

# WZB

Berlin Social Science Center



Robert Scholz and Sigurt Vitols

**Co-determination: a driving force for Corporate  
Social Responsibility in German companies?**

**Discussion Paper**

SP III 2018–304

November 2018

WZB Berlin Social Science Center

Research Area

**Digitalization and Societal Transformation**

Project Group

**Globalization, Work, and Production**

WZB Berlin Social Science Center  
Reichpietschufer 50  
10785 Berlin  
Germany  
[www.wzb.eu](http://www.wzb.eu)

Copyright remains with the authors.

Discussion papers of the WZB serve to disseminate the research results of work in progress to encourage the exchange of ideas and academic debate. Inclusion of a paper in the discussion paper series does not constitute publication and should not limit publication in any other venue. The discussion papers published by the WZB represent the views of the respective authors and not of the institute as a whole.

Robert Scholz and Sigurt Vitols:

**Co-determination: a driving force for Corporate Social Responsibility in German companies?**

Discussion Paper SP III 2018-304

WZB Berlin Social Science Center (2018)

Affiliation of the authors:

Sigurt Vitols, WZB Berlin Social Science Center, Germany  
email: [vitols@wzb.eu](mailto:vitols@wzb.eu)

Robert Scholz, WZB Berlin Social Science Center, Germany  
email: [robert.scholz@wzb.eu](mailto:robert.scholz@wzb.eu)

## **Abstract**

This discussion paper examines the relationship between co-determination and corporate social responsibility (CSR) in German companies, thereby addressing two distinct literatures. On the one hand, most quantitative studies of co-determination focus on its economic impact, with relatively little attention paid to other kinds of outcomes. On the other hand, few studies on CSR have looked at the role of worker representatives. Using a new measure of co-determination strength, the *Mitbestimmungsindex* (MB-ix), it is demonstrated that co-determination strength is positively related to the presence of 'substantive' CSR policies, such as the adoption of targets for reducing pollution, but is unrelated to 'symbolic' CSR policies, such as membership in UN Global Compact. The paper therefore sheds new light on the role of co-determination and provides a more differentiated view of the spread of what has been termed 'explicit' CSR in Germany, one of the most prominent of the 'coordinated market economies'.

### *Keywords:*

Co-determination, worker participation, corporate social responsibility, sustainability

*JEL classification:* G34, J53, M14, P18

## **Unternehmensmitbestimmung: eine treibende Kraft für die Corporate Social Responsibility in deutschen Unternehmen?**

### **Zusammenfassung**

Dieses Discussion Paper untersucht den Zusammenhang zwischen Unternehmensmitbestimmung und Corporate Social Responsibility (CSR bzw. Unternehmensverantwortung) in deutschen Unternehmen. Damit wird die Forschung bzw. Literatur in zweifacher Hinsicht ergänzt. Einerseits konzentrieren sich die meisten quantitativen Studien im Bereich der Mitbestimmungsforschung auf ihre wirtschaftlichen Auswirkungen, während andere Effekte relativ wenig Beachtung finden. Andererseits haben sich im Kontext der CSR-Studien nur wenige mit der Rolle von Arbeitnehmervertretern beschäftigt. Über die Nutzung eines neu entwickelten Indikators für die Messung der Verankerung der Mitbestimmung in Unternehmen, dem Mitbestimmungsindex (MB-ix), können zwei zentrale Ergebnisse festgehalten werden. Erstens, dass Mitbestimmungsstärke positiv mit dem Vorhandensein von „substantiellen“ CSR-Politiken, wie beispielsweise der Festlegung von Zielen zur Verringerung der Umweltverschmutzung, zusammenhängt. Zweitens hat die Mitbestimmungsstärke aber keinen Effekt auf die Präsenz von „symbolischen“ CSR-Politiken, wie etwa die Mitgliedschaft im UN Global Compact. Der Beitrag beleuchtet daher die Rolle der Mitbestimmung neu und differenziert die Verbreitung der so genannten „expliziten“ CSR in Deutschland, einer der prominentesten der „koordinierten Marktwirtschaften“.

### *Schlüsselwörter:*

Unternehmensmitbestimmung, Arbeitnehmerbeteiligung, soziale Unternehmensverantwortung, Nachhaltigkeit

*JEL Klassifikation:* G34, J53, M14, P18



## Contents

Introduction.....	7
Measuring the strength of worker influence: the co-determination index (MB-ix).....	8
Comparative perspectives on CSR.....	12
MB-ix and CSR in German companies .....	14
Discussion and conclusion.....	18
References.....	20
Appendix.....	22
List of quantitative studies on German co-determination.....	27



## Introduction<sup>1</sup>

This paper examines the relationship between co-determination and corporate social responsibility (CSR) in German companies, thereby helping to build a bridge between two almost completely separate research fields (Harvey et al., 2017). Co-determination, here meaning the representation of workers on companies' supervisory boards, is an institution which is particularly closely associated with Germany.<sup>2</sup> Although it is not the only country with 'workers on the board' (Conchon et al., 2010), co-determination was introduced much earlier in Germany than elsewhere (Dukes, 2005). Furthermore, the proportion of board members that are worker representatives is particularly high in comparative perspective, reaching parity with shareholder representatives in large German companies.

Given these special characteristics, it is not surprising that German co-determination has received considerable interest from the research community. As of the writing of this paper, the authors were aware of 37 quantitative studies examining the relationship between co-determination and company performance in Germany. However, these studies for the most part address a narrow set of outcomes, mainly financial variables like stock market performance and profitability. The relationship between co-determination and firms' policies with respect to the environment and society, referred to here as CSR<sup>3</sup>, is almost completely unexplored in the literature (for a review of quantitative studies on co-determination see Jirjahn, 2010).

The second field of research addressed in this paper focuses on the determinants of CSR at the firm level. Although this literature has expanded greatly over the past two decades, few studies look at the role of workers or trade unions, instead paying attention to consumers, shareholders and NGOs (Harvey et al., 2017; Carroll and Brown, 2018).<sup>4</sup> This is surprising given that workers are one of the primary stakeholders in the firm.

To help bridge the gap between these two literatures we pose the following question: is there a relationship between co-determination strength and CSR in German firms? To answer this question this paper reports some of the results of the research project 'Co-determination and forward looking corporate governance: measuring workers' strength and influence with a co-

---

1 The authors would like to thank the Hans Böckler Foundation for financial support for the project 'Co-determination and forward looking corporate governance: measuring workers' strength and influence with a co-determination index (MB-ix)'. We would also like to thank participants in a workshop organized by the Berlin Study Group on Corporate Responsibility for valuable comments on an earlier version of this paper. Vera Fabinyi provided excellent research support.

2 The term 'co-determination' as used here corresponds to the German word *Unternehmensmitbestimmung*. In German the word *Mitbestimmung* also refers to plant-level representation through works councils (or *betriebliche Mitbestimmung*); however, here we are focusing on the representation of workers in company boards.

3 CSR is only one of a number of terms used to refer to the impact of firms on the environment, stakeholders and society; other commonly used terms are corporate responsibility and sustainability.

4 For an exception see Jackson and Bartosch (2016). For qualitative studies see Vitols (2011), Preuss et al. (2014) and Hadwiger et al. (2017).

determination index (MB-ix)<sup>5</sup>. This project is designed to do three things: 1) develop a differentiated measure of co-determination strength which captures the institutional variation between German companies in the ability of workers to express 'voice' in the corporate governance of the firm, 2) expand research on the impact of co-determination beyond economic performance, and 3) examine the development of co-determination over a longer time frame (initially 2006-2015).<sup>5</sup>

The next section of the paper will present this new measure of co-determination, the MB-ix, describing its construction and providing some descriptive data on it. The third section summarizes selected aspects of the discussion on CSR, particularly those dealing with comparative research. The fourth section describes an empirical test of the determinants of different types of CSR policies in German companies and shows that co-determination strength is positively related to the presence of 'substantive' but not to 'symbolic' CSR policies. The concluding section focuses on the relevance of these results for the literatures on co-determination and CSR.

### **Measuring the strength of worker influence: the co-determination index (MB-ix)**

Strong co-determination is seen by many observers as a key institution in the German political economy (Streeck, 1984; Hall and Soskice, 2001). It is argued that co-determination is an insurance mechanism for protecting workers' investments in firm-specific skills, which are essential for the production of high-quality, customized goods. Furthermore, co-determination supports a 'bottom-up' approach to incremental innovation based on input from the shop floor.

Despite the existence of numerous quantitative studies on German co-determination, the question of the nature of the impact of co-determination on company performance has not yet been definitively answered. An analysis of the 37 quantitative studies on co-determination and performance in German companies known to the authors (a list of the studies can be found in the appendix) shows that most research has focused on financial variables, thereby neglecting other possible impacts (see Table 1). The most frequent topics examined are stock market performance (14 of the 37 studies), company profitability (13 times) and productivity (7 times). Recently, management remuneration has also become popular (6 times). Few studies look at core issues for worker representatives, such as wages, employment levels and employment changes. Thus, the types of variables where one would expect worker representatives to have the greatest impact have been rarely examined. The link between co-determination and CSR in German firms has been neglected in quantitative studies.

---

5 For more information on this project see [www.mitbestimmung.de/mbix](http://www.mitbestimmung.de/mbix)

**Table 1.** Main topics of 37 quantitative studies on German co-determination

Topics	Number of times studied
Share valuation/change	14
Profit	13
Productivity	7
Executive remuneration	6
Wages	5
Employment change	4
Investment	3
Innovation	3
Leverage	2
Other	6

Source: Authors' own analysis. Note: Items add up to more than 37 due to studies with multiple subjects

A further limitation of the existing studies is that, with only six exceptions, worker influence in all companies with a specific type of co-determination has been treated as homogenous. There are three types of co-determination in German companies, each of which has different rules for representing workers:<sup>6</sup>

- **One-third representation**, whereby one third of the members of the supervisory board are to be elected by the workforce. The threshold for one-third representation is 500 employees in Germany for most company legal forms.
- **Parity representation**, whereby one half of the members of the supervisory board are elected by workers and (for one representative) middle management. The threshold for parity representation in most types of companies is 2,000 workers in Germany.
- **Montan representation**, whereby an equal number of worker and shareholder representatives choose a 'tiebreaking' neutral member. This form of representation, for which there is a trigger of 1,000 workers in Germany, is limited to the steel and mining sectors, which have experienced severe employment reductions since the 1950s.

Most quantitative studies have assumed that worker influence in firms within each form of co-determination is equal, e.g. worker strength is supposed to be equal in all parity co-determined firms. However, qualitative research has shown that the variation within each co-determination type can be quite extensive. For example, a number of traditional 'paternalistic' firms and newer 'high tech' firms have resisted works council foundations and the election of external trade union officials to company boards, which tends to weaken worker voice (Girndt, 2006). Furthermore,

6 Large German companies are required to have two boards with no overlapping membership: a management board, made up of full-time managers, and a supervisory board, composed of owners' representatives and (under specific conditions) worker representatives.

trade unions tend to focus more on the largest companies in their sectors (Raabe, 2010). Thus, the assumption of equality between firms within the same co-determination group neglects important variation.

A second argument for a more differentiated measure is new legislation at the EU level which defines procedures for negotiating rules on co-determination in specific situations. This includes legislation for the European Company (SE) (2001) and the European Cooperative Society (SCE) (2003) as well as the Directive on Cross-border Mergers (2005), which regulates the merger of companies based in two or more EU member states. In all three cases, negotiations between management and worker representatives may result in an agreement on worker participation which deviates substantially from either the 'parity' or 'one-third' models described above (Weiß, 2016).

With the intention of addressing these gaps, a project funded by the Hans Böckler Foundation was started at the WZB Berlin Social Science Center in 2014. The first ambition of the project is to develop a differentiated measure of co-determination in German companies. This index (the *Mitbestimmungsindex* or MB-ix), which was developed with input from experts and practitioners, consists of six components. Each component takes a value between 0 and 100 and the overall measure MB-ix, which is a weighted average of all six components, also varies from 0 to 100 (Scholz and Vitols, 2016).

The **first component** of the MB-ix measures the number and type of worker representatives on the supervisory board, in which final decisions on key policies such as dividends, large investments and M&A are taken. This component takes into account both the proportion of worker representatives on the board and the extent to which they are connected to a works council or trade union, since connection with other levels of collective representation will increase the strategic capacity of worker board level representatives (Jürgens et al., 2008). The highest score for this component is reached if half of the supervisory board members are worker representatives, if all of the internal worker representatives (i.e. representatives working for the company) are in a works council and if all trade union representatives are full-time trade union officials.

The **second component** relates to the deputy chairperson of the supervisory board. This deputy consults with the chairperson to prepare meetings of the full board and to make emergency decisions between board meetings. In some companies there are two deputy chairpersons. In companies with strong co-determination one of these deputy chairpersons is supposed to be a worker representative. The full score for this component is reached if there is only one deputy chairperson and this person is either an external trade union official or works council member.

The **third component** of the MB-ix measures the extent of worker representation in board committees. Since important decisions are taken in these committees, and recommendations for the full supervisory board formulated in committees, the proportion of worker representatives has an important influence on the output of these committees (Höpner and Müllenborn, 2010). The full score for this component is achieved if half of the members on all of the key committees are worker representatives.

The **fourth component** focuses on the degree of fragmentation of worker representation due to the internationalization of employment. The lower the proportion of employees in the 'home' country of a multinational, the more difficult it is to organize workers' voice, given the diversity of national industrial relations systems. However, a European or international works council is a forum for worker representatives from different countries to coordinate their voice vis-a-vis management (Waddington, 2010). The highest score for this component is achieved if all employees are in Germany (i.e. no fragmentation across national boundaries) or, if there are employees in other countries, if there is a European or international works council in place to coordinate workers' voice across borders.

The **fifth component** measures the importance of the supervisory board in the corporate governance of the firm. The decision-making powers of the supervisory board, which are defined in law, vary quite substantially across different company legal forms (Köstler et al., 2013). If the supervisory board has limited powers relative to the shareholders' assembly, the potential for worker representatives to influence company decisions will also be limited. The full score for this component is reached if the company has a legal form which defines extensive decision-making rights for the supervisory board (e.g. the *Aktiengesellschaft*).

Finally, the **sixth component** looks at where responsibility for personnel policy is located in the management board. If responsibility is located with the chief executive officer (CEO) or the chief financial officer (CFO), personnel policy will tend to be subordinated to the financial priorities of the company (Giertz and Scholz, 2018). This is in part because these types of managers tend to interact most extensively with shareholders. The full score for this component is obtained if primary responsibility for personnel policy is not assigned to the CEO or CFO.

One aim of the project is to trace the development of co-determination strength over a longer time period. Initial data collection was for the ten-year timespan 2006-2015. For each year the sample includes all companies in the major stock indexes DAX (largest 30 firms), MDAX (50 mid-size firms), SDAX (50 small firms) and TecDAX (30 technology firms), which by definition adds up to 160 companies. In addition, data on the parity co-determined companies listed on the stock market which are not in a major index was collected; this number varied between 30 and 35 during 2006-2015. In all, data on 1924 company-years is included. As there is a certain amount of fluctuation in index membership from year to year, 285 companies were in the whole sample for at least one year.

As expected, there is substantial variation in the distribution of MB-ix scores. The distribution of MB-ix values for the 192 companies in the study in 2015 (the latest year for which we have complete data) can be seen in Table 2. Six percent of the companies in the sample received the highest score (MB-ix = 100) whereas 30 percent of the companies had no co-determination (MB-ix = 0). There are even cases where workers' voice is stronger in companies with one-third participation than in companies with parity co-determination; three companies with one-third participation had MB-ix values higher than the parity co-determined company with the lowest MB-ix value.

**Table 2.** MB-ix Distribution in German Companies, 2015

MB-ix Values	Companies	
	Number	Percentage
MB-ix = 100	11	6%
100 > MB-ix ≥ 90	32	17%
90 > MB-ix ≥ 80	26	14%
80 > MB-ix ≥ 70	30	16%
70 > MB-ix ≥ 0	35	18%
MB-ix = 0	58	30%
<i>Total</i>	<i>192</i>	<i>100%</i>

Source: Authors' analysis of data from MB-ix project

## Comparative perspectives on CSR

Much of the CSR literature focuses on identifying the determinants of CSR policies at the firm level (Aguinis and Glavas, 2012), for example in the role that stakeholders play in pressuring firms into adopting specific policies. However, the stakeholder types that are typically considered are consumers, NGOs and responsible investors, to the almost complete neglect of trade unions and works councils (Harvey et al., 2017).

Although most CSR studies focus on one country, some researchers have used large multi-country datasets to take a comparative approach to CSR. Catering to the needs of a growing number of investors for consideration of 'ethical' criteria or reputational risks in their investment decisions, ratings companies such as Sustainable Asset Management, ASSET4 and Vigeo/Eiris gather data on the CSR policies and performance of thousands of companies around the world. As CSR is understood to span a number of dimensions, specifically the environment, social issues (including labour practices, diversity policies and human rights) and corporate governance, these data sets include hundreds of data points for each year for each company examined.

A key question in the comparative literature is: in what kinds of countries do firms have better CSR performance? Two theses predominate. The first is that CSR has emerged as a *substitute* for government regulation. As governments in the past few decades have deregulated important areas such as labour markets, firms are pressured by stakeholders or voluntarily adopt CSR policies to fill the gap. This has been labelled 'explicit' CSR in the literature (Matten and Moon, 2008), as firms attempt to get public credit and legitimacy for the implementation of these policies. This approach expects that CSR policies will be most predominant in countries with weak regulation, e.g. the 'liberal market economies' identified by the varieties of capitalism (VoC)

literature, such as the UK and US (Hall and Soskice, 2001). Evidence in support of this view can be found in Jackson and Apostolakou (2010) and Kinderman (2012).

The second thesis is that CSR functions as a *mirror* of national institutions. According to this view, CSR policies will be more prevalent in countries that have strong states and coordinated industry associations. This has been labelled 'implicit' CSR, as firms implement CSR policies mainly in response to government requirements or collective pressure. This approach expects to find stronger CSR policies in what VoC theory classifies as 'coordinated market economies', such as Germany and the Nordic countries. Evidence for the validity of this second view has also been found (Campbell, 2007; Favotto et al., 2016; Gjølborg, 2009; Gjølborg, 2010).

Some recent comparative research has provided a more differentiated view by arguing that both of these hypotheses may be partially true. Looking at membership in CSR associations, Kinderman and Lutter (2018) argue that CSR will initially be more prevalent in the liberal market economies, but as it becomes more established, coordinated market economies will have an advantage. Jackson and Bartosch (2016), in one of the few studies that include the strength of worker participation at the national level as an explanatory variable, show that works council rights are positively related to social and human rights elements in CSR policies but negatively related to charitable spending. Matten and Moon, the originators of the implicit/explicit distinction, note that 'explicit' CSR policies seem to be spreading from the US to Europe. One reason they give is the 'deregulation of labor markets and the weakening position of trade unions [...]. In cases of redundancy [...] European companies increasingly assume responsibility for fulfilling stakeholder expectations rather than relying on welfare state institutions' (Matten and Moon, 2008: 416). However, they claim that explicit policies are largely restricted to larger companies and are driven by government policies and industry associations.

These results suggest a need for further research on the determinants of different types of CSR policies. As the influence of national institutions may differ across firms (e.g. co-determination legislation may apply only to specific kinds of companies), more differentiated measures of institutions at the firm level would be appropriate. Secondly, as types of policies differ across broad areas such as 'social' and 'environment', a more detailed examination of specific CSR policies might shed more light on the 'substitute' versus 'mirrors' controversy.

A distinction made in the literature between 'symbolic' and 'substantive' CSR actions is relevant for this discussion. Schons and Steinmeier define the difference as follows:

While symbolic CSR actions are any actions related to CSR topics that a firm takes to show ceremonial conformity, substantive CSR actions involve actual changes at an operational level, generally implying tangible and measurable activity that requires the use of a firm's resources (2016: 359).

We would expect that workers as stakeholders would have little interest in symbolic CSR but would be supportive of substantive CSR actions that would improve their situations, such as less exposure to pollution at the workplace.

## MB-ix and CSR in German companies

### *Data and hypotheses*

This section describes an empirical test of the relationship between co-determination strength and CSR in German companies. Data on CSR policies at 96 firms for the time period 2006–2014 were selected from the ratings company ASSET4 as indicators of different types of CSR policies (a more detailed description of the data can be found in the appendix to this paper). The first two variables are indicators for ‘symbolic’ CSR policies, as they are oriented mainly at external legitimation, with little if any changes at the operational level required. The variable name is followed by ASSET4’s description of the variable in italics and our motivation for using the variable:

- **Glob\_Comp:** *Has the company signed the UN Global Compact?* The UN Global Compact has been analysed as a high-visibility organization which, however, makes few substantive demands on companies for implementing CSR policies. Companies are asked to sign up to ten principles but ‘all credible and publicly available data and documentation conclusively demonstrate that the UNGC has failed to induce its signatory companies to enhance their CSR efforts and integrate the 10 principles in their policies and operations’ (Sethi and Schepers, 2014: 193). Membership can thus be considered to be a symbolic CSR policy.
- **Pub\_Comm:** *Has there been a public commitment from a senior management or board member to integrate [environmental, social and governance] issues into the company strategy and day-to-day decision making?* This indicator is purely a measure of public statements by key persons in the company, and as such it can be considered to be a second indicator for symbolic CSR.

A second set of variables were chosen as indicators of ‘substantive’ CSR, that is, policies which require real changes at the operational level and commitment of firm resources:

- **Emiss\_Red:** *Does the company set specific objectives to be achieved on emission reduction?* This can be seen as a substantive CSR policy, as a concrete goal has been defined by the company for reducing its impact on the environment, against which the company’s progress can be measured. The achievement of this goal typically requires substantial investment of company resources, for example investment in more environmentally-friendly machinery.
- **CSR\_Rep:** *Does the company publish a separate CSR/H&S/Sustainability report or publish a section in its annual report on CSR/H&S/Sustainability?* Although the publication of a CSR report or section in the annual report is not in and of itself a guarantor of substantive CSR, the absence of such a report is an indicator that the company is not willing to publish information on its impact on the environment and society. Setting up systems to monitor and report on CSR impacts, such as environmental emissions and health and safety improvements, requires an investment of the firm’s resources.
- **Emp\_Sec:** *Does the company have a job security policy?* The presence of a no-layoff policy can be seen as a major voluntary commitment to the workforce, as it is not required by law in Germany. Employment protection legislation only requires companies to negotiate a ‘social plan’ with the works council when mass layoffs occur. A ‘no-layoff’ policy is therefore a

substantive CSR policy which potentially could mean the expenditure of considerable company resources.

We hypothesize that workers as stakeholders have no direct interest in the first two CSR actions (Glob\_Comp and Pub\_Comm). We thus expect to see no relationship between co-determination strength and the presence of symbolic CSR at the firm level (Hypothesis 1a). In contrast, workers have an interest in promoting the last three CSR policies listed above, as they are substantive and result in direct improvements for the workers. In the first case, since pollution can directly affect the working conditions of the workforce, workers have an interest in reducing pollution (Emiss\_Red). Secondly, workers have an interest in company reporting on environmental and societal impacts, as an instrument for improving their access to information and for measuring progress (CSR\_Rep). Thirdly, (Emp\_Sec) workers have an interest in companies' provision of a no-layoff policy. Therefore, we expect that the strength of co-determination has a positive relationship with the presence of all three of these variables (Hypothesis 1b).

In order to test for a relationship between co-determination strength MB-ix and the five CSR policies, a multivariate logistic regression analysis was conducted (see appendix for details). To address the problem of the direction of causality, the MB-ix and ownership variables were lagged by one year. A number of control variables that could be expected to also have an influence on the presence of these practices were also included:

- **Size:** the size of the company (measured by the logarithm of sales in Euros), as larger companies generally have higher visibility and thus experience greater pressure to implement CSR policies. Matten and Moon state that 'explicit' (i.e. voluntary) CSR in Europe is restricted for the most part to large firms (2008: 417). We would thus expect that size is positively related to the presence of CSR policies (Hypothesis 2).
- **Owner:** the dispersion of ownership (measured by the percentage of shares held by small shareholders); the literature has conflicting expectations of the role of shareholders. On the one hand it is argued that large shareholders have a longer-term interest in the future of the company than smaller shareholders, since they cannot exit (i.e. sell off their shares) as easily as small shareholders and do not lack the resources to actively influence the company. On the other hand, it is sometimes asserted that pressure for CSR policies mainly comes from smaller investors, such as ethically-oriented mutual funds or government pension funds. Thus, we have conflicting expectations with regards to ownership, on the one hand predicting a positive relationship between ownership dispersion and CSR policies (Hypothesis 3a) on the other hand predicting a negative relationship (Hypothesis 3b).
- **Profit:** the operating margin (difference between sales and costs, expressed as a percentage of total sales). As symbolic CSR has no costs, we would not expect to see a significant relationship between profitability and the first two CSR indicators (Hypothesis 4a). However, as substantive CSR has real costs, we would expect to see a positive relationship between profit (as an indicator of the firm's ability to finance CSR investments) and the three substantive CSR policies (Hypothesis 4b).

- **Construction, Manufacturing, Transport + Utilities, Trade, Finance and Services:** are variables describing the main industry in which a company operates (measured by the Standard Industrial Classification code at the 1-digit level). The industry of operation defines important parameters for CSR, such as the company's exposure to customers and the types of environmental and employment concerns the company faces (Knoppe, 2015). One hypothesis is that industries with the most direct contact with consumers (such as retail trade and services) should have the greatest interest in introducing CSR policies, particularly of the symbolic type. Therefore, there should be a positive relationship between CSR policies and the industry variables Trade and Services (Hypothesis 5a). Furthermore, as transport and public utilities is the sector generating the greatest amount of pollution and experiencing the greatest pressure for emissions reduction, we would expect a positive relationship between CSR policies and Transport and Utilities (Hypothesis 5b).
- **Time trend:** as some CSR practices have become more prevalent in the recent past, we have included dummy variables for each year between 2007-2014 to identify any trends. The general expectation is that the trend should be positive (Hypothesis 6).

These hypotheses are summarized in Table 3.

**Table 3.** Hypotheses to be tested

No.	Hypothesis
1a	Co-determination is not related to symbolic CSR
1b	Co-determination is positively related to substantive CSR
2	Size is positively related to all CSR policies
3a	Ownership dispersion is positively related to CSR policies
3b	Ownership dispersion is negatively related to CSR policies
4a	Profit is not related to symbolic CSR
4b	Profit is positively related to substantive CSR
5a	CSR policies are positively related to Trade and Services
5b	CSR policies are positively related to Transport + Utilities
6	Time trends for CSR policies should be positive

### *Results*

Table 4 reports the results of the full models that were run on the five CSR policies examined. Each of the five models measures the impact of different variables on the probability that the firm has a specific type of CSR practice. The first two models are for symbolic CSR indicators, while models three through five are for substantive CSR policies.

**Table 4.** Determinants of CSR Policies in German firms, 2007-2014

<i>Independent Variable</i>	<i>Dependent Variable</i>				
	<b>Glob_Comp</b> <b>(1)</b>	<b>Pub_Comm</b> <b>(2)</b>	<b>Emiss_Red</b> <b>(3)</b>	<b>CSR_Rep</b> <b>(4)</b>	<b>Emp_Sec</b> <b>(5)</b>
MB-ix			++	++	++
Owner					
Size	+++	+++	++	+++	+++
Profit					+++
Construction					
Manufacturing					
Transport + Utilities			--		
Trade	--	-		--	+++
Finance					
Services		--			
Time trend	increasing	increasing	increasing	increasing	no trend
Observations	595	595	595	595	595
Clusters	96	96	96	96	96

*Notes:* +++ = positive and significant at .01 level, ++ = positive and significant at .05 level, + = positive and significant at .1 level, -- = negative and significant at .05 level, - = negative and significant at .1 level

The first result is that co-determination strength (MB-ix) is not significant in the first two models, but is positively significant in models 3 through 5. In other words, co-determination is positively related to substantive but not to symbolic CSR, thus confirming Hypotheses 1a and 1b. It seems that worker representatives use their voice to promote substantive CSR policies which workers have an interest in, including emissions reduction targets, CSR reporting and employment security, but appear to have little interest in promoting symbolic CSR policies such as membership in Global Compact and public statements on CSR by management.

The second result is that firm size has a significant positive relationship with all five CSR policies. This confirms Hypothesis 2, based on Matten and Moon's (2008) observation that explicit CSR seems to be concentrated in large firms, which face more public scrutiny and pressure than smaller firms. This is the case for both symbolic and substantive CSR; large firms respond to higher visibility by implementing both types of CSR.

The third result is that ownership concentration is not a determinant of any of the five CSR policies, i.e. neither Hypothesis 3a nor Hypothesis 3b are supported. In other words, there does not seem to be a systematic difference between large and small shareholders regarding pressure exerted on companies for CSR. However, it may be that this measure is not capturing important differences in investors' orientation to CSR within each shareholder group. A further test of the influence of investors would involve coding shareholders based on their CSR orientation and including this in the analysis.

The fourth result is that profitability is not related to the symbolic CSR policies included in models 1 and 2 (Global Compact membership and public commitments to CSR). This is not surprising, as we expected in Hypothesis 4a that profit should not be relevant for CSR actions that involve no commitment of firm resources. In contrast, our expectation with regard to the relationship between profitability and substantive CSR policies is only partially confirmed, as employment security is the only one of the three substantive policies tested which is positively related to profitability. In short, profitability does not appear to influence symbolic CSR and also influences only some forms of substantive CSR, i.e. Hypothesis 4a is confirmed, whereas Hypothesis 4b is only partially confirmed.

The fifth result is that, contrary to our expectations, the trade sector appears to have weaker CSR policies, including both symbolic policies and one substantive policy (CSR reporting). One possible explanation is that companies in the trade sector may expect to have a limited return from CSR policies, as they for the most part sell the products of other companies and have no influence on the reputation of those products. Furthermore, they may be reluctant to publish CSR reports given their lack of control over the supply chains for these products. However, firms in trade are more likely to provide employment guarantees. One possible explanation is that retail and wholesale firms experience heavy seasonal fluctuations in sales, thus they experience pressure to provide employment guarantees to retain experienced workers over the annual cycle. Firms in the service sector seem to have CSR policies in line with the average, with the exception of less frequent public commitments to CSR. Thus, Hypothesis 5a (i.e. trade and services will have better CSR policies) is not confirmed. Hypothesis 5b is also not confirmed, as firms in the transport and public utilities sectors have CSR policies in line with the average, with the exception of emission reduction targets, which they are less likely to have. It may be that these kinds of firms find it difficult to set such targets, as many transportation firms are expanding (particularly in the airline industry) and utilities such as electricity generation may have limited capacity to reduce emission without implementing drastic measures such as shutting down plants. A final result is that, with the exception of no-layoff policies, the prevalence of both symbolic and substantive CSR policies is increasing.

## **Discussion and conclusion**

This paper contributes to both the literatures on co-determination and CSR, thereby helping to build a bridge between these two largely separate research traditions. With regard to the first field, this paper expands our understanding of the impact of co-determination beyond financial outcomes. In order to do this, a new measure of co-determination strength was utilized, the *Mitbestimmungsindex* (or MB-ix) which overcomes the restrictive assumptions made underlying conventional measures of co-determination. With regard to CSR, this is one of the few quantitative studies that includes measures of collective labour representation as a determinant of CSR policies.

The analysis presented in this paper shows that there is a differentiated relationship between co-determination and CSR. Symbolic CSR is designed to influence external stakeholders' perceptions of the firm but does not involve the commitment of the firm's resources. Co-determination strength is not related to the symbolic forms of CSR included in the analysis here, specifically membership in UN Global Compact and public commitments by top managers to CSR. In contrast, substantive CSR involves real changes in the company's operations and requires the commitment of firm resources. Co-determination strength is strongly and positively related to all three of the substantive types of CSR examined in the study, specifically the adoption of targets for emissions reduction, the publication of a CSR report and the commitment to employment security. This suggests that worker representatives are selective with regard to what types of CSR policies they use their influence to support. It appears that worker representatives are less likely to support symbolic than substantive forms of CSR.

This paper also sheds light on the debate in the comparative CSR literature regarding the adoption of CSR policies in coordinated market economies like Germany. All five CSR policies examined are of the 'explicit' variety, i.e. policies which are adopted voluntarily by companies. These policies are supposed to be most prevalent in liberal market economies like the US and UK where the need for business legitimacy is the greatest. Matten and Moon (2008) note that explicit policies do appear to be spreading to the coordinated market economies, however, are largely confined to larger companies and are for the most part encouraged by states and industry associations. The results here suggest that worker representatives are also an important factor in explaining the spread of some types of explicit CSR policies to coordinated market economies.

A promising field for future research would be to supplement the quantitative research presented here with a set of case studies on how worker representatives decide on which CSR policies to support and how they use their influence. This could draw on the qualitative literature cited earlier (Vitols, 2011; Preuss et al., 2014; Hadwiger et al., 2017). Furthermore, the type of CSR policies examined could be expanded to include substantive CSR policies in which it is not obvious that workers would have a direct interest in. Finally, as the research here is limited to German companies, it would be informative to have research looking at the relationship between co-determination and CSR in other countries.

## References

- Aguinis H and Glavas A (2012) What We Know and Don't Know About Corporate Social Responsibility. A Review and Research Agenda. *Journal of Management* 38(4): 932–968.
- Campbell J (2007) Why Would Corporations Behave in Socially Responsible Ways? An Institutional Theory of Corporate Social Responsibility. *The Academy of Management Review* 32(3): 946–967.
- Carroll AB and Brown JA (2018) Corporate Social Responsibility: A Review of Current Concepts, Research, and Issues. In: Wasieleski DM and Weber J (eds) *Corporate Social Responsibility. Business and Society* 360, Volume 2. Pittsburgh: Emerald Publishing Limited, pp. 39–69.
- Conchon A, Gold M and Kluge N (eds) (2010) *In the union and on the board: experiences of board level employee representatives across Europe*. Brussels: ETUI.
- Dukes, R (2005) The origins of the German system of worker representation. *Historical Studies in Industrial Relations* 19: 31–62.
- Favotto A, Kollman K and Bernhagen P (2016) Engaging Firms: The Global Organisational Field for Corporate Social Responsibility and National Varieties of Capitalism. *Policy and Society* 35(1): 13–27.
- Giertz J-P and Scholz R (2018) Strategische Personalarbeit ohne eigenständigen Personalvorstand? *WSI Mitteilungen* 71(2): 140–149.
- Girndt C (2006) Die Betriebsratsgründer: Alles, was Recht ist. *Arbeit* 11: 40–45.
- Gjørlberg M (2009) The origin of corporate social responsibility: global forces or national legacies? *Socio-Economic Review* 7(4):605–637
- Gjørlberg M (2010) Varieties of Corporate Social Responsibility (CSR): CSR Meets The 'Nordic Model'. *Regulation and Governance* 4(2): 203–229.
- Hadwiger F, Hamm B, Vitols K and Wilke, P (2017) *Menschenrechte im Unternehmen durchsetzen: Internationale Arbeitnehmerrechte: Die UN-Leitprinzipien als Hebel für Betriebsräte und Gewerkschaften*. Bielefeld: transcript.
- Hall P and Soskice D (2001) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press.
- Harvey G, Hodder A and Brammer S (2017) Trade union participation in CSR deliberation: an evaluation. *Industrial Relations Journal* 48(1): 42–55.
- Höpner M and Müllenborn T (2010) Mitbestimmung im Unternehmensvergleich: Ein Konzept zur Messung des Einflusspotentials der Arbeitnehmervertreter im mitbestimmten Aufsichtsrat. *Industrielle Beziehungen* 17(1): 7–29.
- Jackson G and Apostolakou A (2010) Corporate Social Responsibility in Western Europe: CSR as an Institutional Mirror or a Substitute? *Journal of Business Ethics* 94(3): 371–394.
- Jackson G and Bartosch J (2016) *Corporate Responsibility in Different Varieties of Capitalism: Exploring the Role of National Institutions*, Bertelsmann Stiftung. Gütersloh.
- Jirjahn U (2010) *Ökonomische Wirkungen der Mitbestimmung in Deutschland: Ein Update*. Arbeitspapier No. 186, Hans-Böckler-Stiftung. Düsseldorf.

- Jürgens U, Lippert I and Gaeth F (eds) (2008) *Information, Kommunikation und Wissen im Mitbestimmungssystem: Eine Umfrage unter Arbeitnehmervertretern im Aufsichtsrat*. Schriften der Hans-Böckler-Stiftung. Baden-Baden: Nomos Verlagsgesellschaft.
- Kinderman D (2012) Free Us Up So We Can Be Responsible: The Co-evolution of Corporate Social Responsibility and Neo-liberalism in the UK, 1977-2010. *Socio Economic Review* 10(1): 29–57.
- Kinderman D and Lutter M (2018) *Explaining the Growth of CSR within OECD Countries: The Role of Institutional Legitimacy in Resolving the Institutional Mirror vs. Substitute Debate*. MPifG Discussion Paper No. 18/2, Max-Planck-Institut für Gesellschaftsforschung. Köln.
- Knoppe M (2015) CSR im Retail Management- Wertschöpfung oder Marketing-Gag? In: Knoppe M (ed.) *CSR und Retail Management: Gesellschaftliche Verantwortung als zukünftiger Erfolgsfaktor im Handel*. Management Reihe Corporate Social Responsibility. Heidelberg: Springer Verlag, pp. 9–18.
- Köstler R, Müller M and Sick S (2013) *Aufsichtsratspraxis: Handbuch für die Arbeitnehmervertreter im Aufsichtsrat*. Frankfurt: Bund Verlag.
- Matten D and Moon J (2008) 'Implicit' and 'Explicit' CSR: A Conceptual Framework for a Comparative Understanding of Corporate Social Responsibility. *Academy of Management Review* 33(2): 404–424.
- Preuss L, Gold M and Rees C (2014) *Corporate Social Responsibility and Trade Unions: Perspectives across Europe*. London: Routledge.
- Raabe N (2010) *Die Mitbestimmung im Aufsichtsrat: Theorie und Wirklichkeit in deutschen Aktiengesellschaften*. Berlin: Erich Schmidt Verlag.
- Scholz R and Vitols S (2016) *Der Mitbestimmungsindex MB-ix: Wirkungen der Mitbestimmung für die Corporate Governance nachhaltiger Unternehmen*. Report No. 22, Hans-Böckler-Stiftung. Düsseldorf.
- Scholz R and Vitols S (2018) *Der MB-ix in börsennotierten Unternehmen: Verankerung der Mitbestimmung im letzten Jahrzehnt*. Mitbestimmungsreport No. 43, Hans-Böckler-Stiftung. Düsseldorf.
- Schons L and Steinmeier M (2016) Walk the Talk? How Symbolic and Substantive CSR Actions Affect Firm Performance Depending on Stakeholder Proximity. *Corporate Social Responsibility and Environmental Management* 23: 358–372.
- Sethi SP and Schepers DH (2014) United Nations Global Compact: The Promise-Performance Gap. *Journal of Business Ethics* 122: 193–208.
- Streeck W (1984) Co-determination, the fourth decade. In: Wilpert B and Sorge A (eds) *International Perspectives on Organizational Democracy: International Yearbook of Organizational Democracy Volume 2*. Chichester: John Wiley, pp. 391–422.
- Vitols K (2011) *Nachhaltigkeit Unternehmensverantwortung Mitbestimmung: ein Literaturbericht zur Debatte über CSR*. Berlin: edition sigma.
- Waddington J (2010) *European works councils: a transnational industrial relations institution in the making*. London: Routledge.
- Weiß D (2016) Arbeitnehmermitbestimmung und die Europäische Aktiengesellschaft (SE): Eine empirische Analyse auf Länderebene. *German Journal of Human Resource Management* 30(2): 84–107.

## Appendix

### Introduction

This appendix provides details with regards to the paper 'Co-determination: a driving force for Corporate Social Responsibility in German companies?'. It first describes the data used in the study. Second, the methodology for the statistical analysis in the paper is outlined. Third, the results of the statistical analysis are discussed in greater detail. Finally, a list of the 37 quantitative studies on German co-determination mentioned in the paper is provided.

### Data

The data used in this study was gathered from a number of sources. Data used for calculating the co-determination index (MB-ix) was obtained mainly from company annual reports. These annual reports provided most of the data needed to calculate the six components of the MB-ix:

- **Component 1:** number and type of worker representatives on the supervisory board. Annual reports almost always indicate which members of the supervisory board are worker representatives and whether they are full-time trade union officers (external members) or works council members.
- **Component 2:** number and identity of deputy chairpersons of the supervisory board
- **Component 3:** functions and membership of committees in the supervisory board
- **Component 4:** percentage of the company's total workforce in Germany, and the presence or absence of a European or international (SE) works council. Data on the second item was obtained from the ETUI's European Works Councils Database: <http://www.ewcdb.eu/>
- **Component 5:** the rights and duties of the supervisory board in different German company legal forms, which was coded based on information obtained from Köstler et al. (2013).
- **Component 6:** responsibilities of members of the management board (*Vorstand*), specifically of the member of the management board with primary responsibility for personnel policy and whether or not this person is the CEO or CFO

Where no information was provided in the annual report, a number of sources were consulted to fill the gap, including company documents for shareholders' meetings (which provide biographical information on candidates for the supervisory board when there are board elections), news reports, the company's investor relations department and trade unions.

The data sources and definitions of the other variables are provided in Table 1A and descriptive statistics in Table 2A. The CSR data was obtained from the Thomson Reuters ASSET4 database. ASSET4 was established in 2004 to gather CSR data on companies from around the world, mainly companies listed on stock exchanges. In 2009 ASSET4 was acquired by Thomson Reuters. Data is currently collected on an annual basis for about 7,000 companies covering over 400 data points in the areas of environmental, social, corporate governance and economic performance. In each of the five types of CSR policies tested binary variables (i.e. variables coded 1 or 0) to indicate either the presence or absence of a CSR practice in a specific year were used.

**Table 1A.** Variable definitions and data sources

<b>Name</b>	<b>Definition</b>	<b>Source</b>
Glob_Comp	Has the company signed the UN Global Compact?	ASSET4
Pub_Comm	Has there been a public commitment from a senior management or board member to integrate [environmental, social and governance] issues into the company strategy and day-to-day decision making?	ASSET4
Emiss_Red	Does the company set specific objectives to be achieved on emission reduction?	ASSET4
CSR_Rep	Does the company publish a separate CSR/H&S/Sustainability report or publish a section in its annual report on CSR/H&S/Sustainability?	ASSET4
Emp_Sec	Does the company have a job security policy?	ASSET4
MB_ix	Co-determination index MB-ix	MB-ix Project
Owner	Percentage of shares held by small shareholders	ASSET4
Size	Logarithm of total sales in million Euros	CapitalIQ
Profit	Operating profit margin	ASSET4
Industry	Standard Industrial Classification (SIC) sector of main activity	CapitalIQ

The ASSET4 database also provides annual information on operating profit margin (used for the variable 'Profit') and the percentage of shares held by small shareholders (used to calculate the ownership dispersion variable 'Owner'). Both variables are expressed as percentages. Information on company size and main industrial sector of activity was obtained from the online database CapitalIQ. The variable 'Size' is defined by the logarithm of total sales by the companies in million Euros.

**Table 2A.** Descriptive statistics

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Count</b>
Glob_Comp	0.4151	0.4932	0	1	595
Pub_Comm	0.4723	0.4997	0	1	595
Emiss_Red	0.2403	0.4276	0	1	595
CSR_Rep	0.7176	0.4505	0	1	595
Emp_Sec	0.2689	0.4438	0	1	595
MB_ix	70.1231	33.2118	0	100	595
Owner	70.1899	25.2359	6	100	595
Size	3.8095	0.6712	1.8060	5.3063	595
Profit	8.7044	8.7639	-14.49	36.63	595

The industry membership of companies is defined by the Standard Industrial Classification (SIC) 1-digit code of its main activity. The industry groups defined were ‘Construction’ (SIC 1 includes construction and mining, but there were no mining companies included in our sample), ‘Manufacturing’ (SIC codes 2 and 3), ‘Transport and Public Utilities’ (SIC code 4), ‘Trade’ (SIC code 5, including wholesale and retail trade), ‘Finance’ (SIC code 6, including banking, insurance and real estate) and ‘Services’ (SIC codes 7 and 8). There were no companies in the sample from agriculture (SIC code 0) or public administration (SIC code 9). The distribution of companies by industrial sector is summarized in Table 3A.

**Table 3A.** Industry distribution of sample companies

Sector	Companies	
	Number	Percentage
Construction (SIC 1)	2	2%
Manufacturing (SIC 2 + 3)	52	54%
Transport/Public Utilities (SIC 4)	15	16%
Trade (SIC 5)	5	5%
Finance (SIC 6)	14	15%
Services (SIC 7 + 8)	8	8%
<i>Total</i>	<i>96</i>	<i>100%</i>

The correlation matrix of all variables used in the analysis is shown in Table 4A. As can be seen, there is a significant positive correlation between Size, LMB-ix (the co-determination strength variable MB-ix which is lagged one year, as explained in the methodology section below) and all of the CSR variables. This positive correlation makes it imperative to use multivariate regression analysis to identify the separate influence of different independent variables on the CSR (dependent) variables. Ownership dispersion and Profit are not significantly correlated with any of the CSR variables.

**Table 4A.** Correlation matrix

	Glob_Comp	Pub_Comm	Emiss_Red	CSR_Rep	Emp_Sec	L.MB-ix	L.Owner	Size	Profit	Construction	Transport/Utilities	Trade	Finance
Glob_Comp	1												
Pub_Comm	0.4806*	1											
Emiss_Red	0.2925*	0.4134*	1										
CSR_Rep	0.4148*	0.4513*	0.2916*	1									
Emp_Sec	0.3045*	0.2387*	0.1113*	0.2457*	1								
L.MB-ix	0.3046*	0.3379*	0.2159*	0.4150*	0.3427*	1							
L.Owner	0.0584	0.0651	-0.0342	-0.0225	-0.0118	-0.0185	1						
Size	0.5273*	0.4370*	0.2934*	0.4628*	0.4426*	0.5625*	0.0906*	1					
Profit	0.0011	-0.0624	-0.0305	-0.0477	-0.0231	-0.2392*	-0.0001	-0.2185*	1				
Construction	0.1551*	0.0509	0.0038	0.0119	0.0632	0.0891*	0.0272	0.074	-0.1347*	1			
Transport/Utilities	0.0840*	-0.0221	-0.1034*	0.0567	0.2050*	0.1339*	-0.1025*	0.1226*	-0.0754	-0.072	1		
Trade	-0.1515*	-0.04	0.0097	-0.1386*	0.1137*	-0.1305*	-0.0417	0.1044*	-0.1979*	-0.039	-0.1016*	1	
Finance	0.0624	0.0366	0.1045*	-0.0076	-0.1368*	-0.1437*	0.0593	-0.0876*	0.1761*	-0.065	-0.1695*	-0.0917*	1
Services	-0.1197*	-0.1666*	-0.1274*	-0.028	-0.0267	-0.2167*	0.0209	-0.1214*	0.2055*	-0.0536	-0.1396*	-0.0756	-0.1261*

Notes: n=595. Correlations with significance at 95% level indicated with a star.

## Methodology and results

Given the number of potential explanatory variables, multivariate regression analysis was used for the main analysis. Since the indicators of all five CSR policies are binary variables (1= presence of CSR policy, 0=no CSR Policy), logistic regression was used. As longitudinal data was available for all variables, it was possible to put together a panel data set, where annual observations on each company were treated as one group, to take into account the characteristics of individual companies. One-year lagged values of the variables MB-ix (co-determination strength) and Owner (ownership dispersion) were used in order to address the problem of direction of causality. A random effects model was chosen over a fixed effects model because the co-determination variable MB-ix is very stable over time at the firm level, i.e. most of the variation in MB-ix is between firms rather than within firms. A final consideration is the interpretation of the significance levels on the independent variables. The 96 companies analysed cover the full universe of large and medium sized firms listed on the German stock exchange. In other words, they are not a random sample of companies, for which significance levels would provide an indication of the confidence with which we can make inferences from this sample for the full universe of firms. Here the significance levels were taken as an indicator of the strength of the relationship between independent and the dependent variable.

The results for the full models run on the five CSR variables, which are discussed in the main part of the discussion paper, are reported in Table 5A.

**Table 5A.** Regression results for full model for five CSR policies

Ind. Variable	Dependent Variables / (Model Number)				
	Glob_Comp (1)	Pub_Comm (2)	Emiss_Red (3)	CSR_Rep (4)	Emp_Sec (5)
LMB_ix	0.0083 (0.033)	-0.0037 (0.022)	0.0479** (0.020)	0.0335** (0.016)	0.0732** (0.030)
L.Owner	-0.0184 (0.022)	-0.0212 (0.019)	-0.0022 (0.011)	-0.0086 (0.015)	-0.0149 (0.017)
Size	11.2427*** (1.977)	7.2705*** (1.534)	1.7900** (0.714)	5.1950*** (1.140)	4.1483*** (1.537)
Profit	0.0368 (0.051)	-0.0129 (0.047)	0.007 (0.040)	0.0088 (0.035)	0.2237*** (0.072)
Construction	2.5353 (6.557)	0.0057 (5.125)	-1.2037 (2.410)	-1.8963 (2.976)	2.1257 (3.986)
Transport + Utilities	-0.268 (2.171)	-2.4822 (2.168)	-2.4934** (1.182)	-0.4765 (1.399)	3.3593 (2.047)
Trade	-14.6034** (6.192)	-5.6656* (3.145)	-0.0636 (1.898)	-4.2701** (2.043)	8.9818*** (3.022)
Finance	3.5983 -4.051	2.9219 -2.122	1.9618* -1.192	1.4654 -1.432	-1.6363 -2.330
Services	-5.3493 (4.829)	-5.1340** (2.559)	-1.5873 (1.594)	1.3925 (1.722)	2.1308 (3.200)
yr2007	-2.5868** (1.050)	-3.6757*** (0.979)	-4.1487*** (0.918)	-4.3376*** (0.893)	-2.1034** (0.956)
yr2008	-1.9321** (0.973)	-0.1107 (0.749)	-3.8836*** (0.848)	-3.2947*** (0.770)	-0.0291 (0.895)
yr2009	-1.5743* (0.949)	0.5202 (0.769)	-1.1826** (0.598)	-2.0429*** (0.722)	1.0973 (0.918)
yr2011	0.2965 (0.844)	-0.1029 (0.757)	0.039 (0.553)	-0.0483 (0.697)	0.5102 (0.909)
yr2012	1.3731 (0.937)	1.0745 (0.793)	0.6113 (0.560)	0.198 (0.723)	-0.0684 (0.935)
yr2013	1.5623 (0.986)	1.1699 (0.807)	0.5228 (0.564)	0.3949 (0.730)	0.1806 (0.946)
yr2014	0.2464 (0.951)	0.8173 (0.906)	1.1070* (0.607)	0.2027 (0.779)	0.0869 (0.941)
Constant	-44.3850*** (6.524)	-26.5127*** (5.084)	-12.3498*** (2.901)	-17.0767*** (3.927)	-29.2113*** (5.846)
Cases	595	595	595	595	595
Groups (companies)	96	96	96	96	96

Note: Standard errors in parentheses. Significance levels \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

## List of quantitative studies on German co-determination

A list of the 37 quantitative studies on German co-determination mentioned in the text can be found below. As one study is described in two separate publications (Baums and Frick, 1998; 1999), there are a total of 38 publications in the list.

- Balsmeier B, Bermig A and Dilger A (2013) Corporate governance and employee power in the boardroom: An applied game theoretic analysis. *Journal of Economic Behavior & Organization* 91: 51–74.
- Balsmeier B, Dilger A and Geyer H (2011) Machtindex und Drittelmitbestimmung: Differenzierter Arbeitnehmereinfluss und dessen Konsequenzen. *Schmollers Jahrbuch* 131(1): 133–152.
- Baums T and Frick B (1998) Co-determination in Germany: the impact of court decisions on the market value of firms. *Economic Analysis* 1(2): 143–161.
- Baums T and Frick B (1999) The Market Value of Codetermined Firm. In: Blair MM and Roe MJ (eds) *Employees and corporate governance*. Washington D.C.: Brookings Institution Press, pp. 206–235.
- Benelli G, Loderer C and Lys T (1987) Labor Participation in Corporate Policy-Making Decisions: West Germany's Experience with Codetermination. *Journal of Business* 60(4): 553–575.
- Bermig A and Frick B (2011) Mitbestimmung und Unternehmensperformance: Der Einfluss von Arbeitnehmervertretern im Aufsichtsrat auf den Unternehmenswert. *Die Betriebswirtschaft* 71(3): 281–204.
- Boneberg F (2011) The Economic Consequences of One-third Co-determination in German Supervisory Boards: first Evidence for the Service Sector from a New Source of Enterprise Data. *Jahrbücher für Nationalökonomie und Statistik* 231(3): 440–457.
- Dewenter R, Kraft K and Stank J (2011) Co-determination and innovation. *Cambridge Journal of Economics* 35(1): 145–172.
- Dyballa K and Kraft K (2015) *Does Codetermination Affect the Composition of Variable Versus Fixed Parts of Executive Compensation?*, ZEW Discussion Paper no. 15-053, June. Mannheim: Zentrum für europäische Wirtschaftsforschung.
- Edwards J, Eggert W and Weichenrieder A (2009) Corporate governance and pay for performance: evidence from Germany. *Economics of Governance* 10: 1–26.
- Fauver L and Fuerst ME (2006) Does good corporate governance include employee representation? Evidence from German corporate boards. *Journal of Financial Economics* 82(3): 673–710.
- FitzRoy FR and Kraft K (2005) Co-determination, Efficiency and Productivity. *British Journal of Industrial Relations* 43(2): 233–247.
- FitzRoy FR and Kraft K (1993) Economic Effects of Codetermination. *The Scandinavian Journal of Economics* 95(3): 365–375.
- Gerum E (2007) *Das deutsche Corporate Governance-System: Eine empirische Untersuchung*. Stuttgart: Schäffer Poeschel.
- Gorton G and Schmid FA (2000) Universal banking and the performance of German firms. *Journal of Financial Economics* 58(1-2): 29–80.

- Gorton G and Schmid FA (2004) Capital, Labor, and the Firm: A Study of German Codetermination. *Journal of the European Economic Association* 2(5): 863–905.
- Gourdon MA and Rai A (1990) Codetermination and Enterprise Performance: Empirical Evidence from West Germany. *Journal of Business Economics* 42: 289–302.
- Gralla R and Kraft K (2011) Die Wirkung von Eigentümerkonzentration und Mitbestimmung auf die Produktivität. *Schmollers Jahrbuch* 131(1): 153–167.
- Hörisch F (2009) *Unternehmensmitbestimmung im nationalen und internationalen Vergleich: Entstehung und ökonomische Auswirkungen*. Berlin, Münster: LIT-Verlag.
- Kim EH, Maug EG and Schneider C (2014) *Labor Representation in Governance as an Insurance Mechanism*, ECGI Working Paper series in Finance no. 411, February. Brussels: ECGI.
- Kraft K (2001) Codetermination as a strategic advantage? *International Journal of Industrial Organization* 19(3–4): 543–566.
- Kraft K (2017) *Productivity and Distribution Effects of Codetermination in an Efficient Bargaining*, ZEW Discussion Paper no. 17-039, October. Mannheim: Zentrum für europäische Wirtschaftsforschung GmbH.
- Kraft K and Stank J (2004) Die Auswirkungen der gesetzlichen Mitbestimmung auf die Innovationsaktivität deutscher Unternehmen. *Schmollers Jahrbuch* 124(3): 421–449.
- Kraft K and Urgarkovic M (2006) Gesetzliche Mitbestimmung und Kapitalrendite. *Jahrbücher für Nationalökonomie und Statistik* 226(5): 587–604.
- Krenn M (2015) The role of codetermination in shareholder oriented corporate governance reform: the case of executive remuneration disclosure. *Journal of Corporate Governance* 6(2–4): 178–193.
- Lopatta K, Böttcher K and Jaeschke R (2017) When labor representatives join supervisory boards: Empirical evidence of the relationship between the change to parity codetermination and working capital and operating cash flows. *Journal of Business Economics* 30(2): 98.
- Müllenborn T (2015) *Der Einfluss von Arbeitnehmern im Aufsichtsrat auf die Vorstandsvergütung: Eine institutionelle Perspektive*, Dissertation, Freie Universität Berlin.
- Petry S (2017) Mandatory Worker Representation on the Board and Its Effect on Shareholder Wealth. *Financial Management* 47(1): 1–30.
- Renaud S (2007) Dynamic Efficiency of Supervisory Board Codetermination in Germany. *Labour* 21(4–5): 689–712.
- Schmid FA and Seger F (1998) Arbeitnehmermitbestimmung, Allokation von Entscheidungsrechten und Shareholder Value. *Zeitschrift für Betriebswirtschaft ZfB* 68(5): 453–473.
- Svejnar J (1982) Employee Participation in Management, Bargaining Power and Wages. *European Economic Review* 18(3): 291–303.
- Vitols S (2006) *Ökonomische Auswirkungen der paritätischen Mitbestimmung: Eine ökonometrische Analyse*, December. Berlin: Deutscher Gewerkschaftsbund.
- Vitols S (2008) *Beteiligung der Arbeitnehmervertreter in Aufsichtsratsausschüssen: Auswirkungen auf Unternehmensperformanz und Vorstandsvergütung*, Arbeitspapier no. 163, December. Düsseldorf: Hans-Böckler-Stiftung.

- Vulcheva M (2008) *Employee Representation and the Management of Earnings*. Emory University Atlanta. USA.
- Wagner J (2011) One-third codetermination at company supervisory boards and firm performance in german manufacturing industries: First direct evidence from a new type of enterprise data. *Schmollers Jahrbuch* 131(1): 92–106.
- Werner J-R and Zimmermann J (2005) Unternehmerische Mitbestimmung in Deutschland: eine empirische Analyse der Auswirkungen von Gewerkschaftsmacht in Aufsichtsräten. *Industrielle Beziehungen* 12(3): 339–354.
- Wohnhas F (2013) *The effect of German codetermination on firm value and short-termism*. University of Amsterdam. Netherlands.
- Zugehör R (2003) *Die Zukunft des rheinischen Kapitalismus: Unternehmen zwischen Kapitalmarkt und Mitbestimmung*. Wiesbaden: VS Verlag.



## Discussion Papers of the Project Group “Globalization, Work and Production”

**Florian Butollo, Ulrich Jürgens, Martin Krzywdzinski** SP III 2018-303

From Lean Production to Industrie 4.0.  
More Autonomy for Employees?, 20 pages

**Grzegorz Lechowski** SP III 2018-302

Beyond “dependent development” in a high-tech industry?  
The interplay between domestic institutions and transnational sectoral  
governance in the trajectories of emerging Polish IT firms, 47 pages

**Maren Evers, Martin Krzywdzinski, Sabine Pfeiffer** SP III 2018-301

Designing Wearables for Use in the Workplace  
The role of solution developers, 26 pages

**Martin Krzywdzinski, Axel Schröder** SP III 2017-302

Globale Rahmenvereinbarungen in der europäischen Automobilindustrie,  
45 Seiten

**Robert Scholz** SP III 2017-301

German Model or German Models? The spatial distribution of capital and  
labour in the corporate governance of stock listed companies, 28 pages

**Martin Krzywdzinski** SP III 2016-301

Technologie, Qualifikationen und internationale Arbeitsteilung.  
Anmerkungen zu der Diskussion über Industrie 4.0, 39 Seiten

**Martin Krzywdzinski** SP III 2014-301

Leistungsanreize, Leistungsverhalten und die Bedeutung des  
soziokulturellen Kontextes aus ökonomischer, psychologischer und  
soziologischer Perspektive, 80 Seiten

**Yan Hao** SP III 2012-304

The Reform and Modernization of Vocational Education and Training in  
China, 18 pages

**Elena Shulzhenko** SP III 2012-303

Human Resource Management and Labour Relations in Post-Transitional  
Russia, 59 pages

**Nan Yu** SP III 2012-302

All in Transition – Human Resource Management and Labour Relations in  
the Chinese Industrial Sector, 43 pages

**Soumi Rai** SP III 2012-301

Human Resource Management and Labour Relations in the Indian  
Industrial Sector, 42 pages

All discussion papers are downloadable:  
<http://www.wzb.eu/en/publications/discussion-papers/...>

