Innovation in Supply Chain Finance as a New Alternative Financing Means for Russian Enterprises

Christian Agbatchi ODE[1], Motorina Irina Ivanovna[2], Yunusova Leisen Damirovna[3], Ajdar Airativich Ajupov[4]

[1,4]*Federal University of Kazan, Institute of Management, Economics and Finance, Republic of Tatarstan, Russian Federation;*

[2,3]*Federal University of Kazan (Volga), Institute of Management, Economics and Finance, Republic of Tatarstan, Russian Federation;*

[1]*christianode91@yahoo.fr*

[2]*arina.molotowa@yandex.ru*

[3]*yleisen@bk.ru*

[4]*ajdar.ajupov@kpfu.ru*

***Abstract*— This article discusses the access of enterprises to financial supply chain services in the Russian Federation. Based on the analysis of SME financing history, we deduce the difficulties for SMEs to access the bank financial services since their emergence in spite of their important role in the country's development process. Indeed, alternative sources of credits such as crowdfunding offer a new opportunity to SMEs. Crowdfunding removes the barriers of the process duration, the barriers related to application fees, and allow smart contracts between different investors and SMEs to be obtained very quickly. While spreading the risk of the project between investors, crowdfunding is risky for investors. Innovation in supply chain finance is about the ability to meet the greatest challenges of a business with an approach that is at once meticulous in its attention to detail, and boundless in its creativity.**

***Keywords*—** *Supply chain Financial services, SMEs, crowdfunding, alternative sources of funding, monitoring.*

1. Introduction

Supply Chain Finance (SCF) is a relatively recent thinking in Supply Chain Management (SCM) literature. Major Interest in SCF has steadily increased since the past decades and especially during the global financial crisis of 2008. Since its rise, SMEs have been a cornerstone for the development of many States around the world. In OECD countries, they contribute more than 60% of the GDP of cooperation [1]. In the Russian Federation, the share of SMEs in GDP in 2018 was 21.9% [2]. Despite this remarkable contribution of SMEs in the formation of wealth, they face a number of constraints to accessing bank loans, their only recourse. The asymmetric information problems, agency relationship, the informational opacity in SMEs, and the expensive cost of credit are real barriers for them to access financial services. Based on the inability of SMEs to provide collateral, and its weak ability to master its market, banks remain very cautious despite regulatory advances at the international level. Among these advances, we can enumerate the diversification of sources and means of financing SMEs, the easing of credit conditions, improved laws on the creation of companies, setting up grants from international institutions and States for the benefit of SMEs. In the Russian Federation, from the year 2000, financial, technical, organizational, and material support of all kinds has been provided to this category of the enterprise. To even facilitate their export activities, the free export advisory support service is provided. However, long and heavy paperwork weighs on the effectiveness of these measures. In order to solve this universal problem faced by SMEs in almost all countries of the world, the explosion of digital finance offers a new possibility of financing, called alternative financing or complementary financing. This new approach provides an opportunity for SMEs to seek financing of the project in a close network of investors through the internet.

More recently [3-6] treated the SME financing problem by exposing the various reforms that have improved the access of SMEs to bank finance, and various support provided by the government at the location of the business category. In [7] and [8] have been more explicit in talking about the new

IJSCM, ISSN: 2050-7399 (Online), 2051-3771 (Print)

possibilities available to SMEs. These two research institutions presented the alternative funding possibilities that are: Angels, seeds, venture capital, crowdfunding, crypto investment. In their research, they mentioned that these new alternative financing methods present risks to investors without exploring strategies to manage these risks. This is motivation this research, that fixed the objective to propose an economic model making it possible to limit the risks to which investors are exposed on crowdfunding platforms.

Indeed, this paper discusses respectively, in (2) bank financing instruments and alternative instruments, (3) the evolution of SME financing in the Russian Federation, in (4) crowdfunding advantage, in (5) a proposal economic model of crowdfunding, then the conclusion.

2. Overview of traditional financial offers to SMEs

Banking products for the benefit of SMEs are variable. Apart from the bank accounts into which they can operate overdrafts, SMEs benefit from other banking products such as bank deposits, cash facilities, lines of credit, documentary credits … as well as large enterprises. Faced with the difficulties of providing credible information, providing collateral, bearing procedural costs, and credit costs, SMEs are often rationed on traditional credit markets. In this case, they abandon traditional banking products in favor of alternative financial instruments adapted to different types of business and their life cycle. These financial instruments are summarized in Table 1.

Table 1. Financial instruments and banking alternative adapted to different companies and different cycles of their lives

Profitability	**Type of Financial instruments**	**Company profile and position in the life cycle**
Risk / Low Return	**Asset collateral financing** -Factoring -Financing of purchase orders - Storage credit -Leasing -bank loans	-Start-ups -Failed companies without collateral -Fast-growing, cash-strapped businesses - The company with a good market share -High risk and not very transparent companies - Companies frequently modifying their financial assets -Producers and traders of basic products - Companies with a long-term relationship with the bank
Risk / Low Return	**Other types of borrowing** - Corporate bonds - Securitized financing - Secure titles - Loan-seed investment - Private placements - Crowdfunding (Debt)	- Big companies with stable revenues and little variable cash - Companies fulfilling the reporting obligations relating to emissions -Enterprises making investments or taking advantage of growth opportunities -Businesses not wishing to dilute ownership or control -Small companies with limited visibility on the stock markets (private placements) -Businesses without collateral or credit history (crowdfunding through debt repayment)
Risk / Average return	**“Hybrid” instruments** Loans / subordinated bonds - Tacit participations - Crowdfunding -Rights to profit sharing - Convertible Bonds / Bonds with warrants -Mezzanine financing	-High growth young companies looking for good price capital than venture capital -Established businesses with new growth opportunities - Transition or restructuring companies -Enterprises seeking to strengthen their capital structure - Company with mature products
Equity instruments		
High Risk /	- Contributions from angel	- Emerging companies

High Return	investors - Crowdfunding (Actions)	-Innovative operations requiring investment and skills in business creation
	Venture Capital	-Businesses in the start-up phase or at the stage of the first investments or subsequent investments - The companies with strong growth potential and the ability to generate high profitability in a short period of time (scability)
Capital - Investment	**Other private capital**	-Mature companies - Firms in difficulty likely to be saved
	Equity securities -Platform specialized in the IPO of SMEs	- Innovative and high-risk SMEs - Companies with highly structured management and governance systems and widely disseminating information

Source: OECD (2015)

These different financing offers are intended for large companies and small companies with high growth potential. This is not the case for all SMEs, especially SMEs processing of agricultural products, characterized by a high level of risk but a low level of profitability. Facing generally two types of expenses (operating expenses and capital expenditures), SMEs are in the dilemma in the choice of financing instruments because of their activities to low profitability on the one hand, and the cost high financing offers other.

For investment expenditures when needed funding as recommended financial orthodoxy, long-term debts are recommended. In view of the financial products listed in Table 1, without a long-term relationship with banks, the low growth potential of SMEs is not eligible for such financial products. As for short-term loans, taking into account their level of risk, SMEs obtain bank loan contracts with special clauses. The solution to this situation could be crowdfunding via the internet. It is an excellent means of risk distribution of SME projects. Before presenting an economic model of the platform, we will briefly explain the advantages of crowdfunding to the various stakeholders (recipients and investors) in 3, after a brief overview of the financing of SMEs in the Russian Federation.

3. A brief overview of the SCF activities of SMEs in the Russian Federation

The history of SME financing can be divided into three periods: the period from 1980 to 1990; the period from 1990 to 2010 and that of 2010 to the present.

Before the emergence of the concept of SMEs to the 1980s, the dominant production units were heavy and large mining companies. These large companies public majority, are funded by the State budget, financial groups, multinational banks, financial markets, and represent the locomotive of the economy [7]. Around the 1980s, SMEs appeared and were essentially family farms. These companies are in all sectors of the economy. They appear as nicknames companies and their funding needs are met by family own resources or interpersonal loans.

From the 1990s, the States understood the dynamism of SMEs by their contribution to the GDP and their role in the employment policy. Indeed, they undertake to support the latter by small grants, by advisory support, tax breaks, transfers. In addition, some countries were already putting in place legislation to facilitate bank financing for SMEs. In the Russian Federation, the percent of SMEs in the economy was negligible [8]. So [9], identified the failure of suppliers, external financing problems, problems of access to land and other production constraints as barriers to the emergence of SMEs and to economic growth of the Russian Federation. For [10], the lack of funding of SMEs in the Russian Federation would result from grabbing bank loans by large companies because of underdeveloped financial markets. In [11] reached a similar conclusion when he proclaimed a negative correlation between the size, age of the SME, and the level of financing constraints. This implies that larger SMEs and older are more likely to access SCF.

According to [12], this discrimination of SMEs on the credit market is due to information opacity. In [13-20] concurred, and associated the problem of SME financing by banks with the inability to provide collateral, to present credible information about their growth potential and especially their non-stable financial situation. For emphasizing the various state support for SMEs through laws, training, protection from competition, invite the legislator to set up texts favoring the financing of SMEs by banking, microfinance and other financial institutions. Indeed, funding dominant in the period is also the State. The creation of support funds at the federal, regional, and local levels. The supports are of various shapes. This allowed SMEs to grow and contribute to the Gross Domestic Production up 19.4% in 2014. Gradually bank financing takes place even, if the unequal distribution of banks in the territory does not favor certain regions. From 2010 to 2018, financial services grew at the place of banks.

This period shows the simultaneous use of banking services and State subsidies (Figures 1 and 2). The most used banking services are credits of any form, leasing, and factoring near banks and specialized companies. Grants to SMEs gradually decrease from one year to another (Figure 2). This could be the complementarity of new funding opportunities such as angels, loans between individuals, crowdfunding, crypto investment.

Crowdfunding, a new means of cross-border corporate finance and SMEs in particular, has proven in countries such as Canada and the USA. Indeed, if a balance was found between risk, investor protection and return, this type of financing could be very suitable for financing SMEs in the Russian Federation, especially since few large financial companies are involved. Crowdfunding complements other forms of SME financing. This method of financing is more suitable for SMEs, which most often do not have the financial documents requested by banks, microfinance, and other formal financial institutions. From our point of view, this method, which does not guarantee the security of investors, is in its embryonic stage. Indeed, it must be institutionalized by defining the appropriate bankruptcy cost and the monitoring system for the activities of beneficiary SMEs and the monitoring costs.

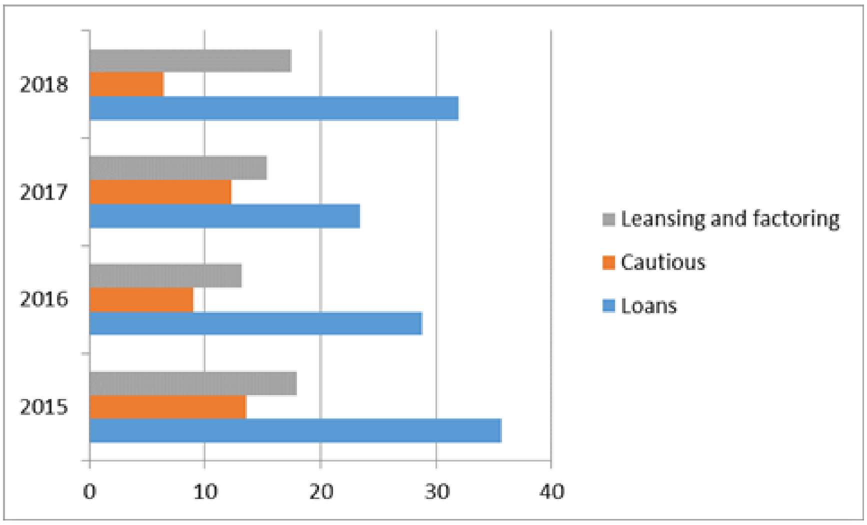

Figure 1. Evolution of SCF services from 2015 to 2018 (%)

Source: Central Bank of Russia

The most used by SMEs are banking loans, leasing and factoring.

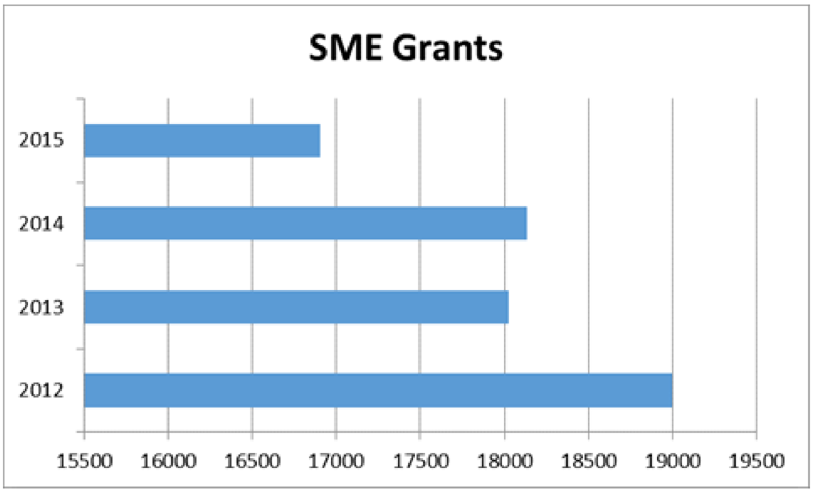

Figure 2. SME grants evolution (Million rubles)

Source: Central Bank of Russia

4. The advantages of crowdfunding

The advent of digital technology has enabled a significant advance in crowdfunding. Using blockchain technology, economic agents' data is stored, which helps to resolve information asymmetry problems. In addition, "smart contracts" are concluded without the intervention of an intermediary, which avoids risks and costs. Crowdfunding has several theoretical economic advantages for financing activities. The first advantage appears in Figure 3. Apart from the less complex paperwork, crowdfunding protects against the collaterals.

The guarantee that the applicants provide is the project. They expose the project, they provide information about the project's ability to generate profit for the repayment of creditors. In addition, capital providers do not set the interest rate as in banks. The interest rate is relatively acceptable for the project owner who generally knows his project. The project leader can even be called the interest rate maker.

Crowdfunding is one of the alternative sources of funding, which is growing quickly in the world. This type of financing enables investment projects that are too small or too risky for traditional banks to be carried out (World Economic Forum, 2015). This funding method is a better strategy for diversifying project risks between the various stakeholders. Unlike what happens in banks, investors voluntarily choose the project in which to invest. In general, investors of the project on the crowdfunding platform are passionate about the activity of the project leader. They contribute to the need to improve the product they are both consumers and prescribers. They advertise the product not only because they are passionate about the field, but because the repayment of their loans depends on it. If they decide to convert their loans into shares, they take the same risks as the project owner and work to have a large consumer community. For investors, this type of investment is more profitable than bank deposits.

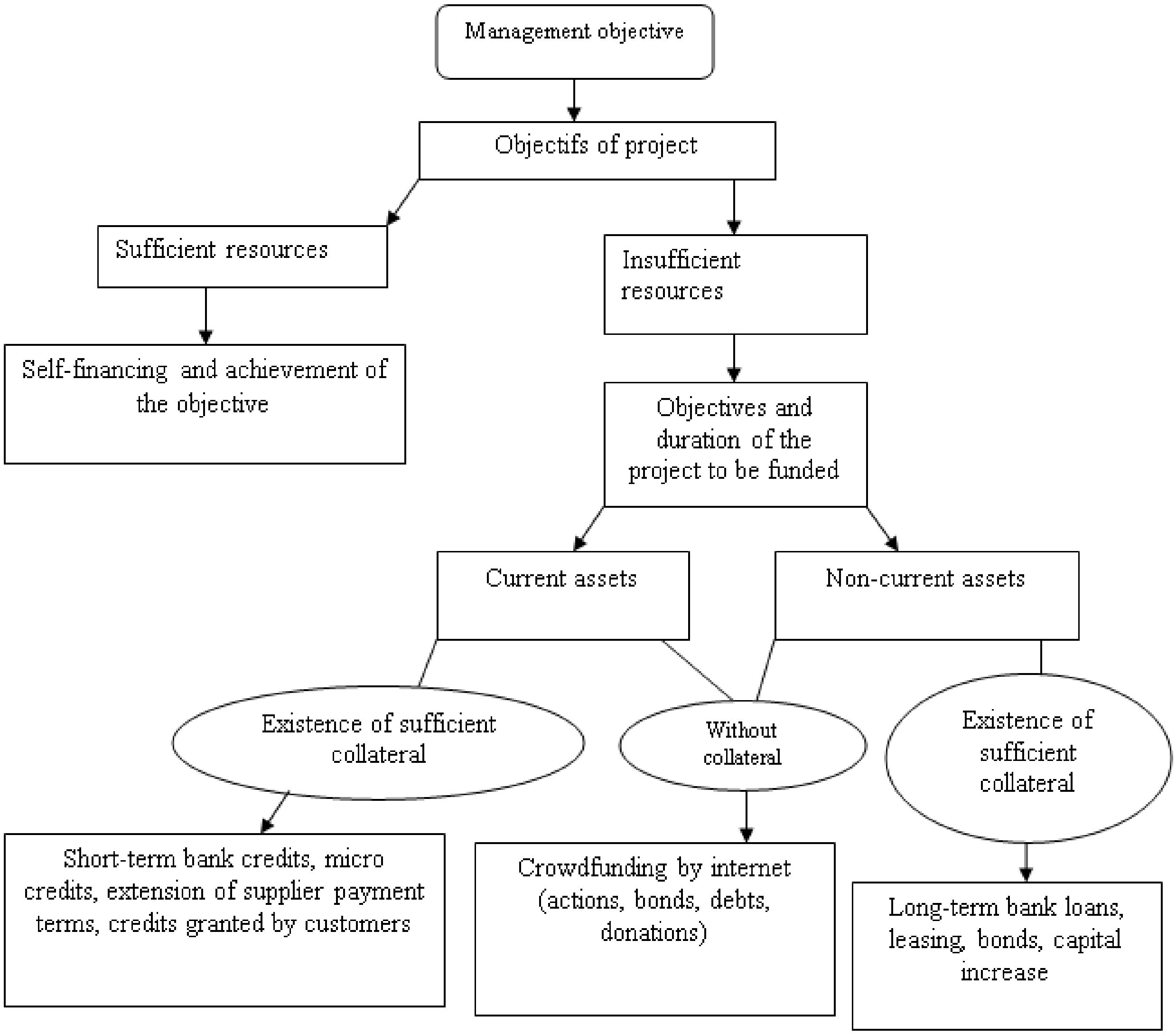

Figure 3. Process of choosing the type of funding for SMEs

5. Presentation of the crowdfunding platform model

Crowdfunding by a platform on the internet is a means of fundraising for the realization of a project. Investors, although they do not know each other, by their contribution choose to participate in the realization of a common project. This type of financing complements bank loans, microcredits, etc. Crowdfunding is a way to build a community of support around your project. In most cases, investors become potential consumers of the product first, and secondly, they prescribe these products to others. This method of financing has an economic interest by creating the market around the product. In addition to these interests mentioned above, crowdfunding is a financial technique for managing financial risks in the project. It consists in distributing the project risk between the different investors.

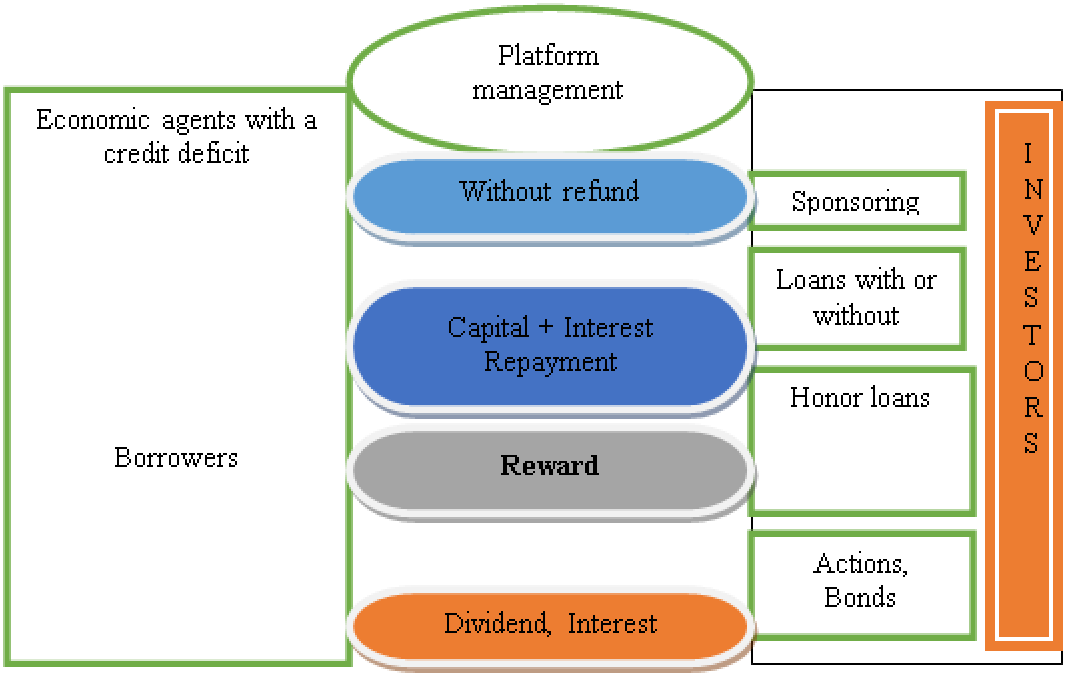

Figure 4. Crowdfunding model by platform

Regarding the different interests which abound the crowdfunding, the regulatory reforms of crowdfunding stimulating should be enhanced in all States. As shown in Figure 4, on the crowdfunding platform, there are two types of actors: economic agents in need of financing or recipients (companies, individuals) and economic agents with excess resources (investors). Among investors, there are sponsors or angel investors, lenders or equity sellers, lenders of honor, future co-founders, or future partners. This latest investor class is described as "future founder" if the investment is convertible into shares acquired. Indeed, if the project succeeded, they will participate in the distribution of income.

A reform of the crowdfunding platforms must be a priority for governments. The implementation of the texts which must govern these platforms, ranging from who can create them (their obligations and responsibilities)? Which are investor's obligations? However, the governments can manage these platforms on which they authorize the participants. It is this regulatory authority to set minimum amounts and maximum amounts of projects to be published on the platform. Similarly, the regulatory authority can regulate the minimum and maximum contributions per investor per project. To prevent the opportunistic behavior of the promoters, the regulator can ensure the monitoring of funded projects. All activities must be approved by the regulatory authority before moving on to the platform.

5.1 Formulation of the economic model of a crowdfunding platform

Let **M**, the total amount of a project to be funded. **M** can be divided into **N** value vouchers **X** each. **M = NX** (1).

Let **c** (in% of **X**), the cost of monitoring to be assumed by the investors. Thus, each investor who wishes to acquire **n** vouchers must support, **nX [1 + c]** **(2).**

After fundraising, **[M + Mc] (3)** would be available. The sum **M** intended for the project promoter for the realization of the project, and **Mc (4)** available to the regulatory authority for monitoring to protect the interests of all participants.

Let **t** be the rate of remuneration on the participation, the lenders will collect: **M [1+ t], (t > c) (5),** if the project was successful. The gain per investor is **G = nX [t - c] (6).**

If the project does not succeed, each investor will receive **W=[L*n/N](7);** Where **W:** Investor compensation; **L**: net asset value of the project; **n**: number of units acquired by the investor and **N:** $=\sum n_i$ (total number of units).

Honor's Lenders will receive a reward from the wearer. In the event that the warrants are convertible, the "future partners or co-founder" will participate in the dividend sharing at the end of the financial year. All these stages must be under the supervision of the regulatory authority to guarantee the successful outcome of the "smart contracts" concluded.

6. Conclusion

SMEs, by their number, their contribution to the formation of the Gross Domestic Product, and their role in creating employment are important. However, the managers of these very dynamic production units are struggling to prove the credibility of their activities and to benefit from credits for their growth. The majority of SMEs, due to their insufficient capital, are unable to access the stock markets to widen their chances of financing; they often benefit from the support of banks and microcredit institutions or financing between individuals at usurious rates. With the development of technology, this problem could be solved by crowdfunding **by** platform on the internet. Thus, in this paper an economic model including the cost of monitoring is proposed to favour the financing of the activities of SMEs in general and in particular the financing of agricultural SMEs with most often a high-risk level and low profitability. With this model, any investor regardless of their geographic position can participate in the realization of a project of their choice.

References

[1] Randall, WS, & Farris, M (2009) Supply chain financing: using cash-to-cash variables to strengthen the supply chain. International Journal of Physical Distribution & Logistics Management, 39 (8), pp669-689.

[2] Shepherd, C, Günter, H (2006) Measuring Supply Chain Performance: Current Research and Future Directions, International Journal of Productivity and Performance Management, 55 (3/4), p242–258

[3] Shin, HH. and Soenem, L (1998) Efficiency of working capital management and corporate profitability, Journal of Financial Practice and Education, 8 (2), pp37–45.

[4] Dietsch, M. Mahieux, X. (2014). Comprendre Le Déficit de Financement Des PME Pour Stimuler Leur Croissance. Revue d'Economie Financière, 114 (2), pp 17–30.

[5] Johnson, P. (2007). The Economics of Small Firms: An Introduction. Routledge, London and New York.

[6] Karas, O. (2016). Rapport sur l'accès des PME au financement et la diversification accrue des PME dans une union des marchés de capitaux. Document de séance, Parlement Européen, 29.06.2016, 38 P.

[7] OECD (2016a). Support Note on diversification of financial instruments for SMEs. note examinée par les ministres des Finances et les gouverneurs des banques centrales des pays du G20 à Chengdu et transmise aux dirigeants des pays du G20.

[8] OCDE. (2018). Améliorer l'accès des PME à des instruments de financement diversifiés. Papier de discussion, Conférence Ministérielle sur les PME, 22 – 23 février 2018, Session plénière 2, Mexico City, 32 P.

[9] OECD (2015). New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments, Editions OCDE, Paris, http://dx.doi.org/10.1787/9789264240957-en

[10] OECD (2013). SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises, Groupe de travail sur les petites et moyennes entreprises (PME) et l'entrepreneuriat.

[11] Pissarides, F. (1999). Is lack of funds the main obstacle to growth ? Experience with small- and medium-sized businesses in Central and Eastern Europe. Journal of Business Venturing, 14 (98), pp 519 – 39.

[12] Pissarides, F., Miroslav S., and Jan S. (2003). Objectives and Constraints of Entrepreneurs: Evidence from Small and Medium Size Enterprises in Russia and Bulgaria.

[13] Wang, Y. (2016). What Are the Biggest Obstacles to Growth of SMEs in Developing Countries? An Empirical Evidence from an Enterprise Survey. Borsa Istanbul Review, 16 (3).

[14] World Economic Forum (2015). The Future of FinTech: A Paradigm Shift in Small Business Finance, Small_Business_Finance_report_2015.pdf.

[15] Udenio, M., Fransoo, J. C., Peels, R. (2015) Destocking, the bullwhip effect, and the credit crisis: empirical modeling of supply chain dynamics. International Journal of Production Economics, 160, pp34-46

[16] Vousinas, G. L. (2013). The Transmission Channels between Financial Sector and Real Economy in Light of the Current Financial

Crisis a Critical Survey of the Literature, Modern Economy, 4 (4), pp248-256.
[17] Lamsah, Safitri, and Zakky Zamrudi. "Total quality management practices in Indonesian local SME: Understanding the employees Role." HOLISTICA–Journal of Business and Public Administration 10.2 (2019): 129-136.
[18] Nicoletti, B. (2018). Procurement Finance for the Small and Medium-Sized Enterprises. In Procurement Finance (pp. 249-278). Palgrave Macmillan, Cham.
[19] Jadoua, Zainab Abdulwadood, and Nihal Farid Mostapha. "THE DETERMINANTS OF LEBANESE SMALL AND MEDIUM ENTERPRISES ACCESS TO DEBT." Academy of Accounting and Financial Studies Journal 23, no. 6 (2019).
[20] Nkwabi, Jesca Mhoja, and Julia Fallon. "Assessing the Factors Affecting the Effective Implementation of Supply Chain Management (SCM) In Food Manufacturing Small And Medium Enterprsises (SMEs) In Dar Es Salaam."