciding whether or not to cooperate with a group – they can either exert effort valuable for the group or do nothing, exploiting the effort of other group members. Therefore, to accurately estimate the impact of quotas on board performance it is necessary to know how mandatory quotas influence group cooperation. This is a subject of an experimental study I designed and conducted together with Angela Dorrough, Manuela Barreto, and Andreas Glöckner. The study is discussed in the chapter 5.

⁴¹⁶ *Wright/Siegel et al.*, The oxford handbook of corporate governance 2013; *Minichilli/Zattoni et al.*, Board task performance: An exploration of micro- and macro-level determinants of board effectiveness 2012.

⁴¹⁷ Impact Assessment, p. 1.

Chapter 5

Behavioral implications of gender quotas for group cooperation

A. Introduction

Policymakers who propose the introduction of a gender quota in public agencies and private organizations do so because this strategy guarantees the increase in women's representation in a specific position or domain within a relatively short period. Besides this immediate benefit, legislators claim that introducing quotas for boards of directors in listed companies will bring additional advantages in the form of increased corporate performance. For example, a report from the European Commission points out that the “presence of women [on boards] contributes to improving corporate governance, team performance and the quality of decision-making”.⁴¹⁸ A crucial—yet untested—aspect of this debate is whether or not these benefits of gender diversity can indeed be achieved through the implementation of quotas. In particular, it is as yet unclear whether or not a quota procedure positively affects an important feature of group performance, namely cooperation.

Previous research on the effects of positive action⁴¹⁹ has focused on individual task performance, job satisfaction, and task selection,⁴²⁰ but did not investigate group

⁴¹⁸ European Commission, Impact assessment on costs and benefits of improving the gender balance in the boards of companies listed on stock exchanges, SWD(2012) 348, available at: http://ec.europa.eu/justice/gender-equality/files/womenonboards/impact_assesment_quotas_en.pdf. [hereinafter: Impact Assessment or IA], p.13.

⁴¹⁹ In the American system it is more common to use a term “affirmative action” to describe all policies which aim at reversing previous discrimination based on different characteristics such as gender or race.

⁴²⁰ For overviews, see: *Crosby/Tyer/Sincharoen*, Understanding affirmative action 2006; *Heilman/Alcott*, What I think you think of me: Women's reactions to being viewed as beneficiaries of preferential selection 2001; *Kravitz/Harrison et al.*, Affirmative action: A review of psychological and behavioral research 1997.

performance, or cooperation within teams. More recent research has provided relevant insights into this problem⁴²¹ but has left important questions unanswered. Here, I present a laboratory experiment performed to answer some of these open issues. In particular, the study aims at answering the following research questions:

1. Does group cooperation decrease when the promotion is based on quota rules as compared to performance?
2. Is a quota-based promotion into a high-status group⁴²² perceived as less fair than a performance-based procedure?
3. If so, is this effect of promotion rule on performance explained by differences in fairness perceptions?
4. Does quota-based promotion affect group cooperation differently when it is applied to gender as compared with an artificial and randomly assigned category?

In contrast to the empirical studies on mandatory quota and company performance described in the previous chapter, a laboratory experiment allows me to investigate direct reactions of individuals affected by a policy measure. The features of the experimental method discussed in chapter 1 such as random assignment or controlled environment are crucial for the key advantage of this method which is a causal analysis of the effects of a legal institution.

Furthermore, a laboratory experiment has an additional benefit compared to vignette studies also mentioned in the previous chapter (Storvik 2011). A laboratory experiment measures real choices of affected individuals instead of attitudes or hypothetical reactions. Additionally, participants in the experiment indeed interact with each other in a group reflecting the decision-making procedure of a collective body such as a corporate board.

⁴²¹ Balafoutas/Sutter, Affirmative action policies 2012; Mollerstrom, Quotas and cooperation 2012.

⁴²² A “high-status group” is understood as a group, members of which distinguished themselves from members of other groups by, i.e., higher earnings or higher career level.

B. Materials and methods

I. Design and participants

Participants were randomly assigned to the four conditions of a 2(categorization criterion: gender vs. artificial category) x 2(promotion rule: performance vs. quota rule) between-participants design. One hundred eighty-eight participants, mostly students at the University of Bonn (age: $M = 24.74$, $SD = 6.5$; 50% female) with heterogeneous fields of study, were recruited from the MPI Decision Lab subject pool via the online recruitment tool ORSEE.⁴²³ Participants interacted with each other in groups of four, and usually, 12 individuals took part in each of the 19 experimental sessions. Due to occasional no-shows, only eight persons (two groups) participated in some sessions, resulting in valid data from 11 to 13 groups per condition. Each session lasted about 70 minutes. In all four conditions, participants performed an incentivized slider task. Participants' total payments ranged from 3.70 to 22.50 Euros (approx. USD 4.03 to 24.53).⁴²⁴ The experiment was programmed in z-Tree.⁴²⁵

II. Materials and procedure

Upon arriving at the laboratory, participants were randomly assigned to separate cubicles. They were instructed that communication between participants was forbidden throughout the experiment and that the experiment consisted of several parts. First, instructions describing only the rules of the first part were distributed (on paper). After participants had answered three control questions, their answers were checked by the experimenters. In the case of at least one incorrect answer, participants were asked to reread the instructions and to try again. Afterward, participants filled out a demographic questionnaire. Next, they were assigned to groups of four. In the gender conditions (gender performance and gender quota) each group consisted of one randomly drawn female and three randomly drawn male participants. In the color conditions (color performance and color quota), participants were first assigned a color (orange or green) and next randomly

⁴²³ Greiner, The online recruitment system orsee 2.0-a guide for the organization of experiments in economics 2004.

⁴²⁴ In addition to the performance contingent reward ($M = 10.90$ €, approx. USD 11.88), participants received 1 € (approx. USD 1.39) fixed payment for an online Social Dominance Orientation questionnaire they filled out at least 12 hours before coming to the laboratory.

⁴²⁵ Fischbacher, Z-tree: Zurich toolbox for ready-made economic experiments 2007.

divided into groups of four (three orange and one green participant in each group). Afterward, each group of four was split into two-person subgroups (high-status and low-status subgroups), in which participants performed the first part of the experiment. Thus, half of the participants started in a privileged high-status group. The remaining half - in a low-status group. The differences in status were introduced through an exchange rate of points earned in the experimental task. Each point obtained by a member of a high-status group was worth 16 cents, whereas members of a low-status group received 8 cents for each point. Thus, members of low-status groups were discriminated against with regard to wage for doing the same task as members of the high-status groups.

The high-status group consisted of two male (two orange) participants and the low-status group consisted of one male (one orange) and one female (one green) participant. The male (orange) participants had a chance of 2/3 of being assigned to the high-status group, whereas the female (green) participants were always assigned to the low-status group. Thus, female (green) participants had no chance to be initially assigned to a high-status group. This way in the gender condition females were discriminated against (all were placed in the low-status group) while two-thirds of the males were assigned to a high-status group (one-third were placed in the low-status group). In the artificial category conditions, two color groups were created (green and orange) and participants randomly categorized as 'green' were discriminated against (all were placed in the low status). Participants were provided with information on the color they were assigned to and on the color (in the color conditions) gender (in the gender conditions) of the other subgroup member.

In the experiment, participants completed a slider task.⁴²⁶ Participants were presented with 48 sliders on the screen. Each slider ranged from 0 to 100. Participants were instructed that their task was to adjust sliders from the initial position at 0 to the value of 50. They had 120 seconds for this task and could move the slider bar by clicking on the sides of the bar or by dragging the slider along the bar, which moved the slider by increments of 1. Since previous research has found systematic differences between hypothetical and real social interactions,⁴²⁷ we fully incentivized the slider task to enhance external validity: For each

⁴²⁶ Gill/Prowse, A structural analysis of disappointment aversion in a real effort competition 2012; Gill/Prowse, A novel computerized real effort task based on sliders 2013.

⁴²⁷ Vlaev, How different are real and hypothetical decisions? Overestimation, contrast and assimilation in social interaction 2012.

correctly solved slider (that is, for each slider that was placed exactly at the value of 50) participants earned one point. The slider task has one additional advantage that is crucial to our research: it has been proven to be gender neutral⁴²⁸ in that previous research did not observe gender differences in individual performance.

The first part of the experiment included three phases in which the slider task was completed, i.e., a practice trial, and two phases that were relevant for payment: one with the individual and one with the group payment scheme (in randomized order). After each phase, participants received feedback concerning the number of sliders solved and the payments. In the individual scheme, payment depended solely on individual performance. Thus, it served as a benchmark for individual skills and learning. In the group scheme, the number of sliders solved by the two members of a subgroup was summed up, multiplied by 1.2, and divided evenly between the subgroup members. We implemented this multiplier to reflect additional benefits obtained through group work. Hence, both members of each subgroup (i.e., high-status or low-status group) could additionally profit from their contribution.

As soon as the first part was over, the instructions for the second part were distributed. Participants read that one of the low-status subgroup participants would now switch to the high-status subgroup to replace a randomly chosen high-status subgroup participant, who in turn would switch to the low-status subgroup, in order to keep the group size constant. This way a possibility of being promoted from the low-status to the high-status group was introduced. The promotion rule varied depending on the experimental condition. In the performance-based condition, the low-status subgroup member switching to the high-status subgroup was chosen on the basis of the average number of sliders solved in the preceding individual and group payment phases. The participant with more sliders solved was promoted to the high-status subgroup (a random draw was conducted in the case of a tie), irrespective of his/her color or gender. In the quota conditions, a female (green) participant was chosen to be promoted to the high-status subgroup. In this case, performance in the first part of the experiment was irrelevant for the promotion. After reading the second

⁴²⁸ Gill/Prowse, A novel computerized real effort task based on sliders 2013; Gerhards/Siemer, Private versus public feedback-the incentive effects of symbolic awards 2014; Lindner, Decision time and steps of reasoning in a competitive market entry game 2014.

part of the instructions and answering a control question⁴²⁹ regarding the promotion procedure, participants were informed (on the screen) about whether they would switch to the other subgroup or remain in their initial subgroup. They were also reminded of what constituted the basis for promotion (performance, gender, or color). Although participants who stayed in the high-status subgroup were well aware of what promotion rule had been used to recruit the new member (for the exact wording, see the experimental instructions provided in the appendix), they were not informed about the exact performance of their new subgroup member. The new subgroup members were not informed either about the exact performance of the incumbent subgroup member. Next, as in the first part of the experiment, participants solved the slider task once with the individual and once with the group payment scheme (again, the order was randomly determined). The payment for each point obtained in the slider tasks followed the same rule as in the first part—high-status group members received 16 cents per point while low-status group members received 8 cents per point. After completing the second part, participants filled out a questionnaire in which they were explicitly asked about the extent to which they perceived the promotion procedure as fair. To assess perceived fairness of the promotion procedure, we included a questionnaire based on Tyler and Blader.⁴³⁰ The questionnaire included such items as “The rules and procedures were equally fair to everyone”, “The participants were treated with dignity”, “How fair was the outcome of the promotion procedure?” Questions were answered on seven-point Likert-type scales, with higher scores representing perceptions of the procedure as fairer.⁴³¹ The resulting questionnaire consisted of a scale measuring the formal quality of decision-making (four items; Cronbach’s alpha = 0.76) and another scale measuring the formal quality of treatment (three items; Cronbach’s alpha = 0.84). Furthermore, a scale on distributive fairness to control for potential differences in distributive justice perceptions was included (two items; Cronbach’s alpha = 0.81).⁴³²

⁴²⁹ The control question was a multiple choice question. Irrespective of the treatment, there was always one option describing the quota-based promotion procedure and one option describing the performance-based promotion procedure. In this way, participants were made aware of other possible promotion procedures.

⁴³⁰ Tyler/Blader, *Cooperation in groups: Procedural justice, social identity, and behavioral engagement* 2000.

⁴³¹ In the experiment, participants answered the fairness questionnaire with an inverted scale where 1 indicated the fairest and 7 the most unfair judgment. For the sake of a more intuitive understanding of the results, I inverted the scale in all analyses.

⁴³² I additionally examined whether responses to quota systems based on gender or on artificially created groups are affected by chronic tendencies to endorse, desire, and support social hierarchies, that is,

Finally, participants were informed about their total payments in both parts of the experiment and asked to enter individually a separate room, where they received their payments in private.

C. Theoretical background and hypotheses

I. Procedural and distributive justice

Positive action policies might be judged within two dimensions of justice: distributive and procedural. Whereas the first one is concerned with rules according to which distribution of resources is made (i.e., equity rule), the second one relates to procedures by which the decisions on distribution are met (i.e., all affected individuals can present their view before a decision is made).⁴³³

Nacoste⁴³⁴ suggested that attitudes, as well as reactions towards positive action policies, might be driven by people's evaluations of procedural justice. The social psychology research on procedural justice focused on psychological consequences of different procedural features.⁴³⁵ Nacoste suggested that people's evaluations of procedural fairness depend on how much 'voice' they are granted in a procedure. Nacoste argued that selection procedures subject to positive action measures might be perceived as less fair than procedures based on performance because the first one assign more weight to group membership (such as gender, race) than the latter one. As a result, individuals cannot influence the outcome of a selection procedure subject to positive action policy by, i.e., stressing their good performance in a relevant task. Lind and Tyler in turn pointed out that positive action policies might be perceived as unfair because they violate procedural consistency across people.⁴³⁶ The authors referred to findings of Barret-Howard and Tyler suggesting that procedural consistency across people and time is a crucial feature for fairness perception of procedure.⁴³⁷

social dominance orientation (Sidanius & Pratto, 2001). The results revealed no significant effects of this measure.

⁴³³ Bobocel/Son Hing et al., Justice-based opposition to social policies: Is it genuine? 1998.

⁴³⁴ Nacoste, Sources of stigma: Analyzing the psychology of affirmative action 1990.

⁴³⁵ Lind/Tyler, The social psychology of procedural justice 1988, p.7.

⁴³⁶ Lind/Tyler, The social psychology of procedural justice 1988, p.165.

⁴³⁷ Barrett-Howard/Tyler, Procedural justice as a criterion in allocation decisions 1986.

Meritocracy might be yet another factor relevant for fairness evaluations of positive action policies.⁴³⁸ Meritocracy is an ideology - widespread in Western societies - which supports an allocation principle according to individual performance and input.⁴³⁹ Its relevance for attitudes towards positive action policies is however not clear. On the one hand, it has been found that people who endorse merit principle oppose strongly positive action policies.⁴⁴⁰ However, the objection towards positive action diminishes if supporters of meritocracy recognize the currently existing high work discrimination.⁴⁴¹

Summing up, there are different reasons why selection procedures subject to positive action policies might be perceived as less fair than performance-based procedures. Although theoretical research suggested that positive action policies might affect both - procedural (lack of consistency, lack of “voice”) as well as distributive justice evaluations (violation of meritocracy principle) of selection procedures and their outcomes, it has been empirically shown that people relate positive action policies to procedural fairness evaluations.⁴⁴² Based on the theoretical and empirical research on positive action policies, the following hypothesis is proposed regarding fairness perception:

H1: Members of a high-status group are expected to perceive promotion based purely on quota as less fair than promotion based purely on previous performance.

II. *Group engagement model*

Further research on procedural justice demonstrated that fairness evaluations of a procedure do influence people’s attitudes and values as well as their behavior. Blader and Tyler developed a group engagement model explaining how procedural fairness perception influences cooperation in a group.⁴⁴³ The model assumes that people shape their social identity using group membership. According to the model this identity is crucial for cooperation in a group – the more people identify with a group, the more they are willing to cooperate with other group members. Additionally, the fairness of procedures implemented

⁴³⁸ Bobocel/Son Hing *et al.*, Justice-based opposition 1998

⁴³⁹ Son Hing/Bobocel/Zanna, Meritocracy and opposition to affirmative action: Making concessions in the face of discrimination 2002.

⁴⁴⁰ Bobocel/Son Hing *et al.*, Justice-based opposition 1998.

⁴⁴¹ Son Hing/Bobocel/Zanna, Meritocracy and opposition 2002.

⁴⁴² Cohen-Charash/Spector, The role of justice in organizations: A meta-analysis 2001.

⁴⁴³ Tyler/Blader, Cooperation in groups 2000; Tyler/Blader, The group engagement model: Procedural justice, social identity, and cooperative behavior 2003.

in a group influences people's group identification. The fairer the procedures are, the more people identify with a group.⁴⁴⁴ Given that positive action measures negatively affect procedural fairness evaluations, their implementation to group selection procedures might lead to a decrease in cooperation.

Based on the group engagement model two following hypotheses are proposed regarding behavioral reactions towards quota rules and their underlying mechanisms:

H2a: The members of the high-status group are expected to show reduced group cooperation after a promotion which is based purely on quota, as compared to a promotion based purely on performance.

H2b: This reduction of group cooperation is expected to be mediated by fairness perceptions of the promotion procedure.

III. *Gender versus artificially created category*

Given the universality of procedural fairness standards such as voice or procedural consistency as well as widespread beliefs in a meritocracy, negative fairness perception, and behavioral reactions should be observed irrespective of whether the quota is applied to gender or an artificially created feature. If beliefs in meritocracy and procedural fairness standards are the main force underlying the reactions towards quota rules, no difference should be expected depending on whether quota refers to gender or any other group membership.

H3a: Quota rules are expected to be perceived as less fair and lead to less cooperation than performance-based promotion, irrespective of whether quotas are based on gender or artificially created categories.

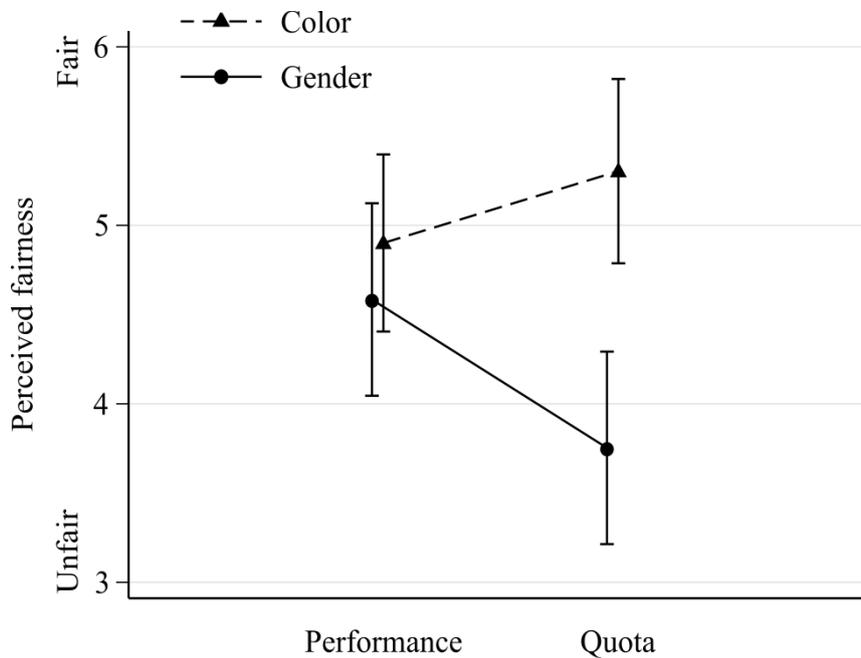
H3b: No difference is expected between reactions towards quota rules based on gender compared to artificially created categories.

D. Results

Since the hypotheses refer to the behavior of the members from the high-status group, the analyzes focused on the responses of a subgroup of participants consisting of an

⁴⁴⁴ Tyler/Blader, Cooperation in groups 2000; Tyler/Blader, The group engagement model 2003.

Figure 11: Perceived fairness by treatment condition



Note: Means of individual responses to the questionnaire on perceived fairness of the promotion rule by experimental condition (categorization criterion: color vs. gender, promotion rule: performance vs. quota). Bars indicate 95% confidence intervals.

incumbent member of a high-status subgroup and a new member originally stemming from a low-status subgroup. The total number of participants whose responses are relevant to the hypotheses is half ($N = 94$) of the total number of participants who took part in the study ($N = 188$). Only these participants enter the following analyzes.

I. *Perceived fairness*

In order to investigate the perceived procedural fairness of the promotion procedure introduced between the first and second part of the experiment, the mean responses to questions 1-7 of the fairness questionnaire were calculated for each participant. The distributive fairness was investigated by calculating the average responses to questions 8 and 9 of the fairness questionnaire. The individual averages of procedural fairness perception are displayed in Figure 11.

Figure 11 reveals that the participants perceived the quota procedure implemented in the gender treatment as the most unfair, whereas the quota procedure in color treatments was evaluated as the fairest. In order to test hypotheses 1, 3a and 3b, an ordinary least squares (OLS) regression was conducted predicting perceived procedural fairness from promotion rule, categorization criterion, and their interaction (variables centered). The results are displayed in Table 12, Model 1. They reveal a significant influence of categorization criterion on perceived procedural fairness. Promotion rules were perceived as more fair when categorization was based on an artificially created group than when it was based on gender. The main effect of a quota rule, as compared to a performance rule, was not statistically significant. A significant interaction between promotion rule and categorization/discrimination criterion was observed. Simple effects revealed that quota rules were perceived as less fair than performance-based promotion in the gender conditions, $F(1, 90) = 4.69, p = .03$. This effect was not observed in the color conditions, $F(1, 90) = 1.25, p = .26$.

Table 12: OLS Regression on procedural fairness, distributive fairness, and change in cooperation score of a subgroup

	(1) Procedural Fairness	(2) Distributive Fairness	(3) Change in cooperation score
Quota (1=quota, 0=performance; centered)	-0.175 (0.263)	-0.545 (0.351)	-1.683+ (0.901)
Color (1=color, 0=gender; centered)	0.920*** (0.263)	0.755* (0.352)	0.610 (0.889)
Quota*Color	1.234* (0.527)	0.472 (0.704)	2.183 (1.795)
Task order			1.476* (0.672)
Constant	4.667*** (0.131)	3.853*** (0.176)	-1.330 (0.823)
Observations	94	94	91
Adjusted R^2	0.141	0.047	0.079
Clusters			47

Note: Results from an OLS regression with standard errors provided in parentheses. “Task order” indicates the number of slider tasks separating both group payment schemes. In Model 3, standard errors were clustered at the group level. Participants who solved no slider task were omitted in Model 3. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Further analysis focused on evaluations of distributive justice (Table 12, Model 2). An OLS regression predicting perceived distributive fairness from promotion rule, categorization criterion, and their interaction (variables centered) revealed no main effect of quota versus performance based promotion rule. Similarly to procedural fairness perception, the outcomes of promotion procedures were perceived as more fair when participants were categorized according to color as compared to gender. However, the interaction between promotion rule and categorization criterion was not statistically significant. Furthermore, no simple effects of quota rule on distributive fairness perception were observed both in the gender, $F(1, 90) = 2.40, p = .12$, and in the color conditions, $F(1, 90) = 0.45, p = .50$.

The quota-based promotion procedure implemented in the study did not comply with procedural fairness standards as identified in previous empirical and theoretical research (sections C in chapter 5 and section D in chapter 4). Yet, the results revealed that the quota-based procedure was seen as less fair than performance-based promotion only when the categorization was based on gender rather than on an artificially created category. Thus, the evidence provides only partial support for the hypotheses 1, 3a and 3b. Additional analysis of distributive fairness perception revealed no impact of promotion procedures on fairness perception of its outcomes.

II. *Performance and cooperation*

Two participants solved no slider during the entire experiment and one participant solved no slider only in the first part of the experiment, which most probably is a result of the persons misunderstanding the task. These participants were excluded from the following analyses. Thus, the total number of participants entering the analysis is 91.⁴⁴⁵ Averaged across all parts and conditions of the Experiment 1, participants solved a total of 85.3 (SD = 23.9) sliders (excluding practice trial), which amounts to the average of 21.3 (SD=5.9) sliders per phase. In the color conditions, the difference between the average number of sliders solved by male and female participants was not statistically significant (men: $M = 22.9, SD = 5.4$; women: $M = 21.5, SD = 4.0$; Mann-Whitney test: $z = 1.31, p = .18$), confirming the gender neutrality of the task. In the gender conditions, however, female participants solved on average fewer sliders than male participants (men: $M = 23.1, SD =$

⁴⁴⁵ Including these participants does not change the pattern of the results.

5.0; women: $M = 19.6$, $SD = 5.5$; Mann-Whitney test: $z = 2.13$, $p = .03$).⁴⁴⁶ In line with research on the effects of disadvantage on performance (e.g., Barreto, 2014 for a review), this difference is likely to reflect the negative motivational effects of the gender disadvantage induced at the start of the study.

The second set of hypotheses concerns the effects of quota on cooperation in the second part of the experiment (i.e., after promotion). The participants' willingness to cooperate was operationalized as the difference in number of sliders solved in the group payment scheme and the number of sliders solved according to the individual payment scheme. This difference is referred to as the 'cooperation score'.⁴⁴⁷ A negative cooperation score indicates free-riding, whereas a positive cooperation score implies cooperation. The cooperation score was calculated in order to control for any heterogeneity in skills and learning, since performance in the individual payment scheme is included in its calculation. Additionally, inclusion of performance in individual payment scheme into the cooperation score was crucial for excluding any potential effects of stereotype threat. The promotion procedure (performance-based vs. quota-based) was introduced between the two parts of the experiment. To test the hypotheses, the analysis focused on a change in cooperation scores between the first and second part of the experiment. This way one can examine whether the introduction of a measure (i.e., promotion procedure) leads to a change in cooperative behavior. Therefore, the cooperation score in the first part of the experiment was subtracted from the cooperation score in the second part. Positive values indicate either an increase in cooperation or a decrease in free-riding, whereas negative numbers indicate a decrease in cooperation or an increase in free-riding. Individual means of changes in cooperation scores for all experimental conditions are given in Table 13. Figure 12 displays the group means of changes in cooperation score by treatment.

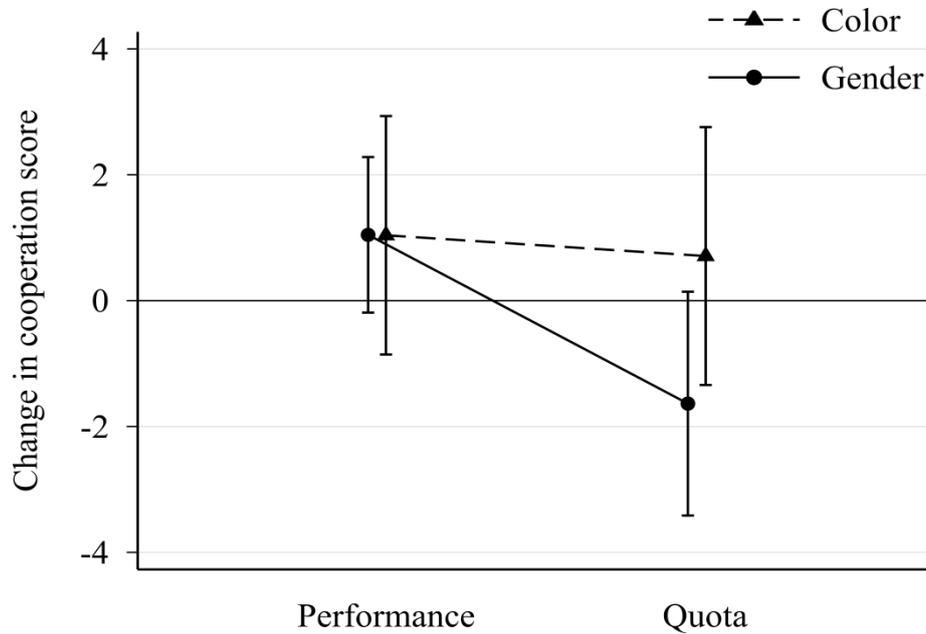
⁴⁴⁶ The gender difference holds comparing number of sliders solved only by the participants in the low-stake group in the first part of the experiment: Female participants solved significantly less slider than male participants in the gender ($p = .049$) but not in color conditions ($p = .43$).

⁴⁴⁷ Cooperation score of each participant i in each part of the experiment, $t \in \{1,2\}$ was computed according to the following formula:

$$C_{it} = GE_{it} - IE_{it}$$

where GE_{it} is the number of sliders solved by an individual i on behalf of the group in part t and IE_{it} is the number of sliders solved for individual profit in part t .

Figure 12: Change in cooperation score by experimental condition



Note: Group means of change in cooperation scores between the first and second part of the experiment (before and after promotion) by experimental condition (categorization criterion: color vs. gender; promotion rule: performance vs. quota). Bars indicate 95% confidence intervals.

Table 13: Descriptive statistics of change in cooperation scores by condition.

	Merit	Quota	Total
Gender	1.14 (4.23, n=21)	-2.00 (4.22, n=20)	-0.39 (4.47)
Color	1.04 (5.01, n=26)	0.71 (4.33, n=24)	0.88 (4.65)
Total	1.09(4.63)	-0.52 (4.44)	0.31 (4.59)

Note: Individual means and standard deviations in parentheses. Negative scores indicate an increase in free-riding or decrease in cooperation. Participants who solved no slider were excluded.

An OLS regression analysis was conducted, predicting this change in the cooperation score by promotion rule (coded as 0 = performance, 1 = quota), categorization criterion (coded as 0 = gender, 1 = color), and their interaction (variables centered). A cluster correction for standard errors at the group level was used to control for interdependencies between participants. Additionally, a phase indicator was included as a control variable to

account for general learning effects over time. The results of the analysis are presented in Table 12.

In line with hypothesis 2a, a marginally significant decrease in the cooperation score for quota-based promotion was found as compared to performance-based promotion, $b = -1.68$, $t(46) = -1.87$, $p = .06$. Neither the main effect of categorization criterion, $b = 0.61$, $t(46) = 0.69$, $p = .49$, nor the interaction reached conventional significance levels, $b = 2.18$, $t(46) = 1.22$, $p = .23$. Although the interaction was not significant, simple effects were examined to address the goal of understanding whether treatment based on artificial categories would differ from treatment based on gender. A significant simple effect of quota-based promotion was observed for gender, $F(1, 46) = 6.94$, $p = .01$, but not for the artificially created category, $F(1, 46) = 0.22$, $p = .64$.

In sum, quota rules led to less cooperation than performance rules. Simple effects revealed that this was only the case when the quota was imposed on the basis of gender and not when it was imposed on the basis of an artificially created category, although the interaction was not significant.

According to hypothesis 2b, I expected the effect of the promotion rule on cooperation to be mediated by fairness perceptions. However, the distinct patterns of findings for these two measures suggest that this is not the case. Indeed, an OLS regression predicting a change in the cooperation score with procedural fairness perceptions as an independent variable did not reveal a significant effect, $b = 0.171$, $t(46) = 0.67$, $p = .50$. Thus, the necessary conditions for mediation analysis were not met.⁴⁴⁸ Hence, hypothesis 2b was not supported by our data. The observed effect of promotion rules on group cooperation was not mediated by procedural fairness perceptions.

E. Discussion

The current study systematically investigated the effects of one of the measures aimed at reducing gender inequality in the workplace—gender quotas—on perceived fairness and team cooperation. One of the positive effects argued by proposers of gender quotas is their potential to improve team performance. The current results show that this idea

⁴⁴⁸ Baron/Kenny, The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations 1986.

is misguided in contexts where team performance is reliant on cooperation. An incentivized, real-effort task was implemented to examine the effects on cooperation. Unlike previous research in this area⁴⁴⁹, the current study investigated behavior in groups, the composition of which changed either due to a quota or to performance-based rule. Furthermore, to gain more insight into the mechanism underlying possible reactions to quota rules, in this study a gender-based promotion procedure was contrasted with a system that applied to an experimentally created category with no meaning or existence outside of the laboratory (i.e., group color).

The results revealed a negative influence of gender-based quota rule on procedural fairness perception. More specifically, gender based quota rule was perceived as more unfair than performance based rule. Interestingly, this negative effect was not observed when quota was based on artificially created category (i.e. color). In these conditions the promotion procedure based on quota and performance were perceived equally fair.

The pattern of results on fairness perception of outcomes was slightly different than with respect to procedural fairness evaluations. The outcomes of quota procedure and performance-based promotions were perceived equally fair, irrespective of whether categorization is based on gender or on an artificial category. This is in line with previous results which revealed relevance of positive action policies for procedural but not for distributive justice evaluations. Similarly to procedural fairness, distributive aspect of the promotion procedure was evaluated as more fair in color compared to gender conditions. Contrary to the initial hypothesis, people evaluated procedures as well as their outcomes differently when they were categorized on the basis of gender than on the basis of artificial category. The result is consistent with research stressing the greater impact of the categorical treatment when it refers to social categories with broader social meaning and existence beyond the experimental context.

Distinct results were observed regarding actual behavior of participants. They were more willing to exert effort on behalf of a group when promotion was based on performance. At the same time they did not alter their behavior when an incoming member was promoted on a basis of an artificially assigned category. Furthermore, the willingness to work for a

⁴⁴⁹ *Balafoutas/Sutter*, Affirmative action policies 2012.

group tended to drop when promotion was based on gender. Contrary to hypothesized mediation through procedural fairness perception, no impact of fairness evaluations on changes in group cooperation was observed. Therefore, it could not be concluded that influence of promotion procedure on group cooperation was channeled by fairness evaluations of procedures.

One possible explanation of these surprising results is that people might conceptualize the promotion procedure differently when it refers to socially meaningful categories, i.e. gender than when it implemented abstract categories, i.e. colors. Previous research has shown that random procedures are generally perceived as fair.⁴⁵⁰ As colors were assigned randomly at the beginning of the experiment, the later promotion procedure based on color might have been perceived random and therefore fair. Another potential explanation might be provided by research on categorization threat which has shown that in some situations people dislike being categorized as a member of a given social group.⁴⁵¹ Negative emotions related to an inappropriate categorization might result in weaker group identification⁴⁵² and subsequently lead to lower group cooperation. Negative reactions are more likely if the category is particularly irrelevant in a given context or if in a specific situation individuals prefer to be evaluated on the basis of personal characteristics or merit.⁴⁵³ Thus, being perceived as a member of an artificially created group with no meaning in the real world is less likely to be perceived as a threat than being categorized based on a socially meaningful category, i.e. gender.

The findings presented here show a potential side effect of positive action on procedural fairness perception and an important aspect of team performance in form of cooperation. Despite initial discrimination of female participants, promotion procedure based purely on gender was perceived as less fair than performance based promotion. Yet, based on current results it is still not possible to distinguish the underlying mechanism of

⁴⁵⁰ I.e. *Oberholzer-Gee/Bohnet/Frey*, Fairness and competence in democratic decisions 1997. But see other studies showing that fairness perception of a random procedure might depend on a context or a type of a decision: *Savage/Torgler*, Perceptions of fairness and allocation systems 2010; *Bolton/Brandts/Ockenfels*, Fair procedures: Evidence from games involving lotteries 2005

⁴⁵¹ *Barreto/Ellemers et al.*, To be or not to be: The impact of implicit versus explicit inappropriate social categorizations on the self 2010.

⁴⁵² For a review: *Barreto/Ellemers*, The effects of being categorised: The interplay between internal and external social identities 2003.

⁴⁵³ *Branscombe/Ellemers et al.* The context and content of social identity threat in: *Ellemers et al.*, Social identity: Context, commitment, content 1999.

behavioral reactions towards quota based promotion procedures. Nevertheless, the experimental results indicate that these reactions might be specific to socially meaningful categories such as gender.

Implementing quota rules as a policy introducing gender equality in a workforce might be tempting for policymakers as it enables achieving high participation of women in different working groups and positions within a relatively short period of time. However, one should also consider potential negative side effects of the proposed reforms, such as an impact on group cooperation. The practical implications of the presented study should be as yet handled with great caution. In particular, since it was inconclusive with respect to the procedural fairness as a channel of behavioral reactions towards gender-based quota rules, it is necessary to identify an underlying mechanism first before any firm conclusions about behavior in the real world could be made. This is particularly important in light of the previous research which showed that procedural fairness plays a bigger role for individuals who attach great importance to group membership.⁴⁵⁴ As membership in the experimental high-stake group might have been of relatively small significance for the participants, it might be a potential reason why, despite observed differences in fairness evaluations, procedural justice could not be identified as a driving factor of participants' behavior.

Despite relatively high activity of policy makers towards introducing full gender equality in many spheres of daily life, gender inequalities still exists and call for even more intervention. However, these interventions besides achieving its legitimate objectives might also produce unintended negative side effects. Identifying the underlying mechanisms of these reactions will help choosing positive action measures which both achieve their goals and avoid negative consequences.

F. Legal implications

In 2012 the European Commission proposed a Directive requiring a 40% women share on board of directors in all publicly listed European companies to be achieved by 2020. Besides increasing female participation in economic decision making, the European Commission declared an intention to pursue improvement of corporate governance and

⁴⁵⁴ *Gonzalez/Tyler* Why do people care about procedural fairness? The importance of membership monitoring in: Vermunt/Törnblom, Distributive and procedural justice: Research and social applications 2013.

company performance with a proposed measure. The Commission claimed that mandatory quotas will be most effective in increasing gender diversity in corporate boardrooms within relatively short period of time. The increased gender diversity, in turn, will contribute to better corporate governance. The German legislator went ahead the European initiative and in 2015 issued the Equal Participation Act requiring 30% share of male and 30% share of female directors in corporate boards of all listed and co-determined public companies. Similarly, to the European Commission it was argued that gender diversity will lead to better corporate performance and higher competitiveness of German companies.

The experimental research presented above together with other empirical research discussed in the previous chapter revealed shortcomings of the assumptions underlying the Commission's evaluation of different policy options with respect to their influence on corporate governance and company performance. First, the evidence suggests that in its impact assessment the EU Commission neglected a very important aspect – a mandatory quota itself might affect functioning of the board for other than gender diversity reasons. Second, the results on the impact of mandatory quotas on board functioning cast doubts on the Commission's conclusions about positive effects of the proposed policy measure on corporate governance and company performance. This puts into question the quality of the Impact Assessment as well as the legality of the Directive.

Given the empirical results there are at least three possible grounds for questioning these documents. First of all, it is doubtful whether the Impact Assessment conforms to the Impact Assessment Guidelines 2009. As described in chapter § 4 an impact assessment should be “transparent, comprehensive and balanced”. The evaluations presented in the Impact Assessment at hand are based on the assumption that gender diversity will positively influence firm performance irrespective of the implemented measure. The results of empirical research discussed in chapter 4 suggest that this assumption is implausible. Second, badly performed IA does not fulfill procedural requirements which might constitute a basis for challenging the Directive on procedural grounds (see chapter 4). Finally, it is questionable whether the Directive complies with the proportionality principle that is recognized as a general principle of EU law. Given the ECJ judgments discussed in chapter 4, it is questionable whether the Commission indeed took into account “all relevant factors” and choose mandatory quota on the basis of “objective criteria” given that it considered only

the impact of gender diversity and not the legislative measure itself (mandatory quota) on company performance. In my opinion the Commission missed an important factor in its evaluations. The lack of information on how the given policy measure affects other than gender diversity aspects of corporate governance would not allow the Court to properly evaluate whether the goal of improved company performance can indeed be achieved with mandatory quota. The results of empirical research discussed in chapter 4 and chapter 5 show that the type of a policy measure might indeed influence firm performance and group cooperation. In particular, mandatory quotas might negatively affect corporate performance. This effect would be crucial for evaluating the scope of limitations imposed by the Directive on property rights and freedom to conduct business protected by the EU Charter of Fundamental Rights.

Similar to the EU Commission, the German legislator did not really evaluate the impact of mandatory quotas on company performance, but rather focused on the effects of gender diversity in corporate board on performance and competitiveness of German companies. Empirical findings discussed in chapter 4 and 5 provide arguments undermining the accuracy of the factual basis adopted by the German government for assessing the impact of the proposed policy measure. The legislator neglected studies analyzing experiences of countries which implemented mandatory quotas for corporate boards as well as other empirical research on the impact of mandatory quotas on peoples' reactions and attitudes.⁴⁵⁵ Therefore, it is doubtful that the German legislator fulfilled the Constitutional Court's requirements for a proper evaluation of a factual basis as specified in the judgment on Co-Determination Act when assessing the consequences of the Equal Participation Act for corporate governance and company performance.

Furthermore, the government's conclusion about a positive impact of the introduced legislation on company performance might be challenged given some negative effects shown in the studies. This might be crucial for evaluation whether the Equal Participation Act violates the constitutional rights, i.e., Articles 14 (1), 9(1) and 12(1) Basic Law. The influence of mandatory quotas revealed in the empirical research would be helpful in analyzing the impact of the Equal Participation Act on company profitability, dividend

⁴⁵⁵ The empirical findings on mandatory quotas were presented to the Parliamentary Committee working on the legislation draft in: *Hirte*, Stellungnahme zur Frage einer Geschlechterquote im Aufsichtsrat, 2011, p.2-7.

policy, and the value of shares as well as organizational functioning of a company. These aspects are important for assessing the extent of limitations imposed on the constitutional rights.

Despite the necessity to increase the number of females among board directors, the current measure in form of mandatory quotas is not optimal. Evaluating the extent of potential disadvantages imposed by the mandatory quotas requires detailed and comprehensive analysis of the existing scientific evidence on consequences of the proposed measures. Yet, the Commission as well as the German legislator neglected the evidence on several important and potentially detrimental consequences some of which I reviewed in chapters 4 and 5. Any future policy making initiatives or revisions of the existing one would greatly benefit from more careful and exhaustive review of the scientific work and better understanding of the processes influenced by the measures introduced. In particular, it is of a great importance to consider also the impact of a measure itself instead of focusing exclusively on the effects of an increased gender diversity a given measure would achieve.

In addition, the research presented here indicates it is necessary to reconsider the economic rationale of mandatory quota.⁴⁵⁶ An alternative could be putting more emphasis on the equality rationale.⁴⁵⁷ If there are serious doubts about positive effects of mandatory quotas on company performance, it is rather unlikely that stressing economic rationale in a gender diversity debate will convince the involved actors to increase female participation in economic decision making. Additionally, further empirical research on alternative measures might help selecting most efficient ways of introducing more women on boards of directors.

⁴⁵⁶ Koch, ZHR 2011, 827, p.848.

⁴⁵⁷ Choudhury, New rationales for women on boards 2014.

Appendix 1

Sample instructions for the first part of the experiment are provided below. In cases where the gender conditions differ from the color conditions the respective wording is given in between 2 forward slashes: // “color condition” //

Sample instructions for part 1 of the experiment

You are about to take part in an economic experiment. In this experiment you can earn a significant amount of money depending on the choices you make. For this reason, it is essential to read the instructions carefully.

The instructions you obtained are for your private use only. Please note that you are not allowed to communicate with other participants during this experiment. Should you have any questions, please ask us for assistance. If you do not comply with the rules, we will have to exclude you from the experiment and from all payments.

During the experiment we do not speak of euros but of points. Your income will be calculated first in points. The total number of points collected during the experiment will be converted to euros at the end of the experiment.

The total profit made during the experiment as well as the payment for filling in the online questionnaire will be paid out in cash at the end of the experiment.

Today’s experiment consists of **several parts**. In the first part the participants are assigned to **groups of 4**. Each group of 4 consists of 3 male *“orange”* and 1 female *“green”* member. The 4-persons group will be divided into two-member groups, of which one is a **high-stake** and the other is a **low-stake** group. In this two-member group you are interacting from now on. *//The information on which color you are assigned is provided in form of a colored point in the bottom left corner of your screen and is visible during the whole experiment.//*

The following conversion rate applies to the high-stake group:

1 point = 16 cents

And to the low-stake group:

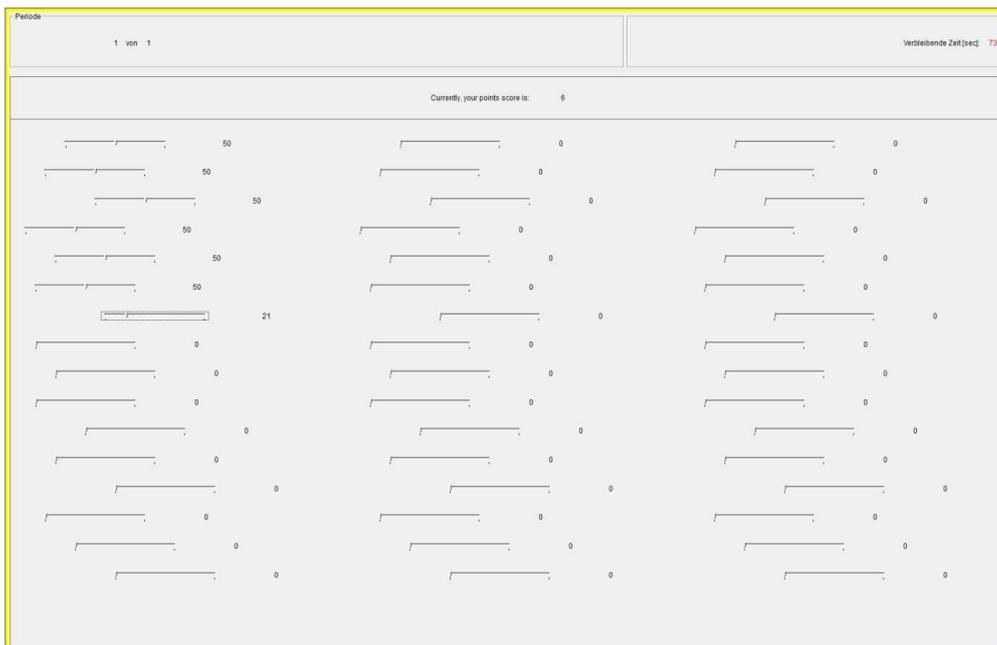
1 point = 8 cents

In our study the assignment to the low-stake or high-stake group is done according to gender //colors//. The high-stake group consists of only male //“orange”// participants, whereas the low-stake group consists of one male //“orange”// and one female //“green”// participant. Should you be male //the “orange” person//, there is a 2/3 probability you are assigned to the high-stake group. Female // “green” // participants are always assigned to the low-stake group.

This part of the experiment consists of two stages. In both of the stages you receive the same task. There is only one difference between the both stages. In one stage (individual task) the points gained in the task are ascribed to your individual account, whereas in the other stage (group task) the points are ascribed to the two-member group account.

The task in stage 1 and stage 2

In both stages you have 120 seconds to solve the task. The task is to move a slider exactly at the position of 50. For each slider solved, depending on the stage you are in at the moment, one point is ascribed either to your group account (group task) or to your individual account (individual task). You are informed on the screen which stage you are entering and in which stage you are at the moment. The task looks in the following way:



Your profit in this part of the experiment consists of two parts:

- The points, gathered in the individual task (**“Profit from the individual task”**)
and
- The **“Profit from the group task”**. The profit from the group task is a 0.6 share of the sum of slider solved by you and the other member of your two-member group.

Your profit in points from the both stages is calculated in the following way:

Profit in points from the both stages:

$$= 1 * (\text{slider solved in the individual task}) + 0.6 * (\text{the sum of all sliders solved in the group task})$$

The profits in points are calculated according to the same formula for each of the players from your group.

If, for example, the sum of all contributions of the group members is 60 points, you and the other player from your group receive the profit from the group task of $0.6 * 60 = 36$ points.

If the players solve altogether 9 sliders in the group task, you and the other player from your group receive $0.6 * 9 = 5.4$ points from the group task.

Control Questionnaire

In order to make sure that you understood the instructions and you can take part in the experiment, please answer the following comprehension questions. Should be anything unclear, please ask us for assistance.

Please mark the correct answers. There might be more than one correct answer to each question.

1. How likely it is, that you will be assigned to the high-stake group in this part of the experiment //if you are a “green” person//?
 - 0%
 - 100%
 - 66,7%
 - 50%

2. //How likely it is, that you will be assigned to the high-stake group in this part of the experiment if you are an “orange” person?
 - 0%
 - 100%
 - 66,7%
 - 50%//

3. How is your profit in the group task calculated?
 - According to the number of sliders solved by myself.
 - According to the number of sliders solved by myself and the other member of my group: The player, who solved more sliders, gets the bigger share of the group account.
 - According to the number of sliders solved by myself and the other member of my group: The number of sliders solved by each of the players is summed up and each player received the equal share of the group account.

4. How does the high-stake group differ from the low-stake group?
 - To receive the payment of 4 € a member of the low-stake group needs to solve more sliders than a member of the high-stake group.
 - The high-stake group receives more points pro slider in the group task than in the individual task.
 - Both groups receives are paid equally in the group task; however the high-stake group receives more in the individual task.
 - For each slider solved a member of the high-stake group receives more points than a member of the low-stake group, irrespective of whether it is a group or an individual task.

Sample instructions for part 2 of the experiment – performance rule

Now, the second part of today's experiment is about to begin.

At the beginning of the second part you are in the same two-member group as in the previous part of the experiment. *//The assignment to the specific color does not change.//* This part of the experiment consists of two stages – an individual task and a group task, that you take part in within the two-member group (either the high-stake or the low-stake group). The type of a task is identical as in the first part of the experiment. After those two stages you are asked to fill out a short questionnaire. Then the experiment is over and you receive your payment.

Before you proceed with a task, there is a group change within the 4-member group formed at the very beginning of the experiment. A member of the low-stake group with the highest average number of sliders solved (average from the group task and individual task in the first part of the experiment), switches to the high-stake group. In case of an equal number of slider, it is decided randomly which of the two low-stake group players switches the groups. In exchange, one member of the original high-stake group is randomly chosen to switch to the low-stake group.

This part of the experiment consists of two stages. In both stages you are asked to solve an identical task. There is only one difference between the both stages. In one stage (individual task) the points gained in the task are ascribed to your individual account, whereas in the other stage (group task) the points are ascribed to the two-member group account.

Your profit in points from the both stages is calculated in the following way:

Control Questionnaire

In order to make sure that you understood the instructions and you can take part in the experiment, please answer the following comprehension questions. Should be anything unclear, please ask us for assistance.

Please mark the correct answers. There might be more than one correct answer to each question.

1. What criterion is applied in order to choose a member of the low-stake group who switches to the high-stake group?

- Who switches to the high-stake group depends on the performance in the group task in the first part of today's experiment: A person, who solved the highest number of sliders in the group task switches to the high-stake group.
- Who switches to the high-stake group depends on gender //the color//. The female //"green"// person switches to the high-stake group.
- Who switches to the high-stake group depends on the performance in the individual task in the first part of today's experiment: A person, who solved the highest number of sliders in the individual task, switches to the high-stake group.
- Who switches to the high-stake group depends on the average performance in the slider task: A person, who on average solved more sliders, switches to the high-stake group.

Sample instructions for part 2 of the experiment – quota rule

Now, the second part of today's experiment is about to begin.

At the beginning of the second part you are in the same two-member group as in the previous part of the experiment. //The assignment to the specific color does not change.// This part of the experiment consists of two stages – an individual task and a group task, that you take part in within the two-member group (either the high-stake or the low-stake group). The type of a task is identical as in the first part of the experiment. After those two stages you are asked to fill out a short questionnaire. Then the experiment is over and you receive your payment.

Before you proceed with a task, there is a group change within the 4-member group formed at the very beginning of the experiment. The female //green// member of the low-stake group switches to the high-stake group. In exchange, a male //orange// member of the original high-stake group is randomly chosen to switch to the low-stake group.

This part of the experiment consists of two stages. In both stages you are asked to solve an identical task. There is only one difference between the both stages. In one stage

(individual task) the points gained in the task are ascribed to your individual account, whereas in the other stage (group task) the points are ascribed to the two-member group account.

Your profit in points from the both stages is calculated in the following way:

Profit in points from the both stages:

$$= 1*(\text{slider solved in the individual task}) + 0.6*(\text{the sum of all sliders solved in the group task})$$

Control Questionnaire

In order to make sure that you understood the instructions and you can take part in the experiment, please answer the following comprehension questions. Should be anything unclear, please ask us for assistance.

Please mark the correct answers. There might be more than one correct answer to each question.

1. What criterion is applied in order to choose a member of the low-stake group who switches to the high-stake group?
 - Who switches to the high-stake group depends on the performance in the group task in the first part of today's experiment: A person, who solved the highest number of sliders in the group task switches to the high-stake group.
 - Who switches to the high-stake group depends on the gender //color//. The female //green// person switches to the high-stake group.
 - Who switches to the high-stake group depends on the performance in the individual task in the first part of today's experiment: A person, who solved the highest number of sliders in the individual task, switches to the high-stake group.

- Who switches to the high-stake group depends on the average performance in the slider task: A person, who on average solved more sliders, switches to the high-stake group.

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