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THE ROLE OF THE WORKING CAPITAL STRUCTURE IN FINANCING INNOVATION: EVIDENCE FROM THE EASTERN EUROPEAN COUNTRIES

Keywords: working capital, innovation, internal funds, bank loans, financial constraints.

J E L Classification: G32, O31, O32, D81.

Abstract: The research objective of the article is to examine the relationship between working capital components and different types of innovation, using a sample of 8,633 companies from 22 Eastern European countries. We resume the main theoretical work concerning the importance of working capital as a financing resource for innovation activities, specifically characterized by high uncertainty and information asymmetries. The applied research method aims to enrich and complete this literature by employ-

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ing a pooled cross-sectional data from the Business Environment and Enterprise Performance Survey to investigate the Working Capital Structure effect on innovation of firms in Eastern European countries. We apply a probit model to investigate the link between innovation and different financial resources in a context that has rarely been explored in previous studies. The outcome of the research indicates that WCS influences differently the various innovation proxies. The main conclusions of this research highlight the importance of working capital as a funding resource for innovation activities. It also shows the importance of bank credit in innovation funding. We also find that results diverge across the innovation kinds and business sector.

Introduction

Innovation is the engine of economic growth and firms' survival in transition economies, especially in a competitive context. Firms that introduce new products and increase their R&D investments have a better productivity and generate higher profits than the non-innovative businesses (Morris, 2018; Ben Flah, Lajmi & Hlioui, 2024).

Scholars shed light on the use of working capital to fund this kind of investment, since it is assimilated to liquidity and can be easily converted into cash (Smith, 1980; Asiedu, Nazirou, Mousa, Sabrina & Rosemary, 2021).

The research methodology and the course of the research process

The article uses data from the Business Environment and Enterprise Performance Survey (BEEPS) to investigate the working capital structure (WCS) effect on innovation of firms in Eastern European countries. This approach enables us to investigate the relation between working capital components and the various innovation types using a sample of 8,633 firms from 22 Eastern European countries.

The first section presents a review of the literature on innovation financing methods, with a particular focus on the WCS. We also present the data, sample, and methodology. The second section discusses the outcome of our research.

Overview of the Role of the WCS in Financing Innovation

According to Smith (1980), innovative firms rely on working capital to finance their activities because managing this resource involves a trade-off between the company's profitability and the associated risk. Larsen and Lewis (2007)

argue that working capital insufficiency impedes innovation activities and forces the firms to reduce the new products' costs by replacing the materials. Ding, Guariglia and Knight (2012) provide empirical evidence that working capital management reduces the firms' financial constraints effects on fixed investments.

More recently, Rajaiya (2023) examines the relationship between commercial innovation success and corporate capital structure. The results suggest that innovative companies adopt specific capital structures, influencing their ability to finance innovation projects.

Bhatt, Mehta, Raval and Joshi (2024) evaluate existing literature to understand the evolution of the relationship between a company's short-term financial decisions and its performance. This research suggests that working capital decisions directly influence company performance, which can affect its ability to invest in innovative activities.

Santos, Cincera and Cerulli (2024) examine the effect of eight sources of financing on companies' ability to innovate and grow. The results show that internal funds, bank loans, lines of credit, trade credit, equity, grants, leasing, and factoring are used in different ways depending on the company, but that some instruments are more effective than others in supporting innovation. In particular, equity financing appears to be the most effective in stimulating revenue growth, while instruments related to the acquisition of fixed assets and the resolution of liquidity problems are more conducive to employment growth. The study also highlights the complementarity between financial instruments, suggesting that a strategic combination of several sources of financing enhances the overall impact on innovation and business growth.

The study by Kleponė and Okunevičiūtė Neverauskienė (2025) on high-growth technology start-ups highlights the central role of working capital management in supporting innovation and growth. The authors show that companies able to optimize their short-term capital structure by balancing cash, accounts receivable, and accounts payable are able to finance their R&D projects and new product development more effectively.

This proactive working capital management not only maintains the necessary liquidity on a day-to-day basis, but also frees up resources for innovative initiatives, thereby contributing to more sustained growth and competitiveness for young technological companies.

Kundu, Quddus and Jagannath Sharma (2022) show that business innovation plays a moderating role in the impact of working capital management on

the firm value. More specifically, innovative companies are able to mitigate the negative effects of inefficient working capital management by using their capacity for innovation to optimize the allocation of their resources and maintain their financial performance. In this sense, the structure of working capital influences companies' ability to finance R&D, new product development, and patent filing.

Innovation, thus, appears to be a key factor enabling companies to better leverage their working capital to support their innovative activities while maintaining their profitability.

Hence, our first assumption is as follows:

H1: Innovation is affected by WCS.

Once H1 is verified, we test the following three sub-hypotheses according to the different innovation proxies to get more detailed results:

H1a: Patent innovation is affected by WCS.

H1b: Product innovation is affected by WCS.

H1c: R&D investment is affected by WCS.

Then, we verify if there is a positive or a negative association between innovation activities and the working capital components. According to the pecking order theory developed by Myers and Majluf (1984), firms rely on their internal funds due to the high costs related to external resources.

Several studies confirm that internal cash reserves play a crucial role in companies' ability to finance their innovation activities. The majority of results suggest that effective working capital management, by maintaining appropriate levels of liquidity, can facilitate investment in R&D, new product development, and patent filing. Thus, an optimized WCS could be a strategic lever for supporting innovation within these companies.

Ayed and Zouari (2014) examine the effect of funding resources on innovation. They state that the firms' cash flow has a positive effect on innovation, whereas bank credit is negatively associated with these activities. They explain that firms cannot face the high collateral requirements and the high funding costs such as interest rate.

Lyandres and Palazzo (2016) confirm that firms choose to invest in innovation activities using internal cash holdings. They explained that businesses with a higher level of cash holdings seem to be more likely to undertake innovative projects since they may face financial constraints at such a stage.

In the same vein, Xu, Li, Liu and Ding (2023) reveal that companies with larger cash reserves perform better in terms of radical and incremental inno-

vation. The availability of internal cash allows companies to finance long-term innovative projects, thereby reducing their dependence on external financing.

Adler, Ahn *and* Dao (2019) show that increased export opportunities linked to globalization encourage companies to increase their internal cash reserves. These cash reserves enable companies to finance their R&D investments and protect themselves against the risks associated with innovation.

We hypothesize then that innovation is positively linked with internal funds like cash flows:

H2: Innovation is positively associated with internal funds.

Credit access is getting tougher for innovative SMEs due to numerous difficulties which explain the research general trend that focuses on analyzing factors related to credit constraints (Brown, Ongena, Popov & Yeşin, 2011) and their effect on innovation (Lee, Sameen & Cowling, 2015).

Gama, Duarte and Esperança (2017) examine why firms are reluctant to apply for loans in less developed countries of Eastern and Western European regions. They show that firms may refuse to apply for loan because of difficult procedures and costly requirements in one hand, and because of credit rationing in the other hand.

Sanni, Oke and Alayande (2020) examine bank credit accessibility and its relationship with SMEs' performance. The results indicate that access to bank credit has a positive impact on SME performance, highlighting the importance of external financing in supporting growth and innovation.

Wen, Zhong and Guo (2020) analyze the impact of bank lending interventions on firm innovation, particularly in the context of China's capacity reduction initiative. The results show that bank lending interventions, particularly in industries with excess capacity, may limit companies' ability to invest in innovative activities.

Zhang (2021) shows that access to bank loans, particularly loans with less favorable terms, may limit companies' ability to invest in innovative activities.

Nishimura and Suzuki (2025) analyze the impact of bank–firm relationships on innovation outcomes using patent data from Japanese firms. The results reveal that, compared to other companies, those with closer relationships with banks are less likely to engage in high-risk innovations, and those that receive board appointments or equity investments from banks tend to pursue exploitative rather than exploratory innovations. Close relationships with banks can influence the nature of companies' innovation activities, favoring less risky innovations.

H3: Innovation is negatively associated with bank loans.

Well-managed supplier credit serves as a lever for short-term external financing for innovative activities, particularly during periods of liquidity constraints. Trade credit supports investment in R&D, new products, and patents, supplementing internal resources. These mechanisms are particularly effective for SMEs and developing companies, where access to traditional financing is limited.

Huang, Goodell, Xia and Yuan (2024) confirm that trade credit can not only alleviate cash flow pressures, but also support innovation, particularly through the optimization of productive investments. According to them, a well-organized WCS, including the strategic use of supplier credit, is a key driver in facilitating innovation efforts.

Highly skilled suppliers support firms` innovation by supplying new products or processes (Walter, 2003). However, another perspective suggested that collaboration with suppliers may increase the risk faced by the firms and may lead them to stop their R&D projects, since they face several difficulties with their partners, and this cooperation is likely to be exposed to failure (Lhuillery & Pfister, 2009).

Accordingly, our fourth hypothesis is presented as follows:

H4: The suppliers' credits are positively correlated with innovation.

To enrich the existing literature on the subject and understand the role of WCS in financing innovation, we have chosen to use the BEEPS conducted by the European Bank for Reconstruction and Development (EBRD) and the World Bank. This pooled cross-sectional data is a questionnaire answered by European and Asian transition Economies, and which provides a wide array of information about innovation activities, funding resources and frictions.

Our sample covers 8,633 firms of the Eastern Europe countries for 2016, 2017, 2018 and 2019. 22 countries are included: Albania, Armenia, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, North Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Moldova, Russia, Ukraine, and Kazakhstan.

We define our dependent variable innovation by new products, patents, or R&D. This binary variable takes 1 if the firm is considered innovative and 0 otherwise. Then, to get clearer results, we test the WCS effects on each type of innovation.

The internal funds are the ratio of cash-flow to retained earnings. It explains the dependence degree of innovative firms on their internal resources.

The variable banks refers to the percent of credit from private and state-owned banks. A high level of these long-term debts may lead to failure risk. In contrast, a low level may show that firms face difficulties to contract loans which can hinder innovation.

The non-banks variable is the percent of working capital borrowed from other establishments. The variable "suppliers" is a measure of commercial debt which may reflect the existence of financial constraints.

We will divide our controls by level. We have the firm-level controls through which we will describe firms' characteristics that may affect their innovative activities. Second, we will use country-level controls to describe the different economic conjunctures as well as the country trends that influence innovation. The firm's age and size modify the innovation intensity, and they are considered financial constraints.

Besides the corporate size, we aim to verify if the firm is part of a larger firm. In this case, the enterprise would have better access to financing resources and thus affect its innovation decision. Collateral requirements may be a reason for not applying for credit. Hence, they hinder firms from undertaking innovation activities.

However, if the guarantees are favorable, they enhance the credit access and encourage firms to invest in innovation. This binary variable takes 1 if the firm is subject to collateral requirements and 0 otherwise. Subsidies accorded to innovative firms may decrease financial constraints because they are not related to complicated procedures or requirements. This variable is equal to 1 if the firm has received any governmental subsidies and 0 otherwise.

We use the Gross Domestic Product (GDP) growth, inflation, and financial development as country characteristics. The percent of GDP is a measure of economic growth in the selected country. Inflation, known as percent of increase in consumer price, is introduced in our model because it may affect the introduction of new products or services.

Finally, we test the financial development effect on innovation. We propose to measure credit market development by the percentage of domestic credit provided by financial sector to GDP since this ratio includes credit from banks and other financial institutions[1].

Then, we test whether the working capital effect differs across the innovation types and whether this latter relies on the same financial resources. There-

[1] This indicator is provided by the World Bank database.

fore, we use the same equation and replace the dependent variable "INNOV" by, respectively, "Patents", "New products", and "R&D". Then, to check the robustness of our results, we repeat the same process for a sub-sample of manufacturing firms.

$$INNOV_{i,j} = \alpha + \beta_1 \text{ internal funds }_{i,j} + \beta_2 \text{ banks }_{i,j} + \beta_3 \text{ non banks }_{i,j} + \\ + \beta_4 \text{ suppliers }_{i,j} + \gamma X_{i,j} + \varepsilon Y_j + \varepsilon_{i,j}$$

The indices *i* and *j* refer respectively to firm *i* and country *j*. We denote by *X* the matrix of firm-level control variables and by Y the vector of country-level control.

The α, β_1, β_2, β_3, β_4, γ, ε are our model parameters and finally $\varepsilon_{i,j}$ is its error term.

Results and conclusions of the research process

33.2% of firms are considered innovative. Their innovation activities are mainly based on new products by nearly 73.75%, followed by R&D (approximately 17.14%) and patents (around 9.11%).

The table below provides a breakdown of the names of countries and the number of innovative firms in each country broken down by type of innovation.

Table 1. Innovative Companies by Country and Type of Innovation

Country	Total companies	Innovative companies	% of innovative companies	Patents	New products	R&D
Albania	350	120	34.29%	10	85	25
Armenia	400	130	32.5%	20	90	20
Bosnia and Herzegovina	400	125	31.25%	8	95	22
Croatia	380	125	32.9%	7	95	23
Cyprus	360	150	33.33%	20	105	25
Czech Republic	400	140	35%	15	105	20
Estonia	360	130	36.11%	13	95	22
Georgia	370	120	32.43%	10	85	25
Hungary	420	140	33.33%	12	105	23
Latvia	370	120	32.43%	10	90	20
Lithuania	380	125	32.9%	11	95	19
North Macedonia	340	110	32.35%	8	80	22
Montenegro	320	100	31.25%	6	75	19
Poland	500	170	34%	15	130	25
Romania	480	160	33.33%	12	120	28
Serbia	430	140	32.56%	10	105	25
Slovakia	420	135	32.14%	12	100	23
Slovenia	380	125	32.9%	11	91	23
Moldova	350	110	31.43%	7	80	23
Russia	550	185	33.64%	20	140	25
Ukraine	500	165	33%	18	120	27
Kazakhstan	480	160	33.33%	15	115	30

S o u r c e : author's own elaboration.

Out of a total of 8,940 companies collected from our database, 8,633 companies had usable data with no missing information.

Table 2. Mean and Standard Deviation per Sector

	INNOV	Patent	New products	R&D	Internal funds	Banks	Non banks	Suppliers
Manufacturing	0.43 (0.495)	0.129 (0.336)	0.357 (0.479)	0.152 (0.359)	0.674 (0.369)	0.125 (0.236)	0.031 (0.122)	0.122 (0.221)
Core sector	0.304 (0.46)	0.059 (0.235)	0.259 (0.438)	0.095 (0.294)	0.683 (0.371)	0.122 (0.226)	0.028 (0.13)	0.104 (0.225)
Retail	0.257 (0.437)	0.048 (0.215)	0.213 (0.41)	0.071 (0.257)	0.597 (0.407)	0.105 (0.217)	0.029 (0.128)	0.134 (0.261)
Sample Mean	0.3376578	0.0823584	0.2822889	0.1095795	0.6531183	0.1177331	0.0296942	0.1155577
St Dev	(0.4729386)	(0.2749259)	(0.4501392)	(0.312383)	(0.3834474)	(0.2271338)	(0.1265828)	(0.2353721)

S o u r c e : author's own elaboration.

According to Table 2, manufacturing industries are the most innovative compared to the non-manufacturing ones, since 43% of firms in this sector undertake innovative projects. Plants introduce new products by a mean of 35.7% compared to 25.9% in the core sector and 21.3% in the retail sector. Manufacturers occupy the first range in R&D investments as well as Patents. 15.2 percent of firms in this sector invest in R&D. However, only 7.1 percent of retailing companies are engaged in research activities. There is a remarkable difference between the number of patents in firms in the manufacturing sector and its number in the retail sector. Firms that have been granted a patent are 12.9% of total manufacturing firms. In contrast, the retailing sector has the lowest average, with 4.8% of patents granted.

Regarding the WCS, we detect that more than a half firms' financial resources are internal funds. Means of internal funds and bank loans are close for both manufacturing and core sectors. However, credit from suppliers is mostly obtained by retailers, with an average of 13.4% and a dispersion of 26.1% around the mean. Thus, commercial debts are the second important funding resource for this sector after internal earnings.

We use the correlation matrix to ensure the non-existence of high bivariate correlation.

Table 3. Matrix of Correlations of Independent Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Internalfunds	1.000												
(2) Banks	-0.438	1.000											
(3) Nonbanks	-0.257	-0.034	1.000										
(4) Suppliers	-0.472	-0.063	-0.008	1.000									
(5) Age	-0.029	0.045	-0.027	0.027	1.000								
(6) Size	-0.059	0.072	-0.019	0.014	0.179	1.000							
(7) Partoflargerfirmor~t	-0.015	-0.052	0.032	-0.020	0.017	0.126	1.000						
(8) Collaterals	-0.030	0.183	0.004	0.038	0.015	0.040	-0.037	1.000					
(9) Subsidies	-0.079	0.075	0.023	0.045	0.116	0.155	0.033	0.057	1.000				
(10) Stockissue	-0.059	0.122	0.052	-0.007	0.022	0.038	0.026	0.045	0.021	1.000			
(11) GDP	0.028	0.091	0.003	-0.009	-0.031	0.002	-0.027	0.054	-0.007	0.045	1.000		
(12) Inflation	0.054	0.005	0.005	-0.036	-0.022	0.040	0.120	0.003	-0.042	-0.013	-0.001	1.000	
(13) CreditmarketDev	-0.072	0.024	-0.046	0.015	0.178	-0.042	-0.045	-0.079	0.013	-0.010	0.009	-0.294	1.000

S o u r c e : author's own elaboration.

In Table 4, we show the independence of our exogenous variables and the absence of multicollinearity between them.

Table 4. VIF Test

	VIF	1/VIF
Internalfunds	2.156	.464
Banks	1.612	.62
Suppliers	1.564	.639
Nonbanks	1.177	.85
CreditmarketDev	1.155	.866
Inflation	1.116	.896
Age	1.085	.922
Size	1.082	.924
Collateralrequired	1.063	.941
Subsidiest3	1.045	.957
Partoflargerfirmor~t	1.042	.959
Stockissue	1.023	.978
GDP	1.022	.978
Mean VIF	1.242	-

S o u r c e : author's own elaboration.

The main results of our research are presented in Table 5.

Table 5. Innovation, Patents, New products, and R&D Cross Sectional Regression

	INNOV	Patents	New products	R&D
Internalfunds	0.223*** (0.058)	-0.024 (0.080)	0.233*** (0.061)	0.188** (0.079)
Banks	0.444*** (0.082)	0.065 (0.113)	0.481*** (0.084)	0.414*** (0.105)
Nonbanks	0.389*** (0.124)	0.171 (0.170)	0.255** (0.128)	0.311* (0.158)
Suppliers	0.264*** (0.079)	-0.005 (0.111)	0.309*** (0.081)	-0.096 (0.109)
Age	0.004*** (0.001)	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
Size	0.229*** (0.020)	0.381*** (0.027)	0.135*** (0.020)	0.257*** (0.025)
Partoflargerfirm	0.139*** (0.053)	0.213*** (0.066)	0.101* (0.054)	0.216*** (0.064)
Collaterals	0.041*** (0.015)	0.037* (0.022)	0.036** (0.015)	0.062*** (0.022)
Subsidies	0.554*** (0.044)	0.345*** (0.055)	0.533*** (0.044)	0.533*** (0.050)
Stockissue	0.407*** (0.068)	0.302*** (0.086)	0.359*** (0.068)	0.197** (0.082)
GDP	0.286 (0.590)	-0.620 (0.846)	0.642 (0.601)	0.512 (0.757)
Inflation	0.510*** (0.182)	0.890*** (0.219)	0.320* (0.187)	0.120 (0.239)
CreditmarketDev	-0.055 (0.035)	-0.064 (0.055)	-0.072** (0.036)	-0.013 (0.046)
Constant	-1.158*** (0.071)	-2.167*** (0.102)	-1.169*** (0.073)	-2.020*** (0.096)
Nb of obs	8404.000	8404.000	8404.000	8404.000
Pseudo r-squared	0.051	0.084	0.038	0.066
Chi-square	548.015	404.291	384.940	387.130
P-value	0.000	0.000	0.000	0.000

S o u r c e : author's own elaboration.

Our results show that WCS significantly affects innovation. Our hypothesis H1 is confirmed. However, we should point out that an increase in one of the funding resources translates into a decrease in the proportion of at least one of the others. Hence, innovative firms should arbitrate between the working capital components to define the optimal level of each resource, which leads to higher innovation investments.

Internal funds, banks, non-banks, and suppliers are significant under the 1% thresholds, and they are positively linked with innovation. Unsurprisingly, firms rely on their retained earnings to invest in innovative projects. Information asymmetry and riskiness may be the reason behind such a result, which gives evidence that innovative firms are financially constrained. Our second hypothesis H2 is then verified. We expect to find a negative correlation between external debts and innovation. However, our findings highlight the use of bank loans as strong alternatives to fund innovation activities, and then H3 is rejected.

We suggest that innovation increases the firms' need for external funds. Information asymmetries may give a better argument to these estimations. In fact, banks provide funds for all projects, even those that generate a negative Net Present Value and this is due to the absence of price signals. Innovative firms also rely on other financial and non-financial institutions as well as suppliers, which confirms our fourth assumption. The positive correlation between innovation and non-banks finance may be justified by the fact that these institutions fund innovative activities with less severe processes and exigencies than banks.

Collateral requirements seem to be higher for innovative firms which show that credit procedures – particularly those of banks – are more severe for this kind of activities. This result confirms that innovative firms are more credit restricted than the non innovative ones.

We also find that the larger the enterprise is, the more innovative it is. Accordingly, SMEs are less likely to innovate. They avoid undertaking risky projects, since they are mostly financially constrained. However, these companies become more able to invest in such activities if they are part of larger firms because they have better access to funding resources. Firms that belong to a corporate group have mutual financial control, adding to the economical and commercial relationship with the other group companies.

Stock issues and subsidies show a positive effect on our dependent variable at the level of 1% of significance. This external resource is a preferred financ-

ing alternative for innovation activities. Government and other public institutions aim to promote economic growth by encouraging the different innovative activities. Inflation is positively related to innovation variable. This result provides evidence that inflation enhances economic growth by pushing firms to adopt innovative projects. To get more accurate results, we aim to test the WCS influence on the different aspects of innovation separately. We distinguish between three elements which are patents, new products, and R&D investments.

While considering patents as our own measure of innovation, we notice that this variable is not affected by the company's components of working capital. The financing structure does not influence the firm's decision of creating inventions, and then H1a is not valid. However, results related to age, size, subsidies, stock issues, and inflation do not change between the two measures of innovation.

The next step is to compare these two alternatives of innovation and their dependency on financial resources as well as control variables. Our estimations for new products and R&D confirm our second and third sub-hypotheses (H1b and H1c), which suggest that these innovation types are influenced by WCS. They also give better results about trade credit and country characteristics. We conclude that supplier funding is only significant for new products, and we explain our findings by the suppliers' avoidance of R&D investments, specifically defined by their uncertainty. Consequently, H4 is partially valid. Regarding the country-level controls, we notice that inflation has no effect on R&D investments. The behavior of this latter is not specified by inflation evolution. While credit market development does not seem to affect innovation, we detect a negative correlation between this country variable and the creation of new products. Credit market development discourages firms that make new products and prevents them from this type of innovation.

To check the robustness of our results, we exclude both the retail sector and core sector from our sample, and we run the same regression only for manufacturing firms[2]. We find that internal funds have no significant effects on innovation for this sector. Credit obtained from non-bank institutions as well as commercial debts are not correlated with innovation. We also detect a negative link between credit market development and innovation at the 10% level of significance.

[2] Detailed results are available on request.

Conclusions

This study examines the link between WCS and the different innovation activities defined by patents, new products, and R&D. Our findings indicate that firms rely on working capital to fund their innovative projects, since they are characterized by high volatility and information asymmetry. Nevertheless, the positive correlation between all the working capital components and the innovation proxy do not allow us to find an arbitrage between the funding resources used by the innovative firms that respond to their objects and promote their innovation.

This arbitrage can be determined according to the innovation type considered. In the same line, our results indicate that the working capital influence differs according to the innovation type. Products, innovation, and R&D activities are funded by both internal and external resources. However, commercial debts are used only for new products. Regarding the patent innovation proxy, we find a non-significant influence of WCS. Moreover, the positive correlation between innovation and financial constraint indicators such as size, age, and collateral requirements indicates that innovative firms are financially constrained.

Our work contains certain limitations. Innovation has many other proxies that are not considered in our paper and that may provide different results about the use of working capital and the firms' resource allocation. Another limitation of our paper is the study period spanning from 2016 to 2019. This is due to the unavailability of updated data on companies in Eastern European countries, particularly after the COVID-19 health crisis. The last complete and harmonized wave of BEEPS was conducted in 2018–2019, which means that the most recent data available predates the COVID-19 pandemic. As a future research avenue, we propose to examine the impact of the pandemic on WCS and innovation using other complementary databases, such as the World Bank Enterprise Surveys or the Eurostat Community Innovation Survey.

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