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The impact of organizational learning on Polish and Finnish SME's market performance during the COVID-19 pandemic. A comparative study

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Abstract:
This article focuses on the role of small and medium-sized enterprises' (SMEs) organizational learning (OL), measured by a scale of commitment to learning, and their economic performance during the COVID-19 pandemic. The research is based on two samples of firms from Poland and Finland. Interviews with owners and managers of Polish and Finnish SMEs were conducted in December 2020 and January 2021. The results show that OL was quite high among the analyzed firms, with the exception of Polish non-exporters. Unlike the "pre-COVID-19" sample of Polish SMEs, the results of the two "COVID-19" samples showed no significant relationship between the applied measure of OL and firms' market performance. The analyses indicate a significant impact of COVID-19-related disruptions on market performance measures for both Polish and Finnish enterprises. Thus, we conclude that firms' turnover and profits have been affected by turbulences on particular markets and firms' ability to benefit from various assistance programs offered by governments.

Keywords: market performance, organizational learning, SME strategy
JEL Classification: D80, L20, M53

1 Introduction

Small and medium-sized enterprises (SMEs) are essential to maintain strong economic growth of every country. Their performance is subject to many inner and environmental determinants. Moreover, management and maintenance of SMEs' performance is a real challenge and requires an understanding of its complex drivers. Organizational learning (OL) has been suggested as one of such key factors.

Contemporary environment often described as VUCA (volatility, uncertainty, complexity, ambiguity) has led to growing importance of knowledge economy and has changed the perception of effective OL in a firm. SMEs operate in a highly dynamic and rapidly changing environment [Hudson et al., 2001], where they need to be persistent and flexible to survive. Moreover, firms need to be tolerant of the mistakes that may occur and allow for recovery and learning from failures [Lawson and Samson, 2001; Wan and Yiu, 2009].

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The outbreak of COVID-19 is perceived as one of major disruptive events in history that has impacted businesses worldwide and affected global value chains. In this article, we focus on the role of SMEs' OL, measured by a scale of commitment to learning, and their economic performance during the COVID-19 pandemic. Polish and Finnish SMEs were chosen deliberately for a comparative analysis of the impact of COVID-19-related disruptions on their market performance.

2 Literature review

The concept of OL recognizes that the way in which this takes place is affected by the context of the organization and its culture [Argyris and Schon, 1996]. Sinkula et al. [1997] argue that OL is a dynamic process that involves three major determinants: commitment to learning, shared vision, and open-mindedness. It is also understood as a system's process of managing its experience [Wang and Ahmed, 2003]. An overview of the literature on a diverse theoretical approach to OL has been offered by Bontis et al. [2002]. Many recent research studies highlight that the dynamic process of knowledge creation is a critical OL component [Loermans, 2002; Cheng et al., 2014; Real et al., 2014]. Learning is central to the adaptive capacity of an organization, which makes it possible to reconfigure after a disruption according to the adverse environmental conditions [Bhamra et al., 2011].

Chiva et al. [2007] analyzed OL measurement scales. According to them, two perspectives appear to emerge. The first perspective aims to determine if a certain process of OL is being accomplished. Instruments to measure OL take into account each of the phases of the OL process in an attempt to analyze the existence of these phases within the organization. The second perspective attempts to determine the organizational propensity or capability to learn.

The OL scale used in this research is related to the second perspective, and propensity to OL, also referred to as commitment to learning, is considered as recognition that employee learning is important for enterprise's success. The scale of commitment to learning is based on Sinkula et al. [1997].

A major disruptive event that has significantly impacted businesses worldwide and affected global value chains was the outbreak of the COVID-19 pandemic [Sakurai and Chughtai, 2020]. It has brought many unprecedented social, technological, and structural challenges for SMEs in many countries [Markovic et al., 2021]. According to numerous research [Brown and Rocha, 2020; Juergensen et al., 2020: Baranowska-Prokop and Sikora 2023], the COVID-19 pandemic impacted all economic sectors, and SMEs suffered a relatively strong shock due to their weak resource base. The limited access to finance, business contraction, supply–demand disruption, and physical movement restrictions are exemplary consequences of such exogenous shocks [Miklian and Hoelscher, 2022[. On the other hand, adverse consequences of COVID-19 brought unanticipated business opportunities that can create substantial value, especially for Business-to-Business (B2B) SMEs, and an opportunity to capture them [Am et al., 2020]. As a consequence, the COVID-19 pandemic triggered SMEs to digitalize operations as an effective way to survive in the current crisis and similar future incidents [Klein and Todesco, 2021; Klyver and Nielsen, 2021]. Specifically, COVID-19 presented opportunities for B2B firms to be innovative by redesigning their products, rethinking delivery channels and mechanisms, and identifying new strategic positions and partners [Seetharaman, 2020]. Such an action provides access to knowledge from different sources and leverages human capital available to launch rapid solutions to crisis situation [Chesbrough, 2020]. As a result, the consequences of the COVID-19 pandemic for SMEs' performance cannot be perceived only as negative shock but also as a chance for gaining new skills and dynamic capabilities. Performance indicators can reflect the final impact of such phenomenon in firms' crisis operations.

Despite growing interest and importance, there is still relatively little research on performance management and its measurement in SMEs [Garengo et al., 2005; Brem et al., 2008]. The current state of knowledge with respect to measurement in SMEs also seems to be limited to the study of SMEs from more traditional performance measurement perspectives [Bititci et al., 2012]. Thus, the use of more descriptive measures of SME performance are often applied [Michna, 2009; Pekkola, et al, 2016; Kowalik et al., 2022]. This approach is also presented in our research.

Findings obtained by Darroch and McNaughton [2003], Alneadi et al. [2020], Maiga et al. [2015], and Altinay et al. [2016] confirm that the whole process of OL produces better results in firm performance. Although links between OL and business financial performance have often been assumed, inconsistent empirical findings about this relationship are also observed [Slater and Narver, 1995; Tippins and Sohi, 2003; Chenhall, 2005; Henri, 2006; Burney and Widener, 2007].

In this article, we compare the performance of SMEs from Poland and Finland during the COVID-19 pandemic to evaluate the significance of OL in a turbulent environment. The choice of two compared countries – Poland and Finland – is deliberate and intentional.

Finland (with a population of 5.5 million till 2023) serves as a good example of a SMOPEC (Small Open Economy) in which SMEs are highly dependent on international trade due to their home country's size limitations and open economic policies [Nummela et al., 2014]. SMEs represent 98% of business in Finland and account for 59.6% of value added and 65.2% of employment [European Commission, 2019]. Before the COVID-19 pandemic, Finland was outperforming the European averages in the following areas: employment rates and value added, entrepreneurship, responsive administration, access to finance and skills, and innovation [European Commission, 2019]. Finnish SMEs may serve as a positive example of deliberate and modern strategic business orientation.

Poland classified as a post-transitional economy is still in a process of catching up with the most developed economies of the EU. Similarly to Finland, the SME sector in Poland produces 50% of GDP and accounts for 99.8% of all Polish enterprises [PARP, 2020]. But still, it has a great potential to grow as the number of Polish SMEs per capita and average contribution to the GDP growth are lower than the EU average (58%). The importance of human capital and learning processes in Polish SMEs are still underestimated, e.g., 72% of Polish entrepreneurs did not invest in 2021 or did not even plan to invest in human capital in a form of training in 2022 [PIE, 2022]. Such attitude could be a remnant *of "period of unprecedented growth and development that Poland experienced over the period of 1989–2019. In these circumstances, the priorities and, thus strategies that the SMEs followed were focused on product and service delivery, rather than on managerial competencies acquisition"* [Bodziany et al., 2021].

The attempt to compare the performance of SMEs from both countries during the COVID-19 pandemic may bring a new light into significance of OL not only in firms' survival during crisis but also from a longer strategic perspective.

3 Hypothesis development

The main objective of this research is to analyze the relationship between OL and the market performance of Polish and Finnish SMEs, and the impact of COVID-19-related restrictions on their market performance.

The literature review has shown that a majority of authors indicated the importance of OL for firms' performance from both theoretical perspectives [Bontis et al, 2002; Brockmand and Morgan, 2003] and empirical findings [Tippins and Sohi, 2003; Keskin, 2006; Ussahawanitchakit, 2008]. More specifically, Michna [2009] in her research related to Polish SMEs from Silesia region found a positive relationship between OL and firms' performance.

In the context of other countries, Jiménez-Jiménez and Sanz-Valle [2011] found, for Spanish enterprises, that two variables – OL and innovation – contribute positively to business performance and that OL affects innovation.

Results obtained by Pham and Hoang [2019] on a sample of Vietnamese firms show that OL capability (management commitment to learning as well as knowledge transfer and integration) has a positive effect on business performance.

Ugurlu and Kurt [2016] found a positive relationship between OL capability and product innovation performance (which, in turn, had a positive influence on firms' performance). According to results obtained by Hadi [2023] on a sample of Indonesian SMEs (from Jakarta province), product innovation has a positive effect on the performance of SMEs, and this effect will be stronger when SMEs have high market orientation and high OL.

Two studies based on Brazilian enterprises provide contrasting findings. Gomes and Wojahn [2017] found that OL capability influenced the innovative performance of SMEs; however, the influence of OL capability on organizational performance was not significant. In a recent study, on a sample of Brazilian enterprises, results of a study by Berndt et al. [2023] showed that OL capability is an antecedent of frugal innovation and that there is a positive relationship between OL capability and operational performance.

However, the literature lacks international comparisons of such relationship for SMEs from post-transitional economies (Poland) and SMOPEC.

Based on the literature and results of empirical studies on the relationship between OL and firms' market performance, we propose the following hypothesis:

H1: There is a positive relationship between OL and market performance of SMEs in COVID-19 period.

Various forms of market turbulences and disruptions in economic activity related to COVID-19 restrictions have been taken into account in our questionnaire. Since consequences of those restrictions impacted almost all branches of industries and services, we formulate the following hypothesis:

H2: There are significant (negative or positive) relationships between consequences (negative or positive, respectively) following COVID-19-related restrictions and SMEs' market performance.

4 Research method

Our findings are based on a survey conducted among company owners and managers from samples of Polish and Finnish SMEs during restrictions related to the COVID-19 pandemic.

Data were collected[1] in December 2020 and January 2021 through questionnaires sent to a representative sample of Polish and Finnish SMEs established after 1995. Random selection was made within two strata of small and medium-sized companies and two strata of non-exporters and exporters with at least 15% of their sales being sold abroad.

Data were obtained through a Computer Assisted Web Interview (CAWI) and Computer-Assisted Telephone Interviewing (CATI) based on the previously sent questionnaire.

For the Polish SMEs, the total sample size was 219 firms selected from a database of 1,395 Polish SMEs that met the sampling criteria. The share of exporters was 49.8%, and the share of non-exporters in the sample was 50.2%. The share of medium-sized and small enterprises was 37.9% and 62.1%, respectively.

For the Finnish SMEs, the total sample size was 81 firms selected from a database of the Finnish Trade Association that met the sampling criteria. The share of exporters was 50.6%, and the share of non-exporters in the sample was 49.4%. The share of medium-sized and small enterprises was 35.8% and 64.2%, respectively.

The breakdown by industry branches for Polish SMEs is as follows (figures represent percentages): other goods from plastic – 23.7; plastic packaging – 19.6; metal structures and their parts – 18.3; plastic goods for construction – 7.8; other goods from metal – 7.8; electrical energy switchgear and control apparatus – 5.9; software – 4.6; other machinery not classified elsewhere – 4.1; electric lighting equipment – 2.7; measuring, navigational, and control instruments – 2.3; food, drinks, and tobacco processing machines – 1.8; and furniture – 1.4.

The breakdown by industry branches for Finnish SMEs is as follows (figures represent percentages): metal structures and their parts – 24.7; other goods from plastic – 18.5; plastic packaging – 18.5, plastic goods for construction – 7.4; other goods from metal – 7.4; electric lighting equipment – 6.2; food, drinks, and tobacco processing machines – 4.9; measuring, navigational, and control instruments – 4.9; furniture – 2.5; other machines not classified elsewhere – 2.5; electrical energy switchgear and control apparatus – 1.2; and software – 1.2.

1 The data were collected by Indicator certified research company and financed by SGH Warsaw School of Economics statutory funds.

5 Research results

5.1 Independent variables: firms' characteristics and OL (measured as commitment to learning)

The first set of independent variables is related to firms' characteristics such as size (small vs. medium-sized), the fact of exporting or not, and the country of origin (Poland vs. Finland).

OL, or more precisely propensity to OL (considered as recognition that employee learning is important for enterprise's success), is another independent variable and has been measured on the scale of commitment to learning by Sinkula et al. [1997].

The following three items from the scale of commitment to learning have been used in our research:

- "The sense around here is that employee learning is an investment, not an expense,"
- "Learning in my organization is seen as a key commodity necessary to guarantee organizational survival,"
- "In our corporate culture, the employees' learning is seen as very important."

All items have been measured on a 7-point scale ranging from "strongly disagree" to "strongly agree."

Reliability of this scale for the Polish SME sample is high – Cronbach's alpha coefficient is above 0.9 (0.93). The values of the items have been added, and the final single scale ranges between 3 (very low commitment to learning) and 21 (very high commitment to learning). Descriptive statistics for the scale are presented in Table 1.

The reliability of this scale for the Finnish SME sample is also high – Cronbach's alpha coefficient is above 0.9 (0.905). The values of the items, as in the case of the Polish sample, have been added, and the final single scale ranges between 3 (very low commitment to OL) and 21 (very high commitment to OL). Descriptive statistics for the scale are presented in Table 2.

Table 1. Descriptive statistics for the measure of OL (scale of commitment to learning) – Polish SME sample

	Descriptive statistics[a]						
	N	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Commitment to learning	219	15.66	2.214	–0.285	0.164	–0.454	0.327
Valid *N* (listwise)	219						

[a]Country – Poland.

Source: own elaboration, based on indicator data, 7-point scale.

OL, organizational learning; SMEs, small and medium-sized enterprises.

Answers are skewed toward the higher end of the scale. This finding indicates that there are more firms with a high propensity to OL compared to those with a low propensity to OL.

Table 2. Descriptive statistics for the measure of OL (scale of commitment to learning) – Finnish SME sample)

	Descriptive statistics[a]						
	N	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Commitment to learning	81	16.95	1.809	–0.470	0.267	0.416	0.529
Valid *N* (listwise)	81						

[a]Country – Finland

Source: own elaboration, based on indicator data, 7-point scale.

OL, organizational learning; SMEs, small and medium-sized enterprises.

Answers are even more skewed toward the higher end of the scale than in the Polish sample. This finding indicates that there are more firms with high commitment to OL than those with low commitment to OL.

5.2 Dependent variables: indicators of firms' performance

Due to the lack of precise figures on profits and sales for Polish and Finnish SMEs, descriptive questions about market performance had to be applied.

Two types of measures of market performance have been taken into account:

- general declarations about profits or losses for 2019 and 2020,
- declarations about sales evolution in 2020 compared to 2019 and in 2019 compared to 2018.

The period of data collection, i.e., December 2020 and January 2021, is characterized by uncertainty about 2020 results; therefore, they have been referred to as "estimated" in the questionnaire.

Respondents from companies evaluated, in general terms, the level of profit/loss and sales dynamics on 5-point scales. The degrees of the profit/loss scale include substantial loss (1), small loss (2), result close to zero (3), small profit (4), and substantial profit (5).

The degrees of scale measuring sales dynamics include substantial decrease by 2-digit percent (1), decrease by 1-digit percent (2), no change (3), increase by 1-digit percent (4), and substantial increase by 2-digit percent (5).

Only most recent market performance indicators related to period of anti-COVID-19 restrictions have been taken into account.

Table 3 presents descriptive statistics for declarations about profits or losses and sales evolution for the Polish SME sample.

Although the majority of companies declared profits (reflected by mean above three and negative skewness for this measure of market performance), sales dynamics was weaker. The explanation of this result may be traced to the Polish government's policy of helping enterprises via "Anti-COVID-19 Shields," package of around 66.3 billion euro, which was the largest economic support in Poland's modern history. It provided Polish SMEs with the possibility of suspending or deferring social security payments for 3 months, subsidized up to 40% of the average 2019 salary for employees in crisis-stricken sectors and offered income support for the self-employed as well as strengthened the financial system [CSM, 2020]. This financial and fiscal support made it possible for firms to remain profitable despite declining sales.

Table 4 presents descriptive statistics for declarations about profits or losses and sales evolution for the sample of Finnish SMEs.

Moreover, for the Finnish SMEs, the majority of companies declared profits (reflected by mean above three and negative skewness for this measure of market performance) and sales dynamics was weaker.

Although the Finnish companies indicate better market performance than the Polish firms, the difference is not statistically significant for both profits and sales dynamics.

Table 3. Descriptive statistics for declarations about profits or losses and sales evolution for the Polish SME sample

	Descriptive statistics[a]						
	N	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Financial results in 2020 (estimated)	219	3.36	0.945	–1.042	0.164	0.685	0.327
Sales dynamics in 2020 (estimated) compared to 2019	219	2.99	0.995	0.525	0.164	–0.602	0.327
Valid *N* (listwise)	219						

[a]Country – Poland.

Source: own elaboration based on indicator data.

SMEs, small and medium-sized enterprises.

Table 4. Descriptive statistics for declarations about profits or losses and sales evolution for the Finnish SME sample

	Descriptive statistics[a]						
	N	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Financial results in 2020 (estimated)	81	3.56	0.791	–1.043	0.267	1.578	0.529
Sales dynamics in 2020 (estimated) compared to 2019	81	3.17	0.959	0.428	0.267	–0.721	0.529
Valid *N* (listwise)	81						

[a]Country – Finland.
Source: own elaboration based on indicator data.
SMEs, small and medium-sized enterprises.

Finland also helped its enterprises during the COVID-19 pandemic with an assistance package amounting to 15 billion euros. The Finnish government has decided upon a total €15 billion general package to support corporations, ensure jobs and finance unemployment subsidies for laid-off employees. On April 7, the Government announced that it contemplates redirecting additional €0.5 billion funds to support corporations. The addition was planned to be distributed by the existing public finance providers [IMF, 2020].

5.3 Comparison of propensity to OL between Polish and Finish SMEs

According to our analysis, Finnish SMEs declare significantly higher propensity to OL (measured by commitment to learning) than Polish SMEs (as explained earlier, the values of this scale are between 3 and 21). Table 5 shows descriptive statistics and is related to propensity to OL of Polish and Finnish SMEs. The result of Levene's test of homogeneity of variances between Polish and Finnish samples shows that variances are not significantly different ($p = 0.115$), and the results of two tests of equality of means, i.e., Welch's test and the Brown–Forsythe test, show that differences in means are highly significant ($p < 0.001$).

As it can be seen in Table 5, Finnish SMEs appear slightly more learning-oriented than Polish SMEs (a difference of about 1.3 points on the OL scale).

A more detailed analysis (Table 6 and Figure 1) shows that lower propensity to OL of Polish SMEs is mainly due to one group of firms: non-exporters.

The results of the analysis of variance indicate the following significant effects:

- country, i.e., the Finnish SMEs are more learning-oriented than the Polish SMEs,
- export involvement, i.e., exporters are more learning-oriented than non-exporters,
- interaction between country and the fact of exporting products or not; this interaction is shown in Figure 1.

As it can be seen on Figure 1, the difference between Finnish exporters and non-exporters is very small. Polish exporters' propensity to OL is only slightly below Finnish SMEs (below 0.5 points of the scale). This difference is due to Polish non-exporters, which are significantly less learning-oriented than three other groups of firms. However, the mid-point of the commitment to learning scale is at 12, so even with the score between 14.5 and 15, propensity to OL of Polish non-exporters is still above the "neutral" point.

5.4 Verification of hypothesis H1 on the relationship between OL and market performance

Table 7 presents correlations between measures of market performance and propensity to OL for the sample of Polish SMEs.

Table 5. Descriptive statistics related to propensity to OL of Polish and Finnish SMEs

Descriptive						
Propensity to OL (measured on the scale of commitment to learning)						
	N	Mean	Std. deviation	Std. error	Minimum	Maximum
Finland	81	16.95	1.809	0.201	12	21
Poland	219	15.66	2.214	0.150	9	21
Total	300	16.01	2.186	0.126	9	21

Source: own elaboration based on indicator data.
OL, organizational learning; SMEs, small and medium-sized enterprises.

Table 6. Analysis of variance for relationship between propensity to OL and firms' characteristics

Tests of between-subjects effects					
Dependent variable: propensity to OL					
Source	Type III sum of squares	df	Mean square	*F*	Sig.
Corrected model	239.596[a]	7	34.228	8.403	0.000
Intercept	58,224.038	1	58,224.038	14,294.432	0.000
Country	96.448	1	96.448	23.679	0.000
Small vs. m-sized	0.775	1	0.775	0.190	0.663
Exp vs. non-exp	27.287	1	27.287	6.699	0.010
Country × small vs. m-sized	2.622	1	2.622	0.644	0.423
Country × exp vs. non-exp	45.882	1	45.882	11.264	0.001
Small vs. m-sized × exp vs. non-exp	0.291	1	0.291	0.071	0.789
Country × small vs. m-sized × exp vs. non-exp	6.113	1	6.113	1.501	0.222
Error	1,189.374	292	4.073		
Total	78,325.000	300			
Corrected total	1,428.970	299			

[a] $R^2 = 0.168$ (adjusted $R^2 = 0.148$).
Source: own elaboration based on indicator data.
OL, organizational learning.

Positive correlations between propensity to OL and market performance are significant (after removal of outliers), albeit weak.

Table 8 presents correlations between measures of market performance and propensity to OL for the sample of Finnish SMEs.

In the case of Finnish, firms we can see a significant, but negative, correlation between declarations about financial results and propensity to OL, which is the opposite to what our hypothesis assumed. Sales dynamics remains uncorrelated with propensity to OL even after the removal of outliers.

However, when firm's characteristics are taken into account, both in the Polish and the Finnish case, the relationship between propensity to OL and market performance is no longer significant.

Unlike the "pre-COVID-19" sample of Polish SMEs [Baranowska-Prokop and Sikora, 2023], the results for the two "COVID-19" samples show no significant relationship between the applied measure of OL and firms' market performance.

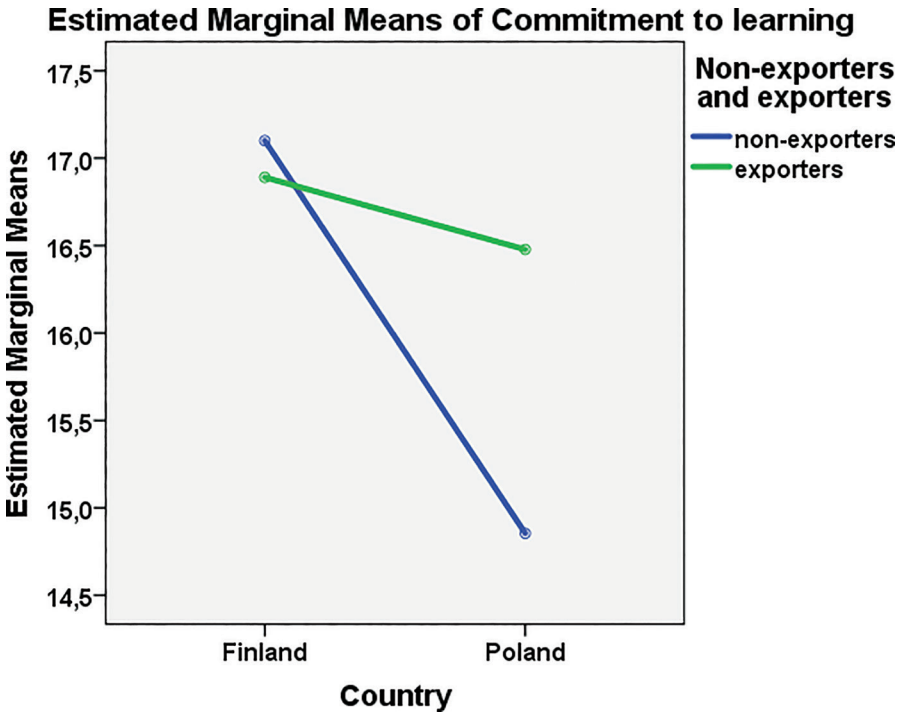


Figure 1. Propensity to OL (measured by the commitment to learning scale) according to the country of SMEs and the level of export involvement.
Source: own elaboration based on indicator data. OL, organizational learning; SMEs, small and medium-sized enterprises.

Table 7. Correlations between measures of market performance and propensity to OL for the Polish sample

Correlation		
		Propensity to OL
Financial results in 2020 (estimated)	Pearson correlation	0.120
	Sig. (two-tailed)	0.077
	N	219
Financial results in 2020 (estimated) – six outliers removed	Pearson correlation	0.181**
	Sig. (two-tailed)	0.008
	N	213
Sales dynamics in 2020 (estimated) compared to 2019	Pearson correlation	0.044
	Sig. (two-tailed)	0.514
	N	219
Sales dynamics in 2020 (estimated) compared to 2019 – ten outliers removed	Pearson correlation	0.162*
	Sig. (two-tailed)	0.019
	N	209

*Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).
Source: own elaboration based on indicator data.
OL, organizational learning.

Analysis of variance (not including branches of industry) indicates that for Polish SMEs, a significant relationship is shown by the dimension: exporters – non-exporters (with exporters declaring better financial results), and an interaction between exporting and company size (the best results have been declared by small exporters, followed by medium-sized exporters, then by medium-sized non-exporters and small non-exporters).

Table 8. Correlations between measures of market performance and propensity to OL for the Finnish sample

Correlation		
		Propensity to OL
Financial results in 2020 (estimated)	Pearson correlation	0.002
	Sig. (two-tailed)	0.986
	N	81
Financial results in 2020 (estimated) – eight outliers removed	Pearson correlation	–0.237*
	Sig. (two-tailed)	0.043
	N	73
Sales dynamics in 2020 (estimated) compared to 2019	Pearson correlation	–0.002
	Sig. (two-tailed)	0.984
	N	81
Sales dynamics 2018–2020 – eleven outliers removed	Pearson correlation	0.031
	Sig. (two-tailed)	0.796
	N	70

*Correlation is significant at the 0.05 level (two-tailed).
Source: own elaboration based on indicator data.
OL, organizational learning.

In the case of Finnish SMEs, there were no significant relationships between firms' characteristics (also when branches of industry are not taken into account) and declarations about market performance.

According to the results of the analysis of variance, for presented samples of SMEs and the period of turbulences related to anti-COVID-19 restrictions, Hypothesis 1 assuming positive correlation between OL and market performance has not been confirmed.

Respondents have also been asked questions about influence of anti-COVID-19 pandemic-related restrictions on firms' market performance.

Among negative consequences, most Polish respondents indicated supply chain disruptions (53.4%), customers' bankruptcy/insolvability (14.2%), and the lack of suppliers (6.8%). Some respondents declared that their firms had also experienced positive consequences of the pandemic, reporting elements such as the fact that some competitors went bankrupt (8.2%) and increase in demand for firm's products (1.4%).

Among COVID-19 pandemic-related negative consequences, most Finnish respondents indicated supply chain disruptions (54.3%), customers' bankruptcy/insolvability (8.6%), and the lack of suppliers (6.2%). Some respondents also declared that their firms had also experienced positive consequences of the pandemic, reporting elements such as the fact that some competitors went bankrupt (6.2%). However, no company indicated an increase in demand for its products.

To verify the second hypothesis, analyses including COVID-19 consequences, branches of industry, and other SMEs' characteristics (small vs. medium-sized and exporters vs. non-exporters) have been made via linear regression (stepwise procedure).

All variables – COVID-19 consequences, branches of industry, and firms' characteristics – have been coded as binary variables. OL measured by the commitment to learning scale has never entered regression models as a significant predictor of market performance even with a relaxed significance level (i.e., $p < 0.1$).

In total, four linear regression models – two for Poland and two for Finland including two measures of market performance for each of those countries, i.e., estimated financial results in 2020 and sales dynamics in 2020 compared to 2019 – are discussed.

Detailed data (with unstandardized coefficients, standardized beta coefficients, and significance levels) may be obtained from authors of this article.

In the case of

- a linear regression model explaining estimated financial results in 2020 for Polish SMEs (adjusted R^2 = 0.246), various negative COVID-19-related consequences showed negative and significant relationships with financial results and positive COVID-19-related consequences showed positive and significant relationships with financial results; exporters managed to achieve relatively better financial results than non-exporters; it should also be noted that among various industries, the companies producing plastic packaging suffered more than other industrial branches;
- a linear regression model explaining estimated sales dynamics for Polish SMEs in 2020 compared to 2019 (adjusted R^2 = 0.158), again, various negative COVID-19-related consequences showed negative and significant relationships with financial; exporters declared better sales dynamics than non-exporters;
- a linear regression model explaining estimated financial results in 2020 for Finnish SMEs (adjusted R^2 = 0.1), Finnish software firms did better during the COVID-19 pandemic than other industrial branches; negative COVID-19-related consequences are negatively and significantly correlated with financial results;
- a linear regression model explaining estimated sales dynamics for Finnish SMEs in 2020 compared to 2019 (adjusted R^2 = 0.199), software and plastic packaging branches positively distinguished themselves among other analyzed industrial branches; paradoxically, one kind of negative COVID-19-related consequences, i.e., disruptions in supply chains, appears as positively and significantly correlated with sales dynamics.

We may conclude these results confirm Hypothesis 2.

Finally, we may conclude that unlike the Polish SMEs operating before pandemic [Baranowska-Prokop and Sikora, 2023], the lack of positive correlations between OL and market performance in this study may be due to unprecedented market turbulences and government assistance programs that significantly affected market performance, diminishing the role of other factors.

6 Conclusions

This article contributes to the discussion on the relationship between OL and SME performance in severe environmental conditions of the COVID-19 pandemic. Finnish SMEs showed a higher degree of propensity to OL than Polish SMEs. The main reason was a significantly lower propensity to OL among Polish non-exporters.

Unlike the Polish SMEs operating in pre-pandemic period [Baranowska-Prokop and Sikora, 2023], the lack of positive relationship between OL and market performance in this study may be attributed to the fact that both unprecedented market turbulences caused by the pandemic and the government assistance programs more strongly influenced indices of market performance than OL. Data for Polish and Finnish SMEs show no support for Hypothesis 1.

Hypothesis 2 has been supported because COVID-19-related consequences impacted, mostly negatively, Polish and Finnish SMEs' profits and sales. However, the fact that there were little differences among industrial branches may result from government assistance programs. As it has been mentioned earlier, in 2020, the "Anti-crisis Shield" package of around 66.3 billion euros, which was the largest economic support in Poland's modern history, has been introduced [CSM, 2020]. In 2020, Finland also offered a similar huge assistance package as high as 15 billion euros to support enterprises [IMF, 2020].

These assistance programs have decreased the impact of COVID-19-related turbulences for most hardly hit industries, and therefore, they have not declared significantly weaker market performance than industries that experienced less difficulties.

Thus, we conclude that during the COVID-19 pandemic, the firms' turnover and profits have been affected by turbulences on particular markets and the ability to benefit from various assistance programs offered by governments, rather than by the use of OL.

As far as theoretical contribution of this study is concerned, we checked usability of a short commitment to learning scale proposed by Sinkula et al. [1997]. Chiva et al. [2007] analyzed 12 studies using various multi-item scales (and the commitment to learning scale by Sinkula et al. was not among them). Some of these scales are very long (69 items), which may make their use problematic if many aspects of firms' characteristics are to be taken into account simultaneously.

Whereas OL measured by the scale proposed by Sinkula et al. [1997] showed a positive relationship with firms' market performance measures for the Polish SMEs pre-COVID-19 sample [Baranowska-Prokop and Sikora, 2023], the test of this scale in the conditions of extreme turbulences during the COVID-19 pandemic did not reveal significant relationships, which may suggest that this way of measuring OL is not appropriate for a very unstable business environment.

7 Limitations and future research directions

Limitations of this research are mainly related to the characteristics of the OL scale used (OL as a learning process, as suggested by Chiva et al. [2007], should be also taken into account) and to the absence of other aspects of firms' management. As it has been already pointed out, some researchers found positive and significant relationships with innovativeness or innovation performance, which, in turn, influence market performance [Ugurlu and Kurt, 2016; Gomes and Wojahn, 2017; Hadi, 2023], and this aspect should be included in the future research on Polish SMEs.

Directions of further studies should include the relationship between OL and various aspects of firms' management other than market performance, e.g., employees' job satisfaction. Emphasis should be placed on the analysis of factors affecting OL, ranging from industrial or service branch specificities via happiness at work [El-Sharkawy et al., 2023] to company owners' and managers' mindset.

In addition, indirect influence of OL on market performance should be investigated, e.g., moderation [Hadi, 2023] or mediation effects.

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