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The Impact of Supply Chain Finance on its competitiveness
in the tourism services sector.

Wpływ zarządzania finansami łańcucha dostaw na jego
konkurencyjność w sektorze usług turystycznych

Abstract of the doctoral dissertation

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Overview of subject and justification of the dissertation topic

Supply chain finance (SCF) is a relatively new area of scientific research that emerged in the 21st century. In economic practice, the need for action in this area was noticed on a large scale during the financial crisis of 2008-2009. The financial cooperation of enterprises belonging to the chain turned out to be particularly important for small and medium-sized enterprises, most exposed to the loss of financial liquidity and difficulties with access to capital, even determining their survival on the market or bankruptcy. From the current perspective of subsequent large-scale crises caused by external factors, one can expect an even greater increase in the popularity of the SCF due to the current crisis. The dynamic growth of interest in the SCF concept among entrepreneurs and scientists is also influenced by the evolution of supply chain management and a change in the approach to competitiveness. Managing financial flows between the links in the supply chain begins to be perceived as an added value determining competitiveness. It is a part of a broader trend to shift management's priority goals from reducing costs and maximizing profit to increasing the resilience of individual enterprises and their supply chains. The new concept has already been applied in their strategies by, among others Motorola or Walmart. In response to the needs of the market in Western Europe and shortly thereafter in China, scientific studies on this issue began to be written. Authors such as H.-Ch. Pfohl and M. Gomm (2009), H. Hofmann (2003) or M. Steeman (2014) developed the theoretical foundations of the supply chain finance. In recent years there have also been several attempts to systematize the concepts of SCF and a few literature reviews such as Chakuu et al. (2017), Gelsomino et al. (2014), de Boer et al. (2015).

Research problem and identified research gaps

Due to the high applicability in business practice, the interest in the subject of SCF and the number of research on this issue is growing rapidly. On the other hand, in the Polish scientific literature, there is almost no scientific publication on the issues of supply chain finance and the measurement of the effects of applying this concept. Existing literature are only few excerpts from publications on modern supply chain management and in a few articles (Banaszyk, 2018; Banaszyk, 2019; Pfohl, 2006). There is also a research gap in both Polish and foreign literature regarding the measurement of the impact of the SCF concept on the competitiveness of the supply chain.

The current focus of research on SCF on the activities of supply chains created by international corporations conducting production or trade activities, i.e. networks in which goods are the subject of flow draws attention. There is no literature on the concept of supply chain finance in relation to services, including the tourism services sector, which is the main reason for the selection of research issues, next to the interest in modern concepts of supply chain management, as well as professional experience in the tourism services and authors own observations of problems related to management financial flows emerging in this industry. Meanwhile, the recent crises affect the tourism sector particularly hard, and the SCF may determine the survival of the companies that make up the tourist network. Tourism supply chain can be defined as 'a network of tourism organizations involved in the delivery of various sub-products and services for tourism, used to create and then distribute ready-made travel packages at the destination. The links in this chain are entities from the private and public sectors' (Zhang, Song, Huang 2009, p. 347). The tourist supply chain (TSC) as a research topic is discussed by, inter alia, Zhang et al. (2009) and Bąkowska-Morawska (2014), however, the further research gaps can be identified: issues of the competitiveness of tourist supply chains and finance of the tourist supply chain - in Poland and in the world.

The research problem is how to measure and analyze the impact of the supply chain finance on the competitiveness of the entire supply chain and the individual enterprises on the example of a simple tourist supply chain. That leads to question how should the concept of supply chain finance be introduced in the strategy of supply chain management, to increase its positive impact.

Objectives and modeling assumptions

As the conducted research is modeling, no research hypotheses were indicated. However, the following modeling assumptions were made:

A1 - Efficient supply chain finance programme has a positive effect on the competitiveness of a given chain.

A2 - Efficient management of the finances of the supply chain is conditioned by the appropriate implementation in accordance with specific stages.

A3 - A high level of integration within the supply chain (high level of maturity) is a prerequisite for applying the concept of supply chain finance in this chain.

A4 - As a result of applying the concept of supply chain finance, benefits are achieved by all its participants (win-win situation).

The main objective of the dissertation is to demonstrate and develop a method of measuring the impact of supply chain finance on the competitiveness of this chain on the example of the tourism services sector. Instrumental goals are divided into cognitive, methodological and application goals. The cognitive goal (G1) is the systematization and critical analysis of knowledge in the field of supply chain finance, and its links with competitiveness theory. The methodological goals include:

G2 - Development of a conceptual model in the field of supply chain finance.

G3 - Separation and systematization of methods and measures useful for studying the effects of the application of supply chain finance.

G4 - Identifying good practices in the field of supply chain finance that lead to maximizing the potential of a competitive supply chain.

G5 - Development a model to measure the impact of supply chain finance on the supply chain competitiveness.

There are following application goals:

G6 - Analyzing and evaluating the impact of the application of the supply chain finance concept on the performance and competitiveness of the chain leader and suppliers.

G7 - Determining the applicability of the proposed model for measuring the impact of supply chain finance on the chain's competitiveness in economic practice.

Research methods, scope of the study, source material

The research carried out by the author was of a secondary and primary nature. The secondary research carried out in the first place is primarily a review, analysis and critique of Polish and foreign literature. An important stage was the analysis of the research carried out so far, the subject of which was the measurement of the results of the application of supply chain finance in supply chains. Based on the conclusions of the secondary research, primary research was carried out. The main research stages of the empirical part of research are the analysis of the current strategy and the environment of the competitive chain, identification of good practices in the field of SCF that lead to the maximization of the potential of the competitive supply chain, development of a model for measuring the effects of SCF on chain competitiveness and its exemplification.

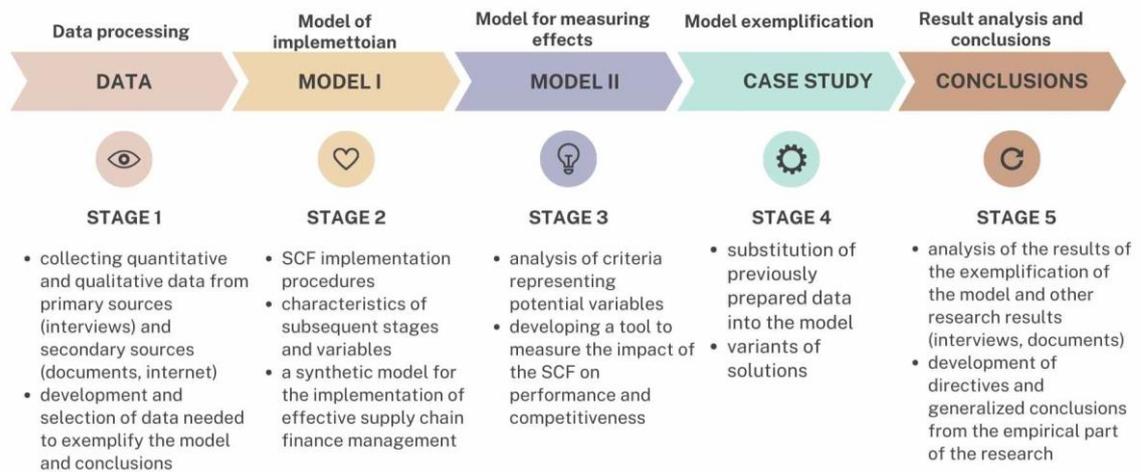


Figure 1 Stages of the empirical part of research

Empirical research included:

- analysis of the financial results of the surveyed enterprises and other quantitative data – for model exemplification, as well as to conduct a strategic industry analysis necessary to select a typical simple chain for research
- qualitative data analysis - mainly to determine the level of current competitiveness
- analysis of entities forming a simple logistic chain based on direct focused interview, analysis of documents and publications.

The method of an in-depth, semi-structured interview was used to obtain data from two entities - links of the studied chain. Company representatives received an interview questionnaire and, in consultation with other departments of the company, completed the first part of the questionnaire - a table with financial data for 2019 and 2020. Then, based on the second part of the questionnaire - a list of various questions (both open and closed) was conducted. The responses were used to analyze the entity in terms of segmentation to the SCF program, which is a stage of the implementation model, as well as to model the effects of implementing a supply chain finance solution. The interviews were conducted in April 2022 (just after the opening of the new season after the winter break). They were semi-structured - based on two interview questionnaires (different for the type of activity) constituting the pattern of the interview.

The research method directly leading to the achievement of the main research goal was the modeling method. Two models have been developed to measure the impact of supply chain finance on supply chain performance and its competitiveness. The first concerns the

model - "appropriate" implementation, which determines the achievement by the supply chain of satisfactory results of the SCF application. It was used to implement the application goal G5 *Identifying good practices in the field of supply chain finance that lead to maximizing the potential of a competitive supply chain*. The presentation of this model was necessary to indicate which SCF implementation the author describes as appropriate, and thus to explain the assumptions of the second model. The second model for measuring the impact of financial management of the supply chain on the results of this chain, in particular on the competitiveness of the companies that form it and the entire chain, is based on the analysis of changes over time by five criteria. Quantitative and qualitative measures have been identified that have the greatest potential to be used to measure competitiveness under the influence of SCF, taking into account factors specific to the service and tourism supply chain. Three of them correspond to the primary goals of supply chain finance regardless of the industry, i.e. optimizing working capital, improving financial liquidity and stability. It is complemented by two categories in which qualitative indicators are analyzed - mutual relations of the entities in the chain and, especially important now for the competitiveness of tourist services - sustainable development (social and environmental aspect). The measurement assumes a comparison of the values of the measures before the start of the SCF implementation and after the completion of the implementation, ultimately also in the long term. The obtained results are summed up for the entire analyzed chain, but they also make it possible to assess the impact of the supply chain finances on the competitiveness of each link in accordance with the basic assumptions of the SCF, i.e. allowing suboptimal solutions for individual chain partners, but on the condition that benefits are achieved by the entire chain and everyone creating it subject. The tool was developed based on the theory of the synthetic measure, multi-criteria optimization and the weighted sum method. Measurement should be carried out separately for each entity. Finally, the analysis covers the synthetic measure calculated as the change over time in the sum of the values of indicators for individual entities in the chain. After the implementation of SCF, the value of this sum should be higher than before the implementation. The value of the synthetic measure greater than 0 will therefore mean an improvement in competitiveness. The established criterion of the optimal solution is the highest possible value of the synthetic measure, and the minimum accepted solution, proving positive effects, is > 0 .

The implementation model and the effects measurement model constitute a set of tools, the use of which will enable the optimization of the effects of the supply chain finance application. They constitute the second and third stage of the research process of empirical research (Fig. 1).

The scope of the study are the effects of introducing the concept of supply chain finance to the strategy of supply chain management on the example of a simple tourist supply chain. The research population are touroperators operating on polish market and their supply chains, as touroperators are usually leaders of tourist supply chains. Among that population research is focused on one logistic chain formed by 3 enterprises, separated from the network operating in the tourism industry. In order to indicate in such a defined population the supply chain being the subject of the research, an analysis of strategic groups of the industry was carried out. Among the selected groups, the most appropriate supply chain to exemplify the impact of supply chain finance on competitiveness is the chain of one of the industry leaders - grouped in the "yellow" group of entities with the largest global scale of operations and a complex network. The strategies of each of these entities have already proved to be effective, and they are now looking for new ways to gain an advantage over other direct competitors. Supply chain finance, especially in the present time looking for a way out of the crisis, may prove to be an appropriate solution. Among the three entities belonging to the group, only one, Rainbow Tours S.A. is noted on the Warsaw Stock Exchange. Full availability of financial data and reports on non-financial information is a great advantage for this research. The two remaining links of the simple supply chain, separated from the Rainbow Tours network, were identified by the non-random selection method, through the selection of typical units and targeted selection. As typical units of the sought simple supply chain, meeting all of the following criteria were assumed:

- typical region of location,
- a typical offer (subject and standard),
- place in the supply chain (nature of business) with high expected added value from SCF implementation.

As the first selected tier – local agent declared to operate too short to provide any financial data, after taking into account the conditions specific for the studied network (high potential for involvement of 2nd tier suppliers in the SCF program focused on improving sustainability and safety), the studied simple chain include the 2nd tier service provider

cooperating with the selected 1st tier service provider. The simple chain that is the subject of the study is therefore:

1. Touroperator Rainbow Tours,
2. 100% subsidiary - local agent on the Turkish market (omitted due to the lack of data available for analysis),
3. Hotel operating in the Turkish Riviera (no 1 choice among polish tourists in researched time period),
4. The service provider operating on the premises of the hotel from point 3.

The time range of the research covered in particular the year 2020, from which the data were used to exemplify the model. Data from other years, in particular 2019, 2021 and the beginning of 2022 (until April), were also used for the general analysis of the competitiveness of the analyzed chain. For the ratio analysis, financial data from the last 5 years (2017-2022) were used. The research was spatially concentrated on the Polish market (on the demand side) and the Turkish Riviera, as the region of operation of two suppliers of the selected chain.

The analyzed source material in the first part of the research - literature studies, includes scientific studies on the issues of supply chain management, supply chain competitiveness, logistics management in the tourism services sector and, above all, concepts, methods and techniques of supply chain finance. Due to the novelty of the SCF issue, the source material is mostly English-language scientific articles. The source material for the empirical part of the research came from primary and secondary sources. Primary sources are in-depth interviews with representatives of companies acting as 1st and 2nd degree suppliers. The secondary sources, on the other hand, concerned the leader of the studied chain - Rainbow Tours. These were industry analyzes, portals with data from Polish listed companies, annual reports for 2019, 2020, 2021, reports on non-financial activities for 2019 and 2020, and the website of the leader of the analyzed chain.

Structure and content of the dissertation

The dissertation is composed of introduction, six chapters, conclusion, bibliography, list of internet sources, lists of tables and figures, and attachments. The outlined research procedure is reflected in the structure of the dissertation. The first three chapters are theoretical and conceptual in nature and address the first stage of the study. The second and

third stage of the study is discussed in the fourth and fifth chapter, which is of a methodological nature, and in the last - sixth chapter, the results of the empirical study are presented.

The first chapter attempts to systematize the concepts and critically analyze the knowledge in the field of supply chain management. Particular attention was paid to the management of flows in the supply chain, financial management in the supply chain and the relationships of entities that make up the logistics chain, and the importance of the nature of these relationships for the management of the chain's finances.

In the second chapter, an in-depth knowledge analysis of the supply chain finance was carried out. The chapter presents the conceptualization of concepts in the field of SCF, classification and systematization of techniques and methods included in the supply chain finance together with the purpose of their application.

Chapter three describes the issue of supply chain competitiveness and shows the relationship between the finances of the supply chain and the achievement of various types of competitive advantage (according to M. Porter's theory of competitiveness). The conceptual model in the field of supply chain finance developed in the previous chapters was supplemented with measures of supply chain finance according to various authors. The methods and measures useful for examining the effects of the application of supply chain finance have been distinguished and systematized. Chapter Three also includes a critical analysis of concepts relating to supply chain management in the tourism services industry, the competitiveness of the chains in this industry, and their finances.

The cognitive goal (G1) of the first three chapters of the study is “the systematization and critical analysis of knowledge in the field of supply chain finance, and its links with theory competitiveness”. The content presented in Chapter 2. made it possible to achieve the methodological goal of G2 – “Development of a conceptual model in the field of supply chain finance”, and in Chapter 3. - G3 – “Separation and systematization of methods and measures useful for studying the effects of the application of supply chain finance”.

The fourth chapter presents the concept of empirical research and the implementation of its first stage - the development of primary and secondary data. Targeted selection of the supply chain for in-depth research was carried out, and quantitative and qualitative data on the subjects of the studied simple chain were prepared and presented.

To determine the impact of the implementation of supply chain finance on the achieved results, a diagnosis of the current strategy and competitiveness of both the entire chain and its entities is needed. The collected data was therefore used to make a diagnosis in terms of the current competitiveness and financial situation of the supply network operating in the tourist services industry on the Polish market - the Rainbow Group network.

The fifth chapter describes the modeling of the chain's competitiveness and the results of its links due to the more efficient management of the chain's finances. The model of appropriate implementation of supply chain finance, the possibilities of implementing SCF in a typical simple chain separated from the analyzed network based on the developed implementation model, as well as assumptions of the model for measuring the impact of supply chain finance management on the competitiveness of this chain were presented. First presented model is addressing Goal 4. – “Identifying good practices in the field of supply chain finance that lead to maximizing the potential of a competitive supply chain”. The second model – Goal 5. – “Development a model to measure the impact of supply chain finance on the supply chain competitiveness”.

The last, sixth chapter presents an exemplification of this model on the example of a case study - assessment of the potential impact of the supply chain financial management process on its competitiveness. The chapter also includes practical directives for supply chain finance management and generalized recommendations based on the conducted research. The sixth chapter therefore addresses The application goals of the study – G6 and G7.

Results and conclusions

The result of research is the indication of good practices in the field of SCF, which will lead to the maximization of the potential of a competitive supply chain and the achievement of benefits from implementation by all links. The conclusion of this part of the research is identification of the elements of key importance for the success of the SCF program, understood as a positive impact on the results and competitiveness of enterprises and the entire chain in accordance with the win-win principle. These are appropriate implementation, in accordance with the presented model, and maturity of the supply chain. The second main result is the development of a model for measuring the impact of supply chain financial management on the performance of this chain, in particular on the competitiveness of its companies and the entire chain. That part of the study can be

concluded that the key for the effectiveness of using the tool is a good selection of indicators, the issue of data availability for analyzes and the need to conduct an analysis of the effects based on data for different time periods (typical values, immediately before the implementation of the SCF, immediately after and in the long term).

The detailed results, related to methodological goals are presented below:

G1 - systematization and critical analysis of knowledge in the field of supply chain finance, and its links with competitiveness theory	knowledge in the field of supply chain finance was systemitized and critically analyzed	Subchapters 1.2, 2.3
	the theoretical framework for supply chain finance linked with competitiveness has been created with reference to the tourism services sector	Chapter 3
G2 - Development of a conceptual model in the field of supply chain finance	the concept of supply chain finance was conceptualized and operationalized in relation to supply chain management	Subchapters 1.2, 2.3
G3 - Separation and systematization of methods and measures useful for studying the effects of the application of supply chain finance	supply chain finance techniques, goals and measures were systemitized	Techniques and goals - Subchapters 2.1 and 2.2
		SCF measures - Subchapters 3.1, 3.2
G4 - Identifying good practices in the field of supply chain finance that lead to maximizing the potential of a competitive supply chain	good practices regarding the implementation of SCF, which lead to the maximization of the potential of a competitive supply chain and the achievement of benefits from implementation by all links, have been indicated in the form of an implementation model and its discussion	Subchapters 5.1 and 5.2
G5 - Development a model to measure the impact of supply chain finance on the supply chain competitiveness	categories of variables, which are indicators of the impact of SCF on the results of the supply chain and its competitiveness were selected, a measurement model and exemplification were developed on the example of a case study of a simple supply chain from the tourism services industry	Subchapter 5.3
G6 - Analyzing and evaluating the impact of the application of the supply chain finance concept on the performance and competitiveness of the chain leader and suppliers	the impact of the application of the supply chain finance concept on the performance and competitiveness of the chain leader and other supply chain links were analyzed and evaluated	Analysis - Subchapters 5.1, 5.2, 6.1
		Evaluation - Subchapters 6.1, 6.2
G7 - Determining the applicability of the proposed model for measuring the impact of supply chain finance on the chain's competitiveness in economic practice	the applicability of the proposed model for measuring the impact of supply chain finance on the chain's competitiveness in economic practice was determined and discussed	Subchapter 6.3

Figure 2 Achieved research goals

Research limitations and further research directions

The research presented in dissertation helped to fill the above-mentioned research gaps and may be a tool helpful in developing a comprehensive implementation and

measurement of the results of the supply chain finance in supply chain for entrepreneurs, as well as inspiration to conduct scientific research on the applicability of the concept and measure the results of its application in subsequent industries and supply chains. A research limitation and a big challenge for the further development of the concept of supply chain finance among practitioners and scientists was a very small amount of information about the course and effect of SCF implementation and the relationship between these effects and the competitiveness of the chain. There is no potential for conducting a research based on statistical surveys on a representative research sample due to multiple reasons, one of the most important is high sensitivity of the data sought. Another, related limitation is the availability of data for all categories of indicators specified in the tool. This limitation may even be significant when using the model in economic practice and collecting data from suppliers of II and further tiers, especially geographically distant. Therefore, it should be assumed that the risk of incomplete data availability is high, determined by the sensitive nature of the analyzed data, and therefore the cells are not willing to share them. Moreover, this risk is increased by the location of the business of counterparties, often in distant countries with different accounting principles, and even those who do not keep accounting records. In the case of business practice, the SCF leader may encourage contractors with the benefits of SCF implementation. Therefore, potential future research on measuring SCF effects and their impact on chain competitiveness should still be limited to case studies based on in-depth interviews rather than CAPI. An interesting continuation of the research may be the comparison of the potential effects of implementation in entities-links in the chain operating on various markets. The developed model can be used by other researchers to assess the effects of implementation, including the impact on the competitiveness of the entire chain. The author sees the potential of using it to study other sectors, in particular service sectors, after possible minor transformations (taking into account industry-specific factors as a group of indicators, additional or instead of sustainability).

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