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This paper investigates if government awards can act as instruments that influence corporate behaviour. For identification I use the staggered introduction of orders of merit in six German states after the reunification. The introduction of orders leads to a fall in profitability but an increase in employment. However, CEOs who ultimately receive the awards are not running less profitable firms than CEOs who do not win awards but they employ more people. The performance of the honoured CEOs does not worsen after they have received an order. Overall, the results suggest that government awards function as economic instruments of governance.

JEL Codes: G38, J33, J38
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1.   Introduction

The governing power of a state has had the prerogative to award national honours to citizens on behalf of the whole of society since antiquity. Throughout the centuries, such government honours have developed from simple wreaths of laurels, to titles of ennoblement, into modern day orders of merit. Orders of merit typically carry no economic benefits and cost little to produce; most often they consist of crosses produced in gilded metal. Instead they derive their value from their visibility as they are worn to both festive and everyday occasions. French political scientist Olivier Ihl (2002) argues that these quite modest emblems function as a 'systematic instrument of governance'. That is to say, they serve as an instrument to signal exemplarity by publicly making examples of behaviour which goes beyond mere legal obligations; as an instrument of instilling citizen's deference to the state; as an instrument of public power that manifest the power of the person awarding the decoration; and as an instrument to influence the behaviour of citizens. This study will focus on the last of these characteristics in the context of the corporate world.

Because government awards are often bestowed upon chief executive officers (CEOs) they can potentially influence corporate decision making. The impact may occur through two principal channels. The prospect of receiving an award in the future might alter the incentives of the CEO and the decisions made today (*ex ante* effect). Or the receipt of a government award might lead to subsequent changes in corporate practices (*ex post* effect) once the CEO has been awarded. However, it is empirically challenging to study the relationship between government awards and corporate outcomes due to the endogenous relationship between awards and behaviour. For instance, if one in a cross-section finds that the firms run by CEOs that have been awarded government awards are more profitable than firms that are run by CEOs who have not received an award, then is this because the government award spurred a better performance or is it because CEOs who perform well get rewarded?

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To overcome this empirical challenge, I utilize a set of quasi-natural experiments: The staggered introduction of orders of merit in the constituent states of Germany. Since 1957, 14 of the 16 German federated states have introduced orders of merit as forms of official recognition to individuals for 'contributions for the benefit of the state'. I use the six introductions of orders of merit that have taken place after German reunification in 1990 as identification. The main analysis consists of a set of regressions which estimate the change in various firm-level performance variables before and after such state government award systems are introduced relative to a control group of firms in states that are unaffected by each introduction using powerful econometric techniques in a generalized difference-in-differences framework. As a result of this unique empirical setting I am able to answer a range of questions that relate to both the *ex ante* and the *ex post* effects of how government awards impact on corporate behaviour.

First, I study if there is a general effect on corporate behaviour when a state award is introduced. As a result of their scarcity and desirability, awards in general can spur effort and increase output (Bénabou and Tirole, 2003, 2006; Moldovanu et al., 2007; Frey, 2007; Besley and Ghatak, 2008). With particular respect to awards given by governments we know that CEOs put a high value on receiving these nonmonetary government awards. This has been shown in the recent literature (Siming, 2016), but is also evident from the reactions of honoured CEOs. For example, upon receiving the French *Légion d'honneur*, Sidney Taurel, the CEO of pharmaceutical company Lilly, remarked: "I never imagined that I might ever be so honoured, and I cannot envision any form of recognition that could mean as much to me." (Lilly, 2001). It is however not clear that the incentive of the CEO to be awarded a state award is necessarily in the best interest of the shareholders. As is for example emphasized in the criteria of the *Légion d'honneur* one should '…have served the good of the nation rather than solely one's own interest (e.g. by creating jobs…)' (Grande chancellerie de la Légion d'honneur, 2015).

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There can thus be a conflict between what is best for the nation and the owners of a firm. Raff and Siming (2016) show that governments can use the prestige from the awards they distribute to induce business leaders to uphold an excess number of employees, which lowers profits. Hence, on the one hand the existence of government awards may encourage individuals to contribute positively to firm performance. On the other hand, the focus on creating jobs may come at the expense of corporate profits. I find that profitability—measured as Operating margin, ROE, and ROA—decrease following the introduction of state award systems in Germany in the period 1991 to 2015. By contrast, firm-level employment increases after a state award system is introduced. Thus, on an aggregate level, the introduction of government awards decreases corporate profitability and increases employment. Does this result imply that the German orders of merit should be abolished? From the viewpoint of shareholders that is a possible conclusion, but from a welfare-economics perspective the results are inconclusive and allow for different interpretations. On the one hand, orders of merit may lead to catering by politicians to workers at the expense of overall efficiency. On the other hand, the existence of these state awards is merited if one wants to maximize the joint surplus of shareholders and employees and the benefits to employees from more hiring exceeds the costs to shareholders.

Just because a state award is introduced it does not follow that all CEOs in that state will receive it. As mentioned above it is necessary that awards are bestowed scarcely if they are to remain prestigious and act as incentive devices. It has been documented that government awards can incentivize fighter pilots to perform according to the wishes of the government. Ager et al. (2016) study victory scores of over 5,000 German pilots during World War II and find that the existence of awards for bravery can spur pilots to take more risks in combat. While awards induce all fighter pilots to try harder only the best pilots manage to score more without increasing their death rate. Average pilots win only a few additional victories but die at a much higher rate.

For my setting, the question at hand is then if the individual CEOs that will eventually be awarded behave differently than the CEOs who do not get the award. Thus, in terms of *ex ante* effects, the existence of government awards may on one hand spur business leaders to outperform their competition in their quest to be rewarded, but this quest may at the same time lead to the substitution of profitable projects to projects favoured by the ones who bestow the award, the politicians. I find that the firms of CEOs who are ultimately awarded do not display a different performance in terms of profitability compared to firms where the CEOs are not awarded. They do however uphold a significantly higher level of employees. This constitutes further evidence that a government may use awards as an incentive device to spur employment in the private sector. But the results also suggest that shareholders of firms where the CEO is actually honoured has less reason to question the existence of orders of merit compared to shareholders in firms where the CEO tries, but fails, to win the award.

Finally, I study if there are any *ex post* effects on profitability and employment after a CEO receives a government award. Though no study has ever analysed *ex post* effects stemming from government awards, there is evidence that behaviour may change after one receives other forms of awards. Malmendier and Tate (2009) show that CEOs significantly underperform after receiving major business press awards. By contrast, Neckermann et al. (2014) find that employees continue to perform strongly after they received an award from their employer. I find no evidence that CEO behaviour changes after receiving a state award: Neither performance nor firm-level employment is significantly different between CEO who have been awarded and CEOs who have not been awarded a state order of merit. Unlike other forms of awards given to CEOs, orders of merit can be forfeited if the honoured person brings disrepute to the award through, for example, business failure. It is possible that the revocability of government awards spurs the CEO to perform well—or at least not to underperform—also after the award has been bestowed. But here more research is needed to gain a deeper insight into

the causes of the differences in the *ex post* effects between government awards and business press awards.

To gauge the validity of the main results I perform a number of robustness tests. First, I explore the dynamics of changes in the outcome variables before and after the state awards are introduced. In sum, I find that neither changes in firm profitability nor changes in firm level employment precede the introduction of orders of merit in the six German states. Second, I re-run all regressions with placebo event years to examine if I have omitted an important variable linked to one of the outcome variables. I find no evidence that the estimates simply reflect differential trends in the various treatment and control groups caused by spurious events. Third, I account for heterogeneity in the economies across the six states by utilizing year-state fixed effects. Overall, the results strongly suggest that the effects of government awards on corporate performance and employment cannot be explained away by the existence of regional business cycles.

While the setting of my study is highly specific, the results are of general interest and contribute to several strands of the literature as this is the first study that incorporates the analysis of both the *ex ante* and the *ex post* effects of government awards into one combined setting. That the introduction of state government awards substantially decreases corporate profitability but increases employment confirms previous research on the effect on prestigious government awards (Raff and Siming, 2016), but also adds to the general literature on CEOs' quest for status (Focke et al., 2017; Malmendier and Tate, 2009).

The finding that CEOs who ultimately receive the state award are not running less profitable firms, although they employ more people, contributes to the literature that documents how government awards can spur individuals to outperform (Ager et al., 2016). Finally, the finding that the performance of honoured CEOs does not worsen after they have received their awards suggests that the *ex post* effects of government awards are closer to those documented

by Neckermann et al. (2014) than those documented by Malmendier and Tate (2009) and is a result that calls for more research into the mechanisms of why government awards seems to act as incentive devices also after they have been bestowed.

I proceed as follows. Section 2 provides a background on the German system of state orders of merit and the data I use. Section 3 presents my main findings, and Section 4 discusses the results from robustness tests. I conclude in Section 5.

2. Historical Background and Data

This section briefly describes the history of the state government awards in Germany with the purpose to explain why I use Germany as my empirical laboratory. I also explain where my data come from, and the limitations of my sources.

2.1. Historical Context

Nowadays, virtually every government in the world has a system in place to honour their citizens for various achievements. For example, France has two national and four ministerial orders of merit, Japan awards 7 different types of state orders, and the British honours system includes 10 orders of chivalry. Since these awards carry no economic value they fall into the category of positional goods, a term introduced by Hirsch (1976) to indicate non-monetary products and services whose value is a function of their desirability by others. While the norm is that these awards are bestowed by the ruling body or government of the nation, they may also be bestowed by federated state governments, which is for example the case in Austria, Canada, and Germany. Germany is a federal republic consisting of 16 constituent states which all retain a measure of sovereignty. Shortly after their creation in 1949, both the Federal Republic of Germany and the German Democratic Republic introduced their own national systems of government awards for both civilian and military services alike. The state order of merit in the Federal Republic--the *Bundesverdienstorden*, introduced in 1951--was soon complemented by

orders of merit introduced by the various constituent states. The latter are awarded by the respective Minister-President, the elected head of government of each state which corresponds to the governor of a U.S. state.

[Insert Table 1 about here]

Table 1 describes the state government award systems in the 16 federated states. Column (2) presents the year in which each state introduced their order of merit. Bavaria was the first state in the Federal Republic to introduce its own award in 1957. Lower Saxony did the same in 1961. In the 1970s and 1980s, Baden-Württemberg, Saarland, Rhineland-Palatinate, Berlin, Hesse, and North Rhine-Westphalia followed. With German reunification in 1990 the award system of the Democratic Republic was discontinued. All the new federal states created their own orders of merit during the 1990s (Saxony) and 2000s (Brandenburg, Mecklenburg-Vorpommern, Saxony-Anhalt, Thuringa). Also one of the old federal states, Schleswig-Holstein, introduced an order of merit in the 2000s. All but two German states have a state system of state government awards in place. The two exceptions are the old Hansaeatic states, Bremen and Hamburg, who by law reject any government awards as such wearable insignia would indicate a ranking of people in a way not compatible with the bourgeois spirit of the constitution of these states.

The awards all have in common that they are wearable both to formal attire, in the form of crosses worn around the neck or on the breast, and for everyday wear in the form of lapel pins. Another general—and for identification purposes, important—feature is that the award criteria, which are synthesized in the column (4), are virtually identical in that they all emphasize contributions to the respective state and its people.

2.2. Data

Due to restrictions in data availability I limit the study to the period after German reunification and focus on the states that have introduced state orders of merit since then.

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Besides the five former states of the German Democratic Republic—Sachsen, Thuringen, Mecklenburg-Vorpommern, Brandenburg, Sachsen-Anhalt—who all introduced state orders of merit after they ascended into the Federal Republic, the set of states includes also Schleswig-Holstein. I gather, by year and state, the names of all individuals who have been awarded a state order of these states from the webpages of the state governments.[2] Typically, the citation for an award is accompanied by a brief overview of the life of the awarded person. If not, I conduct google and Factiva searches for that person. In this manner I am able to single out the present or former CEOs from the list of awardees. I retain information on the company names and the time period of their tenure as CEOs. Next, I obtain financial data at firm level. My starting point is the Worldscope list for Germany (WSCOPEBD), available through Datastream. I retain only those firms that have their headquarters in one of the six states. As the firms of some of the honoured CEOs are not publicly traded I manually augment the list with information from annual reports available through Orbis, from company web pages, and from two printed databases: Medium Companies of Europe 1992/93 Volume 1 Medium Companies of the Continental European Community; Medium Companies of Europe 1993/94 Volume 1 Medium Companies of the Continental European Community. Table 2 provides descriptive statistics of the entire sample.

[Insert Table 2 about here]

The sample period runs from 1991—the first year after Germany reunification took place on October 3, 1990—to 2015. In total, 67 CEOs have been awarded one of the six state orders of merit instituted in this period. Of the total number of 2,474 firm-year observations, 132

(2,342) relate to observations where the CEO has been (has not been) awarded a state order. The relatively low number of awarded CEOs in the sample is expected since government awards by construction must be scarce in supply to fulfill their role as positional goods.

Throughout the analysis, all continuous variables are winsorized at the 1% and 99% levels to minimize the impact of outliers. Corporate performance is expressed through three variables: Operating margin is measured as earnings before interest and taxes (EBIT) over sales; return on assets (ROA) measured as net income over the book value of assets; return on equity (ROE) measured as net income over the book value of equity. The means for operating margin, ROA, ROE, the number of employees, and total assets in column 1 (2) are the averages of all firm-year observations where the CEO has been (has not been) award a state order of merit. We note that there are no significant differences in terms of average performance between the two categories though firms where the CEO has been awarded are larger both in terms of the number of employees and in terms of total assets.

3. Corporate Effects of Government Awards

In this section, I examine how government awards of the German states affect corporate performance and employment in a range of generalized difference-in-differences estimation models.

3.1. *Ex ante Effects of Government Awards*

The most useful feature of the evolution of state awards in Germany from a research standpoint is that the German states introduced the award systems at different times. Consequently, cross-sectional and time series variation in states' introduction of award systems permit the use of strong econometric techniques applied to panel data sets. I employ these techniques to reduce the degree of omitted variables in my model of the determinants of corporate performance and employment. First, I use the introduction of orders of merit as

identification to determine empirically whether CEOs change their behaviour once a state award system is introduced. Thus, I use the dates in column 1 of Table 1 to construct a yearly indicator variable equal to one for the firms that are headquartered in a state with an award system and zero for firms that are headquartered in a state where there is not yet an award system. To see if there is a general effect on all firms (in terms of profitability and employment) when a state award is introduced I estimate a fixed-effects model:

$$Y_{t,i} = a_t + b_i + c_j + dI_{t,i} + px_{t,i} + e_{t,i} \tag{1}$$

where $Y_{t,i}$ a is a vector of the following outcome variables during year t in firm i; operating margin measured as EBIT over sales; ROA measured as net income over the book value of assets; ROE measured as net income over the book value of equity; employment measured as the natural logarithm of the number of employees. The year-specific dummy variables a_t measure the common, economy wide shocks at time t. Thus, a_t controls for nation-wide shocks and trends that shape the dependent variables over time in Germany, such as business cycles, national changes in regulations and laws, long-term trends in dependent variables, etcetera. The firm-specific dummy variables b_i measure the firm-specific components. Thus, b_i controls for time-invariant differences in the dependent variables due to unexplained factors that differ across the firms i. The industry-specific dummy variables c_j control for differences across various industries j. By including these fixed effects in the model, all of the cross-sectional variation gets removed; coefficients are driven by changes in variables after a firm experiences the introduction of an award in its state. $I_{t,i}$ is an indicator variable that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place, and zero otherwise. Thus, the coefficient d measures the change in the outcome variables stemming from the introduction of awards. This is the key coefficient of interest since it gives us a difference-in-differences estimator that shows the changes in the dependent variable following the introduction of state government awards in the treatment state, controlling for

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changes in the dependent variable among the control group of states that have, at the time, not introduced a state award system. As such, the specification is a generalization of the difference-in-differences approach where the control group is constructed from the average of all firms in the sample, rather than from a different set of firms not ever experiencing any change in the existence of orders of merit.

Finally, x is a control variable for firm size, measured as the natural logarithm of assets. Size is a particularly important control variable as it captures many firm characteristics such as executive compensation (Jensen and Murphy, 1990; Core et al., 1999; Baker and Hall, 2004; Gabaix and Landier, 2008; Gabaix et al., 2014), quality of managers (Himmelberg et al., 1999), capital structure (Titman and Wessels, 1988; Rajan and Zingales, 1995; Booth et al., 2001; Fama and French, 2002; Frank and Goyal, 2003) and it may be a proxy for the probability of default (Shumway, 2001) and the volatility of firm assets (Fama and French, 2002). Heteroscedastic robust standard errors are clustered by state to account for possibility of within-state interdependence in the residuals due to serial correlation (Bertrand et al., 2004).

[Insert Table 3 about here]

The results of model 1 are presented in Table 3. The first three columns present results for the profitability outcome variables and the last column presents results for the employment variable. We see that the difference-in-differences indicator coefficient is negative and statistically significant at the 10% level in each of the three profitability specifications. The point estimates are moderately large, indicating that profitability decrease, depending on specification used, by between 0.5 to 1.2 percentage points following the introduction of state orders of merit. By contrast, the difference-in-differences indicator coefficient for the fourth outcome variable, firm-level employment, is positive with a coefficient of 3.5 percentage points that is statistically significant at the 5% level.

Overall, the results of Table 3 suggest that, on an aggregate level, the introduction of state orders of merit decreases corporate profitability but increases employment. Thus, the mere introduction of awards can affect corporate behaviour. These aggregate results naturally lead to the question if the individual CEOs that will eventually be awarded behave differently than those CEOs who ultimately do not get the award? To investigate this question, I estimate the following fixed-effects model:

$$Y_{t,i} = a_t + b_i + c_j + gL_{t,i} + dI_{t,i} + px_{t,i} + e_{t,i} \tag{2}$$

Where, $Y_{t,i}$ equals the same outcome variables as in regression (1), $I_{t,i}$ is as before an indicator variable that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place, and zero otherwise, x controls for firm size, and a_t, b_i, and c_j again represent year, firm, and industry fixed effects, respectively. $L_{t,i}$ is an award indicator equal to one from the year of the introduction of the order of merit in the state where the firm is headquartered up to the year in which the incumbent CEO receives the honour. If a CEO is awarded after their retirement, the indicator variable $L_{t,i}$ takes the value one for the years of the CEO's tenure that overlap with the years in which there exists an order of merit in the state where the firm is headquartered. Thus, $L_{t,i}$ is zero for all observations that relate to: A year in which no state award exists for the state in which a firm is incorporated; all years after the incumbent CEO was awarded; all incumbent CEOs that never receive an award.[3] Subsequently, g measures the relative *ex ante* behaviour in terms of profitability and number of employees of the firms whose CEOs will be awarded compared to the CEOs that are not awarded. As before, heteroscedastic robust standard errors are clustered by state. Table 4 presents the results.

[Insert Table 4 about here]

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[3] If a CEOs gets the award in the same year as it is introduced the estimates will be biased downwards which will work against finding any significant effects.

The only case for which the difference-in-differences estimator g is statistically significant is for the level of employees. The firms of CEOs who will be awarded a state award have on average a higher level of employees by 7.2 percentage points, after controlling for size and fixed effects. Thus, the firms that are ultimately awarded do not reduce their profits more than those CEOs who are not awarded but they do uphold a higher level of employees, which constitutes further evidence that a government may use awards as an incentive device to spur employment in the private sector.

3.2.   Ex post Effects of Government Awards

The previous section has shown the superior *ex ante* performance of CEOs before they receive an award. The question then remains if the *ex post* behaviour changes once a CEO actually gets rewarded. To investigate this question, I estimate the following fixed-effects model:

$$Y_{t,i} = a_t + b_i + c_j + hK_{t,i} + dI_{t,i} + px_{t,i} + e_{t,i} \qquad (3)$$

Where, $Y_{t,i}$ equals the same outcome variables as in regressions (1) and (2), $I_{t,i}$ is again an indicator variable that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place, and zero otherwise, x controls for firm size, and a_t, b_i, and c_j respectively represent year, firm, and industry fixed effects. $K_{t,i}$ is an indicator variable equal to one for each year that follows upon the award of a state order to the incumbent CEO until the tenure as CEO ends, or the sample period ends. $K_{t,i}$ is zero for all other observations. Thus, h measures the *ex post* behaviour in terms of profitability and number of employees of the firms whose CEOs have been awarded. Heteroscedastic robust standard errors are clustered by state. The results are presented in Table 5.

[Insert Table 5 about here]

We see that the difference-in-difference indicator variable h is insignificant for all of the four outcome variables, which is evidence that a state award does not trigger an *ex post* change in

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CEO behaviour. This result is in contrast with the findings of Malmendier and Tate (2009) that CEOs significantly underperform after receiving major business awards. Why then do we observe this difference in *ex post* behaviour between government awards and business press awards? Though more research would be needed, it is possible that the answer lies in the unique features attached to state awards compared to other awards. A government award can namely be revoked if it is later deemed that the honoured CEO has brought the award in disrepute. For example, in the United Kingdom there are numerous cases of CEOs who have been stripped of their knighthoods after their companies have failed (Hillman, 2015). It is possible that the revocability of government awards spurs the CEO to perform well—or at least not to underperform—also after the honour has been bestowed. Essentially the state award remains an incentive also after it has been bestowed.

4.   Robustness Tests

4.1.   *Dynamics of Government Award Introductions on Profitability and Employment*

Table 3 demonstrated that firm performance (firm level employment) decreased (increased) somewhat following episodes of orders of merit introductions. In this section I will address two related questions. The first is whether the documented impact was temporary or long-term. Second, I will explore the dynamics of changes in the outcome variables before and after the state awards introductions to ensure that the declining profitability and increasing levels of employment did not precede the creation of state orders of merit.

To clarify the timing of the impact of the introductions I examine the dynamics of the relationship between the years of introduction and outcome variables by augmenting regression (1) with a series of time dummy variables. The purpose is to trace out the year-by-year effects of state awards introduction. The regression follows:

$$Y_{t,i} / Y_{t-1,i} = a_t + b_i + c_j + d_1 I_i^{-3} + d_2 I_i^{-2} + ... + d_5 I_i^{+2} + d_6 I_i^{+3} + e_{t,i} \qquad (5)$$

where $Y_{t,i}$ equals the four outcome variables from regression (1) during year t in firm i. I_i^{-n} equals one for firms in the nth year before a state award is introduced in the state where the firm is headquartered and I_i^{+n} equals one for firms in the nth year after introduction of an order of merit in the state where the firm is headquartered. Furthermore, I_i^{-3} equals one for all years that are three or more years before awards introduction and I_i^{+3} equals one for all years that are three or more years after awards introduction. For all other cases, including the year of introduction, the I's equal zero. I thereby isolate the dynamic effect of introductions on the four outcome variables relative to the year of introduction. The vectors a_t, b_i, and c_j are vectors of year, firm, and industry dummy variables, respectively. Standard errors are clustered by state.

[Insert Figure 1 about here]

Figure 1, plots a (b) [c] {d} show the year by year estimates of awards introduction on Operating margin (ROA) [ROE] {Employees} and the 95% confidence intervals. The figure illustrates two key points. First, changes in the various outcome variables did not precede awards introduction. Of the 12 pre-introduction year estimates only one is statistically significant, ROE for the third year before the introduction. Second, the impact becomes significant at 5% shortly after the awards introduction for all four outcome variables, and stays significant for several years. Though effects are statistically significant already the first year after the introductions, they appear to increase gradually year-by-year to the third post-introduction year.

In sum, neither changes in firm profitability nor changes in firm level employment precede awards introduction. By contrast, profitability is reduced and employment is increased following these introductions.

4.2. Placebo Tests

All of the results presented in Tables 3 to 5 are, of course, also subject to the criticism that I may have omitted an important variable linked to one of the outcome variables. While the

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fixed effects approach is not very vulnerable to this problem, my approach could be biased if some of the six states in my sample experienced radical policy changes around the same time that the state introduced the order of merit. I use placebo tests to mitigate concerns that the results are spuriously caused by other events coinciding with the introduction of awards and the years of awarding the CEOs. In such tests we should expect to find no effects of the various award indicator variables used. Table 6 depicts the result from tests where the events studied in Tables 3 to 5 are assigned to placebo dates occurring prior and after the actual event years.

[Insert Table 6 about here]

Panel A presents the results of regression (1) but where the award indicator, $I_{t,i}$, now takes the value of one already from two years before the state in which a firm is headquartered has a state award system in place. Panel B shows the results from regression (2) where the award indicator $L_{t,i}$ is equal to one from two years before the introduction of the state award up to two years before the year in which the incumbent CEO receives the honour. Panel C presents the results of regression (3) where the indicator variable $K_{t,i}$ now equals one for all years that are more than two years after the award of a state order to the incumbent CEO.

Across the panels I find that the indicator variables for performance and employment are all statistically insignificant at conventional levels, which suggests that the previously presented generalized difference-in-differences estimates do reflect the impact of state awards, and not simply differential trends in the various treatment and control groups caused by spurious events.

4.3.   Accounting for Heterogeneity Across States

The models described in regressions (1) to (3) have a number of benefits in terms of controlling for differences across the physical location of the firms. First, the firm and industry fixed effects control for time-invariant differences in the outcome variables due to unexplained factors that differ across firms and industries. Second, the time fixed effects control for the

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German business cycle. However, it is possible that the business cycles differ across the different states. Five of the six states in my sample ascended to the Federal republic after the German Democratic Republic was dissolved. Compared to the sixth state, Schleswig-Holstein, the economy of these states has been characterized by higher unemployment and larger state subsidies for investments following the reunification (Statistische Ämter des Bundes und der Länder, 2015). Regional business cycles may thus introduce a bias into the results in Tables 3 to 5. I therefore re-estimate the analysis using an augmented version of the models in regressions (1) to (3) allowing the time effects, which are essentially business cycle effects, to vary across the states. In other words, I replace the year fixed effects in those regressions, a_t, with year-state fixed effects, which controls for business cycle effects in a state at time t. The benefit of this approach is that it reduces the likelihood that the estimates will be biased by a correlation between state cycles and award introductions. The cost comes in terms of a large number of lost degrees of freedom. The results are presented in Table 7.

[Insert Table 7 about here]

We see from Table 7 that the replacement of year fixed effects to year-state fixed effects leads to one significant change. In Panel A, ROA, which was significant at the 10% level in Table 3 is no longer significant. All other difference-in-differences coefficients retain their significance, although with, generally, a slightly lower economic magnitude. Overall, the results of Table 7 suggest that the effects of government awards on corporate performance and employment cannot be explained away by the existence of regional business cycles.

5.   Conclusion

    To investigate the effects of government awards on firm profitability and employment, I use the staggered introduction of orders of merit in Germany after the reunification as a quasi-natural experiment. I employ a difference-in-differences estimation methodology that makes

use of the cross-state, cross-year variation in the timing of awards introduction to assess the impact of awards. The three main results give support to the view that government awards function as systematic economic instruments of governance. First, the introduction of government awards substantially decreases corporate profitability but increases employment. Does this result imply that the German orders of merit should be abolished? From the viewpoint of shareholders that is a possible conclusion, but from a welfare-economics perspective the results are inconclusive. Second, the CEOs who ultimately receive the state award are not running less profitable firms although they employ more people than those CEOs who do not win the award. Thus, shareholders of firms where the CEO is actually honoured has less reason to question the existence of orders of merit compared to shareholders in firms where the CEO tries, but fails, to win the award. Third, the performance of honoured CEOs does not worsen after they have received their awards. The last result is perhaps the most interesting one as it highlights a clear difference in the *ex post* functioning of awards given by the state vis-à-vis that of prestigious business press awards. Though more research would be needed, it is possible that this difference is due to the unique features of revocability that are attached to state awards.

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Figure 1. Dynamics of State Award Introductions and Outcome Variables

This figure plots the year by year estimates (solid lines) and 95% confidence intervals (dotted lines) obtained from regression (5) on the dynamics of awards introduction with respect to: Operating margin in plot (a); ROA in plot (b); ROE in plot (c); Employees in plot (d).

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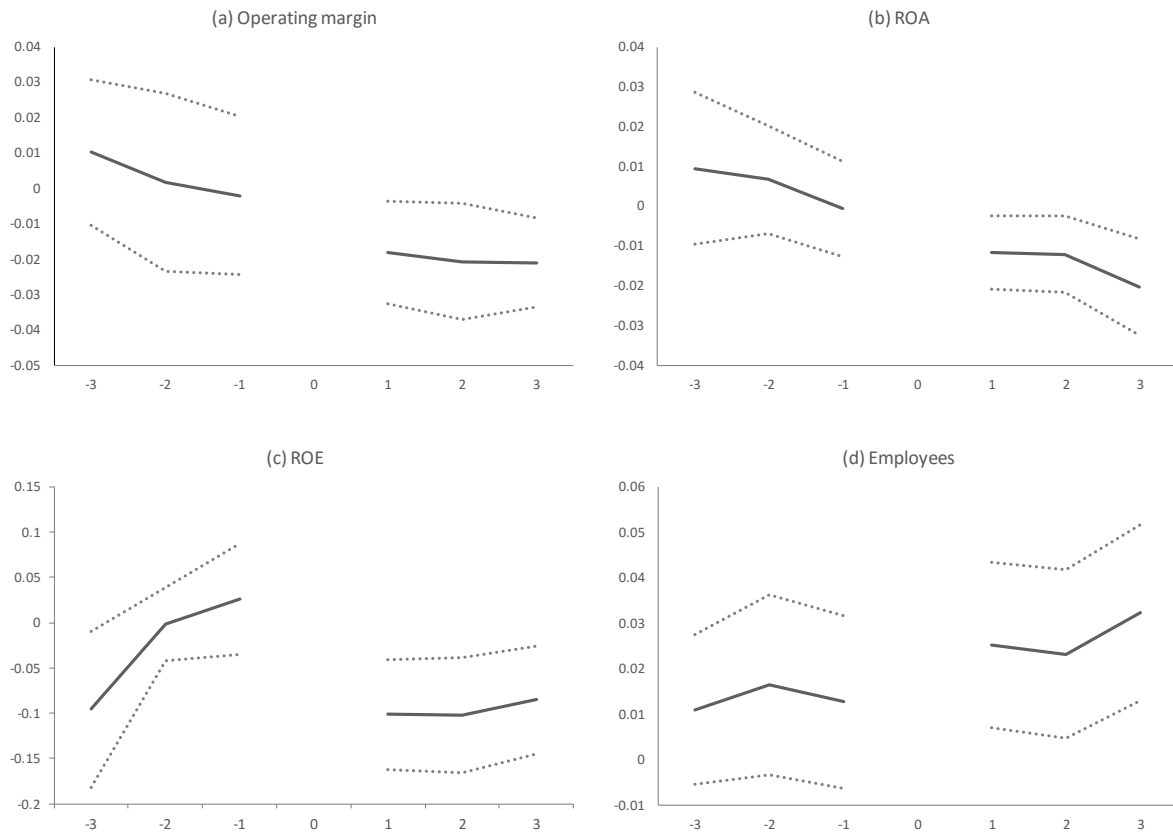
Table 1. Overview of the Federated State Orders of Merit in Germany

(1) State	(2) Year	(3) Award	(4) Award criteria
		Panel A. States with state award before reunification	
Bavaria	1957	*Bayerische Verdienstorden*	Recognition of outstanding contributions to the Free State of Bavaria and its people
Lower Saxony	1961	*Niedersächsischer Verdienstorden*	Outstanding contributions to the state
Baden-Württemberg	1974	*Verdienstorden des Landes Baden-Württemberg*	For outstanding contributions to the state in politics, society, culture, and .
Saarland	1974	*Saarlandischer Verdienstorden*	Awarded for outstanding service to Saarland
Rhineland-Palatinate	1981	*Verdienstorden des Landes Rheinland-Pfalz*	For outstanding service to the state and people of Rhineland-Palatinate
North Rhine-Westphalia	1986	*Verdienstorden des Landes Nordrhein-Westfalen*	For extraordinary contributions to the people and state
Berlin	1987	*Verdienstorden des Landes Berlin*	Recognition of outstanding contributions to the State of Berlin
Hesse	1989	*Hessischer Verdienstorden*	For outstanding contributions to the state of Hesse
		Panel B. States that introduced state award after reunification	
Saxony	1997	*Sächsischer Verdienstorden*	For outstanding contributions to the people and state of Saxony
Thuringia	2000	*Verdienstorden des Freistaats Thüringen*	Awarded as a sign of appreciation for outstanding services to the free state and its population
Mecklenburg-Vorpommern	2001	*Verdienstorden des Landes Mecklenburg-Vorpommern*	For exceptional performance over a long period of time, or an extraordinary individual performance for the benefit of the state
Brandenburg	2003	*Verdienstorden des Landes Brandenburg*	For extraordinary services to the State of Brandenburg and its people
Saxony-Anhalt	2006	*Verdienstorden des Landes Sachsen-Anhalt*	For exceptional performance over a longer period of time or an extraordinary individual performance for Saxony-Anhalt and its citizens
Schleswig-Holstein	2008	*Verdienstorden des Landes Schleswig-Holstein*	A special gesture of the state to recognize outstanding achievements
		Panel C. States that have not introduced state awards	
Bremen	Na	Na	Na
Hamburg	Na	Na	Na

Table 2. Descriptive Statistics

This table presents in Column 1 descriptive statistics for firms where the CEO was awarded a state order of merit in one of the German federated states: Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thuringen. Column 2 presents descriptive statistics for firms where the CEO was not awarded a state order of merit by any of these states. All firms are head-quartered in one of the six states. *Operating margin* is measured as earnings before interest and taxes over sales; return on assets (*ROA*) is measured as net income over the book value of assets; return on equity (*ROE*) is measured as net income over the book value of equity. The sample runs from 1991 to 2015.

	(1) Awarded	(2) Non-awarded	(3) t-test of difference in means
# CEO awarded	67	0	-
Firm-year observations	132	2,342	-
Operating margin (%)	7.1	6.9	0.68
ROA (%)	1.9	2.4	-0.75
ROE (%)	2.3	1.8	-0.59
# Employees	2,044	831	2.78***
Total assets (mEUR)	863	157	2.97***

Table 3. Effects on Profitability and Employment from State Awards Introduction

This table presents estimates of the change in outcome variables following introduction of state award systems in the German federated states: Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thuringen. *State award indicator* is an indicator that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place. *Operating margin*, *ROA*, and *ROE* are defined as in Table 2. *Employees* and *Size* are measured through the natural logarithm of the number of employees and total assets, respectively. The sample runs from 1991 to 2015. Robust standard errors in parenthesis are clustered by state. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

	(1) Operating margin	(2) ROA	(3) ROE	(4) Employees
State award indicator	-0.012*	-0.002*	-0.005*	0.035**
	(0.005)	(0.001)	(0.002)	(0.011)
Size	-0.004	0.008**	-0.057	0.642***
	(0.003)	(0.003)	(0.067)	(0.050)
Constant	0.052	-0.018	0.017*	-1.007*
	(0.043)	(0.062)	(0.009)	(0.444)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.155	0.167	0.168	0.215

Table 4. Ex ante Effects on Profitability and Employment from a State Award

This table presents estimates of the change in outcome variables prior to the award to a CEO of a state order from one of the following German federated states: Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thuringen. *Ex ante state award indicator* is an award indicator equal to one for firms where the CEO will receive an award. It takes the value of one from the year of the introduction of the state award in the state where the firm is headquartered, up to the year in which the incumbent CEO receives the honour. *State award indicator* is an indicator that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place. *Operating margin*, *ROA*, and *ROE* are defined as in Table 2. *Employees* and *Size* are measured through the natural logarithm of the number of employees and total assets, respectively. The sample runs from 1991 to 2015. Robust standard errors in parenthesis are clustered by state. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

	(1) Operating margin	(2) ROA	(3) ROE	(4) Employees
Ex ante state award indicator	-0.003	0.002	0.004	0.072**
	(0.023)	(0.002)	(0.005)	(0.024)
State award indicator	-0.012*	-0.002*	-0.005*	0.033**
	(0.006)	(0.001)	(0.002)	(0.011)
Size	-0.002	0.008***	-0.032	0.632***
	(0.002)	(0.002)	(0.034)	(0.047)
Constant	0.008	0.002	0.013	-0.970*
	(0.016)	(0.052)	(0.011)	(0.420)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.147	0.150	0.159	0.207

Table 5. Ex post Effects on Profitability and Employment from a State Award

This table presents estimates of the change in outcome variables following the award to a CEO of a state order from one of the following German federated states: Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thuringen. *Ex post state award indicator* is an award indicator equal to one for firms where the CEO has received an award. It takes the value of one from the year after the bestowal of the award up to the year in which the incumbent CEO leaves or the sample period ends. *State award indicator* is an indicator that takes the value of one for each year that the state in which a firm is headquartered has a state award system in place. *Operating margin*, *ROA*, and *ROE* are defined as in Table 2. *Employees* and *Size* are measured through the natural logarithm of the number of employees and total assets, respectively. The sample runs from 1991 to 2015. Robust standard errors in parenthesis are clustered by state. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

	(1) Operating margin	(2) ROA	(3) ROE	(4) Employees
Ex post state award indicator	-0.003	0.006	0.010	-0.012
	(0.004)	(0.005)	(0.011)	(0.015)
State award indicator	-0.011*	-0.002*	-0.004*	0.034**
	(0.005)	(0.001)	(0.002)	(0.011)
Size	-0.002	0.009***	-0.023	0.490***
	(0.002)	(0.002)	(0.041)	(0.051)
Constant	0.008	0.002	0.011	-1.050*
	(0.017)	(0.050)	(0.012)	(0.465)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.123	0.133	0.166	0.203

Table 6. Placebo Tests

Panel A (Panel B) [Panel C] presents placebo estimates of the change in outcome variables obtained in Table 3 (Table 4) [Table 5]. *Placebo state award indicator* equals one for the firms that are headquartered in a state with an award system two years before the actual introduction occurs. *Placebo ex ante state award indicator* is equal to one from two years before the introduction of the state award up to two years before the year in which the incumbent CEO receives the honour. *Placebo ex post state award indicator* equals one for all years that follow two years after the award of a state order to the incumbent CEO. *Operating margin*, *ROA*, and *ROE* are defined as in Table 2. *Employees* and *Size* are measured through the natural logarithm of the number of employees and total assets, respectively. The sample runs from 1991 to 2015. Robust standard errors in parenthesis are clustered by state. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

	(1) Operating margin	(2) ROA	(3) ROE	(4) Employees
	Panel A			
Placebo state award indicator	-0.011	0.002	-0.002	0.017
	(0.009)	(0.003)	(0.002)	(0.023)
Size	-0.005	0.007**	-0.055	0.636***
	(0.006)	(0.003)	(0.070)	(0.060)
Constant	0.050	-0.019	0.016*	-1.000*
	(0.044)	(0.066)	(0.008)	(0.448)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.158	0.166	0.168	0.221
	Panel B			
Placebo ex ante state award indicator	-0.003	0.004	0.004	0.023
	(0.025)	(0.005)	(0.004)	(0.032)
Placebo state award indicator	-0.012	0.002	-0.003	0.017
	(0.010)	(0.003)	(0.003)	(0.022)
Size	-0.002	0.008***	-0.031	0.610***
	(0.002)	(0.002)	(0.038)	(0.089)
Constant	0.008	0.003	0.013	-1.022*
	(0.016)	(0.052)	(0.012)	(0.450)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.152	0.167	0.165	0.216
	Panel C			
Placebo ex post state award indicator	-0.003	0.005	0.009	-0.016
	(0.003)	(0.004)	(0.011)	(0.014)
Placebo state award indicator	-0.011	-0.002	-0.002	0.018
	(0.009)	(0.003)	(0.002)	(0.023)
Size	-0.003	0.010***	-0.028	0.619***
	(0.002)	(0.002)	(0.034)	(0.052)
Constant	0.009	0.004	0.011	-0.998*
	(0.019)	(0.051)	(0.012)	(0.443)
Firm fixed effects	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.150	0.171	0.160	0.218

Table 7. Heterogeneity Across States

This table presents augmented estimates of the change in outcome variables obtained in Tables 3 to 5 where the year fixed effects are replaced by year-state fixed effects. *State award indicator* (*Ex ante state award indicator*) [*Ex post state award indicator*] are defined as in Table 3 (Table 4) [Table 5]. *Operating margin*, *ROA*, and *ROE* are defined as in Table 2. *Employees* and *Size* are measured through the natural logarithm of the number of employees and total assets, respectively. The sample runs from 1991 to 2015. Robust standard errors in parenthesis are clustered by state. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

	(1) Operating margin	(2) ROA	(3) ROE	(4) Employees
	Panel A			
State award indicator	-0.012*	-0.001	-0.004*	0.030**
	(0.006)	(0.001)	(0.002)	(0.010)
Size	-0.004	0.007**	-0.060	0.666***
	(0.004)	(0.003)	(0.060)	(0.052)
Constant	0.050	-0.021	0.022**	-1.000*
	(0.040)	(0.060)	(0.008)	(0.437)
Firm fixed effects	Yes	Yes	Yes	No
Year-state fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.212	0.199	0.201	0.261
	Panel B			
Ex ante state award indicator	-0.002	0.002	0.004	0.069**
	(0.022)	(0.003)	(0.005)	(0.023)
State award indicator	-0.012*	0.000	-0.004*	0.029**
	(0.006)	(0.001)	(0.002)	(0.009)
Size	-0.003	0.007***	-0.030	0.500***
	(0.002)	(0.002)	(0.030)	(0.055)
Constant	0.010	0.002	0.014	-0.997
	(0.014)	(0.050)	(0.010)	(0.601)
Firm fixed effects	Yes	Yes	Yes	No
Year-state fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.208	0.203	0.194	0.266
	Panel C			
Ex post state award indicator	-0.002	0.006	0.011	-0.012
	(0.002)	(0.006)	(0.011)	(0.015)
State award indicator	-0.011*	0.000	-0.005*	0.030**
	(0.006)	(0.000)	(0.002)	(0.010)
Size	0.001	0.008***	-0.022	0.488***
	(0.001)	(0.002)	(0.040)	(0.052)
Constant	0.006	0.002	0.012	-1.001
	(0.010)	(0.048)	(0.012)	(0.755)
Firm fixed effects	Yes	Yes	Yes	No
Year-state fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes
Observations	2,474	2,474	2,474	2,181
R-Squared within	0.205	0.203	0.200	0.259