


Article

Controlling and Its Influence on Organizations' Functioning under Conditions Caused by the COVID-19 Pandemic

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Abstract: The paper concerns the role of controlling—a contemporary management method—in organizations operating under conditions caused by COVID-19 as a black swan event, which may cause a crisis within an organization. The main aim of the paper is to verify whether quality of controlling has the ability to mitigate negative effects of organizational disruptions occurring in such conditions on the performance of the organization as a whole. Empirical research was performed in order to verify the proposed set of hypotheses. The research was carried out among 1133 organizations operating in Poland, Italy, and the USA during an active wave of the COVID-19 pandemic, influencing the way in which organizations functioned in those countries. Linear regression analysis and multigroup path analysis were performed in order to verify the hypotheses. The results show that, indeed, quality of controlling in an organization limits the negative influence of organizational disruptions on organizational performance, simultaneously positively influencing the organizational performance itself. Moreover, such effects are the strongest among organizations that were able to function without crisis in such critical conditions and non-existent among those who were not able to survive such crisis. The results show that the use of controlling can support organizations in avoiding crisis while operating in unpredictable and dynamic environments or support them in surviving that crisis, in cases where avoiding it is not possible. This confirms that these theoretical considerations can be usefully applied in the practice of management.

Keywords: management; controlling; crisis; COVID-19; organizational performance



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1. Introduction

The history of controlling is long and multifaceted. Significantly, its origins should be sought in the practice of organizations, not in the pages of theoretical studies. The first implementations of this method of management support took place in the early 20th century in the USA (i.a. [1]). Closely associated (and sometimes even equated) with managerial control and accounting, American “controllership” (a name of this management support method used in the USA) quickly gained recognition from the organizations where it was implemented. The tangible benefits it offered in the form of rationalization of cost levels—especially in the area of production—and the resulting positive impact on organizational performance determined its growing popularity in the USA (cf. [2]). After World War II, controlling solutions were transferred to Europe as a result of the establishment of subsidiaries of American organizations on the old continent [3]. Controlling gained a special place in organizations operating in Germany, but over time the shape of its solutions changed fundamentally—European organizations were not able to directly apply the American ideas of controllership. The name “controlling” also appeared—coined by [4]—distinguishing it from American “controllership”. Still associated with managerial accounting, controlling began to cover more and more widely varied areas of organizational functioning, gaining recognition among both management theorists and practitioners, as reflected, on the one hand, in the increasing number of implementations of controlling, and, on the other hand, in the growing number of theoretical studies on it (cf. [5,6]).

The distinguishing feature of controlling—both the American version and the European–German version—is undoubtedly its unique ability to provide support in difficult times of organizational functioning, especially in times associated with the implementation of disruptive changes in organizations [6]. According to Nesterak, “controlling is likely to grow because it is being reached by managers who consider it to be a very effective management tool in times of crisis” ([7], p. 52). Historically, it should be noted that controlling has proven itself and even recorded developmental leaps in times of crisis in the environment of organizations, implying difficult conditions for their functioning. First and foremost, historical sources speak of a surge of interest in controlling during the Great Depression at the beginning of the 20th century in the USA [7]. The economic situation during the Great Depression forced businesses to search for new methods of supporting the management process, as well as special approaches toward production and sales. “It can be said that it is a connection between the global financial crisis and the growing demands on the controller’s services in a global market” [6]. At that time, it became evident that applying a variety of managerial accounting tools and improving the process of planning, as well as rebuilding the organization and managing it according to the requirements of controlling, made it possible to ensure the continuity of the organization’s functioning in this difficult period. Controlling, on the one hand, allowed early recognition of risks, and on the other hand, helped to develop an accurate response quickly enough to prevent the effects or minimize the effects of the identified risks [8]. Controlling also made it possible to “analyze the causes of the crisis, using the cost accounts built by the controller, whose role became extremely important” [7]. What is more, controlling as a method of management support has proven itself and continues to prove itself under conditions that create the need to make profound changes in organizations, including those resulting from a crisis in the environment and/or the organization. An example can be the implementation of controlling of Polish organizations, which in the 1990s found themselves in a situation of having to adapt to new market conditions, completely different from the previous ones. During the period of transformation of the Polish economy, the instruments of the centrally planned economy used behind the Iron Curtain were not at all compatible with the requirements of a market economy. It was then that controlling appeared in Poland, which offered the solutions necessary for functioning under dynamically changing conditions of the environment and facing the need to reorganize organizations. Controlling solutions proved to be so well suited to the needs of changing Polish organizations that they are also successfully implemented today.

Currently, the multidirectionality and complexity of the transformation of an organization’s environment and its interior is certainly one of the important factors implying the rise of crisis phenomena in the world of 21st century organizations. “In the ever-changing, turbulent environment in which most modern organizations operate, the probability of crises is very high” [9]. It is also a well-known fact that “the COVID-19 pandemic has created a crisis unprecedented in terms of scale and social, economic, and environmental implications” [10]. The means of mitigating the negative effect of such crisis have been at the center of attention for management science researchers since the beginning of the COVID-19 pandemic. Passetti et al. [11] underline that any management control may have an important role in coping with COVID-19 and should be studied for determining the mechanism of such a role.

So far, the mechanism of the impact of controlling on the parameters of organizational functioning under crisis conditions, including those caused by the COVID-19 pandemic, has not been sufficiently empirically explored (there are limited studies available, e.g., [11]). This is a valid set of research gaps, as it has been proven [12,13] that traditional models fail or partially fail under crisis conditions. This means that the mechanisms for creating models in management sciences in difficult conditions are different than in a situation of relatively undisturbed organizational functioning. In this context, the first research gap is noted. In addition, it was found that there has been no research to date that has analyzed the impact of controlling (among other factors) on coping with a possible intra-organizational

crisis caused by the COVID-19 pandemic, which is the second research gap. In view of the above, the aim of the article is to determine what is the mechanism of controlling support of management for organizations operating under conditions caused by COVID-19.

Such an aim will be fulfilled by offering an extensive literature review, which will present the theoretical background for a conceptual model of the influence of controlling's quality on organizational performance through organizational disruptions (and its shape in various circumstances concerning crisis occurring within an organization). Said model will be verified based on empirical research performed among 1133 organizations operating in Poland, Italy, and the USA, determining the validity of proposed assumptions.

2. Theoretical Background and Hypotheses Development

2.1. *Controlling as a Method of Management Support*

Controlling, as stated in the introduction, is a method of management support still extremely popular in both management theory and practice [6,7,14,15], referring to the economic aspect of organizational functioning. It is understood as “a method of (assisting) management used-mainly in the areas of planning, control and steering-to carry out such functions as, for example, supplying information, coordinating, supervising, monitoring or co-management, and enabling managers-through its measurable and economic output-to make rational (and accurate) decisions, and thus aimed at achieving the goals of the organization as a whole” [16]. Controlling, which uses such management accounting tools as budgeting, cost and performance accounting, and deviation analysis and is assisted by a whole range of modern IT solutions [14], is a method that provides real information support for decision-making processes at various levels of management. Interestingly, in this context, controlling is considered a success factor for modern organizations. “Controlling can support management by identifying, planning and steering decisions which contribute to the added-value of the company” [17]. In theoretical studies, there are statements referring to high expectations of the benefits of implementing this method. Ensuring the continuity of its operation as well as its development are identified as the main, ultimate goals of the functioning of controlling in an organization [18]. Regarding controlling's goals, authors also mention improving the efficiency and competitiveness of the operation of the organization as a whole [19,20], ensuring the achievement of economic efficiency (profitability) and liquidity [21], or improving the profitability and efficiency of management, reducing economic risk, ensuring the stability of employment, and positively influencing the quality of the products offered [22]. Thus, modern theoretical studies on controlling refer to all aspects of its functioning in an organization [15,23] and thus to all areas of the organization's functioning, which means that modern controlling not only affects the costs and results of the organization's activities, but by supplying the organization with the necessary managerial information, it affects almost every sphere of its functioning [15]. Indeed, the essence of controlling boils down, in particular, to the creation—based on a multidimensional set of metrics—and transformation of management information that enables organizations to function flexibly and effectively in an uncertain and dynamic environment. In this context, there is no doubt that controlling is a method that affects, not only individual/selected areas of an organization, but also the organization as a whole.

Controlling is a method that is particularly suitable for organizations that are either exposed to an intra-organizational crisis (e.g., due to a difficult situation occurring in their environment) or are experiencing a crisis in different ways, coping with its effects [24]. This is determined primarily by the specific characteristics of controlling, especially the basic ones detailed by Stiegler and Hofmeister [25], i.e., goal orientation, future, and bottlenecks, as well as—based on a reliable information system—control being the most important area of interest for controlling [16]. Goal orientation implies the need for systemic setting of an organization's goals based on the results of analysis of both the organization and the environment in which the organization operates. In an almost natural way, goal orientation is combined with future orientation [26] and together they compel constant observation of the environment and the specification of activities that adapt the organization's functioning

to changes occurring in it, which makes it possible to determine the right direction of activity in the future [27]. Complementing the previous two features, bottleneck orientation makes it possible to focus on those areas of the organization that are likely to be areas of underperformance in the first place, allowing full, but not excess, use of the resources at the organization's disposal. Moreover, controlling means reacting to deviations that occur in the organization and are anticipated by working out decision options on the basis of various analyses and implementing one of them [16]. Controlling in the sense of control means simultaneous and complementary use of feed-back and feed-forward couplings so that it is possible for the organization to achieve the set goal. Management information systems, used in these processes by controlling, take into account the needs of decision-makers for obtaining information. The structuring and organization of the processes of shaping this system, according to Goliszewski, includes: objective planning of the need for information, determination of reliable sources and effective methods of acquiring information, transmission of information with particular attention to reports on potential and existing deviations, and anticipatory control of information based on feedback. Management information systems play an important role here, which seems to be even more important in the conditions of crisis [28].

Thus, controlling, due to its characteristics, i.e., goal orientation, future orientation, and bottlenecks [25], as well as the most essential component of controlling, which is control, makes it possible to continuously monitor the state of an organization in the context of the plans it has adopted, to observe and analyze signs of danger in a timely manner, and to detect potential and actual deviations, as well as to communicate the results of the analysis to managers of equal levels of management, in order for them to take appropriate measures to prevent the occurrence of risks on the one hand and to minimize their effects on the other. "The goal of controlling is to recognize and solve problems or suggest measures for solving them and all that, in order to avoid such problems in the future" [6].

In this context, the following hypotheses are possible:

H1.0: *Organizations functioning in an environment affected by the COVID-19 pandemic and declaring implementation of controlling achieve higher job/organizational performance than organizations functioning in an environment affected by the COVID-19 pandemic and not declaring the implementation of controlling.*

H1.1: *In organizations declaring the implementation of controlling, functioning in an environment affected by the COVID-19 pandemic, the controlling quality influences organizational performance, among other elements important from the point of view of the functioning of the organization as a whole.*

2.2. The Impact of Controlling on Organizational Response to the COVID-19 Pandemic

The COVID-19 pandemic, which started in 2019 (WHO declared the COVID-19 outbreak a pandemic on 11 March 2020) and caused unprecedented international restrictions and social distancing or stay-at-home protocols, has caused severe human, social, and economic disruptions worldwide [29,30]. The pandemic impacted the world through sharp shocks to worldwide economies and societies [31]. Hamouche [32] states that "this situation can have a negative impact on business sustainability and individual employment". It should be underlined that not all industries were negatively affected by the pandemic. For some of them (e.g., the pharmaceutical industry) were able to benefit from the situation that occurred in the world. However, the width of the branches that experienced negative effects of the COVID-19 pandemic was much greater. Furthermore, these branches needed the more immediate focus of the researchers in order to seek ways to help organizations from those branches survive the critical conditions. Researchers almost instantly began to look for any methods that would be helpful for organizations to maintain their sustainability and survive a crisis. It seems that controlling, as a specific management method, may have potential to indeed be helpful in such circumstances. However, the mechanism of its positive influence on organizations may be different than in normal operating conditions.

The mechanisms of the impact of controlling on an organization as a whole resulting from the support of decision-making processes under almost undisturbed conditions are presented by empirically verified models of controlling [33]. They assume the impact of controlling on the job performance of managers and employees ultimately translates into the performance of the organization. However, when developing a model of the impact of controlling on organizational job performance in difficult conditions caused by the COVID-19 pandemic, it should first of all be remembered that in a crisis—in general—models concerning management often need to be modified, as traditional mechanisms for forming relations between the parameters under study fail. Hence, it seems that in a crisis, when analyzing the impact of controlling on organizational performance, one should first consider organizational disruption as a factor that, on the one hand, is influenced by controlling in the control processes described above that take into account the impact of feedback and feed-forward loops, and on the other hand, affects organizational performance in a fundamental way, according to the theory of organizational reliability [34]. In view of the above, a hypothesis can be made:

H1.2: *In organizations declaring the implementation of controlling, functioning in an environment affected by the COVID-19 pandemic, the controlling quality influences organizational performance through organizational disruptions.*

Bieńkowska and Zablocka-Kluczka [35] claim that, taking into account the dualism of crisis management, i.e., the anti-crisis and crisis activities undertaken in the organization, the following sub-goals of both parts can be distinguished. Within the framework of anti-crisis management, the following can be defined as a sub-goal: “avoiding crises (preventing crises), possibly preparing the organization for their occurrence, and including: correct and timely recognition/detection of a crisis situation in the organization, taking preventive measures, avoiding the crisis, improving the organization’s competitive position and potential, developing the organization.” In turn, under crisis management, the sub-goals are as follows: “breaking and overcoming crises by ensuring the organization’s survival, i.e., not allowing the organization to go bankrupt, and including: correct and timely detection of the crisis in the organization, overcoming/overcoming the situation that threatens the existence of the organization, not allowing the organization to collapse; ensuring the survival of the organization, including minimizing the damage that the crisis may cause to the organization, full recovery of the organization, raising the level of competitiveness of the organization (development of the organization)” [35]. Thus, controlling is particularly useful in detecting and overcoming crisis phenomena of the organization [36,37]. The basic task of controlling in detecting crisis situations appears to be the identification of deviations occurring and anticipated in individual functional areas of the enterprise and their cause-and-effect analysis, which in essence boils down to “... identification and monitoring of risks” [20]. In turn, in the case of overcoming crisis situations, the overriding task of controlling is to prepare corrective decisions that could effectively resolve the crisis situation. Such reasoning is supported by Pasetti et al. [11], who described the role of management control in coping with COVID-19, showing the importance of being aware of the changing conditions outside and inside the organization.

It should additionally be noted at this point that the fundamental orientation of controlling is—as described earlier—an orientation to goals and the future, and therefore to the prevention of deviations that could potentially occur disrupting the previously assumed functioning of the organization. Indeed, controlling primarily adopts a way of thinking that takes into account anticipatory management and anticipatory couplings, allowing organizations to prevent future deviations from accepted patterns. Comparing the anticipated future state with the established goals makes it possible to identify potential deviations, analyze them, and introduce countermeasures early enough. In this context, the following hypotheses may be formulated:

H2.1: *In organizations declaring the implementation of controlling that have not experienced a crisis even though they are functioning in an environment affected by the COVID-19 pandemic, the*

controlling quality influence on organizational performance through organizational disruptions is stronger than in organizations declaring the implementation of controlling that have experienced a crisis because they are functioning in an environment affected by the COVID-19 pandemic.

H2.2: *In organizations declaring the implementation of controlling that experienced a crisis because they were functioning in an environment affected by the COVID-19 pandemic but were not able to survive and continue their operations, the controlling quality does not influence organizational performance through organizational disruptions.*

The diagram illustrating the adopted research hypotheses is presented in Figure 1.

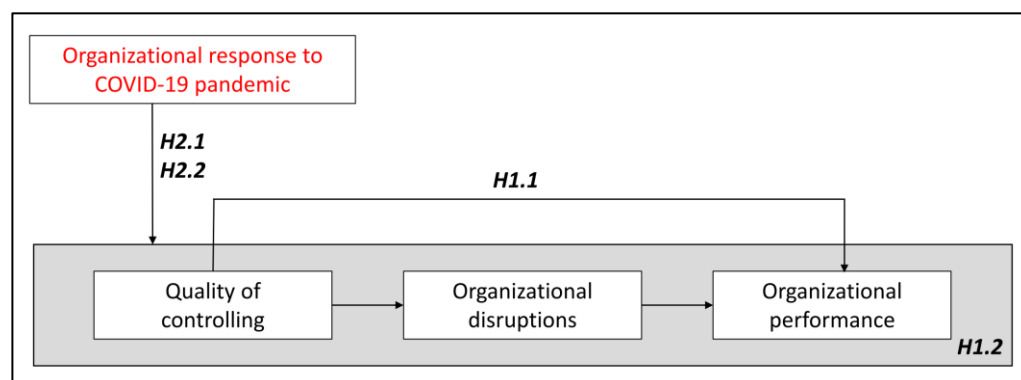


Figure 1. Modified model of quality of controlling influence on organizational performance through organizational disruptions with moderator–organizational response to COVID-19 pandemic. Source: own work.

3. Research Methodology

The theoretical model formulated based on systematic literature review was shown in Figure 1. Empirical research was conducted in order to verify it. The research was part of the project no. 2020/37/B/HS4/00130, titled “Development of the Job Performance model based on EDC for various phases of crisis in organization” and funded by the National Science Centre in Poland. The research had two phases: a pilot one, aimed at verification of a questionnaire, and the main one, aimed at gathering responses. The pilot study, performed among 25 competent judges, was aimed at verifying whether respondents were able to clearly understand the questions and making sure that they were able to assess correctly all the variables, including the crisis severity and occurrence. The feedback from competent judges allowed us to assume that the questions would be assessed correctly. The main research was conducted using the CAWI method, using the paid panel of high-level managers as respondents. The CAWI method was used because it allowed giving managers time to go through the set of questions (back and forth) without a time limit and showing them questions in groups connected to each area of organization operations. Moreover, it allowed offering additional explanations concerning various elements. The main research was conducted among 1200 respondents randomly selected from the respondents panel containing managers of organizations, filling in the information about their organization. Only one survey was performed for each organization. Out of those, 1133 responded to all questions in the questionnaire relevant to this study. The characteristics limiting the sample were: place of operations (organizations from Poland, Italy, and USA) and size (above 9 people). The selection of these countries was not accidental. They were selected, based on the information gathered from WHO, as countries burdened with high number of active COVID-19 cases and prone to implementing severe restrictions to limit that number, creating difficult conditions for functioning of organizations. The main part of the research was carried out in the first quarter of 2021 and was analyzed from that point in time. Therefore, it was purposefully conducted during an active wave of COVID-19 pandemic (characterized by rising number of active cases and various restrictions required by most countries—including social distancing, travel limitations, and remote work). Despite the

fact that there was a purposeful selection of organizations for the sample, the conclusions may be formulated based on said sample because of the diversity of the organizations included in it.

It is important to underline that the main topic of the article is connected to controlling. Hence, the sample that was the basis of statistical reasoning was limited to organizations declaring that they have implemented this method of management. Hence, 1073 out of 1133 responses that fully filled in the questionnaire were taken into account. Table 1 shows the overview of the selected sample, showing that 1073 organizations have declared that they implemented controlling.

Table 1. Sample characteristics.

	Number of Organizations
Controlling not implemented	60
Controlling implemented	1073
Total	1133

3.1. Variables Overview

In order to verify the proposed hypothesis, the following variables were used (scales presented in Appendix A):

Organizational performance was measured based on a 10-items scale with Balanced Scorecard dimensions (Kaplan & Norton, 1996), allowing inclusion of multiple aspects of organizational performance: financial, customer, learning and growth, and internal process aspects. It was measured using a 5-points Likert scale (from I strongly disagree [5] to I strongly agree [1], with a middle point: I have no opinion).

Organizational disruptions were measured based on a 4-items scale using statements concerning errors and disruptions occurring typically in organizations. They were measured using a 5-points Likert scale (from I strongly disagree [5] to I strongly agree [1], with a middle point: I have no opinion).

Controlling quality was measured based on a 5-items scale referring to statements concerning aspects of controlling functioning and shaping its quality. It was measured using a 5-points' Likert scale (from I strongly disagree [5] to I strongly agree [1], with a middle point: I have no opinion).

Crisis occurrence (Organizational response to COVID-19 pandemic) was a variable used for identifying the responses within the sample, which should be included in the study described by this article. It was a single-statement single-choice question concerning the state of crisis in which an organization was currently operating (with options: organization is not in crisis and has not survived crisis).

The scales' validity was assessed in order to determine whether they can be used as a basis for statistical reasoning. First of all, it was established that collected data are characterized by the normal distribution. Second of all, the scale analysis was performed in order to verify whether they could be used in the study and coherently and correctly assess the phenomena that they are intended to assess. The analysis was performed using confirmatory factor analysis (verifying whether all items are statistically significant in describing the variance of the variable as a whole) and alpha Cronbach analysis (verifying the fit of the scales). Table 2 presents the characteristics of used variables together with the results of alpha Cronbach and factor analysis (showing the total load of all items). Both of them confirmed that proposed scales performed well enough (being reliable and coherent) to be used in further reasoning.

Table 2. Variables characteristics.

Variable	No. of Items	Alpha Cronbach	CFA (Total Load)
Controlling quality Con_Q	5	0.725	55,049
Organizational disruptions OrgDisr	4	0.592	45,868
ORG performance OrgPerf	10	0.886	49,426
Crisis occurrence	1	–	–

3.2. Research Results

First, linear regression analysis was performed in order to verify the H1.1 hypothesis, which was crucial to determine whether it was possible to carry out further statistical reasoning. A statistically significant model was obtained, which is characterized by $R^2 = 0.263$ and $F(8,1123) = 49,967$, $p < 0.001$. The statistics concerning each variable are given in Table 3.

Table 3. Regression analysis results.

		B	Standard Error	t	p
	(h)	0.807	0.137	5.904	0.000
	V1	0.051	0.019	2.641	0.008
	V2	0.140	0.022	6.313	0.000
	V3	0.029	0.021	1.372	0.170
1	V4	0.125	0.024	5.287	0.000
	V5	0.073	0.020	3.724	0.000
	V6	0.067	0.021	3.123	0.002
	Con_Q	0.152	0.035	4.357	0.000
	OrgDisr	−0.145	0.028	−5.156	0.000

The results of regression analysis clearly show that controlling quality and organizational disruptions are statistically significant elements of the model, which includes control variables (V1–V6, concerning organizational structure, culture, technology, human capital, and goals) describing elements of an organization distinguished by the Leavitt model. Hence, statistical reasoning based on multigroup path analysis may be used in the given sample.

Moreover, such results allow accepting hypotheses H1.0 and H1.1, with the latter stating that in organizations declaring the implementation of controlling, functioning in an environment affected by the COVID-19 pandemic, the controlling quality influences organizational performance, among other elements important from the point of view of the functioning of the organization as a whole.

Second, the multigroup path analysis was performed in order to verify the mediation model and the moderation effects occurring in it. First of all, the path analysis was performed in order to verify the main mediation model (the influence of quality of controlling on organizational performance through organizational disruptions) using IBM SPSS AMOS. Second of all, the multigroup path analysis was performed using IBM SPSS AMOS in order to verify the moderation effect of organizational response to the COVID-19 pandemic.

In order to achieve this, the sample of organizations was divided into three groups:

- (1) Organizations that have not experienced crisis even though they are functioning in an environment affected by the COVID-19 pandemic.
- (2) Organizations that are experiencing the crisis (its various phases) because they are functioning in an environment affected by the COVID-19 pandemic.

- (3) Organizations that experienced the crisis because they were functioning in an environment affected by the COVID-19 pandemic but were not able to survive and continue their operations.

Based on this, multigroup path analysis was performed. A statistically significant and well-fitted model was obtained. The fit of the model was assessed with CFI (sufficient values above 0.7) and RMSEA (sufficient values below 0.2). The obtained model was statistically significant and well-fitted: $\chi^2(3) = 8697$; $p < 0.001$; CFI = 0.969; RMSEA = 0.039. The obtained characteristics of the model are more than sufficient to use it for statistical reasoning.

The calculated regression coefficients and effects (total, indirect, direct) occurring within the model for each group of organizations are presented in Tables 4–9.

Table 4. Regression coefficients for organizations not experiencing crisis.

			Estimate	S.E.	C.R.	<i>p</i>
OrgDisr	←	Con_Q	−0.652	0.038	−7032	0.001
OrgPerf	←	OrgDisr	−0.404	0.032	−3704	0.001

Table 5. Total effects for organizations not experiencing crisis.

	Con_Q	OrgDisr
OrgDisr	−0.652	−0.000
OrgPerf	−0.264	−0.404

Table 6. Regression coefficients for organizations experiencing crisis.

			Estimate	S.E.	C.R.	<i>p</i>
OrgDisr	←	Con_Q	−0.408	0.038	−10,824	0.001
OrgPerf	←	OrgDisr	−0.166	0.032	−5258	0.001

Table 7. Total effects for organizations experiencing crisis.

	Con_Q	OrgDisr
OrgDisr	−0.408	0.000
OrgPerf	0.168	−0.166

Table 8. Regression coefficients for organizations that have not survived crisis.

			Estimate	S.E.	C.R.	<i>p</i>
OrgDisr	←	Con_Q	−0.280	0.152	1843	0.065
OrgPerf	←	OrgDisr	−0.171	0.105	1632	0.103

Table 9. Total effects for organizations that have not survived crisis.

	Con_Q	OrgDisr
OrgDisr	−0.280	0.000
OrgPerf	0.048	−0.171

First of all, the fact that a statistically significant model was obtained allows accepting the hypothesis H1.2, which states that in organizations declaring the implementation of controlling, functioning in an environment affected by the COVID-19 pandemic, the controlling quality influences organizational performance through organizational disruptions. This shows that the assumed relation, in which controlling quality has the ability to influence organizational performance through organizational disruptions, which negatively affect

that performance, exists among organizations operating in crisis and those operating not in crisis.

Moreover, the analysis of total effects occurring within each group shows that in organizations that have not experienced crisis, the total effect of controlling quality influence on organizational performance is significantly higher ($t_e = 0.264$) than among organizations that have experienced crisis ($t_e = 0.168$). Not only that, the negative effect of controlling quality influence on organizational disruptions is also higher in case of organizations not experiencing crisis, compared to those in crisis (shown in Tables 5 and 7). Hence, the obtained results allow accepting hypothesis H2.1, which states that in organizations declaring the implementation of controlling that have not experienced crisis even though they are functioning in an environment affected by the COVID-19 pandemic, the controlling quality influence on organizational performance through organizational disruptions is stronger than in organizations, declaring the implementation of controlling, that have experienced crisis because they are functioning in an environment affected by the COVID-19 pandemic.

The obtained results also clearly show that in the model obtained for the group of organizations that have not survived crisis, the relations are not statistically significant (p values are above 0.05 in both cases, which is shown in Table 8). Therefore, those results allow accepting the hypothesis H2.2, which states that in organizations that experienced crisis because they were functioning in an environment affected by the COVID-19 pandemic but were not able to survive and continue their operations, the controlling quality does not influence organizational performance through job performance.

4. Discussion

The obtained results allow substantially contributing to the field of study connected to the use of controlling in organizations operating under crisis. It should be stated that the empirical verification of the hypotheses formulated based on solely theoretical considerations seems to generate both theoretical and practical implications.

The results confirm that controlling is a management support method, which is one of the keys determining the possibility of organizations surviving the crisis caused by the COVID-19 pandemic. Since not only practitioners but also researchers are looking for any mechanisms enabling organizations to survive such crisis, that conclusion seems to be especially important. It is worth noting that the results show that the positive influence of controlling on organizational performance (also negatively influencing the level of organizational disruptions) does not occur in the case of organizations that have not survived a crisis caused by the COVID-19 pandemic. Such results allow concluding that controlling indeed enables organizational survival and lack of its proper support may indeed be a factor that contributes to the collapse of the organization.

Moreover, the obtained results allow forming much further-reaching conclusions, showing that controlling is also one of the keys enabling organizations to avoid crisis while operating under difficult conditions caused by COVID-19. It should be underlined that the negative total effect of controlling quality on organizational disruptions, which occurs together with its positive total effect on organizational performance, shows that the overall positive influence of controlling on an organization's operations has various mechanisms, through mitigation of organizational disruptions and boosting organizational performance. The strength of the relation occurring within the path model shows that the strength of controlling quality's negative influence on organizational disruptions is the greatest among organizations operating under difficult conditions caused by COVID-19 and not experiencing crisis. It seems that, as assumed based on the existing (but very poor) literature findings, controlling through prevention of deviations that could potentially occur, disrupting the previously assumed functioning of the organization, allows preventing crisis occurrence due to mitigation of organizational disruptions. Moreover, the negative influence of organizational disruptions on organizational performance is limited (smaller) among those organizations that have not experienced crisis, showing that the positively influence of quality of controlling goes all the way to organizational performance. It furthermore con-

firms the unique (not presented earlier in the body of literature) mechanism of controlling influence on organization connected to its ability to limit organizational disruptions.

It is also important to note that total effects occurring within the model show that controlling quality has a simultaneous potential to positively influence organizational performance itself, not limiting its influence just to disruption mitigation. Such findings confirm various view found in the literatures stating that organizations indeed can benefit from high-quality controlling, also during crisis. Although at first it seems like a trivial conclusion, after careful considerations, it shows an important characteristic: that controlling maintains its ability to positively influence organizational performance even under difficult conditions occurring within the environment.

Hence, the obtained results allow confirming that controlling support as a management method has two very important roles in the organization, considering it from the point of view of crisis. First of all, controlling allows avoiding crisis within organizations operating under conditions caused by Black Swan events, such as COVID-19. Second of all, when an organization is not able to avoid crisis, controlling allows surviving that crisis and maintaining operations throughout the difficult circumstances.

Moreover, the obtained results once again confirm that the models existing in the field of management science for organizations operating under normal conditions are not valid for conditions of crisis, especially such extreme ones as those that were caused by the COVID-19 pandemic. The typical model of controlling influence on organizational performance through managerial and job performance was not proven to be statistically significant. Instead of job performance, the organizational disruptions were introduced, offering a new, unique view on the way in which controlling is contributing to organizational operations and survival during crisis.

5. Conclusions

The main aim of the article was to determine what is the mechanism of controlling support of management for organizations operating under conditions caused by COVID-19. The aim was successfully achieved through an extensive literature review, the development of a hypothetical model of controlling's quality influence on organizational performance through organizational disruptions, and verification of it based on performed empirical research. The carried out research allowed to conclude that controlling quality influences organizational performance through organizational disruptions, limiting the level of those disruptions and its negative influence on organizational performance. Such a mechanism occurs most strongly among organizations that were able to avoid crisis even though they are operating under conditions caused by the COVID-19 pandemic, which confirms the validity of the proposed mechanism and the benefit from controlling for an organization as a whole. In turn, the mechanism does not occur at all among organizations that have not survived the crisis caused by the COVID-19 pandemic, showing that insufficient controlling support might be one of the causes of their collapse.

Such conclusions appear to be of most importance for contemporary researchers and practitioners, allowing the filling in of the identified research gaps and identifying mechanism, which may be fostered in organizations avoiding crisis, which may be caused by the next waves of COVID-19 pandemic, or limiting the negative effects of crisis that they are already experiencing. The obtained results generate theoretical implications, as they are contributing to the theory of crisis management, especially in the context of management methods, which may be used to contain such crisis. Moreover, they also generate practical implications, as the results indicate that controlling as a management method may be used by organizations as the means by which they can avoid the crisis caused by COVID-19 conditions or obtain support for surviving it. It shows that management sciences have the potential to apply theoretical solutions into the practice of management, with benefits for contemporary organizations.

It should be also underlined that such conclusions are valid for organizations operating in Italy, Poland, and USA-specific business contexts, in which most organizations are

operating based on some level of IT support (required for correct implementation of contemporary controlling) and the level of the economy development allows them to properly use the implemented management methods.

This is directly connected to the limitations of this study. The performed research has some limitations, as it is based on organizations that were operating during one wave of COVID-19 pandemic, and it was not the first wave of it. Thus, the organizations had time to reconfigure the way in which they operating, and they were assessed after such initial reconfigurations. Moreover, the empirical research is based on organizations operating in specific business contexts: Poland, Italy, and the USA. Hence, the obtained results should not be generalized outside of this context, and further studies in this regard should be performed.

The performed research and obtained conclusions allow drawing future directions of research in the field. There is an apparent need to further analyze the mechanisms by which controlling has the potential to help organizations to avoid collapsing due to crisis caused by the COVID-19 pandemic. Furthermore, it seems that controlling may have a positive influence on the ability to avoid/survive crisis caused by various different factors, not only COVID-19. It is worth pursuing further exploration to underline the importance of this management method for contemporary organizations.

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Appendix A

Questionnaire items:

Organizational disruptions:

1. The hazards potentially harmful for the organization occurred. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
2. The disruptions in normal functioning of the organization occurred. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
3. There were problems with maintaining the continuity of the organization’s activity. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
4. The organization did not have problems with maintaining business continuity, but its efficiency could be higher. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree

Quality of controlling:

1. Reports and analysis of controlling are reliable, delivered on time, and valid. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
2. The information contained in reports and controlling analyzes are indispensable in decision-making processes/improve decision making. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
3. Budgets developed by controlling allow for rationalization of the costs in the organization. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree

4. Controlling coordination affects positively the objectives of the organization as a whole. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree
- Organizational performance:
1. The overall financial situation of the organization comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 2. The job performance comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 3. The quality of products or services (reliability, diligence) comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 4. The innovativeness of products or services comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 5. The modernity of applied technological solutions comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 6. The efficiency of the organization management comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 7. The reliability of business processes comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 8. The market share comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 9. The customers satisfaction comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
 10. The employees' satisfaction comparing to main competitors is: Much better than competitors; Better than competitors; As competitors; Worse than competitors; Much worse than competitors
- Organizational crisis:
1. In which phase of crisis is currently the organization?
 - a. The organization is not in crisis.
 - b. The organization detected signals, which inform that a crisis may occur.
 - c. The organization is currently implementing preparations to prevent the predicted crisis.
 - d. The organization is currently implementing a containment plan and damage limitation measures to contain the crisis.
 - e. The organization is recovering from the crisis and its parameters are growing.
 - f. The organization is failing to recover from the crisis and its parameters are declining even though all measures were implemented to contain the crisis.
 - g. The organization is currently learning from the recent crisis.

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