SCIENTIFIC ADVISOR'S REFERENCE

Program:	Master in Corporate Finance (MCF)
Student:	Irina Son
Title of thesis:	Coordinating buyback contracts with limited funding

Justification of the topic choice. Accuracy in defining the aim and objectives of the thesis. Justification of the topic choice; accuracy in defining the aim and tasks of the thesis; originality of the topic and the extent to which it was covered; alignment of the thesis' topic, aim and objectives.

The goal of the original study is to build a model of the buyback contract with limited funding that allows for two forms of borrowing (bank loan and trade credit) and develop an algorithm for selecting parameters of the buyback contract with limited funding that provide conditional coordination of a supplier-retailer supply chain. The tasks of the thesis are clear and cover the goal of the study.

Structure and logic of the text flow. Logic of research; full scope of the thesis; alignment of thesis' structural parts, i.e. theoretical and empirical parts.

Logics and structure of the paper are excellent. The main part of the topic consists of three chapters, closed by references and appendices. Research methodology includes quantitative modeling and case method.

Quality of analytical approach and quality of offered solution to the research objectives. Adequacy of objectives coverage; ability to formulate and convey the research problem; ability to offer options for its solution; application of the latest trends in relevant research are for the set objectives.

Thesis goal and objectives are clearly stated; thoroughness of the content is good. The originality of the paper lies in in building and solving a coordination model for a contract with a buyback and limited funding and developing on this basis a methodology for choosing contact parameters.
The results obtained are new and may be published in scientific journal.

Quality of data gathering and description. Quality of selecting research tools and methods; data validity adequacy; adequacy of used data for chosen research tools and methods; completeness and relevance of the list of references.

The results of methodology developed are verified by case study method. Optimization models were developed and combined into an algorithm to demonstrate how they can be applied for support the decision-making during negotiations over the terms of the buyback contract to ensure the profit improvement achieved by both supply chain members. Cases are presented by supply chains taken from different industries. In the research were used secondary data.

Scientific aspect of the thesis. Independent scientific thinking in solving the set problem/objectives; the extent to which the student contributed to selecting and justifying the research model (conceptual and/or quantitative), developing methodology/approach to set objectives.

The presented research is scientifically strong. Theoretical contribution includes the following results.
- The models of the buyback and wholesale-price contracts with limited funding are constructed for a supplier-retailer supply chain.
- It is found that the buyback contract with limited funding does not coordinate the supply chain but allows to achieve its conditional coordination according to the definitions of coordinating and conditionally coordinating contracts applied in the paper.
- With both wholesale-price and buyback contract trade credit is proved to be preferable to the bank loan in the case of retailer's limited funding as it provides the supply chain members with higher profits relative to those earned by them with the bank loan.

Literature review shows the novelty of the problem, models, and its solutions.

Practical/applied nature of research. Extent to which the theoretical background is related to the international or Russian managerial practice; development of applied recommendations; justification and interpretation of the empirical/applied results.

Applied nature of the study are as follows.
- The models of the conditionally coordinating buyback contract and wholesale-price contract with limited funding constructed for the case of demand distributed as uniformly.
- The algorithm for selecting the parameters of the buyback contract with limited funding is proposed, it allows to achieve conditional coordination with the buyback contract and improves total profit with the wholesale-price contract in the supplier-retailer supply chain considering the type of credit chosen by retailer (trade credit or bank loan).

The practical nature of the research is defined by testing the theoretical model results on cases from different industries.
Quality of thesis layout. Layout fulfils the requirements of the Regulations for master thesis preparation and defence, correct layout of tables, figures, references.
The layout of the thesis fulfils the requirements of the Regulations for master thesis preparation and defence. The layout of tables, figures and references is also correct.
Originality of the text. All sources of match identified by the Safe Assign system follow the allowed cases, the paper does not contain any elements of plagiarism.
The thesis text is original and does not contain elements of plagiarism.

Additional comments:
-Based on the results of the master's thesis by Irina Son, a report was accepted for the 16th International Conference "Game Theory and Management" (GTM2023)
-According to the results of the master's thesis, publication is planned in a periodical Contributions to Game Theory and Management, vol. XVII, 2023.

The Master thesis of **Irina Son** *meets all* the requirements for master thesis of Master in Corporate Finance (MCF) program thus the author of the thesis can be awarded the required degree.

Date: June 04, 2023

Scientific Advisor:

PhD in Applied Mathematics,
Associate Professor, Operations Management Department,
GSOM St. Petersburg State University

Nikolay Zenkevich