Leadership decisions for company *SurVIRval*: evidence from organizations in Poland during the first Covid-19 lockdown

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Abstract

Purpose – The purpose of this paper is to analyze the leadership decisions taken during the crisis and their influence on the goals recognized by managers as crucial for surviving.

Design/methodology/approach – During the survey, conducted in April 2020 (one month after the first economic lockdown in Poland), as part of a research project called Sur(VIR)val – Survival during the virus, data was collected from 178 leaders from randomly selected companies from Poland using the CAWI method. Ordered logistic regression modeling was used to examine the impact of the decisions taken by company leaders on the goals seen by leaders as most important for company survival.

Findings – The results obtained in the study show that during the first Covid-19 lockdown in 2020, leaders made decisions that can be seen as oriented toward survival and continuity. Changing to remote working, extending payment deadlines for customers, as well as selective employment reduction turned out to have the greatest influence on strategic support for maintaining current production levels and retaining competent employees in order to survive the crisis.

Research limitations/implications – This study has certain limitations. First, the list of leadership decisions and company goals used as dependent variables is not exhaustive. Second, the selection of business goals oriented toward survival may not derive directly from the lockdown situation. Third, our study did not measure the actual accomplishment of the company goals, but the managerial perceptions as to which ones are crucial for company survival during crises, and which of them should be given strategic support respectively. Fourth, the research sample was randomly constructed and covered only business organizations in Poland. Fifth, the hypotheses were formulated in a way that treated leadership decisions as one construct. Finally, we used survey, with a scale measuring managerial perceptions.

Practical implications – Leaders should ensure that proper IT tools are developed within the organization, and that the skill level of employees is high enough for fast shifting employees on to remote working. At the same time, it is important to maintain IT infrastructure at a high level. In terms of general recommendations for

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leaders, they should make quick decisions, maintain the most valuable resources of the company (human resources and cash flow) and take actions aimed at taking advantage of opportunities (R&D) during and after the crisis.

Social implications – Additionally, due to the key importance of human resources for the survival of the organization, leaders should respond quickly by making flexible decisions about sending employees on leave and downtime. As human resources are the most valuable assets of the company from the point of view of its survival, decisions concerning employment reduction should be taken carefully. Leaders who acted in panic after the first lockdown and made employees redundant, later on had problems recruiting skilled employees back and strived to return to full organizational capacity.

Originality/value – Although scholars have investigated leadership decisions and actions taken during economic crises, little is known about how leaders behave when taken by surprise, and what decisions they make when the duration of a crisis is difficult to predict. The results of this study show which leadership decisions during the first Covid-19 lockdown in 2020 influenced prioritizing critical company goals oriented toward survival.

Keywords Leadership decisions, Crisis, Covid-19, surVIRval

Paper type Research paper

1. Introduction

The Covid-19 pandemic took businesses by surprise. Governments in many countries decided to introduce lockdowns to stop transmission of the virus, which put many business organizations on the edge of survival. Leaders were forced to make quick, often unplanned and unprepared decisions, as well as introduce actions that slowed down the firms' regular activity. Since the responsibility for business decisions made and actions taken usually lies with strategic leaders, this paper focuses on leadership decisions at the beginning of the Covid-19 crisis and their impact on sustaining strategic goals oriented toward survival.

The literature analyses the impact of past crises on leadership (Bhaduri, 2019), seeking to identify crisis leadership competences (Wisittigars and Siengthai, 2019). Leadership decisions have been scrutinized during financial crises (Haddon *et al.*, 2015), the pandemic crisis caused by Nyenswah *et al.* (2016) and the first SARS virus (Leung and Lam, 2004). There is already a body of evidence concerning leadership during the Covid-19 crisis (Pounder, 2021; Manuel and Herron, 2020). Recent research has confirmed the importance of proper leadership in times of crisis (Pounder, 2021). However, little is known about how leaders behave in unexpected situations, and what decisions they make when the duration of a crisis is difficult to predict. As opposed to financial crises or past virus-resulted crises, the ongoing Covid-19 situation was difficult to predict as far as its long-term impact is concerned. Interest in leadership decisions in a specific geographical and cultural context (the CEE region) during Covid-19, is what formed the basis for this study.

The purpose of this paper is two-fold. First, through a literature review, it attempts to demonstrate leadership decisions and managerial actions during crises. Based on the experience of crises researched to-date, the study identifies the most common leadership decisions and actions undertaken during salient times of crisis, when leaders and their organizations were taken by surprise. We demonstrate the most common leadership decisions taken during crises, with attention given to the concept of Foster and Dye (2005) in which three leadership responses are found: (1) securing the company's employees, (2) securing the company's core activities and (3) securing business networks, e.g. supply chains.

Second, this paper seeks to identify how the decisions taken by leaders in the unexpected lockdown affected the most important organizational goals in assuring further survival. It should be noted that our study does not measure the actual accomplishment of goals, as it would require a longitudinal approach. We seek to identify, which goals are acknowledged by leaders as crucial and strategically important to survive the Covid-19 crisis, thus becoming strategic priorities. The research was carried out among 178 organizations from Poland, one month after the first Covid-19 lockdown, in April 2020.

The first case of coronavirus infection in Poland was reported on 4 March (in Europe it was in France on 24 January). The first restrictions were introduced on 10 March, and an epidemic was officially declared on 20 March. On 24 March, travel restrictions were introduced, and on 16 April, mandatory covering of the nose and mouth in public places was introduced. At the same time, in March and April, Crisis Shields 1.0 and 2.0 were introduced. In Poland at that time there were no actions that were significantly different to other countries although specific efforts were made to combat Covid-19, however, it should be noted that acts implementing Covid-related legislation were issued late, which may have created additional uncertainty among managers.

This paper contributes to the literature by demonstrating which leadership decisions were taken during the beginning of the Covid-19 crisis, and by identifying which goals were acknowledged by company leaders as most significant to survive the crisis. To our knowledge – as opposed to economic crises – not much is known about leadership responses to lockdowns generated by pandemics, nor about their influence on recognizing crucial company goals that further on need to be given a strategic support.

2. Leadership decisions and responses in times of crisis

Crises, regardless of their source, destabilize organizations (Dirani *et al.*, 2020) and put leaders to the test (Ansell and Boin, 2017), forcing them to take proactive measures in response to chaotic changes in the environment (Bhaduri, 2019; Bowers *et al.*, 2017; Carter, 1997). Ritchie suggests that the unpredictable nature of changes in the environment makes it difficult or even impossible to effectively manage crises, although the actions taken by leaders may limit the negative consequences of a crisis (Ritchie, 2004). The importance of proactive actions taken by leaders in crisis management is emphasized in research by Bundy *et al.* (2017), while Pounder points to the importance of responsible leadership in overcoming the uncertainty surrounding a crisis (Pounder, 2021). Jamal and Bakar's research shows the importance of leaders' actions in mitigating the effects of a crisis and strengthening an organization's reputation (Jamal and Bakar, 2015). Boin *et al.* suggest that in crisis conditions, the actions of leaders stabilize and secure the continuity of organizations, and they indicate three tasks for leaders: recognizing emerging threats, making efforts to mitigate them and dealing with their consequences and after going through an acute period of crisis, restoring a sense of normality (Boin *et al.*, 2010). Another approach to ensuring the business resilience of an organization is proposed by Foster and Dye (2005), who show three major tasks of leaders: (1) securing the company's employees, (2) securing the company's core activities and (3) securing business networks. Below we take a look at these dimensions.

Gunnigle, Lavelle and Monaghan show that crises lead to a decline in labor demand and an increase in unemployment, translating into pressure to reduce wages and benefits (Gunnigle *et al.*, 2013). It has been noted that in the beginning of Covid-19 crisis the increase in unemployment was observed, which then began to decrease during the crisis (Kozicki and Gornikiewicz, 2020). Dirani *et al.* suggest that in unstable circumstances, goal planning should be focused on retaining the best employees and using their skills to maintain a high level of productivity (Dirani *et al.*, 2020). Securing the company's employees can reduce the negative impact of a high level of employee turnover on a decrease in employee engagement and a loss of organization skills and knowledge (Dirani *et al.*, 2020; Xu *et al.*, 2015). Jayathilake *et al.* indicate that in the conditions of crises, employee departures have a negative impact on the effectiveness of the recruitment and training processes of new employees (Jayathilake *et al.*, 2021). Stuart *et al.* suggest that in response to the Covid-19 crisis, job retention should be the main goal and practice of human resource management (Stuart *et al.*, 2021). Also, studies by Kyndt *et al.* indicate the importance of employee retention for the functioning and competitiveness of the company (Kyndt *et al.*, 2009). Stuart *et al.* indicate that during the

Covid-19 crisis, companies in the UK took the "keep-in-work turn" and instead of laying off workers, used holidays as a mechanism for keeping people in their jobs (Stuart *et al.*, 2021). Hensvik *et al.* analyzed the benefits of short-term work schemes for Swedish companies under Covid-19 conditions, and suggest that from an employer's perspective, furloughs substitute new vacancies, driving down tightness (Hensvik *et al.*, 2021). In turn, Lewis and Sequeira point out that the lack of an appropriate approach to retaining employees may result in the acquisition of the most valuable employees by competitors. Therefore, they suggest that prudent selective employment reduction and employee retention strategies are a key skill that should be treated as a top priority by leaders (Lewis and Sequeira, 2016). Basing on the above evidence, we offer the following proposition:

Proposition 1. Crisis leadership includes various decisions and actions aimed at retaining key employees, e.g. working time flexibility.

The second area of leadership during crises is securing the resources for company survival. Schmid *et al.* note that the Covid-19 pandemic has forced companies to implement tools to keep their businesses operational and resilient (Schmid *et al.*, 2021). Crisis leadership during the Covid-19 is seen as a process of adaptability and flexible actions taken in order to continue critical operations (Gajdzik and Wolniak, 2021). Similarly, Tammineedi's research shows that enterprises are increasingly realizing the importance of uninterrupted availability of all key business resources required to support critical business activities in the event of business disruptions (Tammineedi, 2010). Ensuring business survival forces companies to focus on core areas of activity and reduce financial outlays on investment activities in order to ensure liquidity. The blocking of economic activity introduced to deal with the Covid-19 pandemic has translated into a reduction in investment (Capello and Caragliu, 2021). Also, Ebekozien and Aigbavboa (2021), Hoang *et al.* (2021) and Liu *et al.* (2021) note a reduction in the level of investment as a result of Covid-19. Hence, the following proposition can be offered:

Proposition 2. Crisis leadership includes various decisions and actions aimed at agile financial management for retaining liquidity, e.g. investment-level reduction.

The third area of crisis leadership is an adaptative work environment and company design that allows for various work models. Tursunbayeva points out that the social distancing response to Covid-19, which was aimed at flattening the disease curve, shifted some of the workforce from workplaces to home environments, thus enforcing remote working to ensure the stability of the organization (Tursunbayeva, 2021). Also, Peláez *et al.* note that remote working in response to the closure forced by the Covid-19 pandemic ensured the continuity of operational activities (López Peláez *et al.*, 2021). This is in line with Bundy *et al.* (2017) arguments that responsible leadership includes changing organizational design and work type for adaptation during crises. The third proposition for further operationalization can be formulated:

Proposition 3. Crisis leadership includes various decisions and actions aimed at adaptative design, e.g. changing work to the remote type.

Yet another leadership challenge during crisis times is to secure the supply chain, existing business networks and cooperation with stakeholders. A noticeable effect of the Covid-19 pandemic in Europe was the disruption of supply chains from China. The pandemic stopped the flow of global supply chains affecting many industries and countries, resulting in search for new solutions to resume production capacity (Witczynska, 2020). The Covid-19 crisis has also forced companies to face challenges in cooperation both on a local and global level (Margherita and Heikkilä, 2021). Still, it has been noted that Industry 4.0 technologies improve the real-time availability of the necessary resources – both tangible and intangible

(Černetič and Jerman, 1999; Mińska-Struzik and Jankowska, 2021), which somehow soothes the supply chain management challenge. Zahra points out that the emergence of Covid-19 disrupted business networks, which has had consequences for the development of innovation, learning, access to resources, international expansion and recognition of opportunities (Zahra, 2021). Existing and anticipated turbulence in supply chains (Butt and Ahmad, 2021; Singh *et al.*, 2020) force leaders to be more cautious about shaping relations so as to secure the functioning of the organization, also in the financial dimension (Mitręga and Choi, 2021). While ensuring security in the field of shaping customer relations takes place as a result of a limited selection of customers (although too far-reaching selection could threaten the ability to generate revenues), in the case of suppliers, ensuring security is aimed at extension of payment deadlines for commitments. Taking the supply chain challenge, we formulate the following:

Proposition 4. Crisis leadership includes various decisions and actions aimed at securing the business networks, e.g. by extending the payment deadlines for stakeholders.

Based on the Foster and Dye (2005) proposal presented above, we decided to operationalize six activities implemented by companies during the Covid-19 crisis (Foster and Dye, 2005): (1) sending employees for leaves or furloughs, (2) working time reduction, (3) selective employment reduction, (4) investment level reduction, (5) changing work to the remote type and (6) extension of payment deadlines for commitments. Actions (1), (2) and (3) relate to securing the company's employees; actions (4) and (5) are a manifestation of securing the company's core activity, while (6) is an element of securing business networks. These activities will be discussed below (Table 1).

Sending employees for leaves or furloughs in crisis situations protects the interests of employees and employers (employees are guaranteed that they will return to work after downtime, while the employer retains the ability to carry out operational activities), while providing a reduction in costs, which would appear to be particularly important in a situation in which an enterprise is not generating revenue. Obviously, from the point of view of general responsibility, excessively prolonged holidays or downtime should be viewed negatively – as they may indicate that the costs of the company's operations are passed on to employees. However, it should be noted that employees' responses to the decisions taken by managers depend on various conditions (George *et al.*, 2020) – for example, trust impacts the duration of downtime (Banthin and Steler, 1991). Some scholars note that during crises, the tendency to offer leave for various purposes decreases (Vidal-Salazar *et al.*, 2012). During crises, workers' concerns about the loss of jobs or income, and the risk of falling ill increase. The current pandemic crisis is resulting in job losses, with a significant (although temporary) increase in unemployment, redundancies and reduced working hours (Kraus *et al.*, 2020). To some extent, proper leadership may become a remedy for these fears. A time of crisis is a testing time for leaders, as some will take self-oriented actions, partially ignoring stakeholders' expectations. It is also a period when leaders gain or lose trust among employees and stakeholders. As the duration of the pandemic lengthens, leaders will have more and more temptation to act in their own expedience and in the interest of the businesses they lead, and decisions are made under increasing uncertainty (Manuel and Herron, 2020). Leaders should include employees in the decision-making process and inform them about the decisions made and the reasons behind them. Decisions should be tuned to the circumstances and place in which they are made (Kinlav *et al.*, 2009). It should be remembered that during the crisis related to the SARS epidemic in Asia in 2003, the most common decisions made in the hotel business in Hong Kong were to send employees on unpaid leave and to separate groups of employees (Leung and Lam, 2004).

Working time reduction, which is not related with a reduction in the level of remuneration in the long run, can be treated as a substitute for reducing the level of employment.

Conceptualization: Crisis leadership activity	Conceptualization: Leadership decisions and actions (Foster and Dye, 2005)	Operationalization: Decisions and actions taken
Flexibility in employment (Leung and Lam, 2004), lowering turnover and increasing employee retention (Dirani *et al.*, 2020; Xu *et al.*, 2015; Jayathilake *et al.*, 2021; Stuart *et al.*, 2021; Lewis and Sequeira, 2016; Kyndt *et al.*, 2009)	Securing the company's employees	Sending employees on leave or downtime
Building ethical attitudes by ensuring employee satisfaction and reducing employee turnover Yasin *et al.* (2020), Hensvik *et al.* (2021)	Securing the company's employees	Working time reduction
Fostering commitment to work by providing employees with the necessary resources (Koekemoer *et al.*, 2021)	Securing the company's employees	Selective employment reduction
Recognizing emerging threats (Boin *et al.*, 2010); agile financial management (Capello and Caragliu, 2021)	Securing the company's core activity	Investment reduction
Organizational design encouraging adaptation (Bundy *et al.*, 2017), adaptative environment allowing for various work models (Tursunbayeva, 2021), in order to secure work continuity (López Peláez *et al.*, 2021)	Securing the company's core activity	Changing to remote working
Undertaking moral and ethical activities to secure supply chains, to meet the stakeholders' expectations (Ferguson *et al.*, 2019); shaping relations with stakeholders (Mitręga and Choi, 2021)	Securing business networks	Extension of payment deadlines for commitments
Ensuring company survival (Tammineedi, 2010; Aguilera *et al.*, 2007; Campello *et al.*, 2010; Karunathilake, 2020; Kinlav *et al.*, 2009; Kraus *et al.*, 2020; Leung and Lam, 2004; Mackey *et al.*, 2007; Manuel and Herron, 2020; Parker, 2020; Paul and Chowdhury, 2020; Ramdoo, 2020; Zhang *et al.*, 2020)	Survival as dependent variable	Retaining competent employees, maintaining financial liquidity, maintaining current production, maintaining revenues at the current level and maintaining market share

Table 1.
Leadership decisions and actions during crisis times

Historically, of particular note is the role of President Hoover's actions in recovering from the Great Depression of the 1930s, when he asked trade union officials to cooperate in reducing working hours rather than reducing the number of employees (Morf *et al.*, 2013). Similar actions taken in the 1980s in France led to a shorter working week (Rathkey, 1986). It is also worth noting that the reduction of working time may, paradoxically, lead to an increase in a company's productivity. The use of overtime reduces average productivity, measured as productivity per working hour (Shepard and Clifton, 2000). The environmental burden may increase once work time decreases below a certain threshold level (Shao and Shen, 2017). There is also a negative relation between work time and CO_2 emissions in developing

economies, with the suggestion that this might result from carbon-intensive leisure activities (Shao and Rodríguez-Labajos, 2016).

Yasin *et al.* (2020) suggest that the key role of leaders is to build ethical attitudes by ensuring employee satisfaction and reducing employee turnover. Scholars have noted strong declines in employment in enterprises affected by the crisis, and they see a link between employment reduction and the level of employees' qualifications (Bellmann and Gerner, 2011). Analysis of the ethical aspects of outsourcing has shown the importance of maintaining employment after introducing outsourcing (Serrano-Cinca *et al.*, 2020). The task of leaders in difficult times, as well as in times of epidemics, is to foster commitment to work by providing employees with the necessary resources, which are correlated with positive job performance (Koekemoer *et al.*, 2021).

Companies that saw their turnover increase during the first wave of Covid-19 appear to be in a position from which active engagement in innovation activity, rather than cost cutting, can generate further growth (Klyver and Nielsen, 2021). Reducing investments during crises can be seen from a two-tier perspective. On the one hand, firms can reduce current investments in order to secure cash flow, while on the other hand they can reduce long-term investments such as R&D necessary for developing new technologies (Kim *et al.*, 2017). Enterprises reporting CSR measures are characterized by a higher level of investment efficiency when compared to non-reporting enterprises, and this dependence is more pronounced in scenarios of overinvestment than in underinvestment (Zhong and Gao, 2017).

The Covid-19 crisis has sparked a discussion about the role of leaders in managing remote workers in difficult times. This is because remote work can be a disorienting experience for everyone if leaders turn to a traditional set of leadership behaviors that can cause problems with task completion, performance reviews and employee engagement (Lagowska *et al.*, 2020). Using remote work provides employees with autonomy and flexibility, and leaves organizations with increased human resource potential and savings in direct expenses (Harpaz, 2002). Naturally, the use of remote work is associated with the emergence of potential threats such as isolation, the challenge to relationship-building, lack of a clear division between home and work (from the perspective of employees), as well as increased costs of new methods and tools and associated training, and problems with involvement and identification (from the perspective of the organization). Remote work, as an integral part of management strategies, plays an important role in increasing productivity, reducing costs and solving the problems related to combining work and family life (Tan-Solano and Kleiner, 2001). When examining the approach to remote work, it has been noted that the importance of the work–family balance has to be taken into consideration (Mayo *et al.*, 2016). The growing importance of remote work during the Covid-19 crisis suggests that employers perceive remote work as a possibility for transferring part of their infrastructure costs on to employees, while providing employees with savings in time and costs of commuting (Parker, 2020).

Da Silva *et al.* posit "It should be noted that not considering sustainability in business operations can create problems regarding the continuity of the company's activities and its performance in the market, although this point is not the main one" (da Silva *et al.*, 2021). Maintaining the financial health of an organization can enable leaders to deliver a strong message to employees: saving money and avoiding financial losses can help preserve jobs and avoid layoffs and furloughs (Dirani *et al.*, 2020).

Extending of payment deadlines for commitments, which allows "integration of problems backwards", is a form of transferring the firm's problems on to suppliers. Ferguson *et al.* (2019) suggest that late payment may have a negative impact on suppliers and may result in severe operational and financial dire straits, including redundancies and bankruptcies. Also, Lewicka-Strzalecka (2006) notes the negative impact of arrears in payments on CSR activities. However, Ellouze (2020) suggests that in times of crises, customers are willing to support enterprises with a high level of CSR by paying invoices faster.

During crisis situations, companies set themselves various goals to survive which become immediate challenges during crisis times. The ones most frequently indicated include the following (Aguilera *et al.*, 2007; Campello *et al.*, 2010; Karunathilake, 2020; Kinlav *et al.*, 2009; Kraus *et al.*, 2020; Leung and Lam, 2004; Mackey *et al.*, 2007; Manuel and Herron, 2020; Parker, 2020; Paul and Chowdhury, 2020; Ramdoo, 2020; Zhang *et al.*, 2020): (1) retaining competent employees, (2) maintaining financial liquidity, (3) maintaining current production, (4) maintaining revenues at the current level and (5) maintaining market share. These are the goals that were used as dependent variables in our research.

3. Research methodology

3.1 Research model and leading hypothesis

Analysis of the literature on leadership and organizations' goals in times of crisis enabled us to develop the following conceptual model (Figure 1). Consequently, we have formulated the following hypotheses:

H1. Leadership decisions positively influence recognizing the importance of maintaining current production as a significant goal for surviving the Covid-19 crisis.

H2. Leadership decisions positively influence recognizing the importance of retaining competent employees as a significant goal for surviving the Covid-19 crisis.

H3. Leadership decisions positively influence recognizing the importance of maintaining financial liquidity as a significant goal for surviving the Covid-19 crisis.

H4. Leadership decisions positively influence recognizing the importance of maintaining revenues at the current level as a significant goal for surviving the Covid-19 crisis.

H5. Leadership decisions positively influence recognizing the importance of maintaining market share as a significant goal for surviving the Covid-19 crisis.

The related literature also indicates the need to consider certain control factors (Donate and Peña, 2016; Guan and Ma, 2003; Quintana-García and Benavides-Velasco, 2004). We decided to use the following four variables: age, size, export activity and foreign capital share.

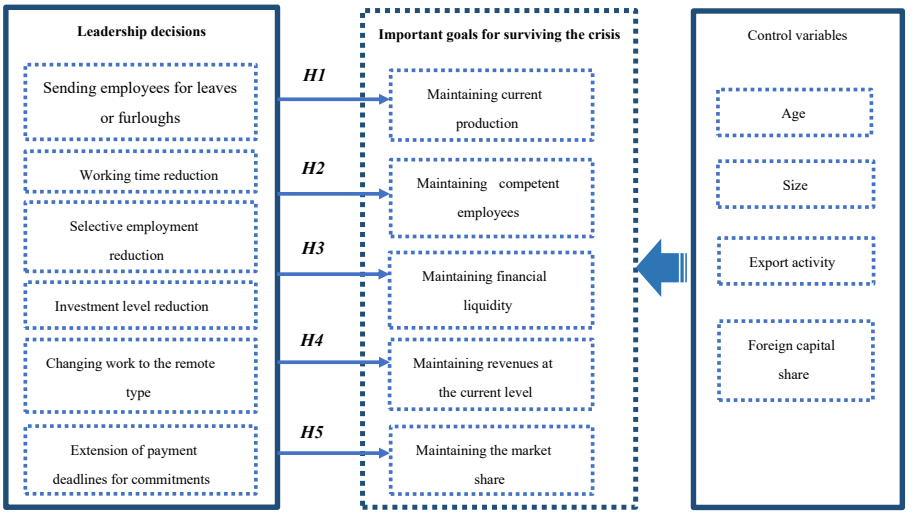

Figure 1.
Leadership decisions for company survival – research model

The empirical analysis carried out below seeks to empirically test our hypotheses and find dependencies between the leadership decisions taken and the desired goals recognized by the studied organizations as important for their survival.

3.2 Data collection

The data presented in this study comes from empirical research conducted in April 2020 as part of a research project called Sur(VIR)val. The main goal of the project was to identify and evaluate the activities undertaken by organization leaders in the first period after the economic lockdown as a result of the Covid-19 pandemic, in order to identify the decisions made. The main part of the research was conducted using the CAWI method among 178 enterprises. It should be emphasized that the sample of enterprises was not representative in relation to the total number of enterprises in Poland. This is due to the fact that we sought to quickly capture the first reactions of business leaders at the very beginning of the lockdown – just one month after the first Covid-19 lockdown in Poland. Therefore, we decided to construct the sample to include as many organizations as possible that would answer our survey very quickly, knowing that this could be a possible limitation of the study. Poland was chosen as an example of a fast-developing, post-accession economy, which creates a rich context for studying leadership processes in organizations. It was interesting to analyze leadership decisions in Poland as it has been an EU member since 2004, is a country with opportunity-based entrepreneurship (since 2014), dynamic GDP growth (around 5.3% in 2021) and low unemployment (around 5.5% in 2021). The sample characteristics are presented in Table 2.

3.3 Variables and measures

Table 3 presents the description, scale and reference of all the analyzed variables. The variables describing a firm's response activities were measured using an ordinal scale, where 0 – meant no action taken, 1 – no impact on survival, 7 – very big impact on survival. In the case of variables connected with the importance of organizations' goals, the respondents were asked how important a specific goal is for their organization and its survival (1-not important, 7-very important). We also decided to introduce four control variables into the model resulting from the characteristics of the researched sample: age, size, export activity and foreign capital share.

In the case of age, a logarithm was applied to do the calculations. In turn, measuring the size of companies, the following ordinal scale was used: 1 – micro, 2 – small, 3 – medium, 4 – large firm. Whereas, for export activity and the share of foreign capital we used a dichotomous scale. The descriptive statistics of the variables included in the model are presented in Table 4.

3.4 Data analysis methods

To study the effect of the explanatory variables on the ordered explanatory variable, we used the ordered logistic regression model. Hair *et al.* indicate that logistic regression, along with discriminant analysis, is an appropriate statistical technique when the dependent variable is a categorical (nominal or non-metric) variable and the independent variables are metric or non-metric variables (Hair *et al.*, 2010).

The ordered logistic model specification is an extension of the binary model specification to more thresholds. According to Wilkelman and Boes, models for ordered dependent variables are usually motivated by an underlying continuous but latent process y_i^* given by:

$$y_i^* = x_i'\beta + u_i \quad i = 1, \ \ldots, \ n \tag{1}$$

Characteristics	% In sample
Firm size (employees)	
up to 9	7.3
10–49	21.9
50–249	55.6
250 and more	15.2
Export activity	
Yes	7.9
No	92.1
Foreign capital share	
Yes	6.7
No	93.3
Firm age (years)	
up to 10	15.2
11–20	20.2
21–30	46.6
31–40	5.1
41 and more	12.9

Table 2.
Structure of the sample

with the deterministic component $x_i'\beta$ (the linear index of regressors), and the random terms u_i, which are assumed to be independently and identically distributed with the distribution function $F(u)$ with a mean of zero and constant variance (Winkelmann and Boes, 2006). Winkelmann and Boes also emphasize that "since we cannot observe the latent continuous variable y_i^*, but instead observe y_i with discrete values 1, ..., J, we need to find a mechanism that relates y_i^*, and y_i." Therefore, a threshold mechanism is used. It is assumed that:

$$y_i = j \text{ if and only if } k_{j-1} < y_i^* \leq k_j \quad j = 1, \ldots, J. \tag{2}$$

Since the J outcomes are obtained by dividing the real line, represented by y_i^*, into J intervals, using the $J + 1$ constant but unknown threshold parameters $k_0, \ldots, k_j$ (Winkelmann and Boes, 2006).

For interpretation of the logit model estimation results, we used odds ratios (OR). If we mark the chance as:

$$\frac{p_i}{1-p_i} = exp(x_i'\beta) = exp(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki}) = \Omega(x_i), \tag{3}$$

is the odds ratios with the variable X_{mi} increased by a unit and the odds without this increase equal:

$$\frac{\Omega(x_i^m, X_{mi}+1)}{\Omega(x_i^m, X_{mi})} = exp(\beta_m), \tag{4}$$

where x_i^m is the vector x_i without the variable X_{mi}. Formula (4) shows that an increase in the value of X_{mi} by one unit is related, *ceteris paribus*, with an $exp(\beta_m)$-fold change in the odds ratio. In the case of $exp(\beta_m) > 1$ we have an increase, and in the case of $exp(\beta_m) < 1$ we have a decrease in the odds ratio.

Description	Label	References
EXPLANATORY VARIABLES		
Crisis leadership activities		
Sending employees for leaves or furloughs	x_1	Vidal-Salazar *et al.* (2012), Kraus *et al.* (2020), Manuel and Herron (2020b)
Working time reduction	x_2	Shepard and Clifton (2000), Morf *et al.* (2013), Rathkey (1986), Shao and Shen (2017)
Selective employment reduction	x_3	Bellmann and Gerner (2011), Serrano-Cinca *et al.* (2020), Yasin *et al.* (2020)
Extension of payment deadlines for commitments	x_4	Ferguson *et al.* (2019), Lewicka-Strzalecka (2006)
Investment level reduction	x_5	Klyver and Nielsen (2021), Won Kim and Matsumura (2017)
Changing work to the remote type	x_6	Harpaz (2002), Mayo *et al.* (2016), Parker (2020), Tan-Solano and Kleiner (2001)
Control variables		
Age – number of years since business founding	x_7	Forsman (2011), Lin (2007), Martínez-Román *et al.* (2011), Martinez-Roman and Romero (2017)
Size – number of employees	x_8	Akman and Yilmaz (2008), Guan and Ma (2003), Nassimbeni (2001)
Export activity	x_9	Choudhary and Sangwan (2018), Şeker (2012), Wang and Zou (2022)
Foreign capital share	x_{10}	Greenaway *et al.* (2014), Halkos and Tzeremes (2010), Pacheco (2020)
EXPLAINED VARIABLE		
Important goals for surviving the crisis		
Maintaining current production	y_1	Ando and Kimura (2012), Sascha Kraus *et al.* (2020)
Maintaining competent employees	y_2	Jones and Moawad (2016), Lawless *et al.* (2014)
Maintaining financial liquidity	y_3	Cooper (2017), Hansen and Andersen (2014), Harreid *et al.* (2007), Teece *et al.* (2009)
Maintaining revenues at the current level	y_4	Lin and Wu (2014)
Maintaining the market share	y_5	Kazemian *et al.* (2020)

Table 3.
Description of variables

Variables	Mean	S.E.	S.D.	SD^2	Min	Max
x_1	2.438	0.167	2.224	4.948	0	7
x_2	1.674	0.178	2.371	5.622	0	7
x_3	0.624	0.114	1.518	2.304	0	7
x_4	2.101	0.170	2.263	5.120	0	7
x_5	3.489	0.181	2.418	5.845	0	7
x_6	3.584	0.174	2.328	5.419	0	7
x_7	1.343	0.025	0.334	0.112	0	2.190
x_8	2.787	0.059	0.788	0.621	0	4
x_9	0.079	0.020	0.270	0.073	0	1
x_{10}	0.067	0.019	0.251	0.063	0	1
y_1	5.708	0.137	1.830	3.349	1	7
y_2	5.927	0.117	1.562	2.441	1	7
y_3	6.680	0.072	0.959	0.919	1	7
y_4	6.045	0.115	1.532	2.348	1	7
y_5	4.972	0.170	2.269	5.146	1	7

Table 4.
Description of variables ($n = 178$)

To estimate all of the models, we used the maximum likelihood estimation method and STATA.16.1 software. The quality of the estimated ordered logistic regression was assessed with the following characteristics (Greene and Hensher, 2010; Siemiński *et al.*, 2020):

(1) Testing the total significance of all the explanatory variables (model significance) based on the likelihood ratio test based on the statistic $LR = 2(lnL - lnL_0)$, with a chi-square distribution with p degrees of freedom, equal to the number of estimated parameters (with the estimated threshold values excluded), where: L – the value of the likelihood function for the model under study; L_0 – the value of the likelihood function for the model which takes into account only the constant;

(2) Wald test – testing the significance of parameter assessment (the zero hypothesis assumes no significance of each model parameter separately):

$$\begin{cases} H_0 : \beta_i = 0 \\ H_1 : \beta_1 \neq 0 \end{cases} \quad Z = \frac{\widehat{\beta}_i}{D\left(\widehat{\beta}_i\right)} \tag{5}$$

(1) McFadden's pseudo – R^2:

$$R^2 = 1 - \frac{lnL}{lnL_0} \tag{6}$$

4. Results

In the first step, Cronbach's alpha, Kaiser–Meyer–Olkin (KMO) and Bartlett's tests were conducted. The results are shown in Table 5.

As can be seen, by using the KMO and Bartlett sphericity tests, the sample adequacy for all variables was analyzed. The KMO measure was 0.693 and 0.783, and the Bartlett sphericity test (Chi-Square = 130.485 and 271.110) showed a significance level of 0.000, which confirmed the reliability of the research tool. These values are acceptable for this type of analysis (de Vaus, 2002).

The correlation between the variables included in the model was analyzed as the next step. The results are presented in Table 6.

Only five correlation coefficients among the explained and explanatory variables are statistically significant. Some of the relationships are positive and some negative. Nevertheless, the coefficients are always below 0.2, so the relationship is very poor. Also, the coefficients among the explanatory variables are below 0.4, which indicates that multicollinearity is not a concern. The results of the ordered logistic regression estimates are shown in Table 7, while the values of the odds ratios are in Table 8.

The performed plausibility tests indicate the significance of two out of the five models, namely for y_1 (model 1) and y_2 (model 2). The test statistic of the likelihood-ratio tests used to verify the null hypothesis that a model with only k thresholds (_cut1 – _cut6) is as good as the

Table 5. Measurement properties

Variable	Cronbach's alpha test	Kaiser–Meyer–Olkin test	Bartlett's test
Explanatory	0.639	0.693	130.485*
Explained	0.753	0.783	271.110*

Note(s): *$p < 0.000$

Variables	y_1	y_2	y_3	y_4	x_1	x_2	x_3
y_1	1.000						
y_2	0.337**	1.000					
y_3	0.402**	0.373**	1.000				
y_4	0.469**	0.383**	0.476**	1.000			
x_1	0.069	0.010	0.040	0.012	−0.060	1.000	
x_2	0.010	0.005	0.021	−0.019	−0.006	0.327**	1.000
x_3	−0.072	−0.176**	−0.003	−0.104	−0.013	0.202**	0.365**
x_4	0.060	0.082	0.079	0.052	0.054	0.171**	0.137*
x_5	0.053	0.007	0.141*	0.029	0.018	0.223**	0.158**
x_6	0.172**	0.036	−0.003	0.062	−0.034	0.203**	0.050
x_7	0.081	0.114*	0.044	0.055	−0.032	0.036	−0.081
x_8	0.121	0.021	0.027	0.056	0.013	0.068	−0.131*
x_9	−0.094	−0.116	0.070	−0.139*	0.010	−0.009	0.032
x_{10}	0.065	−0.049	0.009	−0.056	0.134*	−0.080	−0.082

Note(s): **p-value ≤ 0.01, *p-value ≤ 0.05

Variables	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}
x_4	1.000						
x_5	0.236**	1.000					
x_6	0.186**	0.103	1.000				
x_7	0.011	−0.065	−0.022	1.000			
x_8	−0.090	−0.077	0.037	0.271**	1.000		
x_9	0.067	0.013	−0.002	−0.025	0.165*	1.000	
x_{10}	−0.004	−0.027	0.007	0.062	0.149*	0.171*	1.000

Note(s): **p-value ≤ 0.01, *p-value ≤ 0.05

Table 6.
Correlation matrix

estimated model is 19.31 and 16.59 respectively. At 10 degrees of freedom, the empirical significance level for these statistics is 0.03 and 0.08, so we reject the null hypothesis in favor of the alternative hypothesis that the estimated models are better than those that only account for thresholds. This allows further interpretation of models 1 and 2.

If the random component in the model explaining the latent variable has a logistic distribution, based on pseudo-R^2 McKelvey & Zavoina, it can be said that the analyzed variables explain 12.2% of the variance of the latent variable y_1 (model 1) and 9.7% of the variable y_2 (model 2). In both models, the parameter estimates assumed positive and negative values. In other words, the impact of the explanatory variables included in the models on the dependent variable is shown to cause, on the one hand, an increase in the chances of achieving the assumed goals, and, on the other hand, a decrease.

The variables that turned out to be statistically significant were x_6 – changing to remote working and x_9 – export activity – as they have an impact on the goal of maintaining current production. In turn, x_3 - employment reduction, x_4 – extension of payment deadlines for commitments and x_7 – age have an impact on retaining competent employees.

5. Discussion

The obtained model can be interpreted based on the odds ratios (Table 8). In the case of recognizing that maintaining current production is an important goal for survival (Model 1), assuming the other variables of the model are unchanged, we can present the following arguments.

First, organizations that send employees to work remotely (x_6) have a 17.4% higher chance to recognize maintaining current production as an important goal during crises, compared to those organizations that do not.

Table 7.
Ordered logistic regression for survival-oriented company goals

	Variables	Model 1 (y_1) β	Model 1 (y_1) Z	Model 2 (y_2) β	Model 2 (y_2) Z	Model 3 (y_3) β	Model 3 (y_3) Z	Model 4 (y_4) β	Model 4 (y_4) Z	Model 5 (y_5) β	Model 5 (y_5) Z
	x_1	−0.002	−0.03	0.023	0.28	−0.010	−0.09	−0.058	−0.69	−0.076	−0.97
	x_2	0.025	0.36	0.074	0.97	0.029	0.27	0.024	0.32	0.042	0.59
	x_3	−0.106	−1.05	−0.238**	−2.34	−0.033	−0.21	−0.104	−0.95	−0.073	−0.74
	x_4	0.067	0.92	0.129*	1.66	0.069	0.64	0.121	1.58	0.095	1.33
	x_5	0.051	0.76	0.002	0.04	0.191**	1.99	0.032	0.47	0.024	0.38
	x_6	0.161**	2.39	0.006	0.09	−0.048	−0.51	0.059	0.85	−0.049	−0.78
	x_7	0.416	0.87	0.912*	1.89	0.576	0.84	0.121	0.24	−0.677	−1.37
	x_8	0.336	1.56	0.008	0.04	0.024	0.08	0.317	1.43	0.157	0.78
	x_9	−0.904*	−1.67	−0.845	−1.56	1.038	0.94	−1.267**	−2.14	−0.247	−0.47
	x_{10}	0.587	0.98	0.010	0.02	0.066	0.08	−0.259	−0.46	1.148*	1.85
	/cut1	−0.586		−2.215		−2.665		−2.157		−2.392	
	/cut2	−0.022		−1.485		−2.372		−1.602		−1.789	
	/cut3	0.272		−0.968		−1.953		−1.140		−1.419	
	/cut4	0.919		−0.255		−1.309		−0.628		−1.045	
	/cut5	1.545		0.547		−0.148		0.188		−0.634	
	/cut6	2.165		1.206				0.999		−0.212	
	Log likelihood	−249.668		−237.851		−110.072		−224.884		−293.946	
	LR χ^2 (10)	19.31		16.59		8.05		11.76		9.47	
	Prob > χ^2	0.0364		0.0839		0.6242		0.3017		0.4878	
R2	McFadden	0.037		0.034		0.035		0.025		0.016	
	McFadden(adjusted)	−0.024		−0.031		−0.096		−0.044		−0.038	
	McKelvey and Zavoina	0.122		0.097		0.104		0.078		0.056	
	Cox–Snell/ML	0.103		0.089		0.044		0.064		0.052	
	Cragg–Uhler/Nagelkerke	0.109		0.095		0.061		0.069		0.054	
	Count	0.539		0.562		0.831		0.590		0.438	
	Count (adjusted)	0.000		0.013		0.000		0.000		0.000	
IC	AIC	531.337		507.703		250.146		481.769		619.893	
	AIC divided by N	2.985		2.852		1.405		2.707		3.483	
	BIC (df = 16)	582.246		558.612		297.873		532.677		670.801	

Note(s): **p-value ≤ 0.05, *p-value ≤ 0.1

Variables	Model 1 (y_1)	Model 2 (y_2)	Model 3 (y_3)	Model 4 (y_4)	Model 5 (y_5)
x_1	0.009	1.023	0.989	0.943	0.926
x_2	1.026	1.077	1.030	1.024	1.042
x_3	0.898	0.787**	0.966	0.900	0.928
x_4	1.069	1.138*	1.071	1.128	1.099
x_5	1.052	1.002	1.210**	1.033	1.025
x_6	1.174**	1.006	0.952	1.060	0.952
x_7	1.516	2.489*	1.780	1.129	0.508
x_8	1.399	1.008	1.024	1.137	1.170
x_9	0.404*	0.429	2.824	0.282**	0.780
x_{10}	1.799	1.010	1.069	0.771	3.152*

Note(s): **p-value ≤ 0.05, *p-value ≤ 0.1

Table 8.
Odds ratios for models y_1 - y_5

This suggests that allowing employees to work remotely may be profitable for organizations as far as maintaining current operations is concerned. During the pandemic, under the restrictions imposed by the lockdown, for many employees trying to reconcile work and family life, remote working became the only possible option for carrying out tasks for their employer (Cook *et al.*, 2020; Powell, 2020). At the same time, it is argued that leaders should strive to increase the level of employees' autonomy and flexibility (Harpaz, 2002), which positively influences the organization's ability to adjust to changes in the environment, thus enhancing its chances of survival.

Second, organizations that undertake export activity (x_9) have a 60% lower chance to recognize maintaining current production as an important goal during crises, compared to those organizations that do not. The Covid-19 crisis, which has led to border closures, has also significantly limited the ability for firms to pursue export activities, thus disrupting existing supply chains (Fernandes, 2020). Another factor that undoubtedly had a negative impact on the level of revenue from export activities was the change in the structure of demand (Kashyap and Raghuvanshi, 2020). Although the reduction in export activity during the Covid-19 crisis had a negative impact on the level of generated sales revenue, it should not constitute a reason for denying the importance of diversification, since in the long run, abandoning internationalization and focusing solely on the domestic market may significantly limit enterprises' development opportunities (He and Karami, 2016; Rundh, 2015).

In the case of striving to retain competent employees (Model 2), *ceteris paribus*, the following conclusions can be drawn. The first conclusion demonstrates that organizations that reduced employment selectively (x_3) have 22.2% lower chances to recognize retaining competent employees as an important goal during crises, compared to those organizations that did not conduct such reduction. The Covid-19 crisis has increased workers' concerns about their ability to work (Madero Gómez *et al.*, 2020). In such conditions, the key task of leaders is to limit the impact of negative employee attitudes resulting from fear of job loss, so as to have a positive impact on morale and productivity (Aguilera *et al.*, 2007), and to reduce the willingness of employees to leave their jobs by increasing flexibility and well-being (Carnevale and Hatak, 2020). The greatest probability of staff members leaving their job is noted among employees with the highest level of qualifications, who will relatively easily find new positions in the labor market. Meanwhile this creates a competency gap in the enterprise, and therefore the key role of a crisis-resilient responsible leader should be, as suggested by Yasin *et al.* (2020), to build ethical attitudes by ensuring employee satisfaction and reducing the level of employee rotation.

The second conclusion shows that organizations which made extensions to payment deadlines for commitments (x_4) have 13.8% higher chances to recognize retaining competent employees in the future as an important goal for surviving crises, compared to those organizations that did not make such extensions. The extension of payment deadlines is a mechanism of "transferring problems to suppliers", resulting in negative consequences for their financial condition (Ferguson *et al.*, 2019), and allows a safe level of financial liquidity to be maintained, thus assuring the organization's resilience. This decision allows the fulfillment of obligations toward employees and, by shaping the image of the company as financially stable, may reduce the level of willingness among employees to leave the organization.

Each additional year of an organization's age (x_7) increases the chance of recognizing the importance of retaining competent employees by 148%. The results of the study suggest that maturity and stability may have a significant impact on the perception of the organization among employees and their willingness to leave. Most likely, the described dependency is influenced by the length of employment in each organization, which discourages employees from looking for a new job due to their trust in the organization. However, this relationship should be confirmed in further studies.

Previous studies also indicate the importance of employee retention for the functioning and competitiveness of the company (Kyndt *et al.*, 2009). During the Covid-19 crisis, instead of laying off workers, companies use holidays (Stuart *et al.*, 2021) or furloughs (Hensvik *et al.*, 2021) as a mechanism for keeping employees in their jobs. Our results align with findings that the lack of an appropriate approach to retaining employees may result in the acquisition of the most valuable employees by competitors (Lewis and Sequeira, 2016). The leaders in the companies studied attempted to introduce strategies for prudent selective employment reduction and employee retention.

The research carried out in this paper supports only two of the five hypotheses that we formulated: *H1: Leadership decisions positively influence recognizing the importance of maintaining current production as a significant goal for surviving the Covid-19 crisis,* and *H2: Leadership decisions positively influence recognizing the importance of retaining competent employees as a significant goal for surviving the Covid-19 crisis.*

As we have indicated, only two of the generated models were statistically significant (Models 1 and 2), and they show that (1) changing to remote working and export activity influence recognizing the importance of maintaining of current production; (2) employment reduction, extension of payment deadlines and company age influence acknowledging the fact that retaining competent employees is a key challenge during crisis.

6. Conclusions

In this paper, we have analyzed the specificity of leadership responses to the crisis, and identified the impact of the most common decisions and actions taken by leaders in the face of the unexpected crisis. Based on the discussion in the field of leadership decisions and responses in times of crisis, we demonstrated the most common leadership decisions during crises, and offered some propositions. Further on, we categorized the decisions using the Foster and Dye's (2005) proposal, which identifies three major tasks for leaders during crises: (1) securing the company's employees, (2) securing the company's core activities and (3) securing business networks. This allowed us to formulate five hypotheses showing the influence of leadership decisions onto recognizing the importance of organizational goals (maintaining current production, retaining competent employees, maintaining financial liquidity, maintaining revenue, maintaining market share) for surviving the Covid-19 crisis. Using the logit regression model, these results provide evidence for the linkage between adaptability-oriented leadership decisions and the goals that should be realized for company survival.

The results of our research have direct theoretical implications which fill a gap in the field of leadership concerning leadership decisions during crises for sustaining the organizational goals that are recognized by leaders as critical for survival.

This study has shown that the leaders of the organizations in question have made decisions that can be seen as survival-oriented. They sought to protect competent staff by sending workers on leave and furloughs, shortening the working time and shifting to remote working. They strived to keep their companies competitive and innovative, as they sustained R&D expenses oriented toward exploiting opportunities. The decisions made attempted to secure cash flow by reducing investments and decreasing expenditures not related to current activities.

The contribution of this paper is three-fold. First, it adds to the theoretical literature on leadership by demonstrating the most common decisions taken by leaders in the salient times of crises. Second, this paper demonstrates that certain leadership decisions can shape the strategic choices, by indicating which goals of the organizations are significant for company survival during the crisis times. We found that the leadership decisions all impact the importance of maintaining current production and retaining competent employees as goals that should be given a strategic support. Third, with relatively little empirical research carried out into crisis responses in Central and Eastern Europe during the Covid-19 pandemic, it can be expected that the crisis and its economic impact will produce substantially more research in this area. However, this paper primarily contributes to studies on leadership decisions by identifying the most important managerial responses during uncertainty and their influence on shaping future strategic choices.

The results of our research also have some managerial implications. By demonstrating how firms reacted during the first lockdown in Poland, this study contributes to the managerial perspective and provides an insight into leadership behaviors and decisions under pressure. This paper also indicates which actions need to be taken at the beginning of a crisis to prioritize business goals. Leaders should ensure that proper tools (IT) are developed within the organization, and that the skill level of employees is high enough so that shifting employees on to remote working is fast and effective. At the same time, it is important to maintain IT infrastructure at a high level so that remote working can be carried out without interruption. Additionally, due to the key importance of human resources for the survival of the organization, leaders should respond quickly by making decisions about sending employees on leave and downtime. Also, from the perspective of the functioning of the company after the crisis, it is necessary to secure cash flow, maintain innovation in the field of R&D and reduce investment expenditure. Thus, in terms of general recommendations for leaders, they should make quick decisions, maintain the most valuable resources of the company from the point of view of its survival (human resources and cash flow), as well as take actions aimed at taking advantage of opportunities (R&D) during and after the crisis.

This study has certain limitations which open up avenues for possible future research. First, the list of leadership decisions and company goals used as dependent variables is not exhaustive. Therefore, we believe it is worth conducting in-depth research on the determinants of crisis leadership and the factors moderating firms' performance. Second, the selection of business goals oriented toward survival may not derive directly from the lockdown situation. Therefore, it would be worthwhile investigating goals related to survival and analysis of their relationships with the long-term goals of organizations. Third, our study did not measure the actual accomplishment of the company goals, but the managerial perceptions as to which ones are crucial for company survival during crises, and which of them should be given strategic support respectively. Similar research carried out two years after the first lockdown would bring more answers to which goals were actually accomplished in the crisis time, and what is the bottom line of the companies in question. Fourth, the research sample was randomly constructed and covered only business

organizations in Poland. Moreover, our research is based on cross-sectional data and may not have captured specific behaviors in different sectors, which could make it difficult to determine the relationship between the variables. Fifth, for space and reasons of parsimony, as well as the method applied, the hypotheses were formulated in a way that treated leadership decisions as one construct. The research results pointed to specific decisions that had an impact on acknowledging company goals critical for company survival. Finally, we used survey, with a scale measuring managerial perceptions.

Future research could be carried out on a larger sample of organizations and concentrate on a specific sector or groups of similar sectors (e.g. manufacturing or IT companies) to identify leadership patterns in an emerging crisis. It would be also interesting to examine Poland's neighboring countries as to which leadership decisions were taken there, and which goals were seen as strategic for surviving the salient crisis times.

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