



Lublin, April 11, 2023

dr hab. **Robert Zajkowski, prof. UMCS**
Department of Banking and Financial Markets
Faculty of Economics
Maria Curie Skłodowska University in Lublin

REVIEW

of the Doctoral Dissertation of MSc **Robert Sasse** titled:
Consumer preferences for new technologies in banking
that was elaborated under the Supervision of
dr hab Anna Maria Nikodemowska-Wołowik, prof UG,
supporting Supervisor Ph.D. Joanna Adamska-Mieruszewska
University of Gdański, Faculty of Economics

I. Preliminary remarks

The doctoral dissertation, prepared by MSc. **Robert Sasse**, consists of an Introduction, five chapters, a Conclusion, a list of over 300 references (31 pages), a list of 49 Figures, 13 Tables, abbreviations, and an annexe (questionnaire). With an Abstract (in English and Polish) and other information, the dissertation totalled 220 pages. The dissertation is written in English.

During the preparation of this dissertation review, the following assessment criteria were taken into account:

- the relevance of the research scope choice, the subject of the research, and the title of the dissertation,
- the novelty of the scientific points, the formulated research goals, and the hypotheses,
- the methods,
- the structure of the doctoral dissertation,
- the degree of achievement of the assumed research goal,
- formal and other remarks,
- conclusion.





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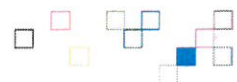
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II. Relevance of research scope choice, research subject and dissertation title

Technological advancements and digitalisation seem to be one of the several significant challenges affecting the global economy and society. The rapid development of broadband internet connection, online communication and social media has impacted how humans behave in almost all areas of their activities. Society is increasingly digitalised and connected, with computers and algorithms mediating much of people's daily activity in one way or another.¹ Referring digitalisation to the economic sphere, researchers and practitioners use the term 'digital economy', which has a long history and was first used by D. Tapscott.²³ Digital technology has nested in the financial sector and affected communication with customers. Digitalisation has also found its way into the core of banking, i.e. financial intermediation. A growing number of internet platforms provided various opportunities for easier and faster access to financial products exclusively via the Internet.

There are two questions that need to be discussed when it comes to digital banking as well as the development of digital society:

- 1) what are the primary and decisive factors behind the decisions of individuals to start dealing with financial and banking matters,
- 2) what are the individual's preferences related to new technologies in banking, and in which way these technologies have changed consumer behaviour.

On the face of it, some aspects seem obvious, i.e. growing usage of social media, mobile technology, cloud computing, the Internet of Things (IoT), artificial intelligence (AI), blockchain and FinTechs. However, for all stakeholders who would like to understand how individuals use digital banking, what they trust and do not trust, why they chose particular sources of information and how they predict the future of the digital banking market, further studies need to be carried out.

Considering the arguments presented above, the doctoral dissertation of MSc Robert Sasse: *Consumer preferences for new technologies in banking* live up to these academic and practical needs. As the author wrote (p. 12) '*...There are already some studies that have examined how customer behaviour has changed in relation to the various technologies. For instance, the relevance of different social networks for the financial sector was examined: mainly the networks Facebook, Xing and LinkedIn were assessed...*' however further '*...The need and relevance of research in the area of perception and use of financial services and products by the final consumer is facing a lack of systematic theoretical concepts and empirical results ...*' and I do share The author's opinion that

¹ Dufva, T., & Dufva, M. (2019). Grasping the future of the digital society. *Futures*, 107, 17-28.

² Tapscott, D. (1996). *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*, McGraw-Hill

³ Margherio, L., Henry D., Cooke S. & Montes S. (1998). *The Emerging Digital Economy*, Department of Commerce, Washington, DC.



general knowledge of this area is rather vast, yet it seems somewhat fragmented and dispersed. Hence, I assess that the choice of this dissertation's research scope and research subject not only raises no objections but also, as a relevant elaboration in this field, may be perceived as a precious source of condensed knowledge for the theory and praxis. Moreover, the title of the dissertation goes in line with its content and, in this context, it was formulated adequately.

III. The novelty of scientific points, formulated research goals, questions and hypotheses

As the author wrote (p. 13), *'...the user behaviour in the financial sector has not been sufficiently clarified. The focus is primarily on case studies and best practices with only little systematic analysis ...'* The scarcity of research in this area leads to a research gap that the undertook to fill with the results that are included in his doctoral dissertation at least partly. Hence, the Author (p. 14) has formulated the main objectives of the dissertation: 1) *'... how a fragmented, relatively unaffiliated group of prospective customers and current customers perceive products and services in banking.'*; 2) *'... how banks can fulfil the customers' requirements, especially when using social media ...'*. The general aims of the dissertation are correctly formulated and illustrate the author's intentions clearly. However, in work there are additional objectives (chapter 5 and 6) related to analyses that were presented in these parts. To achieve the abovementioned aims, the author formulated three research questions (p. 14):

RQ_1: Can the customers' expectations referring to the new technologies in banks be described with the concepts of behavioral economics?

RQ_2: What role can social media play in making financial decisions and in deciding for the use of the new technologies by the customers?

RQ_3: What are the consumers' preferences with respect to the new technologies in banking?

I am not convinced that the way research questions were worded. To me other language structures could be adopted e.g. RQ_1: Can customers' expectations towards new banking technologies be described with the help of behavioural economics assumptions?

Despite that, the research questions are well-structured and are clearly in line with the empirical part of the dissertation. In order to answer these questions, two empirical studies were conducted and presented finally in chapters 5 and 6. As was mentioned (p. 14-15) in chapter 5, an additional aim of the study and hypotheses were formulated and tested statistically, focusing on RQ_2. The purpose is (p. 88) *'...to identify the role of social media in financial decisions and in the use of the new technologies by the customers ...'* while hypotheses are presented as:

H1: There is a positive relationship between the use of social media and trust in banking.

H2: There is a positive relationship between the use of social media and the use of online banking tools.

H3: There is a positive relationship between the trust in banking and the use of online banking tools.



H4: There is no difference in the use of social media between women and men.

H5: There is a significant difference in the use of online banking between men and women.

According to D. Silvermann⁴, hypotheses are some kind of testable propositions. Given that, I would like to underline that H1-H5 are appropriately formulated and could be undebatable tested.

Chapter 6 presents the specific aim of this research, i.e.: *'... to characterise the development of the industry and to determine the main development trends ...'* and descriptive-explorative analyses were conducted to answer RQ_1 and R_Q3. In this part, no hypotheses were formulated, but studies seem to be adequate to answer general research questions RQ_1 and RQ_2.

General remarks: to me, this approach, where various key methodological aspects are presented in different parts of the work, tends to be somewhat chaotic and, to some extent, disrupts the logic of the dissertation. I prefer seeing general and detailed objectives, research questions and hypotheses in the introduction to have a better understanding of the complex research intention. However, unquestionably, all the necessary aspects were included in the dissertation.

Recapitulation: generally, despite the remarks related to the structure of the dissertation, it represents an original character and the methodological assumptions taken are adequate to achieve scientific purposes.

IV. Methods

In the research processes, various methods were implemented. Apart from literature review and desk research survey, the following set of statistical methods and techniques were applied: descriptive statistics, multiple regression analysis, statistical tests and various data visualisation techniques. To me, in chapter 6, the author could have employed more sophisticated statistical procedures to boost methodological aspects of this part. However, I assess the presented methods as adequate to conduct the assumed analyses in the dissertation.

The sampling approach in both empirical chapters is clearly described, and limitations related to the sample size, sample collection and mix-method sampling were presented. Data used in analyses presented in chapter 5 were collected in October and November 2021, while data used in chapter 6 are relatively old (the turn of 2015 and 2016). Since that time, we have observed a galloping development of ITC technologies and digitalisation connected with the growth of general social awareness of the digital world. Hence the question is whether this information is accurate at present. **But I think that the author will refer to this during the public defence of the dissertation.**

⁴ Silverman, D. (2009). *Prowadzenie badań jakościowych*, Wydawnictwo Naukowe PWN



Recapitulation: To me, the empirical part of the dissertation demonstrates a satisfactory level for a doctoral thesis. The analyses in chapter 5 in particular are well organised and shed some new light on elaborated issues.

V. Structure of the doctoral dissertation

To achieve the objectives of the dissertation, the appropriate structure of the work was adopted that consists of an Introduction, five chapters, a Conclusion, a list of references), a list of Figures, a list of Tables, abbreviations, and an annexe (questionnaire). The content of the chapters goes in line with the title of the dissertation and can be perceived as a consequent explication of assumed research challenges. The subjective framework of the work is a consistent and logical sequence of particular parts.

The introduction (marked as 1) is devoted to a general outline of the research problem and the isolation of research gaps. In this part, the general aims of the dissertation and research questions are presented. Also, the introduction mentions research methods, hypotheses and detailed aims of the other part of the work. In the end, the structure of the work was shortly described and illustrated on the graph. Generally, the introduction contains all the required elements and therefore meets the requirements for this part of the dissertation.

Chapter two, literature review. Firstly, the author presents the general assumption to distinguish and describe the specificity of the New Economy, which generally refers to the impact and significance of digital technologies on all aspects of social and economic life and leads to the so-called 'Internet of things'. Next, the chapter presents changes in consumer behaviour and preferences connected with, e.g. trust in the banking system in the era of turbulences, social media usage and widespread internet technologies. The influence of digitalisation on consumers' behaviour was more profoundly elaborated in a subsequent parts of this chapter focus on consumers' choices when it comes to financial decisions. Decision-making processes were grounded in the assumptions of behavioural economics (confronted with perfect rationality), and it was stressed that the behaviour of bank customers could be perceived as at least partly irrational. Subsequently, customer behaviour and decision-making processes in banking and finance were explained using behavioural economics lenses. At the end of this part, the author raised a set of aspects that refer to changes in consumer expectations towards banks in the era of digitalisation.

To me, the differences between the 'Old economy' and 'New economy' presented in table 1 (p. 21) should have been discussed more extensively to draw a clear border between these two systems. This issue was presented in the dissertation in too superficial a mode.



On page 25 the author wrote: '*...The data show how important social networks have become for people. It enables a daily exchange, which increases the customers' expectations that banks offer these communication channels as well. ...*'. Considering this, the author's point is not grounded in previous findings. I suggest that such categorical statements should be avoided when there is no transparent scientific background.

In addition, on page 27, there is an enumeration of factors that affect customer behaviour and satisfaction without adequate source references. Such presentation of the factors should be avoided.

On page 28, there is information related to changes in logistic processes of companies that were sparked by digitalisation and changes of customers' needs, but these considerations were not grounded in the previous literature.

Similarly to page 27, on page 29, the enumeration of factors for network importance for customers was left without a relevant source.

Some thoughts, e.g. '*...Many people are now customers of two or more banks, but only use one product at a time of each bank ...*' (p. 29) are repeated in the chapter too many times.

Page 33 and the following are the explanations and arguments related to limited customer rationality that I assess very well. Also, I positively assess table 2 (p. 46) presenting hypothetical relationships between decision-making behaviour and customer preferences in banking.

Chapter three, the state of the banking sector in Germany — selected aspects and challenges, is devoted to discussing the specificity of the banking system in Germany. Firstly, the chapter presents a formal structure of the banking system and a description of the banking system organisation, which consists of three pillars supplemented by other types of banks. The descriptions of the German bank system were nested historically, leading to a better understanding of these issues. Additionally, this chapter draws the significance of the banking system for the economy. The next part is devoted to changes in this system sparked by the growing influence of the IT technology development and digitalisation over the last decades. On this basis, the author describes changes in consumer's demand for financial products and services. Finally, the considerations are supplemented by the author's views on possible tendencies of financial market development in the century of growing digitalisation.

This chapter is the shortest in this dissertation and totalled only 11 pages. In fact, it draws a general picture of the banking sector in Germany. However, I do not have enough information related to the data and figures on the development of this system over decades. In the context of the dissertation, the author should have presented the way of implementation of particular stages of the digital economy (e.g. Web 2.0 to Web 4.0 – and the impact on the financial market and customers' behaviour), and the impact of the joining of the German banking system to the Eurozone and its consequences. Without that, the picture looks incomplete or rather superficial.



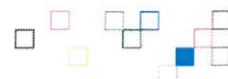
Chapter 4, the use of social media in banking, is devoted to a different aspect of social media's role in the financial (mainly banking) sector. The definitions, divisions, conceptualisation, and implementation of social media within the current financial sector are presented as a starting point of this consideration. Next, the author focuses on the potential significance of social media as a connector and communication channel in the financial sector. Descriptions in this part were supported by previous studies related to the perception of social media by bank customers and the extent to which German Retail Banks use social media. Different parts of this chapter touch on such aspects as social media vs banking, insurance and other financial sectors. Next, the author provides a set of social media practices in banks as well as examples from a few banks. The last part contains a short list of challenges for social media in banking.

Figure 5 (p. 66), figure 6 (p. 68) figure 7 (p. 84) represent poor technical quality. Subchapter 4.2., table 4 (p. 70) seems to be an interesting set of potential opportunities for social media in the financial sector and could be assessed as a strong point of this chapter. However, it should be stressed that these considerations refer mainly to the banking system while the subchapter title contains the term financial sector, which can be, to some extent, misleading. Surprisingly, subchapter 4.3. refers directly to social media in banking, which further increases the level of confusion. To me, the consistency of this chapter is missing at least partly.

Chapter 5- Empirical study 1: relations among SM, trust, and online banking contains results of the author's research. Firstly, research hypotheses are presented and illustrated on a conceptual model (trust in banking – use of social media – use of online banking). Next, methods are described in detail, and the specificity of the sample is presented. To conduct the primary analyses, the author employed multiple regression models that statistically confirmed three of the five hypotheses. The chapter ends with a discussion of the results and the conclusions. All aspects are nested in the literature on this subject.

I recommend avoiding acronyms in the titles of chapters. In this empirical part, the sample of 204 completed questionnaires were used. The sample seems to be a relatively small sample of bank customers, so the results are relatively limited. Additionally, adopting a mix-mode data collection approach such as support of banking staff, a survey portal, mailing, or personal contacts requires adequate sample bias testing to check consistency between results obtained in those different ways. I also recommend not marking out parts if there is only one (e.g. p. 91 – Demographic data). To me, the p-value should be presented in scientific papers as $p < * . **$ rather than $p = * . **$ (p. 95).

Chapter 6, Empirical study 2: customers towards digital technology in online banking, contains the results of the author's study of consumer views on aspects of digital technology in online banking. Studies are oriented to answer research questions RQ_1 and RQ_3, previously proposed in the introduction (p. 14). First, the author presents assumptions of the study, sampling method, and the summary of the questions. Next, the author presents his findings directly connected with



sample characteristics and further with absorption and usage of digital tools by banks' customers as payment functions, investment products, ways of products contracting, the importance of online functions etc. Subsequently, the author distinguishes and characterises the types of bank customers. The analyses are focused on such issues as the trust of bank customers, online sources of information, online investments and FinTech. The final part of the chapter is devoted to the predictions of the online banking future.

General characteristics were supplemented by more profound studies including comparison analyses, taking into account gender (p. 121 and following). The question arises why only in this place? Why were such analyses not conducted for other variables? Of course, considering that the formal structure of the questionnaire does not allow employing more sophisticated numerical methods, however, the author should have implemented comparison analyses between, e.g. gender, particular users of social media, respondents with given personal and household incomes or (p. 124) types of bank customers to boost excellence and support other analyses. Without that, there is some shortage felt. As mentioned previously, a study was conducted between December 2015 and January 2016, hence results seem to be at least partly obsolete in comparison to the current level of social media absorption non-only in banking but also in economies.

The last chapter, Conclusions, implications, limitations and Further Research, summarises previous elaboration studies. The author refers to consumer preferences for new technologies in banking and potential disputes of customers with banks. The chapter draws the subsequent managerial implications, lists the limitations of the author's work and paths directions for further research.

In this part, the author, based on previous findings, has presented a model (p. 149) that depicts relations between personal contacts with a bank and expected service quality, trust and, finally, the use of online banking. Additionally, descriptions connected with all issues are confronted with the current knowledge in this field and summarised, referring to RQ 1 (p. 151). In the same manner, aspects related to customer preferences and potential problems of customers with banks are summarised and referred to RQ3 (p. 157). Considering the contents and structure of these parts, they can be assessed positively.

VI. Degree of achievement of the assumed research goal

I do think that the doctoral dissertation of MSc Robert Sasse titled: Consumer preferences for new technologies in banking in the scope of: literature review, the methodology of research, presentation and description of the results, partly critical analyses in the field of consumer preferences for the new technologies in banking allows to me state equivocally that the assumed objectives of the work (see section III of this review) have been achieved. The author has proven to possess:



- Broad and deep knowledge in the field of Finance and Economy.
- Scientific and research skills and abilities to investigate complex, multidimensional and complicated issues.
- Traits and features of a meticulous and conscientious researcher to conduct independent research processes and scientific work.

All the mentioned aspects, concerning limitations that each researcher, due to different reasons, is burdened with, predestine MSc Robert Sasse to be an independent researcher.

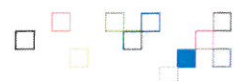
VII. Formal and other remarks

The work was prepared neatly and in accordance with editorial requirements. As a reviewer, I have a different assessment of some aspects than the author, which does not affect the assessment of this dissertation. There are some technical, editorial and conceptual small mistakes that the author should avoid in any further scientific work and publications. These are some of those:

- 1) In scientific work, the balance among particular parts should be respected. For me, chapter four (3) should have been extended, as mentioned in a previous part of this review.
- 2) The quality of the figures in the dissertation should have been improved. I recommend not copying original pictures from other sources, instead drawing them from scratch.
- 3) Sometimes there is a lack of critical analysis of previous findings, studies and literature quoted.
- 4) The text had numerous repetitions of the same pieces of knowledge, which I do recommend avoiding in any academic paper.
- 5) Keywords under the abstract should better correspond with the content of the work. The lack of such terms as consumer behaviour or consumer preferences is noticeable.
- 6) Fundamentals and behavioural effects (2.4.1.) were presented in detail, however, in the relevant part of the work the author did not refer to them. To some extent, they could be helpful in the explanation of aspects isolated in empirical parts.
- 7) Dichotomous variables (results – e.g. p. 131-132) should not be illustrated on pie charts.
- 8) Descriptions on the charts (p. 134, 139, 141) should be adjusted to present a complete description of the given category (there are cut now).

VIII. Conclusion

In my opinion, the doctoral dissertation that was a subject of this review provides a substantial impact related to consumer preferences towards new technologies in banking. All considerations are based on acceptable well-formulated research objectives and hypotheses (some remarks in this field were marked earlier). In the work, the author took into consideration the current knowledge in this field based on international as well as domestic literature and scientific findings. Nevertheless, the significant additional value is the authors' empirical studies conducted on the samples of (1) over 200 and (2) over 4000 respondents. The author has successfully broadened the current state of knowledge in the field of economics and finance by:



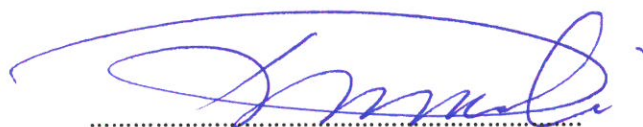
- 1) Isolating and supplementing the features that can shape the attitude of banks' customers towards the digitalisation of bank services.
- 2) Indicating media platforms' support to financial service providers (p. 70).
- 3) Providing statistical confirmation of the impact of customer trust in banking and the use of social media (parallel) on the use of online banking tools (p. 95-97).
- 4) Presenting the attitude of banks' customers to digital technologies in online banking (partly).
- 5) Providing conceptual isolation of relationships between personal contact, service quality, trust and online banking.

Generally, the research process, regardless of some remarks, is organised properly from a methodological point of view, and the results are presented and interpreted relevantly, filling the existing research gap in the literature, at least to some extent. In my opinion, it is thus clear that the present doctoral dissertation meets the requirements stipulated by Art. 13, Act on 14 March 2003 on Academic Degrees and Titles and Academic Degrees and Titles in Art and Art. 187, Act on 20 July 2018 Law of Higher Education (art. 13 ust. 1 Ustawy z dnia 14 marca 2003 r. o stopniach naukowych i tytule naukowym oraz o stopniach i tytule w zakresie sztuki - Dz. U. Nr 65, poz. 595 z późn. zm. oraz art. 187 ustawy z dnia 20 lipca 2018 r. Prawo o Szkolnictwie Wyższym – Dz. U. z 2018 poz. 1668). MSc. Robert Sasse represents adequate theoretical knowledge in the Field of Economy and Finance and relevant skills in conducting her own research processes, evaluating their results and formulating conclusions. Generally, the dissertation can be assessed as original work that provides new pieces of knowledge on customer preferences for new technologies in banking. The above comments refer to aspects that, to some extent, might be perceived as debatable but by no means might undermine a generally positive review of this dissertation. Considering this, I recommend that the Scientific Council of the Discipline of Economics and Finance, University of Gdańsk accept this doctoral dissertation in the Field of Economics and Finance and authorize it to a public PhD dissertation defence.

Finally, I would like to ask the author two further questions:

- 1) The author has presented the specificity of behavioural effects (Section 2.4.1.). In this context, I wonder whether at least some of the author's findings can be explained in the frames of these effects.
- 2) Part of the survey was conducted a few years ago (some earlier). What has changed since that time in the attitude of bank customers towards banks' digitalisation?

dr hab. Robert Zajkowski, prof. UMCS



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