dr hab. Elżbieta Kubińska, prof. UEK   Kraków, 15th January 2024

Department of Risk Management and Insurance

Cracow University of Economics

Review of Kirils Farbarzevics doctoral dissertation

title: Acquiring a company: the role of the target company's innovations in the process of shaping transaction value

Supervisor: Leszek Czerwonka, Associate Professor

The following review has been prepared at the request of the University of Gdańsk as part of the doctoral procedure for Kirils Farbarzevics MSc. The basis for its preparation is the Resolution of the Discipline Council in Economics and Finance of the University of Gdańsk dated May 18, 2023. The legal basis for this review is the Act of March 14, 2003, on academic degrees and academic title, as well as on degrees and title in the field of art (Journal of Laws 2017, item 1789). The substantive standards of the review concern the discipline of economics.

Evaluation of the Research Problem

The dissertation concept delves into the role of the target company's innovations in the process of shaping transaction value, that holds significant implications for both the theoretical framework and practical application within the discipline of economics and finance. It pertains to the creation of transactional value in the acquisition process of an innovative enterprise, a subject that has been explored in corporate acquisition literature. Corporate acquisitions have been analyzed in the context of company growth and development, where growth involves quantitative expansion in operations and market share, while development signifies qualitative innovations in products, processes, or structures. Acquisitions essentially involve assuming

control over companies to enhance their market and competitive standing, entailing the transfer of tangible and intangible resources.

The value of corporate acquisitions has significantly leaned on innovations from acquired companies. This heightened importance stems from the positive correlation observed between acquiring an innovative entity and subsequent host company performance, measured through indicators like patents, originality of products or services, and increased innovation potential. Moreover, acquiring companies tend to display high innovation levels at the official announcement of M&A transactions, impacting growth and share values for listed companies. Post-transaction integration generates substantial added value for both organizations in the short and long term.

Given this context, the premise identified by the Doctoral Student is undeniably inspiring for addressing the dissertation topic. The absence of explicit consideration for innovation in common valuation methods, coupled with the lack of internationally recognized standards for innovation due diligence in M&A, necessitates exploring new ways for assessing the transaction value of innovative companies during acquisition. Moreover, the increasing number of M&A involving innovative companies and the exclusion of the innovation component in existing valuation methods further highlights the urgency of integrating this aspect into shaping transaction values.

Assessment of research purpose and hypotheses

The primary objective of this study is to investigate whether target company innovation has an impact on pricing in corporate acquisitions. Additional objectives of the dissertation include elucidating the relevant factors influencing the relationship between innovation and pricing. This encompasses not only developing a systematic understanding of the innovation-based acquisition system but also examining the formation of pricing, negotiation, and the decision-making process in acquisitions.

Main hypothesis is following: Target Innovation positively affects purchases price expectation. There are two hypothesis:

Hypothesis 1 Target informed innovation has a positive influence on initial purchase price expectation

Hypothesis 2 Target innovation has a positive effect on change purchase price expectations

Regarding the purpose of the dissertation, the author emphasizes the significance of the process from a behavioral perspective, underscoring the importance of understanding the behavioral factors driving acquisitions. However, there is no reference to decision theories or behavioral economics in the thesis. References to the prospect theory or anchoring effect could be presented and discussed in the thesis.

In the second hypothesis, the change is not well-defined; it is not clearly specified. At the same time, the preceding text does not suggest a definition for the change under consideration. It is unclear whether it refers to the price relative to the initial price or the price relative to the change caused by the emergence of information.

Upon reviewing the analysis and interpretation of the PLS-SEM model in the manuscript, several notable shortcomings have been identified. The primary concern lies in the absence of a detailed examination of individual coefficients within the model concerning both the main hypothesis and sub-hypotheses. This lack of thorough analysis hinders the clarity and depth of the overall discussion and results.

The main question is formulated along with five subordinate questions in Chapter 3. The main question is, "What role do the target's innovations play in an acquisition, concerning shaping of the purchase price?" The subordinate questions are as follows:

q1) How to give a value to innovative targets?

q2) Is innovation part of price negotiation?

q3) Is innovation a strategic or tactical purchase price component?

q4) Which aspects correct the initial purchase price expectations to which point of time?

q5) Witch other factors can potentially influence the acquisition process dynamics?

The content of the thesis lacks a clearly stated response to the questions. There are 39 findings, which are categorized into five groups in the table, and then they are discussed, emphasizing findings rather than addressing the questions directly.

In conclusion, I think that the set objectives and hypotheses in the dissertation align well with its title, comprehensively outlining the scope of the issues discussed in each chapter. Although the author established relevant hypotheses and research questions, the examination is conducted at a rather general level.

Assessment of the content of the dissertation

The introduction outlines the dissertation's motivations, objectives, hypotheses, scope, and methods. This should be supported by more tougher literature review, for example at page 5 opinions are presented asserting that innovations are a critical and non-trivial factor without referring to the literature.

The first two chapters delve into theoretical and cognitive aspects of business acquisitions. The initial chapter provides a reliable definition, strategies, motives, and various aspects of acquisitions. Nevertheless, it could benefit from a more critical analysis of different definitions and a clearer declaration of the adopted definition.

In Chapter 2, the section on due diligence (from page 39 to 59) is extensive, while the negotiation and pricing section only spans a few pages (from page 59 to 66). The section addressing negotiations and pricing briefly mentions theories without providing detailed descriptions. For instance, when referencing the principal-agent theory, there are citations, but the essential elements of this theory are not thoroughly explained. Similarly, when discussing hierarchical structures and factors influencing acquisition, the structure itself is not described. This lack of detailed explanation hinders a comprehensive understanding of the theoretical framework, and a more in-depth exploration of these theories would significantly enhance the quality of the thesis. At the very end, a draft of a path model is presented. However, there is no justification regarding the structure of the successive layers. Additionally, even the title of the figure is very technical - "Draft of path model.", what could be suitable for any dependency. So there is no precise description or justification of the model.

A significant shortcoming is the outdated referencing of the source on innovation, which is a fundamental topic of the dissertation. The citation from OECD and Eurostat, dated 2005, offers a definition of innovation. It is crucial to highlight that, especially when addressing the definition of innovation, consideration should be given to more recent publications, such as the Oslo Manual 2018 Guidelines for Collecting, Reporting, and Using Data on Innovation, particularly if the thesis is being submitted in 2023.

In the third chapter, which focuses on a case study, the identification of a research gap regarding the undefined role of innovation in acquisition transaction value is noteworthy. In this chapter, an attempt is made to address the research questions; however, the answers were not explicitly given. The answers to research questions are given and structured in the form of table (Table 15 four pages long), is commented on 39 findings, not research questions. The results are

provided, but without reference to the five questions. It should be explicitly clarified what are the responses to the research questions that were initially posed. Additionally, beneath Table 15, there is a statement suggesting that the results help define a new system, yet it remains unclear how the old system was defined and what changes are specifically outlined in the study. Furthermore, a notable drawback is that the author dedicates several pages to defining reliability, objectivity, transparency, and describing these aspects in detail without relating them to the research.

Moving on to the empirical analysis in the fourth chapter, it lacks justification for the research sample selection, and methodological details. In subsection 4.1, which addresses quality criteria, it has a very general character. The author dedicates one page to a general discussion of quality criteria without referencing the study's hypotheses in any way.

In Chapter 4.7.3, titled "Discussion of the result," the content appears more rooted in a literature review than a discussion of the obtained results. The text does not refer to results and it does not bridge the presented literature review with the specific outcomes of the research, leaving a gap in the coherence of the discussion. Addressing these concerns by clearly connecting the analysis to the research hypotheses and providing a more concrete and specific discussion of the results is recommended to enhance the rigor and clarity of the analysis and discussion section. These revisions will significantly strengthen the overall quality of the manuscript.

Evaluating the work's structure, it should be noticed that only Chapter Two contains a summary. There's no summary in the other chapters. Chapter One lacks both a conclusions and a summary. In Chapter Three, there are conclusions, while Chapter Four ends with data analysis and discussion. The chapters should follow a similar structure.

Below are some detailed notes

- In Chapter Two, dedicated to Innovation, specifically in the subchapter 2:1 there is a quote regarding the competitiveness of the German economy from Wanka (2014). This quote seems to be off-topic.
- The quote from Vuckowicz (2016) is introduced, which anticipates a controversial statement regarding the relationship between innovation and economic growth. However, this controversial statement is not stated.
- On page 40, there is a statement that "acquisitions and an integrating strategy support the reduction of information asymmetry in an acquisition", after Banner and Turner

(2005). In this sentence, there is a circular reference, implying that acquisitions themselves impact the reduction of information in acquisitions.

- On page 93, there is a mention of "sub models". However, there was no prior discussion about these models, making it unclear to the reader.
- On page 111, there is a chart labeled disposition, the term distribution should be used for describing response patterns.

In conclusion, the chosen research problem aligns with doctoral dissertation requisites, offering an original scientific problem. Despite some shortcomings, the dissertation exhibits noteworthy relevance to the advancement of the economics and finance disciplines. Its potential to make contributions to scientific research in this field and provide insights into the valuation and price formation for acquisitions of innovative companies is evident. With appropriate revisions and refinements, the dissertation has the potential to impact and contribute to the academic discourse in economics and finance.

Evaluation of the applied research methods

The evaluated thesis employs a theoretical-empirical approach, the thesis successfully maintains a equilibrium between its theoretical and empirical components. The research methods applied in the dissertation include a comprehensive literature review and a case study involving a substantial property transaction between a large industrial enterprise and a pioneering niche market leader with an innovative product.

The analysis incorporates qualitative content analysis, employing the Mering method. Additionally, a survey was conducted, integrating variables and their interrelationships into a coherent system. Preceded by a pilot test, the survey utilized a second-order structural equation model employing the partial least squares method (PLS-SEM). This model assessed the influence of the innovation variable of the target enterprise on initial variables like the anticipated purchase price and the expected exchange purchase price within the entire system. The PLS-SEM model considered other significant endogenous and exogenous changes, utilizing the variable "expected price" as a substitute for the central price variable. The findings reveal a robust direct impact of the target company's innovation on expectations concerning the initial purchase price, with an indirect impact on changed expectations regarding the purchase price. Addressing the concerns by clearly connecting the analysis to the research hypotheses and providing a more concrete and specific discussion of the results is recommended to enhance

the rigor and clarity of the analysis and discussion section. These revisions will significantly strengthen the overall quality of the manuscript.

In conclusion, the theoretical chapters showcase the Doctoral Student's erudition and research skills by describing acquisition transactions of innovative companies, the dissertation's overall structure demonstrates cognitive knowledge and a commendable choice of literature. Despite limitations in the empirical analysis chapter, the obtained results provide valuable insights for further research into acquisitions of innovative companies. The conclusion aptly summarizes the theoretical and empirical considerations, showcasing the Doctoral Student's scientific maturity. However, an overall positive tone should not overshadow the identified areas for improvement in the dissertation.

Questions to the doctoral candidate:

I propose the following topics to discuss during the defense:

- How does the prospect theory or anchoring effect contribute to the theoretical framework of your thesis? Can you elaborate on the application of these theories to explain your hypotheses?
- During the self-presentation, provide a detailed examination of the individual coefficients within your model, specifically focusing on both the main hypothesis and sub-hypotheses.
- Please explicitly answer the main question in your thesis: What role do the target's innovations play in an acquisition, particularly in shaping the purchase price? Provide explicit responses to the five subordinate questions related to the role of target innovations in acquisition.

These questions aim to assess the candidate's understanding of theoretical concepts, model analysis, and the practical implications of their research.

Conclusion

Based on my assessment, I conclude that the dissertation meets the requirements stipulated in Article 13 of the Act of March 14, 2003, on academic degrees and titles in the field of science (Journal of Laws 2017, item 1789). The dissertation takes the form of a scientific monograph

dedicated to the subject of acquisition of a company,. The dissertation presents an original solution to the scientific problem of conducting quantitative research on the determining the role of the target company's innovations in the process of shaping transaction value. Additionally, the author has created an original dataset and conducted a quantitative study. However, a notable limitation of the dissertation is the limited reference to theory and analysis of the results conducted on the very general level, resulting in a superficial presentation of the developed conclusions. I recommend allowing the Author to proceed to the public defense of the doctoral dissertation.

Kraków, 15th January 2024