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Tightening the leash after a threat: A multi-level event study on leadership behavior following the financial crisis

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ABSTRACT

This paper presents the results of a multi-level event study of the effects of the 2008 financial crisis on leadership behavior. Following assumptions from the threat-rigidity hypothesis, we expect that across firms and countries, this crisis led to an increase in directive leadership. In line with this hypothesis, we also anticipate that this change is context-specific. The impact of the 2008 financial crisis on the change in directive leadership is analyzed for over 20,000 managers in 980 organizations across 36 countries. We find that the financial crisis went along with a significant increase in directive leadership, and that this effect was stronger in the manufacturing sector, and in countries with a high degree of power distance. Our results support the threat-rigidity hypothesis, and contribute to leadership research by showing that the context is not only a moderator but actually shapes leadership behavior. This opens up a new avenue of leadership research where context is an antecedent of leadership behavior more generally, and where the methodological set-up allows for causal inference.

Introduction

The financial crisis of 2008 had a strong and immediate impact on firms and households across the world (Reinhart & Rogoff, 2009). Right from the onset of the crisis, abundant research explored the macro-economic causes and consequences of the financial crisis and the subsequent Great Recession (for 'early' crisis predictions or assessments see Acemoglu, 2009; Blanchard, 2009; Rajan, 2005). However, there is still hardly any empirical research exploring what happened *within* organizations as a response to the financial crisis. This is striking, since ultimately the 2008 financial crisis, being the largest global economic shock in the post-WWII period, potentially affected organizations in an unprecedented manner. According to Starkey (2015), this state of affairs reveals that there is a lack of theory on the behavioral effects of large shocks like the financial crisis on organizations (Morgeson, Mitchell, & Liu, 2015; Staw, 2016). We agree and suggest that this conclusion particularly holds for the leadership field as well.

This limited contribution of the leadership field results from the lack of rigorous contextual multi-level approaches (Batistič, Černe, & Vogel, 2017), as well as the lack of studies which test causal relationships (Antonakis, Bendahan, Jacquart, & Lalive, 2014). Concerning the first issue, current leadership research is typically based on micro-psychological theories which are devoid of an organizational or environmental context (Batistič et al., 2017; Dinh et al., 2014; Liden & Antonakis, 2009; Staw, 2016), and consequently the majority of the empirical leadership research is conducted at and restricted to the individual level of analysis (Dionne et al., 2014). Moreover, even though 'contextual leadership' is one of the most trending topics in leadership research according to Oc (2018), one of the major problems is that there seems to be a lack of agreement what constitutes the relevant context for leadership (Ayman & Adams, 2012).

Concerning the issue of establishing causal relationships in leadership research, the typical leadership cross-sectional study design is severely limited in terms of measurement, its static nature and endogeneity threats. In order to have more rigorous research designs, the importance of event-studies has been put to the fore (Hoffman & Lord, 2013) as a potential means to infer causality. Events have been defined in different ways (Morgeson & DeRue, 2006), but in general can be seen as a distinguishable unit of activity, occurring in a specific time and location, having a perceptible beginning and end (Zacks, Tversky, & Iyer, 2001). Research into the effect of events that can be regarded as truly exogenous shocks on leadership is scarce, with some notable exceptions like the study by Jones and Olken (2005) on the unexpected deaths of political leaders while in office and the association with economic growth, or the paper by Bernile, Bhagwat, and Rau (2017) on the intensity of CEOs' early-life exposure to fatal disasters and subsequent corporate risk-taking. In these studies, the exogeneity of the event does allow to infer causality (Antonakis et al., 2014), but, and as

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opposed to our study, the focus is not on leadership behavior.

Therefore, there is a clear need for leadership studies that analyze the impact of an exogenous event on leadership behavior, and that also cover an event which did not only occur within a team or organization but also at more meso- or macro-levels, so as to understand under which conditions leadership behavior is affected by the wider context (Oc, 2018). Our paper takes up these challenges, by studying the effect of the 2008 financial crisis on leadership behavior. Our analysis builds on and extends well-established insights from organization theory on the effects of threats on organizations, namely the threat-rigidity hypothesis (Staw, Sandelands, & Dutton, 1981). According to this hypothesis, organizations react to an external threat (like the financial crisis) with actions that reflect rigidity. Up till now, this theoretical framework has been applied to analyze the consequences of threats on the organizational level and subsequent *organizational* actions (see e.g. Gladstein & Reilly, 1985; Sutton & D'Aunno, 1989). Notwithstanding that Staw et al. (1981) already recognized and discussed the psychological foundations of the threat-rigidity hypothesis by describing the effect of the threat at the individual, team and organizational level, the behavioral and especially the leadership behavior consequences have subsequently been neglected in the empirical testing of this hypothesis.

Although empirical tests of the threat-rigidity hypothesis do not include actual behavior of leaders as a consequence of the threat, the theory itself does describe in more general terms managerial responses (Staw et al., 1981). It suggests that a threat leads to restriction of information processing and constriction of control at multiple levels within organizations. The type of leadership behavior that mirrors such a restriction of control and centralization of decision making has been labeled in leadership literature as 'directive' leadership (see e.g. Kamphuis, Gaillard, & Vogelaar, 2011). This implies that the threat-rigidity hypothesis would suggest that a crisis would lead to an increase in directive leadership behavior, behavior which is aimed at giving clear and detailed directions to followers, structuring tasks and expecting compliance with instructions (see e.g. House, 1971; Kamphuis et al., 2011; Lorinkova, Pearsall, & Sims, 2013; Somech, 2006).

Because the 2008 financial crisis was a world-wide phenomenon, it gives ample opportunities for also exploring meso- and macro-variables that might moderate the relationship between this event and leadership behavior. To select relevant contextual variables for our study, we again build on threat-rigidity literature by including two variables, namely the magnitude of the crisis and power distance. First, we investigate whether the alleged change in leadership behavior will differ depending on the magnitude of the crisis, because it has been argued that the severity of the threat or crisis matters for the organizational impact (Chattopadhyay, Glick, & Huber, 2001; Meyer, Brooks, & Goes, 1990; Wan & Yiu, 2009). If a sector or country is economically hit harder by the crisis, we expect a relatively stronger increase in directive leadership for the respective organizations. Second, we build on the central premise of threat-rigidity literature that the threat causes a tendency towards dominant or well-learned responses (Chattopadhyay et al., 2001; Staw et al., 1981), and such responses following large scale shocks like the crisis are expected to be culturally embedded (Meyer, Mudambi, & Narula, 2011). So even with an identical impact of the crisis, well-known responses or routines might differ across organizations or countries, given that cultural values differ. In a similar vein, we anticipate that individual leaders may differ in the way they behave, given the cultural embeddedness of the organization (House, Hanges, Javidan, Dorfman, & Gupta, 2004; House, Javidan, Hanges, & Dorfman, 2002). More specifically, we expect that in countries that are characterized by a strong focus on hierarchy and respect for authority, that is by a high power distance, directive leadership will be a more dominant response after the crisis, because this behavior is a typical and accepted pattern of leadership (Dickson, Den Hartog, & Mitchelson, 2003).

In order to be able to investigate the effect of the financial crisis on directive leadership behavior, and by also taking the context-dependency of this effect into account, we can make use of a unique longitudinal database that covers the period from 1988 to 2014, containing subordinates that evaluate their manager's behaviors (see Euwema, Wendt, & Van Emmerik, 2007; Van Emmerik, Wendt, & Euwema, 2010). The collection of these data was neither done by the authors of this paper, nor was it designed solely to test the relationship between the 2008 financial crisis and leadership behavior. So in effect, we use this existing dataset to run a natural experiment, with a 'one group before and after' design (Meyer, 1995). Using a selection of this database covering over 20,000 managers working in 980 organizations across 36 different countries, we compare directive leadership behavior before and after the onset of the 2008 financial crisis. We thus set up a multilevel model that incorporates three levels of information: the individual manager, the organization level, and the country level.

By executing this large-scale, multi-level event study, our paper makes the following three contributions to leadership and management research. First, via our multi-level approach, we show not only how the 2008 financial crisis had an impact at the micro-level of leadership behavior within organizations, but also how this relationship is moderated by meso- and macro-level variables founded in the threat-rigidity hypothesis (Staw et al., 1981). Moreover, we also show that an event like the financial crisis in itself is a contextual variable, that shapes leadership behavior. By tackling the issue of context in such a rigorous way, our study contributes to the aforementioned limitation in leadership research, and to bridging the micro-macro divide in management studies more generally (Aguinis, Boyd, Pierce, & Short, 2011). Second, to the best of our knowledge we are the first to systematically investigate effects of a global 'threat' like the 2008 financial crisis on actual leadership behavior. By doing so, we address the causality-issue plaguing leadership research. Finally, our study empirically contributes to threat-rigidity literature (Staw et al., 1981) by adding an explicit leadership behavioral perspective (see also Muurlink, Wilkinson, Peetz, & Townsend, 2012). In this respect, we take up the challenge formulated by Morgeson et al. (2015) and notably also Staw (2016) for organization theory and research to address the question how external events shape individual behavior (see also Dinh et al., 2014).

Theory and hypotheses

The threat-rigidity hypothesis: the financial crisis as a control-reducing threat

According to the threat-rigidity hypothesis, an external shock like the 2008 global financial crisis would imply that organizations at all levels, including the management of the organization, will exercise more control, and will put a greater weight on (internal) efficiency and procedures (Staw et al., 1981; see also Gladstein & Reilly, 1985). This relationship is modelled via three organizational actions, namely restriction in information, constriction of control, and conservation of resources, in an attempt to respond to threats in domains over which there is greater organizational control (Staw et al., 1981; Sutton & D'Aunno, 1989). Basically, the threat-rigidity hypothesis argues for a directive response by organizations as a reaction to a crisis.

Although such a directive response to a threat intuitively seems likely, it has been disputed by prospect theory (Kahneman & Tversky, 1979). Prospect theory basically argues that a crisis stimulates more risk taking and more innovative behavior (Latham & Braun, 2009; McKinley, Latham, & Braun, 2014). Specifically for the 2008 financial crisis, Aghion, Bloom, Lucking, Sadun, and Reenen (2016) find that organizations that were hit more by crisis indeed responded with more decentralization. Although decentralization is an organizational and not a behavioral response, this study seems to hint at an opposite response compared to the prediction of the threat-rigidity hypothesis.

Although seemingly opposing perspectives, Chattopadhyay et al. (2001) offer an integrated model where both the threat-rigidity and the prospect approach are combined. In Chattopadhyay et al.'s (2001)

model, the two theories differ in terms of the nature of the threat. In this respect, threat-rigidity and prospect theory are not at odds, but reflect different types of organizational threats. In prospect theory, the threat relates to the (probabilistic) loss of resources, which can be defined as a situation where a choice is possible between objective risky, but well specified objectives. On the other hand, in threat-rigidity literature (Staw et al., 1981) the threat is related to a loss of control by the organization that cannot be stated in probabilistic terms. This reduction of control takes place in an environment that is not so much merely risky, but prone to outright fundamental uncertainty as a result of unique unprecedented external shocks.

Chattopadhyay et al. (2001) show that a 'threat of a likely loss' leads an organization to pursue externally directed actions. The threat coined as a 'control-reducing threat', however, goes along with internally directed actions, like changes in internal control and communication systems, or changes in the responsibilities and resources at various levels in the organization. With such a control-reducing threat, these internal changes are a means for the organization's management to maintain in control and hence to reduce the threat by tightening their grip on the organization. Based on this categorization, the global 2008 financial crisis must be regarded as a prime example of a 'control-reducing threat' for the following reasons.

The 2008 financial crisis was both unprecedented and unexpected (Pain & Lewis, 2014). It was unprecedented because it was the largest global economic shock since the Great Depression of the 1930s (Eichengreen & O'Rourke, 2012). It was also unexpected, as almost all macro-economic policy makers predicted positive economic growth rates for all major economies in 2008 and 2009, right until the fall of Lehman brothers in September 2008 (Wieland & Wolters, 2012). Both the uniqueness and the unexpectedness together with the impact of the crisis make it a prime example of a control-reducing threat and therefore, following Chattopadhyay et al. (2001) would lead to actions as proposed by the threat-rigidity hypothesis.

Although the threat-rigidity hypothesis focuses mainly on organizational actions (or so-called 'macro-organizational behavior' according to Staw et al. (1981), p. 519), findings from leadership literature would suggest that such threats would also strongly affect behaviors of leaders in the organization. More specifically, such threats have been linked to the concept of 'directive' or 'autocratic' leadership behavior (Yukl, 2012). Directive leadership can be defined as the extent to which the leader makes all the decisions concerning group activities, and expects subordinates simply to follow instructions. Directive leaders focus on maximizing employees' performance by setting clear goals (House, 1971; Somech, 2006) and by closely supervising and monitoring the pursuit of these goals (Martin, Liao, & Campbell, 2013). Directive leadership behavior is also associated with the leader being a centralized hub of information sharing in a group, dominating discussions and interactions (Cruz, Henningsen, & Smith, 1999).

A number of empirical psychological studies investigated (parts of) the relationship between threats and directive leadership. Negative financial performance of organizations has been shown to affect the extent to which CEOs engage in directive behaviors or use punishments (Scully, Sims Jr, Olian, Schnell, & Smith, 1994). At a team level, a crisis indeed is associated with more directive leadership behavior (Kamphuis et al., 2011; Mulder, Ritsema van Eck, & De Jong, 1971), and such crises lead to a stronger support from subordinates for directive leadership (Mulder & Stemerding, 1963; Rast, Hogg, & Giessner, 2013). Moreover, it was shown that a crisis leads to restriction in information processing in groups, and that directive leadership is effective in these type of situations because it sets clear and specific rules for behaviors of employees (Yun, Faraj, & Sims, 2005).

Typically, these studies only investigate the relationship between a threat or crisis and directive leadership at the individual level of the leader and his/her team, and do not include the wider organizational context, which clearly differentiate these studies from our work and do as such not address the call for more context-dependent leadership research (Batistič et al., 2017; Dinh et al., 2014; Liden & Antonakis, 2009; Staw, 2016). To summarize, and building upon the threat-rigidity hypothesis and findings from leadership research, we propose as hypothesis 1:

Hypothesis 1. The 2008 financial crisis led to an increase in directive leadership.

As a robustness test of our hypothesis 1, we will investigate two additional relationships. First, in line with the idea that the crisis can be regarded as a control-reducing threat, an increase in directive leadership could just as well lead to a change in participative leadership, a leadership style which can be defined as delegation of responsibilities and shared influence in decision making (e.g. Somech, 2005, 2006). This would certainly be the case if directive and participative leadership are the opposite ends of a single continuum, and thus perfectly negatively correlated. However, although indeed the two styles often are significantly negatively correlated, research shows that both styles have distinct effects, and can very well be used by leaders at the same time (Somech, 2005). Following this line of reasoning, and thus to strengthen our argument to classify the crisis as control-reducing threat, we will also test whether the 2008 financial crisis had an effect on participative leadership. Support for the threat-rigidity hypothesis would then not only be found in an increase in directive leadership, but also in the absence of an increase, or maybe even a significant decrease, in participative leadership.

Second, as a way to additionally investigate our hypothesis 1, we will check for the persistence of the hypothesized increase in directive leadership. No matter how large a threat may be to organizations and managers, they are typically temporary and the 2008 financial crisis is no exception. As Eichengreen and O'Rourke (2012) clearly show, the expectation at the onset of the crisis in 2008 was that the financial crisis and its impact on the real economy could be as severe as the Great Depression of the 1930s. By the end of 2009, it had, however, become clear that despite the fact that the financial crisis had led to an economic recession in almost all countries, the crisis would not lead to a full-blown economic depression and by 2010 the first signs of a (policy induced) recovery of the global economy were to be seen (Almunia, Benetrix, Eichengreen, O'Rourke, & Rua, 2010). This line of reasoning implies that the threat of the 2008 financial crisis may have been relatively strongest in 2009, which suggests that the impact on directive leadership to be most discernible then as well. In line with what is generally found for the behavioral responses over time (Reinhart & Rogoff, 2009), we will test for the persistency of the impact of the 2008 crisis on directive leadership.

The magnitude of the 2008 financial crisis

As Chattopadhyay et al. (2001, p. 951) already suggested, but did not test themselves in their empirical analysis of the threat-rigidity hypothesis, threats vary in their magnitude. This assumption is backed up by research showing that different degrees of loss or threat relate to different organizational reactions (Shimizu, 2007). For a crisis like the 2008 financial crisis, abundant literature in economics shows that the magnitude of a crisis indeed affects organizational actions and performance (Caballero & Hammour, 1994). Undeniably, the initial real impact of the 2008 financial crisis on organizations was not evenly spread across sectors and countries, which means that the magnitude of the threat differs across organizations depending to which sector or country they belong to.

When it comes to the sectoral level, it is well-documented that the 2008 financial crisis led to an unprecedented collapse of international trade (Eichengreen & O'Rourke, 2012; Van Marrewijk, 2012). Consequently, this collapse of international trade was particularly felt in the manufacturing sector where, in the global value chain of industrial production, changes in final demand are magnified in the upstream industrial production process (Alessandria, Kaboski, & Midrigan, 2011;

Boute, Noblesse, & Lambrecht, 2011). Therefore, we propose the magnitude of the 2008 financial crisis to be stronger for manufacturing firms, thereby leading to a more pronounced increase in directive leadership, following the argument that more severe threats imply stronger organizational actions.

Similarly, we argue that the 2008 financial crisis did hit the financial sector more than other sectors. Many banks and other financial institutions did fail or were on the brink of doing so in late 2008 (Acemoglu, 2009; Kay, 2015). The control-reducing threat was very substantial at the outbreak of the 2008 financial crisis and this threat could lead managers in financial organizations that are particularly prone to turn towards more directive leadership behavior. Therefore we formulate:

Hypothesis 2a. The manufacturing sector moderates the relationship between the 2008 financial crisis and directive leadership in such a way that this positive relationship is stronger for organizations in the manufacturing sector.

Hypothesis 2b. The financial sector moderates the relationship between the 2008 financial crisis and directive leadership in such a way that this positive relationship is stronger for organizations in the financial sector.

At the country level, the downfall of international trade contributed not only directly to a severe, but also to a country-specific contraction of GDP in 2009, such that the magnitude of the 2008 financial crisis not only differs between sectors but also across countries in terms of the macro-economic impact of the crisis (Laeven & Valencia, 2012; Reinhart & Rogoff, 2011). Here too, a stronger macro-economic impact would enlarge the magnitude of the threat for the individual organizations and managers. Organizations and their managers for which the negative national macro-economic impact was stronger, are thus hypothesized to show a larger increase in directive leadership behavior:

Hypothesis 2c. The macro-economic impact of the crisis moderates the relationship between the 2008 financial crisis and directive leadership. The crisis will have a stronger positive effect on directive leadership under conditions of high macro-economic impact than under conditions of low macro-economic impact.

As with hypothesis 1, we will also investigate whether the 2008 financial crisis did not lead to an increase in participative leadership, where we take the sector and the macro-economic impact as moderators.

The crisis and the use of dominant routines

A main premise of the threat-rigidity hypothesis (Staw et al., 1981) is that the effect of the threat results in the use of rigid, well-learned or dominant organizational actions. This assumption has been tested in the work of Chattopadhyay et al. (2001), which shows that organizations respond to such threats by using well-known routines or actions with which they are more familiar, and over which they exercise greater control. Well-known routines are self-reinforcing, because people respond to a threat by relying on and using learned patterns of response, instead of trying to find new ways to act (Gilbert, 2005).

In terms of leadership behavior, this finding implies that the type of leadership that is learned and typical to begin with, will be strengthened as an effect of the crisis (Dickson et al., 2003). This notion raises the issue what makes leadership behavior typical or learned in a given context. There is a well-established literature that shows that cultural values are a key determinant of the context in which leadership is executed: building on the seminal work of Hofstede (2001) and the GLOBE studies (House et al., 2004), it can be concluded that leadership behavior such as the use of directive leadership, is affected by the broader societal cultural values in which organizations are embedded (Aktas, Gelfand, & Hanges, 2016).

Notwithstanding the current discussion in the international business literature on the relevance and measurement of culture (Beugelsdijk, Kostova, & Roth, 2016), cultural frameworks such as the models by Hofstede and GLOBE are considered to be useful as a benchmark to investigate dimensions that determine the cultural make-up of a country. Within these frameworks the concept of 'power distance' is theoretically most directly related to leadership behavior (Dickson et al., 2003; Kirkman, Chen, Farh, Chen, & Lowe, 2009). Power distance refers to the way in which in general social relationships in a society are perceived to be hierarchical and unequal (Hofstede, 1980; House et al., 2002; House et al., 2004), which also applies to the specific relationship between superiors and subordinates (Hofstede, 1980, 1991). It has aptly been defined by Carl, Gupta and Javidan (2004, p. 513) as: "the degree to which a community accepts and endorses authority, power differences, and status privileges". In a similar vein, Schwartz (1992, 1994) referred to high power distance as 'hierarchy' and low power distance as 'egalitarianism'. In this definition, the term hierarchy is used to describe the acceptance of power differences between people, like in our case managers and subordinates, and consequently the willingness of subordinates to comply with the directions of those managers.

Several studies show that power distance impacts on leadership behavior, both at an individual level (Kirkman et al., 2009) and at a team level (Schaubroeck, Lam, & Cha, 2007). Followers with a high power distance orientation are more open to top-down directive leadership from their leader (Javidan, Dorfman, de Luque, & House, 2006). Moreover, subordinates in high power distance cultures expect managers to lead in a directive way, and resist behaviors that grant them more autonomy and responsibility (Kirkman & Shapiro, 1997), as opposed to subordinates with low power distance orientation who prefer and expect participative leadership (Helpap, 2016). At the country-level, power distance has been shown to relate to leadership behavior closely linked to directive leadership (Jackson, Meyer, & Wang, 2013). Reversely, in countries with low power distance there is a positive association with participative leadership (Dickson et al., 2003, p. 738).

Concluding, based on the hypothesized routine actions in the threat-rigidity hypothesis (Staw et al., 1981), we expect directive leadership to be the dominant, routine leadership behavior to respond to a crisis in a high power distance context. Therefore, we expect the effect of the 2008 financial crisis on directive leadership behavior to be stronger in societies in which organizations are embedded in a high power distance. This line of reasoning leads us to formulate hypothesis 3:

Hypothesis 3. Power-distance moderates the relationship between the 2008 financial crisis and directive leadership. The crisis will have a stronger positive effect on directive leadership under conditions of high power distance than under conditions of low power distance.

In line with the testing of our previous hypotheses, we will also investigate whether the 2008 financial crisis did not lead to an increase in participative leadership dependent upon the power distance in a country.

Method

Sample and procedure

To test our hypotheses, we could make use of a unique data set collected by a worldwide operating consulting firm (Korn Ferry Hay Group, KFHG).[1] From the original dataset (1988–2014), we took the subsample of organizations that were present in the years 2007 and/or 2009, so in effect we have a 'one group before and after'-design (Meyer, 1995). This sample contains data of managers and their subordinates

[1] Requests with respect to the use of the dataset can be made to the authors, who will inform the Korn Ferry Hay Group about this request.

within 980 organizations across the world for a wide range of sectors, both public and private. More precisely, we have 405 unique organizations and 575 organizations that are a (foreign) subsidiary of one of these 405 organizations, implying that we count subsidiaries as separate organizations.

The data collection was part of the assessment that took place before management training programs by KFHG within each of the participating organizations, and this process guaranteed a response rate of approximately 100% (see Euwema et al., 2007). Data on leadership behaviors were collected both from managers and their subordinates. We only use the subordinate ratings of leadership behavior, because it is well known that the use of self-ratings of leadership is problematic (Harris & Schaubroeck, 1988; for an overview see Fleenor, Smither, Atwater, Braddy, & Sturm, 2010).

In cross-cultural studies, language issues can be a concern. Therefore, all items were translated from English to the language of the participating countries by native speakers, using the so-called application mode of translation (Van de Vijver & Tanzer, 2004; see also Euwema et al., 2007). Using this method, one assumes that the underlying construct is suitable for all cultural groups and that a simple translation is sufficient to arrive at an instrument that measures the same construct. The translators of KFHG were trained in the concepts and were familiar with the societies' culture, which strongly improve the chance that their translations do represent the construct measured (Van Emmerik et al., 2010).

In combining this data set with other country level data (on culture and macro-economic impact of the crisis), we are able to estimate a multilevel model that addresses the challenge of combining predictor variables that span from the individual manager to the country level. For our study we include all countries that contained data for at least 50 managers, and all organizations that were categorized within an industry, e.g., finance or manufacturing. The baseline sample used is made up of > 20,000 managers working in 980 organizations in 36 different countries (see Appendix A). For this sample, we thus both have variation between 2007 and 2009 in terms of the number of organizations and managers.

A second strategy to test our hypotheses is to select a sub-sample of organizations from the group of 980 organizations. This sub-sample contains only those organizations that are present in the data in 2007 as well as in 2009, leading to 114 organization and 12,000 managers. We will thus use both the 980 sample as well as the 114 sample to test our hypotheses.

Measures

Directive leadership

The dependent variable is the managers' score on *directive leadership* behavior. Following Euwema et al. (2007), directive leadership was measured with 5 items ($\alpha = 0.76$, see Appendix B for the full list of the items). All items used Likert-type scales, with answers ranging from 1 (non-directive) to 6 (very directive), with alternative answers on the extreme poles. The scores of on average five subordinates were aggregated. We examined the justification for aggregating subordinates' responses by calculating the ICC (1) value, which was 0.36 (SE 0.001) and can be considered as adequate (James, 1982; see Chen, Lam, Naumann, & Schaubroeck, 2005).

Participative leadership

The items in the questionnaire were specifically developed by the consultancy firm (see Euwema et al., 2007), so therefore they do not directly align with existing scales for participative leadership but are comparable to items used in de Poel, Stoker, and Van der Zee (2014). The set-up of the participative leadership scale was comparable to the directive leadership scale ranging from 1 to 6, and consists of 5 items ($\alpha = 0.65$, see Appendix B for the full list of items). Again, the scores of on average five subordinates were aggregated (ICC = 0.23, SE 0.001).

Crisis

To estimate the effect that the financial crisis of 2008 had on the dependent variable, we created a dummy (*Crisis*) that takes the value of 0 in 2007 and the value of 1 in 2009. This way we can estimate the difference in the average directive leadership score (or participative leadership score) in the manager population before and after the crisis.

Magnitude of the crisis

To test for the magnitude of the crisis, we include two variables in our model. First, to test whether the sector moderated the effect of the 2008 crisis on directive leadership (hypotheses 2a and 2b), we create two dummy variables that code whether organizations belong to the manufacturing or the financial sector. Second, we measure the macro-economic impact of the 2008 financial crisis. A problem with using such a macro variable is that almost all 36 countries in our sample experienced a banking and/or stock market crisis in 2008. To ensure enough between-country variation we will therefore use the change in GDP growth from 2008 to 2009 instead. This approach captures the between-country variation in the initial recessionary impact of the crisis, labeled as 'GDP growth gap'.

Power distance

To measure power distance, we use the scores of Hofstede's cultural dimensions for each country (Hofstede, 2001; Hofstede & McCrae, 2004) as this operationalization of culture is still the yardstick measure for power distance despite its limitations (Kirkman, Lowe, & Gibson, 2017). On a scale from 1 to 100, this indicator measures the degree of (in)equality between people within each country's society. High values indicate that in a society people are very deferential to figures of authority and generally accept an unequal distribution of power.

Control variables

Considering that the sample largely consists of different managers in 2007 and 2009, we need to ensure that any difference in directive leadership is due to the effect of the crisis and not due to a systematic change because of sampling. For this reason we include a number of variables in order to control for individual differences between managers and to be able to generalize the results. These variables are gender, age, tenure, nativeness and education, because previous research has shown that these variables are related to directive leadership. Note that we do not have this type of information for the subordinates of the managers, as this information was not included in the data set.

Concerning the relationship between gender and directive leadership, the results are mixed. A meta-study done by Eagly and Johnson (1990) shows that on average, female leaders tended to show less autocratic or directive leadership behavior than did men. In a more recent meta-analysis (Eagly, Johannessen-Schmidt, & Van Engen, 2003), results show that on average female leaders score higher on active leadership behaviors such as transformational leadership, but also such as contingent reward, which can be seen as a form of directive or task-oriented behavior. In contrast, male leaders scored higher on the more passive leadership behaviors (like laissez-faire leadership). In a similar vein, Van Emmerik et al. (2010) show that female leaders execute more considerate ánd more directive leadership behaviors than men do.

The studies of Eagly et al. (2003) and Van Emmerik et al. (2010) seem to indicate that female leaders in general show stronger leadership behaviors than men. An explanation for this finding is given by Eagly et al. (2003), who claim that because women face discrimination in attaining leadership positions, those female leaders who actually obtain a leadership position have to be more competent then men and therefore show more active leadership behaviors like directive and participative leadership.

Research on the role of leaders' age for leadership behavior is rather scarce (Walter & Scheibe, 2013). Although theorists have proposed age-

related effects in leaders' behaviors (Hambrick & Mason, 1984), most empirical studies find no significant relationship for directive leadership with age (Walter & Scheibe, 2013). A notable exception is the work of Oshagbemi (2008), which shows that older leaders use less directive leadership. In terms of nativeness, there is some evidence showing that non-native leaders show more active leadership behaviors than native managers (Bealer & Bhanugopan, 2014). Finally, we control for leader educational level, as research demonstrates that higher educated leaders show less directive leadership behaviors (Van Emmerik et al., 2010).

When it comes to the operationalization of these control variables, we measure managers' *gender* by including a dummy that equals 0 for male managers and 1 for female managers. We also include a dummy that codes whether the manager is a *non-native* (coded 0) or *native* (coded 1) of the country in which the organization resides. The *age* of managers is measured by their date of birth. In addition, we also control for the managers' *tenure* at the organization given that the two variables are highly correlated. Finally, we include a measure of the managers' *educational level*. The variable is a five level factor meaning 1: 'No secondary school', 2: 'Secondary school graduate', 3: 'College level education without degree', 4: 'University graduate (first degree)', and 5: 'Advanced degree'.

Analysis

To test our hypotheses, we set up a multilevel linear model that incorporates three levels of information. Level 1 includes variables pertaining to the individual managers as well as the time indicator *Crisis* that takes the value 0 in 2007 and 1 in 2009:

Level 1:

$$\text{Directive}_{ijk} = b_{0j|k} + b_{1j|k}\text{Crisis} + \beta_2\,\text{Age}_{ijk} + \beta_3\,\text{Tenure}_{ijk} + \beta_4\text{Native}_{ijk} + \beta_5\,\text{Female}_{ijk} + \varepsilon_{ijk}$$

This equation implies that the directive leadership score for manager *i,* in organization *j,* located in country *k,* is a linear combination of *Crisis* and the control variables. In addition, the unobserved regression coefficients of organization specific intercept and *Crisis* slope ($b_{0j|k}$ and $b_{1j|k}$, respectively) depend on other fixed and random effects, as shown in the Level 2 model below:

Level 2:

$$b_{0j|k} = b_{0k} + \beta_6\,\text{Industry}_{jk} + u_{0j|k}$$

$$b_{1j|k} = b_{1k} + \beta_8\,\text{Industry}_{jk} + u_{1j|k}$$

The Level 2 model implies that the organization *j* specific intercept in country *k* ($b_{0j|k}$) depends on the intercept specific to country *k* (b_{0k}), an organization specific covariate that codes whether the industry the organization belongs to is either the Manufacturing Sector or the Financial Sector and a random effect associated with that organization ($u_{0j|k}$). The organization specific slope effect, again, depends on a country specific crisis effect, the industry dummy and a random effect for the organization specific slope.

Level 3:

$$b_{0k} = \beta_0 + \beta_7\,\text{Country}_k + u_{0k}$$

$$b_{1k} = \beta_1 + \beta_9\,\text{Country}_k$$

Level 3 implies that the country specific slope effect depends on the overall mean and the country score as well as a country random effect. *Country* is operationalized as either the score on power distance or the GDP growth gap. Similarly, the random slope effect at the country level depends on the overall crisis effect and country level covariate. We do not include a random country slope effect due to the (statistical) rejection of such an inclusion. An alternative way for testing whether differences in the slope are present is by the inclusion of cross-level interactions (cf. LaHuis & Ferguson, 2009).

Substituting Level 3 into Level 2 and this substitution in turn into Level 1, gives us the multilevel model to be estimated:

$$\begin{aligned}\text{Directive}_{ijk} = {} & \beta_0 + \beta_1\text{Crisis} + \beta_2\,\text{Age}_{ijk} + \beta_3\text{Tenure}_{ijk} + \beta_4\text{Native}_{ijk} \\ & + \beta_5\text{Female}_{ijk} + \beta_6\text{Industry}_{jk} + \beta_7\text{Country}_k \\ & + \beta_8\text{Industry}_{jk}{}^{*}\text{Crisis} + \beta_9\text{Country}_k{}^{*}\text{Crisis} + u_{0j|k} \\ & + u_{1j|k}{}^{*}\text{Crisis} + u_{0k} + \varepsilon_{ijk}\end{aligned}$$

Table 1
Descriptive statistics.

	N	Mean	St. Dev.	Min.	Max.
Crisis	26,480	0.433	0.496	0	1
Directive leadership	26,478	3.166	0.685	1	6
Participative leadership	26,474	4.234	0.610	1	6
Female	26,310	0.275	0.446	0	1
Native	25,551	0.866	0.341	0	1
Age	21,760	42.329	7.652	24	71
Tenure	24,417	10.801	8.512	0	54
High school graduate	24,536	0.108	0.310	0	1
University graduate	24,536	0.446	0.497	0	1
Advanced degree	24,536	0.435	0.496	0	1
Financial sector	26,480	0.127	0.333	0	1
Manufacturing	26,480	0.176	0.381	0	1
GDP growth gap	22,570	−3.129	2.355	−14.170	4.589
Power distance	25,842	50.633	19.399	13	100
Crisis ∗ financial sector	26,480	0.065	0.247	0	1
Crisis ∗ manufacturing	26,480	0.058	0.234	0	1
Crisis ∗ GDP growth gap	22,570	−1.338	2.188	−14.170	4.589
Crisis ∗ power distance[a]	25,842	0.034	0.637	0	2.545

[a] Note that the interaction-scores are based on the normalized scores for power distance.

Results

We first present descriptive statistics for all variables in Table 1. *N* refers to the number of managers from the 980 organizations that are in the 2007 or the 2009 sample. As can be seen in Table 1, the average for the crisis dummy is about 0.44, meaning that the number of managers before and after the crisis is roughly the same (note that the number of managers that were rated may differ per organization in 2007 and 2009).

Table 1 shows that the average score on directive leadership behavior was 3.19 for the full sample: the average score for 2007 was 3.15 and for 2009 was 3.24. Also note that managers are predominantly male (73%) and native (87%), with an average age of 42 years and an average tenure of 11 years. When it comes to the sectoral distribution, 17% and 12% of the organizations belong to the manufacturing and financial sector respectively. Almost every manager belongs to an organization that is located in a country that saw considerable lower GDP growth in 2009 when compared to 2008 (a mean negative GDP growth gap of > 3%); only managers working in organizations located in India or New-Zealand experienced a positive GDP growth gap.

Table 2 shows correlations among the variables used in our analysis. As expected, most of our control variables are correlated with directive and participative leadership. Note that we do not report significance because the correlation table includes different level variables.

Hypotheses 1–3 testing for the sample of 980 organizations

Results of the regression analysis are depicted in Table 3. For the regression analysis in Table 3 we used a Mundlak-type specification to deal with the issue of fixed vs random effects. In this approach a random-effects model is estimated by adding group-means of variables for the independent variables which vary within groups (Mundlak,

Table 2
Correlations.

	Age	Tenure	Female	Native	High school graduate	University degree	Advanced degree	Manufacturing	Financial sector	Power distance
Age	1									
Tenure	0.456	1								
Female	−0.062	−0.049	1							
Native	−0.005	0.063	0.023	1						
High school graduate	0.024	0.046	0.010	0.011	1					
University degree	−0.061	0.037	0.017	0.050	−0.069	1				
Advanced degree	0.013	−0.113	−0.030	−0.082	−0.069	−0.809	1			
Manufacturing	−0.022	0.008	−0.129	−0.047	0.017	−0.026	−0.004	1		
Financial sector	−0.020	0.097	0.032	0.025	−0.017	−0.004	0.028	−0.198	1	
Power distance	−0.060	0.018	−0.096	0.105	−0.017	−0.001	0.085	0.006	0.152	1
Growth gap	−0.014	−0.066	−0.018	−0.024	0.013	−0.049	0.059	0.047	0.010	−0.111
Crisis	0.019	0.018	0.023	0.023	−0.031	−0.062	0.084	−0.031	0.095	0.051
Directive leadership	−0.086	−0.027	0.009	0.038	0.018	0.008	−0.035	0.018	0.027	0.344
Participative leadership	0.046	0.040	0.060	0.010	−0.007	0.009	0.003	−0.023	0.025	−0.096
Crisis ∗ power distance	−0.014	0.054	−0.069	0.096	−0.011	−0.029	0.098	0.016	0.144	0.622
Crisis ∗ financial sector	−0.015	0.068	0.029	0.030	−0.012	−0.027	0.052	−0.138	0.696	0.128
Crisis ∗ manufacturing	−0.031	−0.024	−0.068	−0.021	0.004	−0.040	0.021	0.586	−0.116	0.034
Crisis ∗ growth gap	−0.027	−0.069	−0.024	−0.033	0.027	0.031	−0.045	0.011	−0.050	−0.078

	Growth Gap	Crisis	Directive leadership	Participative leadership	Crisis ∗ power distance	Crisis ∗ financial sector	Crisis ∗ manufacturing
Age							
Tenure							
Female							
Native							
High school graduate							
University degree							
Advanced degree							
Manufacturing							
Financial sector							
Power distance							
Growth gap	1						
Crisis	−0.059	1					
Directive leadership	−0.062	0.042	1				
Participative leadership	0.008	−0.006	−0.357	1			
Crisis ∗ power distance	−0.066	0.108	0.243	−0.065	1		
Crisis ∗ financial sector	0.010	0.355	0.030	0.003	0.215	1	
Crisis ∗ manufacturing	−0.037	0.314	0.069	−0.022	0.062	−0.081	1
Crisis ∗ growth gap	0.428	−0.779	−0.051	0.004	−0.146	−0.245	−0.263

1978). We use the Mundlak approach in all our regressions. For the sake of brevity, we not report the Mundlak cluster means in our tables but they are available upon request.

In column (1) we investigate whether directive leadership varies significantly across the different levels of analysis by means of an intercept-only model. Based on these results, the estimated covariance parameters (0.28 at the individual level, 0.026 at the firm level and 0.05 at the country level) are such that we conclude that though the main portion of the variance is at the individual level (≈77%) there is significant variation between organizations (≈7.3%) and countries (≈15.3%). This result supports the multilevel approach of this study as it corrects for the correlation between managers in a certain organization and country while allowing for the inclusion of variables (and interactions) at varying levels.

Column (2) in Table 3 introduces the control variables along with the *Crisis* variable that tests the effect of the 2008 crisis. In addition, we include a random *Crisis* slope at the organizational level. *Crisis* is highly significant and positive (β = 0.043, SE = 0.01, 95%C.I. = 0.01–0.075) lending support to our hypothesis 1, namely that the 2008 financial crisis led to an increase in directive leadership.

Apart from its statistical significance, it is noteworthy that the average change in directive leadership from 2007 to 2009 is 0.040, which is significantly higher than the year-on-year changes that we observe for the period 2005–2014, namely 0.014 (note that although the sample contains observations since 1988, we take 2005 as the first year for this analysis, because the dataset in the years prior to 2005 is substantially smaller and more erratic). We applied the Equivalence test (Lakens, 2017) with a Cohen's d = 0.8, indicating a large effect, and we reject equivalence to the value of 0.014. This means that the effect of the crisis was significantly different than what was previously observed.

The confirmation of hypothesis 1 holds when controlling for several other co-variates that might affect directive leadership. In particular, and in line with earlier findings (Van Emmerik et al., 2010), the average female manager is rated as more directive by her subordinates than the average male manager. Moreover, native managers are rated as less directive than non-native managers. Finally, our results in column (2) show that the perceived directive leadership behavior of the manager decreases with a manager's age and level of education.

In columns (3) and (4) we add the magnitude of the crisis via the manufacturing sector dummy and the financial sector dummy respectively, as well as its interactions with the *Crisis* variable. The interaction term for the manufacturing sector is highly significant and has the expected sign. Other things equal, managers working for a manufacturing firm where rated as significantly more directive after the crisis (β = 0.086, SE = 0.01, 95%C.I. = 0.02–0.152) than managers in other sectors. This finding lends support to our hypothesis 2a. The results in column (4) show that for the financial sector there is no such impact of the crisis on directive leadership, suggesting that the magnitude was not large enough to warrant an additional effect of the 2008 financial crisis in this sector, so hypothesis 2b is not confirmed.

Column (5) captures the magnitude of the crisis by using the 'GDP growth gap' variable, and interacts this variable again with the *Crisis* variable. Results show that the interaction-variable is marginally significant (at the 10% level) (β = 0.011, SE = 0.09,

Table 3
Results of the regression analysis for directive leadership (980 organizations).

	Dependent variable: directive leadership						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crisis		0.043**	0.020	0.043**	0.084***	0.042**	0.067**
		(0.017)	(0.017)	(0.017)	(0.028)	(0.017)	(0.030)
Female		0.101***	0.101***	0.101***	0.098***	0.097***	0.097***
		(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)
Native		−0.039***	−0.039***	−0.039***	−0.040***	−0.044***	−0.044***
		(0.014)	(0.014)	(0.014)	(0.015)	(0.015)	(0.015)
Age		−0.004***	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tenure		−0.001	−0.001	−0.001	−0.001	−0.001*	−0.001*
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
High school graduate		0.003	0.001	0.003	−0.026	0.004	−0.025
		(0.061)	(0.061)	(0.061)	(0.062)	(0.061)	(0.062)
University graduate		−0.159***	−0.160***	−0.159***	−0.182***	−0.161***	−0.186***
		(0.061)	(0.061)	(0.061)	(0.061)	(0.060)	(0.061)
Advanced degree		−0.221***	−0.222***	−0.221***	−0.233***	−0.223***	−0.235***
		(0.061)	(0.061)	(0.061)	(0.061)	(0.061)	(0.061)
Manufacturing			−0.010				−0.002
			(0.031)				(0.034)
Financial sector				0.004			0.024
				(0.035)			(0.039)
Growth gap					−0.013		−0.010
					(0.011)		(0.010)
Power distance						0.089**	0.067
						(0.041)	(0.041)
Crisis * manufacturing			0.086**				0.073**
			(0.034)				(0.037)
Crisis * financial sector				−0.006			−0.005
				(0.040)			(0.043)
Crisis * growth gap					0.011*		0.013**
					(0.006)		(0.006)
Crisis * power distance						0.039***	0.036**
						(0.014)	(0.015)
Constant	3.292***	4.415***	4.408***	4.413***	4.835***	4.605***	5.387***
	(0.040)	(1.406)	(1.399)	(1.405)	(1.443)	(1.348)	(1.327)
Observations	26,478	20,743	20,743	20,743	17,459	20,141	17,257
Log likelihood	−24,680	−19,137	−19,133	−19,137	−16,029	−18,520	−15,839
Akaike Inf. Crit.	49,368	38,334	38,331	38,338	32,122	37,104	31,754
Bayesian Inf. Crit.	49,401	38,573	38,585	38,592	32,370	37,357	32,049

Note: Standard Errors in parentheses; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. All estimations were performed in the R language (R Core Team, 2015) using packages NLME (Pinheiro, Bates, DebRoy, Sarkar, & Core Team, 2015) and STARGAZER (Hlavac, 2015), with cluster means included – not reported (Mundlak, 1978).

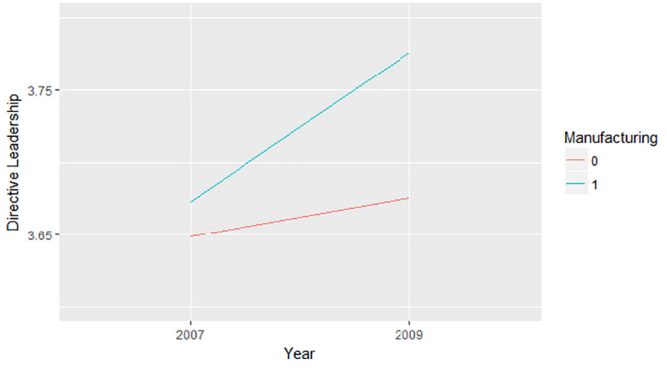

Fig. 1. Relationship between the 2008 financial crisis and directive leadership for non-manufacturing (0) and manufacturing firms (1).

95%C.I. = 0.001–0.023), but not in the expected direction as formulated in hypothesis 2c. Taking a closer look, this effect turns to be driven by the result of India, the only country besides New-Zealand with a significant positive GDP growth in 2009. Taking India out renders this interaction insignificant.

Column (6) introduces power distance and its interaction with the *Crisis* variable. The former is standardized so that its inclusion will not complicate the interpretation of the results (Hox, 2010). In countries with a high power distance the level of directive leadership is significantly higher, which is in line with the literature on power distance. The interaction is also highly significant, supporting the moderating role of the cultural dimension power distance. Managers located in countries with higher power distance were rated as significantly more directive after the crisis than managers located in countries with lower power distance ($\beta = 0.039$, SE = 0.005, 95%C.I. = 0.011–0.066), supporting hypothesis 3.

The final column (7) includes all variables and confirms the results. The direct effect of the crisis, as seen in column (2) on directive leadership behavior is significant both statistically and substantively, confirming hypothesis 1. Based on our estimations, the main effect of the crisis implies an increase of directive leadership of 0.067, whereas this effect is larger in the manufacturing industry (0.073) and/or in countries with a high power distance (0.036). At any rate, these effects are much larger than the average year-on-year changes in directive leadership in our sample.

To visualize the effect size of the two significant interaction terms, we present two plots of the marginal effect of *Crisis* on Directive Leadership for the full range of possible scores for the manufacturing sector dummy and power distance. Figs. 1 and 2 show that the effect of the *Crisis* was stronger and strictly positive for managers active in organizations in the manufacturing sector, and in organizations located within countries characterized by high power distance. Taken together, Figs. 1 and 2 support the idea that the context matters when analyzing

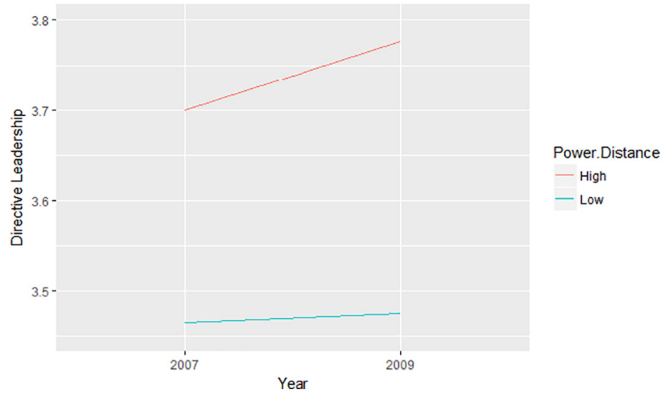

Fig. 2. Relationship between the 2008 financial crisis and directive leadership for high and low power distance countries.

the impact of the 2008 crisis on the increase in directive leadership. Having said so, and although the effects are highly significant, the effect sizes are relatively small.

Testing for the effect of the crisis on participative leadership

Our results can be seen as a support for threat-rigidity literature (Staw et al., 1981) to the extent that the control-reducing threat leads to more directive leadership at the micro-level of individual leaders, and that this effect is dependent upon meso- and macro-level variables. As an additional test of our line of reasoning, we also estimated the model underlying Table 3 with participative leadership as the dependent variable. We do so, because by testing in particular for the effect on participative leadership, which is negatively correlated with directive leadership, we can also strengthen our findings by testing whether the 2008 did not go along with an increase of this type of leadership which would give further credence to the threat-rigidity hypothesis.

Table 4 includes the estimation results for participative leadership and shows that there is no significant impact of the 2008 financial crisis on this leadership behavior. Like with directive leadership, we executed the Equivalence test (Lakens, 2017) for participative leadership, again with a Cohen's d = 0.8. We cannot reject equivalence to the value of 0.002 (the average of participative change in the sample between 2005 and 2014). This means that the crisis did not have an effect on participative leadership in our data set. This conclusion also holds when we interact the crisis with our context variables (the sector, GDP growth gap and power distance).

Extending the time-window of the crisis

In our estimations in Tables 3 and 4, we only use information on the years 2007 and 2009 to measure the impact of the 2008 financial crisis. One could argue that the time window is key for the results (Fischer, Dietz, & Antonakis, 2017). Because we assume that the pre-crisis period is captured fully by looking only at the year 2007, and similarly that the post-crisis period is captured by the year 2009. In order to check the sensitivity of our results to this time window, we therefore also estimate our model using different and more wider time windows, for both directive and participative leadership. Using such different time windows around the shock, the crisis year 2008, bears a resemblance to a regression discontinuity design (RDD) where the crisis year is the discontinuity. A typical RDD set up would require a treatment and a control group of organizations, where the former would be affected by the 2008 crisis and the latter would not. A full-blown RDD is thus not feasible because the global 2008 financial crisis (potentially), as measured by our crisis year dummy, affected all organizations.

Tables 5a and 5b show the results of directive and participative leadership respectively. In these tables, we repeat our estimations from

Table 4
Results of the regression analysis for participative leadership (980 organizations).

	Dependent variable: participative leadership			
	(1)	(2)	(3)	(4)
Crisis	−0.008	−0.012	−0.012	−0.009
	(0.012)	(0.013)	(0.021)	(0.012)
Female	0.029***	0.029***	0.038***	0.031***
	(0.010)	(0.010)	(0.011)	(0.010)
Native	0.009	0.009	0.009	0.009
	(0.014)	(0.014)	(0.015)	(0.014)
Age	0.001	0.001	0.001	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)
Tenure	0.002***	0.002***	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
High school graduate	0.009	0.009	0.029	0.007
	(0.060)	(0.060)	(0.061)	(0.060)
University degree	0.056	0.056	0.079	0.054
	(0.059)	(0.059)	(0.060)	(0.059)
Advanced degree	0.062	0.062	0.084	0.063
	(0.059)	(0.059)	(0.060)	(0.059)
Manufacturing		−0.028		
		(0.026)		
Growth gap			0.002	
			(0.007)	
Power distance				−0.040
				(0.024)
Crisis * manufacturing		0.022		
		(0.028)		
Crisis * growth gap			−0.001	
			(0.005)	
Crisis * power distance				−0.008
				(0.010)
Constant	3.821***	3.877***	3.929***	4.155***
	(0.861)	(0.864)	(0.993)	(0.860)
Observations	20,738	20,738	17,456	20,136
Log likelihood	−18,539	−18,538	−15,576	−17,949
Akaike Inf. Crit.	37,138	37,141	31,213	35,963
Bayesian Inf. Crit.	37,376	37,395	31,446	36,216

Note: Standard Errors in parentheses; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. All estimations were performed in the R language (R Core Team, 2015) using packages NLME (Pinheiro et al., 2015) and STARGAZER (Hlavac, 2015), with cluster means included – not reported (Mundlak, 1978).

Tables 3 and 4 using different time windows around the crisis-year 2008 (=our cut-off point). In particular, we used the following year combinations: 2007–2010, 2007–2011, 2006–2010 and 2006–2011. For each time window, we compared the estimates corresponding to our three main hypotheses to the initial estimates reported. We used the procedure described in Cohen, Cohen, West, and Aiken (2003), to construct 95% confidence for the difference between the initial and each subsequent coefficient.

As can be seen, in all cases for directive and participative leadership, the confidence intervals include zero, hence we cannot reject the null hypothesis that there is no statistical difference between the initial estimates (years 2007–2009) and alternative time periods. This is evidence that our results are unaffected by the choice of the time window. The full results for each time window are available upon request.

Persistence of the change in directive leadership following the crisis

As further additional evidence as to the impact of the 2008 financial crisis on directive leadership, and in line with what is generally found for the behavioral responses over time (Reinhart & Rogoff, 2009), we tested for the persistency of the impact of the 2008 crisis on directive leadership and find that the change in directive leadership following the 2008 financial crisis loses its significance from 2010 onwards, as Fig. 3 illustrates. This finding is consistent with the facts that the brunt of the macro-economic impact of the crisis as well as the initial fear that the crisis would lead to an economic depression like in the 1930s were

Table 5a
Comparing regression results for directive leadership for different time windows.

Estimates of:	2007–2010		2007–2011		2006–2010		2006–2011	
Crisis effect	−0.043	0.045	−0.046	0.042	−0.033	0.051	−0.037	0.045
Manufacturing interaction	−0.124	0.056	−0.14	0.036	−0.115	0.055	−0.135	0.031
Power distance interaction	−0.051	0.023	−0.045	0.025	−0.053	0.017	−0.048	0.02

95% Confidence Intervals for the difference between estimates in Table 3 for directive leadership in alternative time windows.

probably the strongest in 2009, see Eichengreen and O'Rourke (2012) or Almunia et al. (2010).

Hypotheses testing for the sub-sample of 114 organizations

We repeated our analyses by restricting our sample to the organizations that are present in both the 2007 and 2009 sample. This enables us to test hypotheses 1–3 again. This subsample consists of 114 unique organizations and (more than) 12.000 managers and can be seen as an extra test of our hypotheses 1–3. The estimation results for this subsample are presented in Table 6.

For the sub-sample of 114 organizations, the results in Table 6 again show that the 2008 financial crisis, see the coefficients for the *Crisis* variable throughout columns (1)–(7), led to a significant increase in directive leadership. Compared to the results for the 980 organizations, Table 6 indicates that the impact of the crisis is even somewhat stronger for the 114 organizations that were present both in 2007 and in 2009. We do not find a significant role for the sectoral level, since now not only the financial sector but also the manufacturing sector interaction is not significant. Again, we find a significant interaction of the crisis with the GDP growth gap, but as discussed before this effect is solely driven by the result of India. So, for this subsample, we do not find any significant effect for impact of the magnitude of the crisis. However as with the full sample, the increase in directive leadership is larger for those organizations and their managers that operate in a country with more power distance.

Moreover, we also estimated our model for the sub-set of 114 organizations with participative leadership instead of directive leadership as the dependent variable. Here too, we find that the 2008 financial crisis had no significant impact on participative leadership, which we take as indirect evidence to back up our main hypotheses 1–3 as derived from threat-rigidity literature (results available upon request).

Finally, we conducted a number of robustness checks. First, we repeated the analysis by using a flexible unstructured covariance matrix that allows for correlated outcomes within organizations and/or countries, by allowing for a different covariance structure between the two different time periods (not shown here, available upon request). Introducing this new covariance structure does not change our results. Second, we checked whether our restriction to 50 managers affected the robustness of our results; whether we include all available countries or only those with at least 50 or 100 managers present in the sample leaves our conclusions unaffected (not shown here, available upon request). Third, we also ran our regression models using only independent observations, that is the same dataset as in Table 3 but now without the managers that were present in both years, and this sample did not change our results (see Appendix C). As Appendix C also shows, the difference of coefficients for the three significant results, namely the direct effect of the crisis, and the interactions if the crisis with the manufacturing sector and with power distance, is not statistically significant between the two samples.

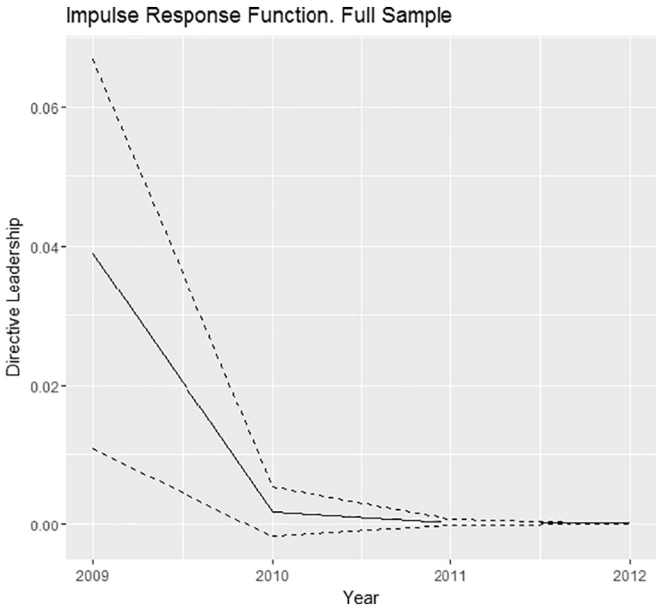

Fig. 3. Persistence of the effect of the 2008 financial crisis on the increase in directive leadership.
The dotted lines show the 95% confidence intervals which were derived via bootstrapping (1000).

Discussion

Our study is the first to analyze the effect of a global shock on actual leadership behavior across sectors and nations. Based on a unique data set with over 20,000 managers in 980 organizations across 36 countries, we show that across firms and countries and controlling for individual managerial variation the 2008 financial crisis led on average to an increase in directive leadership from 2007 to 2009. These results are substantiated in our sub-sample of > 12,000 managers in 114 organizations for which we have data for both 2007 and 2009. Our results also show that the crisis did not affect the level of participative leadership. Our main results thereby support assumptions from the threat-rigidity hypothesis. Having said so, it should be noted that the effect-sizes are relatively small.

Importantly, we find the effect of the crisis on directive leadership behavior to be at least to some extent context-dependent. For our full

Table 5b
Comparing regression results for participative leadership for different time windows.

Estimates of:	2007–2010		2007–2011		2006–2010		2006–2011	
Crisis effect	−0.038	0.027	−0.038	0.028	−0.034	0.028	−0.031	0.031
Manufacturing interaction	−0.082	0.064	−0.077	0.067	−0.074	0.066	−0.07	0.065
Power distance interaction	−0.024	0.029	−0.029	0.025	−0.02	0.032	−0.022	0.029

95% Confidence Intervals for the difference between estimates in Table 4 for participative leadership in alternative time windows.

Table 6
Results of the regression analysis for directive leadership (114 organizations).

	Dependent variable: directive leadership					
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	0.043***	0.025	0.046***	0.105***	0.041**	0.092***
	(0.016)	(0.018)	(0.018)	(0.029)	(0.016)	(0.032)
Female	0.104***	0.105***	0.104***	0.104***	0.103***	0.104***
	(0.012)	(0.012)	(0.012)	(0.013)	(0.012)	(0.013)
Native	−0.048***	−0.048***	−0.048***	−0.046**	−0.055***	−0.055***
	(0.017)	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
Age	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tenure	−0.002**	−0.002**	−0.002**	−0.002**	−0.002**	−0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
High school graduate	0.039	0.038	0.039	−0.002	0.042	−0.001
	(0.077)	(0.077)	(0.077)	(0.080)	(0.077)	(0.080)
University degree	−0.134*	−0.136*	−0.134*	−0.169**	−0.137*	−0.173**
	(0.076)	(0.076)	(0.076)	(0.078)	(0.076)	(0.078)
Advanced degree	−0.197***	−0.198***	−0.197***	−0.219***	−0.199***	−0.222***
	(0.076)	(0.076)	(0.076)	(0.078)	(0.076)	(0.078)
Manufacturing		−0.026				0.015
		(0.039)				(0.044)
Financial sector			0.093*			0.096*
			(0.049)			(0.055)
Growth gap				−0.019		−0.018
				(0.012)		(0.010)
Power distance					0.106**	0.078*
					(0.041)	(0.041)
Crisis ∗ manufacturing		0.068*				0.060
		(0.036)				(0.039)
Crisis ∗ financial sector			−0.016			−0.019
			(0.046)			(0.047)
Crisis ∗ growth gap				0.017**		0.019***
				(0.007)		(0.007)
Crisis ∗ power distance					0.026*	0.028*
					(0.016)	(0.016)
Constant	4.094***	4.161***	4.104***	4.667***	4.578***	5.216***
	(1.577)	(1.578)	(1.574)	(1.612)	(1.452)	(1.458)
Observations	12,836	12,836	12,836	11,081	12,656	10,969
Log likelihood	−11,639	−11,637	−11,637	−10,053	−11,470	−9947
Akaike Inf. Crit.	23,338	23,339	23,338	20,171	23,004	19,971
Bayesian Inf. Crit.	23,562	23,577	23,577	20,405	23,242	20,248

Note: Standard Errors in parentheses; $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$. All estimations were performed in the R language (R Core Team, 2015) using packages NLME (Pinheiro et al., 2015) and STARGAZER (Hlavac, 2015) and included cluster means – not reported (Mundlak, 1978).

sample, the increase in directive leadership depends on the magnitude of the crisis, because this effect is more pronounced for individual managers in organizations in the manufacturing sector. Organizations in this sector, which was hit relatively hard by the 2008 crisis, experience a clear cut increase in directive leadership after the financial crisis. This outcome mirrors the real impact of the crisis from 2009 onwards where the highest effect in terms of unemployment was felt in the manufacturing sector (Groot, Mohlmann, De Groot, & Garretsen, 2011). Interestingly, as opposed to the manufacturing sector, we do not find an increase in directive leadership for organizations in the financial sector. An explanation for this result could be that financial institutions were 'saved' by large-scale government interventions so as to ensure financial stability (Kay, 2015); these policies might have limited the effect of the crisis on directive leadership of managers in financial organizations.

When it comes to the magnitude of the crisis in terms of the macroeconomic impact, we cannot confirm that managers and organizations in countries that were hit harder by the crisis in terms of their GDP growth, witness a stronger increase in directive leadership. A possible explanation for this lack of support for our hypothesis 2c, could be that our sample consists of mostly multinational organizations. Research shows that these types of organizations are not affected as much by financial crises in their respective host countries as domestic organizations, which implies that a change in GDP growth may only have a limited effect on these organizations (Dikova, Smeets, Garretsen, & Van Ees, 2013).

Our results also show that the increase in directive leadership was stronger in countries with more power distance. This finding is an indicator that a change in directive leadership behavior of managers aligns with the observed tendency to fall back on their well-known routines when confronted with a crisis (Chattopadhyay et al., 2001; Staw et al., 1981), especially when that kind of behavior is seen as 'normal' and therefore is embedded in the cultural context.

Theoretical and empirical implications

Our study contributes to leadership research in a number of ways. First, our results fuel leadership literature by showing that leadership behavior ánd changes in leadership behavior are context-specific (Dinh et al., 2014; Liden & Antonakis, 2009). Although our results demonstrate that the biggest part of the variance in leadership behavior caused by the event can be explained at the individual level (see also Van Emmerik et al., 2010), we find significant variation between organizations and even countries, which supports the multi-level

approach of this study. The multi-level analysis shows that the magnitude of the crisis and the cultural embeddedness of the organizations and their managers matter for the impact of the crisis on leadership behavior. This finding provides evidence that the external context for organizations and their leaders is important, and it points to the necessity of including the broader meso- and macro-context in future leadership studies. Moreover, our study is one of the first to show how the context as an antecedent can shape leadership behavior.

Second, our study answers the plea in the field of leadership for more research that deals with issues of endogeneity adequately (Antonakis et al., 2014). By executing a large-scale event study on leadership behavior, our study is unique in testing the causal effect of an exogenous event like the 2008 international financial crisis on leadership behaviors. Our findings indicate that directive leadership behavior is impacted by such events. We contribute to the literature on antecedents of leadership behavior (Tuncdogan, Acar, & Stam, 2017), by showing that not only individual differences can be seen as antecedents of individual leadership behavior. Our study also provides an example how event studies in the field of leadership could be designed.

Finally, our findings empirically contribute to the framework of threat-rigidity literature (Staw et al., 1981) by providing evidence on how a large threat like the 2008 financial crisis impacts on managers' behavior in organizations. In doing so, our paper addresses the challenge as put forward by Staw and Sutton (1993), Shimizu (2007) or notably Staw (2016) to infuse the threat-rigidity hypothesis with individual behavior: "*By following the impact of particularly important and disruptive events, we may begin to understand processes that extend from the individual actor to other entities in the organizational system*" (Staw, 2016, p.12). Following Chattopadhyay et al. (2001), we cast the 2008 financial crisis as a control-reducing threat and therefore we defined hypotheses on directive leadership behavior that are in congruence with the assumptions of the threat-rigidity hypothesis, and these hypotheses were to a large extent confirmed. This overall support for the threat-rigidity hypothesis is (indirectly) corroborated by the finding that the 2008 financial crisis did not lead to an increase in participative leadership.

Our results also seem to run counter to prospect theory (Kahneman & Tversky, 1979), because this theory would predict that a threat would lead to an increase in participative leadership behavior, as organizations and their leaders react to a threat by more delegation, fewer restrictions on information and in general more degrees of freedom for followers. But this line of reasoning assumes that prospect theory is able to deal with threats like the 2008 financial crisis. Following Chattopadhyay et al. (2001), prospect theory is, however, not well suited to analyze control reducing threats which implies that this theory is not meant to deal with these type of threats to begin with.

Practical implications

Notwithstanding the fact that our study does not deal with the effectiveness of directive leadership behavior after a threat, our study has two implications for organizational practice. First, it can be concluded that leaders need reflection and learning, in order to be able to change their behavior contingent upon contextual demands. This conclusion implies a role for the HR-department in organizations. Leaders should learn not only to develop a wide behavioral repertoire that consists of more than one dominant leadership style (Quinn, 1988; Wendt, Euwema, & van Emmerik, 2009), but also that the external or economic context influences their behavior. This contextual influence differs across cultures, which makes it even more relevant to develop or design tailor-made interventions or training programs that educate leaders what the effect is of crises or threats to themselves. It is not easy to develop or design interventions to mitigate the effect of such a threat on leadership behavior. One of the suggested routes according to Brockner and James (2008) is to change the perception of threat to the perception of opportunity. Their framework (Brockner & James, 2008, page 101) presents several variables that might affect such a change in perception.

Second, as was stated in threat-rigidity literature (Staw et al., 1981), the question whether a threat-rigidity effect is functional or not depends not only on the nature of the threat itself, but also on the duration of the effect. Our evidence that a crisis is followed by an increase in directive leadership behavior, is in line with the more general tendency of organizations to increase efficiency and control in such situations that might threaten the future existence of the organization. Such a response can be functional in the short run but can also prevent an organization from doing things differently (Staw et al., 1981), which could be crucial for the continuity of the organization in the long run.

Our study indicates that managers react to an external unprecedented shock by becoming more directive towards their employees. Here too, it can be argued that the effectiveness of this response is time-dependent. It might be effective behavior in the short-run. After all, directive leadership in such crisis situations resolves ambiguity and uncertainty and provides clear guidelines for employees (Somech, 2005), which might be exactly what is needed. But the long-term effectiveness of such a response is rather questionable (Staw et al., 1981), and such behavior might turn out to be rather detrimental to performance or innovation (Somech, 2005). Therefore, managers should think carefully about how they enact upon the crisis at hand (Weick, 1988), by both considering the type of crisis and the timeframe of the crisis.

Limitations and future research

Our study also has a number of limitations. Even though the focus in our paper is on the antecedents of leadership behavior one would also like to know whether or not the increase in directive leadership had an impact on outcome variables, like team or organizational performance. Unfortunately, the data did not allow us to investigate such a relationship in a causal sense for a large enough sample. However, the data enabled us for a sub-selection of 866 managers and their teams to explore the effect of the change in directive leadership on the change in team performance. The results clearly show that an increase in directive leadership is associated with a decrease in team performance (results available upon request).

Also, the biographical information on the background of the participating managers and their subordinates is incomplete, because we do not know their exact role and hierarchical position. Consequently, we could not investigate possible differences of the effect of the crisis on lower or higher management. Moreover, in the sample there is underrepresentation of Eastern-European and African countries which is due to the fact that KFHG (who collected the data), is a Western-based consultancy firm (Van Emmerik et al., 2010). Also, of the 980 organizations in our main sample 575 organizations are a (foreign) subsidiary, which indicates again that we are dealing large and international firms which could mean that smaller or domestic firms are underrepresented.

In addition, although our results are in line with the threat-rigidity hypothesis, one cannot rule out alternative explanations for the increase of directive leadership following the 2008 financial crisis. It may be that in the wake of the crisis manager numbers were cut, thereby increasing their span of control and managers becoming more directive as a result. Because we lack data on the managerial span of control, we cannot explore this possibility.

Based on our results with respect to the magnitude of the crisis, we only find limited evidence for the relevance of this macro-factor for the organizations in the manufacturing sector. This outcome may very well

be due to the rather crude measures we had to use to measure the magnitude of the crisis. Ideally, one would like more specific and organization-related measures to test for the role of the magnitude in a more fine-grained manner. Moreover, to capture the macro-economic effect of a crisis, future studies should thus include measures to distinguish multinational from domestic firms.

Another limitation of our study is that the event of the global 2008 crisis does not enable a test between organizations that clearly were and were not affected by the event because this crisis in principle affected all organizations. A more stringent test of the effect of a crisis or events more generally on leadership behavior would call for a clear-cut test where one could use randomized events to discriminate between organizations in terms of the impact on leadership behavior. When it comes to exogenous threats to organizations, one could think of conflicts, natural disasters that impact on some organizations but not on other, otherwise similar, organizations. Policy interventions that are randomly allocated could be used to a similar extent. In such a set-up, a regression discontinuity design (RDD) would be appropriate.

For future research it would also be relevant to investigate the long term effect of an event like the financial crisis on changes in directive leadership behavior and consequently on performance. In our study we clearly show a short-term effect or initial impact of a crisis on this behavior, and we also show that this effect disappears (see our Fig. 3), but one would also like to know whether there are any long-term results of such changes in leadership behavior.

As a next step in this line of research, and despite the fact that the 2008 financial crisis is thus a prime example a major exogenous shock or threat in our view, it would be worthwhile to explore the model by Chattopadhyay et al. (2001) further. Such a study could entail not only the investigation of other control-reducing threats, but also threats that are more likely to occur as a probabilistic loss only and, more generally, of opportunities alongside threats and their respective impact on leadership behavior. It would be relevant to broaden the analysis and to come up with threat as well as opportunity examples that cover the full range of the threat-rigidity and prospect theory dimensions, and study the effects on leadership behaviors that may probably have stronger links with opportunities instead of threats.

Conclusion

Studying the effects of the 2008 financial crisis on leadership behavior represents a critically important area of research in leadership and management literature. Building on the seminal concept of the threat-rigidity hypothesis, we gained insight into the effects of a specific threat on leadership behavior. These findings contribute to leadership research by showing that not only the context matters at various levels but also, and more importantly and novel in our view, how the context as an antecedent actually shapes leadership behavior. This opens up a whole new avenue of leadership research where the context is studied as an antecedent of leadership behavior more generally, and where the methodological set-up allows for causal inference. Building on our findings, future research could do so by broadening the menu of (exogenous) events and leadership behaviors. The next step would then be to analyze the effects of changes in leadership behavior on performance. Our study shows that leaders react to a threat by 'tightening the leash', which is an understandable response, but there is abundant leadership research to at least question whether this is a sensible response.

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Appendix A

Sample of countries, managers and organizations

Country name	# of managers (# of organizations)	Country name	# of managers (# of organizations)
Australia	1508 (25)	Mexico	397 (24)
Belgium	312 (34)	New Zealand	434 (7)
Brazil	1340 (47)	Peru	241 (9)
Canada	637 (24)	Poland	264 (18)
China	914 (50)	Portugal	193 (13)
Columbia	669 (20)	Romania	86 (12)
Czech Republic	65 (13)	Russia	317 (18)
Denmark	60 (10)	Singapore	155 (25)
France	646 (45)	South Korea	552 (14)
Germany	367 (40)	Spain	541 (37)
Greece	85 (13)	Sweden	199 (13)
Guatemala	75 (2)	Switzerland	217 (12)
India	601 (38)	Thailand	84 (14)
Ireland	180 (21)	The Netherlands	1631 (49)
Israel	105 (13)	Turkey	79 (14)
Italy	413 (34)	United Kingdom	4061 (98)
Japan	253 (24)	United States	6855 (112)
Malaysia	1062 (24)	Venezuela	244 (14)

Appendix B

Directive leadership scale

1. Expects employees to follow his/her instructions precisely.
2. Requires employees to submit detailed reports of their activities.
3. Makes most decisions for employees.
4. Supervises employees very closely.
5. Expects employees to carry out instructions immediately.

Source: Euwema et al. (2007).

Participative leadership scale

1. Encourages subordinates to participate in most decision making.
2. Keeps everyone involved and well-informed about organizational issues that may affect them.
3. Holds frequent meetings to share information and ideas with subordinates.
4. Give capable subordinates the freedom to make decisions and mistakes without close supervision.
5. When making decisions, tries to get a great deal of input from subordinates.

Appendix C

Results of the regression analysis for directive leadership (using only independent observations)

	Dependent variable:					
	Directive leadership					
	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	0.053***	0.023	0.055***	0.093***	0.052***	0.069**
	(0.018)	(0.019)	(0.019)	(0.030)	(0.019)	(0.032)
Female	0.099***	0.099***	0.099***	0.094***	0.096***	0.094***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Native	−0.039***	−0.039***	−0.039***	−0.038**	−0.044***	−0.041***
	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)	(0.016)
Age	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tenure	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
High school graduate	0.023	0.022	0.023	−0.007	0.025	−0.006
	(0.065)	(0.065)	(0.065)	(0.066)	(0.065)	(0.066)
University degree	−0.137**	−0.139**	−0.137**	−0.163**	−0.139**	−0.167**
	(0.064)	(0.064)	(0.064)	(0.065)	(0.064)	(0.065)
Advanced degree	−0.197***	−0.198***	−0.197***	−0.211***	−0.199***	−0.213***
	(0.064)	(0.064)	(0.064)	(0.065)	(0.064)	(0.065)
Manufacturing		−0.020				−0.010
		(0.032)				(0.035)
Financial sector			0.005			0.024
			(0.036)			(0.039)
Growth gap				−0.016		−0.014
				(0.011)		(0.010)
Power distance					0.095**	0.070
					(0.042)	(0.041)
Crisis ∗ manufacturing		0.111***				0.095**
		(0.036)				(0.040)
Crisis ∗ financial sector			−0.013			−0.006
			(0.043)			(0.045)
Crisis ∗ growth gap				0.009		0.011*
				(0.007)		(0.007)
Crisis ∗ power distance					0.041***	0.037**
					(0.015)	(0.016)
Constant	4.388***	4.407***	4.385***	4.765***	4.401***	5.176***
	(1.390)	(1.381)	(1.390)	(1.401)	(1.323)	(1.291)

Observations	19,470	19,470	19,470	16,331	18,886	16,145
Log likelihood	−18,057	−18,052	−18,057	−15,062	−17,455	−14,885
Akaike Inf. Crit.	36,175	36,169	36,179	30,189	34,975	29,847
Bayesian Inf. Crit.	36,411	36,421	36,431	30,435	35,226	30,139

Difference of coefficients Table 3 versus independent observations only

Estimates of:	Independent observations only sample	
Crisis effect	−0.06	0.039
Manufacturing interaction	−0.124	0.074
Power distance interaction	−0.043	0.039

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