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THE USE OF CONTROLLING IN ORGANIZATIONS OPERATING IN POLAND, SWITZERLAND AND THE USA – A COMPARATIVE STUDY

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Abstract: The purpose of the article is to provide knowledge on the similarities and differences in the use of controlling in organizations operating in Poland, Switzerland and the USA along with the main conditions of this use. This comparison in the indicated countries – so far not undertaken in the presented scope in the literature – is justified because controlling has not only a different history there, but also various solutions. The hypotheses formulated for the purpose of achieving the indicated goal were empirically verified on a sample of 2829 organizations: 1683 operating in Poland, 899 in Switzerland and 247 in the USA. Statistical analysis methods were used, including correlation analysis as well as a one-way analysis of variance and t-student analysis and χ^2 test analysis. The presented results of the empirical research allow to show similarities and differences in the use of controlling in organizations functioning in the three examined contexts.

Keywords: management, controlling, empirical research.

1. Introduction

Nowadays, controlling is one of the most commonly used methods of management (see, among others, Bieńkowska, Zgrzywa-Ziemak, 2011; Tworek, 2019). Its unflagging popularity as well as the growing importance of management results from the benefits that can be obtained thanks to the implementation of controlling solutions relating to the organization as a whole (e.g. Weber, 2001; Guenther, 2013; Chachula, 2009; Nowosielski, 2001; Marciniak, 2008; Nowosielski, 2018; Nesterak, 2002; Bieńkowska, 2015).

However, the growing importance of controlling, both in theory and in management practice, is still accompanied by controversy (see Mocanu, 2014). One of the reasons for this is the multi-threaded history of controlling, and hence its different perception in the world, as well as – which is therefore natural – the diverse shaping of controlling solutions in organizations. In particular this applies to the functioning of controlling in the USA – the cradle of controlling in its modern understanding and in English-speaking countries that have adopted the American concept of this method of supporting management, as well as in Germany and other German-speaking countries, where controlling evolved after World War II and developed its own original solutions. It seems that despite the decades of modern controlling, the differences in its perception are still valid, which still causes interpretative differences in the world. Therefore, the research question arose whether today the differences in the perception and functioning of controlling are as important as in the initial period of its development. For this reason, the purpose of the article is to provide knowledge on the similarities and differences in the use of controlling in organizations operating in the USA and Switzerland, as well as – from the country perspective – in Poland. In this manner, the study shows the differences in the use of controlling in organizations operating in three countries with a diverse history of this management method – the USA, Switzerland and Poland – such comparisons are not available in the literature due to the need to gather a large and diverse research sample. In each of the considered countries controlling has its own separate history which determines the difference in its perception as well as the different shape of its solutions. This issue has not yet been discussed in the literature to any great extent, hence the article offers an extension of the research conducted by e.g. Bieńkowska (2015), in order to fill the identified research gap.

2. The use of controlling in Poland, Switzerland and the USA

In modern understanding, controlling is a method originating in the USA (Bedenik, 2015), where at the end of the 19th century there was the emergence of job positions (McCord, 1967), which were initially primarily associated with bonds, shares and securities belonging to railway enterprises (Jackson, 1949) such as The Atchison, Topeka and Santa Fe Railway System, Southern Pacific Company, New York, New

Haven and Hartford Railroad Company and the Illinois Central System Controller. In the first decades of the 20th century there was a rapid development of the controller function, called “controllershship” in the US, both in practice and management theory. Fiske (1940), Anderson (1944) and Jackson (1949) attempted to define the responsibilities of controllers, noticing the rapid increase in the significance and substantive development of the function of “controllershship” in enterprises (Fiske, 1940, p. 232). It turned out quite quickly in the USA that the work of controllers is also closely related to management accounting, and therefore to the service function in relation to management (Brink, 1950; Welsch, 1954). Yet at the end of the 20th century a partial shift of focus could be noticed towards the interdependence of manager and controller functions, but the controller was still a servant in relation to the manager, helping in the decision-making process (Sathe, 1983). However, the progressive evolution of the controller function in the USA caused the position of controller to become a combination of managerial experience and the knowledge of accounting (Bragg, 2009). Apart from the ‘controllershship’ function, the so-called managerial function of controlling emerged (cf. Goliszewski, 2019, p. 25) also known as ‘managerial/management control’ (e.g. Otley, 1994; Otley, 1999, Granlund and Taipaleenmäki, 2005; Anthony and Govindarajan, 2007; Malmi and Brown, 2008; Otley and Emmanuel, 2013; Strauß and Zecher, 2013), ultimately integrating the functions of manager and controller, but at the same time separating “controllershship” from “management control” (Goliszewski, 2019).

The European perception of controlling, especially in German-speaking countries, is quite different (Chenhall, 2003; Wagenhofer, 2006; Schäffer et al., 2001). Although controlling reached Europe after World War II with the establishment of branches of American enterprises (especially in Germany, but also England and France), it developed solutions different than in the USA (Horvath, 2009; Weber, 2001; Portz and Lere, 2010; Weisenberger and Angelkort, 2011). The most rapid development of controlling took place in the mid-1960s in Germany (Bauer, 2013). During that period Deyhle (1976) used the term ‘controlling’ for the first time in reference to the management method in question. At the same time, German-speaking countries began to define this concept differently. Controlling was therefore understood as an organization management subsystem (Horvath, 2002), information support for planning and coordination systems (Reichmann, 2001), decision support (Hahn and Hungenberg, 2001; Weber et al., 1999) or management system coordination (Krüger, Werder, and Grundzi, 2008). Finally, three (Weber, 2001) or even five (Deimel, Heupel, and Wiltinger, 2013, after: Goliszewski, 2019) internally coherent controlling concepts could be distinguished in Germany. However, controlling does not replace management in all those concepts. The term management control (and accounting) appears today also in German-speaking countries (Becker and Messner, 2005; Wagenhofer, 2006), but it is treated separately from controlling (Guenther, 2013).

In Poland, as well as in other countries from behind the Iron Curtain, controlling began to be implemented after 1989 (Major, 1998). Controlling solutions reached

Polish enterprises mainly from Germany. Theorists, having access to research centers and German literature, also developed Polish controlling solutions based on German controlling models (see, among others, Goliszewski, 1990; Olech, 1991). Hence, it is not surprising that the concept of Polish controlling was modeled on German solutions. The history of controlling in Poland is characterized by the appearance of many diverse definitions that directly indicate ambiguities in the understanding of the essence of this method of management support in the initial period of its use (see Bieńkowska, 2015). In the above context, controlling in Poland should be considered as a relatively new (though now clearly established) method of supporting management, especially if compared to the American and German experience.

The implementation and use of controlling are possible and needed in any organization (cf. Weber, 2001). However, nowadays, Polish, English and German-language literature as well as management practice, indicates many factors which increase the frequency of controlling implementation in the organizations. They are associated, among others, with the expected benefits that the organization can achieve thanks to the implementation of controlling. These factors include both internal determinants related to the characteristics of the organization (e.g. organization size, complexity of the organizational structure, prevailing type of activity, ownership form, legal form, level of internationalization, age of the organization), as well as the external factors related to environmental characteristics (e.g. dynamics and complexity of the environment, globalization of the economy) (cf. e.g. Bieńkowska, 2015; Lichtarski and Nowosielski, 2005; Goliszewski, 2015; Dynowska, 2011). Moreover, the results of some empirical studies (conducted, among others, in Poland) seem to confirm the increase in the frequency of controlling implementation along with the increase in the size of the organization (Lichtarski and Nowosielski, 2005; Naruć, 2012) or the increase in dynamics of the environment (Bieńkowska, Kral, and Zabłocka-Kluczka, 2011). The same tendency of organizations to increase the frequency of implementation of controlling along with the increase in the size of the organization is present in Germany, as evidenced by the research results of e.g. Küpper, Winckler, and Zhang (1990, p. 443). Therefore it seems that in all the analysed countries, regardless of the different perceptions of the controlling concept, and various ‘controlling internships’, similar aspects affect the frequency of controlling implementation. Therefore, considering the research question provided in the introduction, the following hypotheses can be made:

H1_1: In organizations operating in (a) Switzerland, (b) the USA and (c) Poland, the size of the organization influences the use of controlling.

H1_2: In organizations operating in (a) Switzerland, (b) the USA and (c) Poland, the dynamics of the environment influences the use of controlling.

H2_1: In organizations operating in (a) Switzerland, (b) the USA and (c) Poland, the size of the organization influences the length of using controlling.

H2_2: In organizations operating in (a) Switzerland, (b) the USA and (c) Poland, the dynamics of the environment influences the length of using controlling.

3. Research methodology and results

3.1. Sample description and variables

To verify the formulated research hypotheses, the results collected during five series of surveys were used:

- research carried out in March 2018 as part of the Miniatura research grant (NCN) no. 2017/01/X/HS4/01967, covering 558 organizations operating in Poland and 564 organizations operating in Switzerland,
- research carried out in December 2018, covering 303 organizations operating in Poland and 247 organizations operating in the USA,
- research carried out in December 2018, covering 349 organizations operating in Poland and 288 organizations operating in Switzerland,
- research carried out in September 2019, covering 246 organizations operating in Poland,
- research carried out in December 2019, covering 254 organizations operating in Poland.

It should be clarified that research on the subject of controlling was carried out each time – from March 2018 – accompanying the main research on various substantive issues in the field of management. Owing to this it was possible to collect a significant research sample which, however, is still not representative because the selection of the sample was not random. However, the sample is diverse, which makes it possible to perform multifaceted comparative tests. This article is a summary of the above five series of various research works in the field of controlling.

The overall research sample covers a total of 2829 organizations (1683 organizations operating in Poland, 899 organizations operating in Switzerland and 247 organizations operating in the USA).

Table 1. Characteristics of the research sample – the size of the organization and the use of controlling across the surveyed countries

Country		Organization size				Total	Controlling use		Total
		Less than 10	10-50	51-250	More than 250		no	yes	
Poland	N	464	380	420	411	1675	365	1318	1683
	%	27.7%	22.7%	25.1%	24.5%	100.0%	21.7%	78.3%	100.0%
Switzerland	N	204	225	201	245	875	170	729	899
	%	23.3%	25.7%	23.0%	28.0%	100.0%	18.9%	81.1%	100.0%
USA	N	19	27	68	133	247	55	192	247
	%	7.7%	10.9%	27.5%	53.8%	100.0%	22.3%	77.7%	100.0%
Total	N	687	632	689	789	2797	590	2239	2829
	%	24.6%	22.6%	24.6%	28.2%	100.0%	20.9%	79.1%	100.0%

Source: own elaboration.

Table 2. Characteristics of the research sample – length of controlling use and environment dynamics

Country	N	Avg	Standard deviation
Length of controlling use			
Switzerland	544	3.67	1.152
USA	247	3.08	1.470
Poland	1400	3.03	1.293
Total	2191	3.19	1.309
Environment dynamics			
Switzerland	896	3.63	1.26
USA	247	3.90	1.08
Poland	1696	2.97	1.18
Total	2844	3.26	1.25

Source: own elaboration.

The following variables were used to verify the formulated hypotheses:

The use of controlling, measured on the basis of one question (answer: yes/no).

The length of controlling use, measured on a 5-point Likert scale (answers: never, less than a year, more than a year but less than 5 years, more than 5 years but less than 10 years, more than 10 years).

Dynamics of the environment, measured on a 5-point Likert scale using the statement: The organization operates in a dynamic environment (answers: I fully agree, I agree, I have no opinion, I do not agree, I completely disagree).

The size of the organization, measured on the basis of one question (answers: less than 10 people, 10-50 people, 51-250 people, over 250 people).

Table 1 presents the characteristics of the research sample, while Table 2 shows the descriptive statistics of the examined variables in individual countries.

3.2. Research results

The results presented in Section 3.1 show that in all three countries controlling is significantly more often used than not used; around 80% of the surveyed organizations declare the implementation of controlling.

In order to verify the H1_1 hypothesis, the χ^2 test was carried out for the use of controlling and the size of the organization in the three studied countries. Statistically significant differences were found between the use of controlling (or the lack of it) in organizations functioning in Poland ($\chi^2(3, N = 1652) = 11.022; p = 0.012$) and in the USA ($\chi^2(3, N = 247) = 9.748; p = 0.021$). In Switzerland, the differences were not statistically significant ($\chi^2(3, N = 847) = 2.355; p = 0.502$). In Poland, it is more often not used in the smallest organizations than in other groups of organization sizes. In the USA, the use of controlling is clearly increasing as the size of the organization increases. The above allows for the partial acceptance of H1_1 stating

that in organizations operating in (b) the USA and (c) Poland, the size of the organization influences the use of controlling.

In order to verify the H1_2 hypothesis, the *t*-Student's test for independent samples was carried out for the use of controlling and the dynamics of the environment in the three studied countries. In all of them the dynamics of the environment among organizations declaring controlling implementation is compared with the dynamics of the environment among those who have not implemented this management support method. The *t*-Student's test analysis showed statistically significant differences between organizations operating in different environments in Switzerland and the USA (Switzerland: $t(893) = 3.139$; $p = 0.02$; USA: $t(143.693) = 5.941$; $p < 0.01$). In both countries, organizations that declared the use of controlling functioned in a more stable environment (Switzerland: $M = 3.568$; $SD = 1.247$; the USA = 3.739 ; $SD = 1.123$) than organizations that did not implement controlling solutions (Switzerland: $M = 3.905$; $SD = 1.287$; the USA = 4.472 ; $SD = 0.690$). For organizations operating in Poland, the differences were not statistically significant ($t(1674) = -0.794$; $p = 0.427$). This allows to partially accept the H1_2 hypothesis stating that in organizations operating in (a) Switzerland, (b) the USA, the dynamics of the environment influences the use of controlling, but the direction of the results should be considered as surprising.

In order to verify the H2_1 hypothesis, the one-factor ANOVA variance analysis was carried out for the length of controlling use and the size of the organization in the three studied countries. In the analysis of variance for the USA and Poland, statistically significant differences were found in terms of the length of using controlling between organizations of different sizes (for the USA: $F(3, 243) = 3.444$; $p = 0.017$; for Poland: $F(3, 1367) = 4.751$; $p = 0.003$). However, the noticeable tendency confirming that the length of using controlling increases with the increase in the size of the organization occurs only in Poland (Table 3). In Switzerland, these differences are not statistically significant ($F(3, 515) = 0.709$; $p = 0.547$). Therefore, it is possible to partially accept the H1_1 hypothesis stating that in organizations operating in (c) Poland, the size of the organization influences the length of using controlling.

Table 3. Controlling use in Poland and the USA

Organization size	Poland			USA		
	N	Avg	SD	N	Avg	SD
Less than 10	426	2.89	1.499	19	3.21	1.316
10-50	294	2.99	1.181	27	3.81	1.111
51-250	307	3.05	0.987	68	2.76	1.394
More than 10	344	3.24	1.342	133	3.07	1.548
Total	1371	3.03	1.297	247	3.08	1.470

Source: own elaboration.

In order to verify the H2_2 hypothesis, an analysis of the correlation between the length of controlling use and environmental dynamics was carried out. The results are presented in Table 4.

Table 4. Environment dynamics and length of controlling use

Environment dynamics	Length of controlling use		
	Switzerland	USA	Poland
Pearson correlation	0.361*	-0.339*	0.107*
Significance	0.000	0.000	0.000
N	541	247	1392

*Significant correlation at 0.01 (two-sided).

Source: own elaboration.

The results of the empirical research showed a statistically significant correlation between the length of using controlling and the dynamics of the environment in all three studied countries. Interestingly, in organizations operating in Switzerland and Poland, the greater the dynamics of the environment in which organizations operate, the longer the time of controlling use (direction of influence determined arbitrarily), while this direction is reversed among organizations operating in the USA. These results allow H2_2 to be accepted in full, indicating that in organizations operating in (a) Switzerland, (b) the USA and (c) Poland, the dynamics of the environment influences the length of controlling.

4. Conclusion

According to the aim of the article indicated in the introduction, the similarities and differences in the use of controlling in organizations operating in Poland, Switzerland and the USA along with the main conditions of this use were pointed out. Empirical research conducted on a sample of 1683 organizations operating in Poland, 899 in Switzerland and 247 in the USA showed, above all, that in organizations in all three studied countries controlling is significantly more often used than not used. At the same time, both in organizations in Poland and in the USA, the size of the organization is a factor affecting the use of controlling (in frequency terms) – there is a noticeable increase in the frequency of controlling use along with the increase in the size of the organization. The above confirms the results of empirical research conducted before. For organizations operating in Switzerland, due to the lack of statistically significant differences such inference is not possible (however, this hypothesis cannot be rejected). In addition, it turns out that in Switzerland and the USA, controlling is more often used in organizations operating in a stable environment, which is not consistent with the literature, which indicates that the use of controlling is particularly recommended in

organizations operating especially in a dynamic or turbulent environment due to its potential, measurable benefits. However, the recommendations is one thing (considering the forecast benefits) and the implementation of controlling is another. It is not possible to make such inferences in this regard for Polish organizations due to the lack of statistically significant differences. Regarding the length of use of controlling, it should be noted that in organizations functioning in Poland, the larger the organizations, the longer the time controlling has been used. This confirms that controlling, both due to the needs and possibilities, was implemented in large organizations earliest. Moreover, for Polish and Swiss organizations, the time of use of controlling is increasing with the increase of environment dynamics, but in organizations from the USA, controlling has been used longer in organizations operating in a stable environment. Therefore, for organizations operating in all three countries, the dynamics of the environment is a factor affecting the length of using controlling. The above indicates that although in each of the examined countries controlling is definitely more often used than not used, there are differences regarding the conditions for the use of controlling, which exaggerates the differences in the use of controlling in the organizations operating in Poland, Switzerland and the USA.

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STOSOWANIE CONTROLLINGU W ORGANIZACJACH FUNKCJONUJĄCYCH W POLSCE, SZWAJCARI I USA – ANALIZA PORÓWNAWCZA

Streszczenie: Celem artykułu jest dostarczenie wiedzy na temat podobieństw i różnic w stosowaniu controllingu w organizacjach funkcjonujących w Polsce, Szwajcarii i USA wraz z głównymi uwarunkowaniami tego stosowania. Porównanie to we wskazanych krajach – jak dotąd niepodjęte w prezentowanym zakresie w literaturze przedmiotu – jest zasadne, gdyż controlling ma tam nie tylko odmienną historię, ale także wykształcone różne rozwiązania. Sformułowane na potrzeby osiągnięcia wskazanego celu hipotezy zostały empirycznie zweryfikowane na próbie 2829 organizacji: 1683 funkcjonujących w Polsce, 899 w Szwajcarii i 247 w USA. Zastosowano metody analizy statystycznej, w tym m.in. analizę korelacji, a także jednoczynnikową analizę wariancji oraz analizy *t*-studenta i analizę testem χ^2 . Zaprezentowane wyniki badań empirycznych pozwalają na pokazanie podobieństw i różnic w stosowaniu controllingu w organizacjach funkcjonujących w trzech badanych kontekstach.

Słowa kluczowe: zarządzanie, controlling, badania empiryczne.