

Business insurance in holistic risk management in agriculture (UBROL project) – review and dispute

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Abstract

Between 2020 and 2022, three monographs were published as part of a project entitled “Business insurance in holistic risk management in agriculture oriented on sustainability, implementation of innovations and technologies, and opposing climate change” (a project co-financed by the National Centre for Research and Development (NCBR) under the GOSPOSTRATEG programme). The studies under review, which were written with knowledge of the research topic and based on the authors’ own empirical research, are of an interdisciplinary nature, with the authors coming from numerous academic centres and varied academic disciplines. They expand on previous knowledge, not only with regards the titular business insurance, but also agriculture and, above all, agricultural risk management.

Viewing the contents of the studies in general terms, it can be said that they are indeed interdisciplinary, although not sufficiently organised as regards the holistic model. For this reason the monographs, following revision, editing and minor abbreviations, should be published – an initiative worth recommending to the Institute of Agricultural and Food Economics – State Research Institute (IERiGŻ PIB) or the Ministry of Agriculture and Rural Development (MRiRW) – in a single volume, which would undoubtedly result in some outstanding work covering several academic disciplines related to agriculture. Such work could then be quoted by and recommended to practitioners, theory makers and, as a likely objective of the study notwithstanding, to university students.

Keywords: risk, agriculture, insurance, crops.

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Introduction

Between 2020 and 2022, three books on business insurance in agriculture were published:

- An analysis of supply and demand on the agricultural insurance market, verification of proposed insurance products in practice, and the design of a holistic risk insurance system¹;
- An analysis of supply and demand in the agricultural insurance market²;
- Identification of foundations, transformations and challenges in agricultural insurance³.

The published monographs are the result of work (tasks 1, 2 and 3) completed as part of a project entitled: “Business insurance in holistic risk management in agriculture oriented on sustainability, implementation of innovations and technologies, and opposing climate change” (UBROL for short), which was co-financed by the National Centre for Research and Development (NCBR) under the GOSPOSTRATEG programme in accordance with the Gospostateg1/390422/25/NCBR/2019 agreement of 13 March 2019.

Research on risk management in agricultural farms is not particularly frequent in the academic community⁴, a fact that, along with the specific nature of such research, stems from its diversity. On the one hand, agriculture means agricultural production⁵, while on the other, agricultural farms are most often identical to the home farms of farmers whose personal finances therefore come into play⁶. Agriculture is subsidised by both the European Union budget and the Polish budget, and for this reason it is an area of interest for public finances⁷. Farmers, on the other hand, are also of relevance

1. M. Soliwoda (red.), *Weryfikacja praktyczna proponowanych produktów ubezpieczeniowych i skonstruowanie systemu holistycznego zarządzania ryzykiem (pilotaż)*, Warszawa, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, 2022.
2. M. Soliwoda (red.), *Analizy popytu i podaży na rynku ubezpieczeń rolnych*, Warszawa, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, 2021.
3. M. Soliwoda (red.), *Identyfikacja podstaw, przemian i problemów ubezpieczeń rolnych*, Warszawa, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, 2020.
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5. W. Józwiak, *Polskie rolnictwo i gospodarstwa rolne w pierwszej i drugiej dekadzie XXI wieku*, Warszawa, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – Państwowy Instytut Badawczy, 2013, pp. 5–93.
6. A. Wołoszyn, R. Głowicka-Wołoszyn, S. Świtek et al., *Wielowymiarowa subiektywna ocena materialnych warunków życia i dobrostanu w gospodarstwach domowych rolników w Polsce*, “Fragmenta Agromonica” 2019, nr 36(4), pp. 15–26.
7. J. Milczarek, *Środki pomocowe UE w finansowaniu gospodarstw rolnych – studium przypadku*, “Finanse i prawo finansowe” 2019, nr 1(21), pp. 39–54.

for politicians, especially during electoral campaigns. For this reason, risk management in agricultural farms spills into political sciences⁸.

The issue of risk management in agriculture is important, also with regard to food security, which has become even more noticeable during the Russian aggression in Ukraine. Food self-sufficiency is, after all, essential for Poland and can be ensured by agriculture, which must be assisted by the efforts of academia, among others in risk management⁹.

The purpose of this article is to characterise the discussed monographs and challenge some of the details found therein.

Review

Each reviewed monograph has a different, correctly stated and creative purpose corresponding to the relevant stage of the study. The purpose of the first monograph is to: (1) present the theoretical foundations of insurance, its evolution, and the challenges faced due to changing approaches to risk and risk management; and (2) design the first version of the update, already available to Polish farmers, of insurance products and other implementable products that stabilise their surpluses, revenue and income, as well as draft the initial version of a holistic risk management model for Polish agriculture. The purpose of the second monograph is to present selected issues concerning supply and demand in the agricultural insurance market, combined with an attempt to identify a market management strategy in Polish agriculture and sketch the ways to operationalise it (through the use, among others, of insurance products). The purpose of the third task (and third monograph) was to assemble a final set of five proposals of insurance products/schemes as verification of the variant emerging from task number two.

In order to review these publications, the essence of the research problem must first be defined. As noted in the introduction, the problem is interdisciplinary and essential for many academic disciplines. However, if the monographs were to be assigned to a single discipline, they would be classified for the most part as economic and financial studies, since they refer directly to stabilising the income of farmers (agricultural manufacturers) through insurance (involving funds from the state budget).

8. M. Szpyt, *Wiś w programach polskich partii politycznych w okresie 1989–2011*, "Wiś i Rolnictwo" 2011, nr 4(153), pp. 83–102.

9. Z. Karaczun, J. Kozyra, *Wpływ zmiany klimatu na bezpieczeństwo żywnościowe Polski*, Warszawa, Wydawnictwo SGGW, 2020, pp. 5–110; P. Kalinowski, M. Korzycka, *Zarys konstytucyjnych wytycznych dla polityki bezpieczeństwa żywnościowego państwa*, "Studia Iuridica" 2021, nr 88, pp. 155–167.

The reviewed studies were written with knowledge of the study topic, based on the authors' own empirical research, which was combined with the suitable back matter. This was possible due to the authors' familiarity with the topic, with most of them¹⁰ being nationally (or more widely) renowned academics specialising in a particular discipline, and representing several academic centres, in particular: The Institute of Agricultural and Food Economics – State Research Institute (IERiGŻ PIB, project leader), the Poznań University of Economics (UEP) and the Warsaw University of Life Sciences (SGGW), as well as the Koszalin Technical University (PK), Warsaw School of Economics (SGH), Institute of Soil Science and Plant Cultivation – State Research Institute (IUNiG PIB, task 2), West Pomeranian University of Technology (ZUT), Poznań University of Life Sciences (UPP) and Università degli Studi di Padova (UniPd). Importantly, each author contributed content connected to their academic interests, which had a positive impact on the academic value of the monograph.

The subject literature consists of numerous titles cited by the authors, concerning risk management in agriculture. However, in this study, these issues are treated merely as a stepping stone for further analytical efforts, often going beyond the topics presented in the study, making the analyses even richer. A valuable outcome of the studies is designing a holistic model, namely new insurance products that were assessed by farmers in the third task.

The first of the discussed books deals with presenting and characterising risk, with particular emphasis on risk in agriculture, and consists of seven chapters, showcasing the research problem and noting the potential direction of research. The layout of the chapters, as in the two other monographs discussed in the article, is based on a top-down approach. Chapter 1, entitled “The theory of expected utility, non-expected utility and insurance” presents, among others, and with respect to insurance, the ambiguity (lack of precision) of risk aversion, the significance theory, the von Neumann-Morgenstern concept of expected utility, and the prospect theory by D. Kahnemann and A. Tversky, with each theory suitably described. The chapter features an academic dispute, grounded in literature¹¹, on the connection of these theories with insurance, including insurance for farmers (particularly in sub-chapter 1.3 entitled “Behavioural aspects of insurance decisions”).

10. The word “majority” is used merely because the author is familiar with the academic output of that majority, which is not the case for all the authors. Had he known the entire output, he would probably have written “each of them”.

11. The author refers to multiple literature titles that list the advantages and disadvantages of these theories, such as: N.C. Barberis, *Thirty years of prospect theory in economics: A review and assessment*, “Journal of economic perspectives” 2013, Vol. 27(1), pp. 173–196; U. Schmidt, *Insurance demand under prospect theory: A graphical analysis*, “Journal of Risk and Insurance” 2016, Vol. 83(1), pp. 77–89.

Chapter 2 (“Insurance decisions. Mechanisms and determinants”) is, in the words of its author, an extended theoretical study on the essence of insurance decisions. In the chapter, the author discusses the complexity of these decisions by referring to theories discussed in the previous chapter.

Chapter 3, which was written by two authors, deals with holistic risk management in agriculture, including social risk as an essential risk resulting from the macro environment. It is worth noting that the chapter features numerous illustrations (24) and tables (13) that help understand the origin and essence of risk management in agriculture. These inserts are a valuable source of knowledge for both those who feel familiar with the topic, as browsing through the chapter will make many a reader realise their lack of knowledge in this respect, and for researchers who have just begun to study risk management, including risk in agriculture.

Chapters 4 and 5 deal with domestic and international regulations and recommendations concerning agricultural insurance, as well as the rules for granting public assistance in this sector. The regulations are discussed taking into account their past changes, present status and future tendencies. Knowledge of community regulations allows the authors of the following chapters, and the research presented in the other monographs, to refer to other tested (or untested) solutions¹², and to learn from the mistakes of others instead of their own in the process of designing a system of holistic risk management on agricultural farms.

Chapter 6 presents the results of a survey conducted among farmers on their attitudes, perceptions and aversions to risk, as well as methods of managing risk. The survey covered 600 agricultural farms specialising in various types of agricultural production (plant, cattle, livestock, mixed). The survey results suggest that the basic factor that diversified the risk aversion level, risk perception and assessment of risk mitigation methods is the size of the agricultural farm. For this reason, a system of holistic risk management in agricultural farms should take into account the economic diversity of Polish agriculture, as well as the risk of drought, which was frequently stressed in the survey.

Chapter 7 sketches a preliminary outline of the holistic risk management system. It should be emphasised that this theoretical, general sketch is considerably different from the final version of the full system presented in the third monograph.

The second monograph has an entirely different nature, consisting of thirty-one short chapters grouped into nine thematic blocks. For this reason, the book covers

12. The conclusion stated in this chapter, namely that agricultural insurance is of interest only to the largest agricultural farms (which is the case in Italy, see sub-chapter 5.3.1) will be repeated on multiple occasions in the context of designing a holistic model in Poland.

a much wider thematic scope and deals with multiple issues that go beyond standard risk management. In addition to economic questions, the monograph presents other issues in more detail. For example, chapter 7 incorporates comprehensive information on designing simplified methods of determining areas in which agricultural crops are affected by disasters or unfavourable weather conditions. The most crucial part of the monograph, however, are issues related to risk management in agricultural farms. As far as theory is concerned, the third block, “Asymmetry of information on the agricultural insurance market” is particularly valuable. These issues have been spread over two chapters, beginning with the characteristics of information asymmetry and ending with a discussion of such asymmetry when entering into agricultural insurance agreements. Importantly, asymmetry of information has been treated from the viewpoint of both insurers and the insured, taking into account two different moments: before and following the conclusion of an insurance agreement.

Likewise, the third chapter (of the third block) defines (using logistical regression) the conditions of purchasing crop insurance by farmers. The study states that revenue achieved by an agricultural farm is one of the most important factors on which the purchase of such insurance hinges: “higher revenue from sales of agricultural products and services doubles the chance for having subsidised insurance of crops and/or animals”. The results discussed in this chapter deserve to be additionally highlighted. As noted by its authors, crop insurance is purchased mainly by farmers achieving high revenue¹³, while since Polish farms are often small¹⁴, such insurance will probably never achieve widespread popularity¹⁵. For this reason, according to the author of this review, actions to greatly improve the popularity of such insurance will be ineffective.

The publication also presents other risks, in addition to frequently discussed risks related to agricultural crops, for example the social risk that was already mentioned in the first monograph. The risk of losing revenue from agricultural activities, which can be mitigated by insuring such revenue, is also more widely characterised. In itself, the concept of insurance against loss of revenue was presented in chapter 28, while the subsequent chapters (29 and 30) offer an adequate discussion of insuring direct surplus and revenue in agricultural farms.

13. The conducted survey did not distinguish a variable “the farm is the main source of income (yes/no)”, yet this variable is more important than the revenue figure, since it is a major factor deciding whether to purchase insurance. The income figure is naturally a variable derived from revenue – the larger the revenue/income, the more often it is the main source of a farmer’s income.

14. T. Wojewodzic, Ł. Paluch, A. Martynowicz, *Zmiany w liczebności i strukturze gospodarstw rolnych w Polsce*, “Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu” 2023, nr 25(1), pp. 312–320.

15. “Popularity” is here understood as the percentage of farmers who have purchased such insurance.

The monograph, however, tends to overly equate the terms “risk in agriculture”, “agricultural insurance” and “crop insurance” in the context of the presented research.

The last publication presents the results of a study on risk management, the main purpose of which was to define the level of acceptance of various proposals related to index-based insurance by farmers. The work set (and achieved) the following partial objectives:

1. How do farmers view the general concept of index-based insurance against the consequences of drought?
2. What are the preferences of farmers concerning individual components of index-based insurance against the consequences of drought – the amount of premiums and linking the benefits to loss of crops?
3. What is the weight of each studied parameter?
4. How do farmers view other solutions relying on index-based insurance in this context?

The answers to the above questions can be found in the last block of the monograph, entitled “The third version of holistic risk management and the range of insurance products in Polish agriculture” (chapters 20–25). The content of these chapters serves as a tagline for all three monographs, containing answers to questions posed by the researchers or readers after studying the previous publications.

The preliminary part of the monograph also contains valuable, theoretical chapters that contribute new content to the research project, for example “Epidemiological and pandemic risks affecting the insurance, food and agriculture sectors” (chapter 15) and “The ERM/BRM concept in systems of risk management in agriculture” (chapter 12). In the chapter devoted to epidemiological and pandemic risks, attention is paid mainly to the essence of those two risks by distinguishing them from disaster risks and attempting to provide a model of epidemics and pandemics, as well as by defining the impact of epidemics and pandemics on the food sector, or agriculture as a whole.

On the other hand, the chapter dealing with the ERM/BRM concept precisely states its objective, which is an attempt to assess the opportunities of adapting the ERM/BRM concept to systems of risk management in agriculture. The chapter’s author presents the characteristic features of risk in agriculture (in a simplified form that matches the chapter’s content) and the ERM and BRM concept (which is done correctly with regard to the aspect of the analysed issue). The entire chapter is appropriately summarised by saying that ERM and BRM, as an agricultural policy concept, are notable methods that can be used by agricultural business entities to deal with risk in an anticipatory and effective way.

To wrap up the review of this monograph, a final note on the titles of each part needs to be added. It is regrettable that the titles of each chapter are not more elaborate

and do not provide more hints about the content. A case in point could be the title of chapter 25, which is “Income stabilisation instruments”. The reference to income should be made more precise (in the context of research conducted in the monograph) by stating whose income the research conducted in the chapter refers to, i.e. whether this is the income of farmers, income of agricultural farms, income from agriculture or agricultural income (the last of which would probably be most suitable).

Dispute

As noted earlier, the presented studies are the result of a project (tasks 1, 2 and 3) entitled: “Business insurance in holistic risk management in agriculture oriented on sustainability, implementation of innovations and technologies, and opposing climate change”. These instruments should therefore be required to meet the criteria of rationality, including the principle of advisability¹⁶.

Reviewing each monograph separately would give different results compared to examining them as a whole (or holistically, referring to the project’s name). All the more so, arguing against the contents of these publications is also different – the dispute would refer exclusively and post factum to the entire project (which the authors and editor could not achieve while writing each part).

The publications touch upon economic and agricultural issues, although regrettably, they are not very deeply grounded in legal issues, which could increase the value of the study. None of the many members of the project’s team was a lawyer (as the review author believes after examining the list of members). With all due respect to the authors, legal issues should be written about by (or consulted with) lawyers, especially since the final objective of the project is to design an insurance product¹⁷.

All three monographs feature a great deal of content. In the opinion of the author, some of the chapters contain redundant material, are too long, and discourage the reader from studying the entirety of the book. This applies especially to the first monograph (chapters 1 and 5), although the two other ones also feature chapters that,

16. M. Gazda, *O procesie racjonalizacji wydatków publicznych*, “Ruch Prawniczy, Ekonomiczny i Socjologiczny” 2016, nr 78(1), pp. 169–177.

17. Insurance products in insurance companies are most frequently designed (or jointly designed) by lawyers. An insurance product, according to the definition provided by the Financial Supervision Authority (KNF), is understood as the type of insurance agreements that are entered into based on the same terms and conditions of insurance or whose scope of granted insurance cover is identical. Financial Supervision Authority, *Wytyczne dotyczące zarządzania produktem*, Warszawa 2015, https://www.knf.gov.pl/knf/pl/komponenty/img/Wytyczne_dot_systemu_zarzadzania_produktem_41933.pdf, access 5.07.2023.

if shortened, would have a positive impact on the work (for example chapter 1 in the second monograph, or chapters 1–3 in the third).

In addition, as already noted in the review section, the third monograph is too theoretical, reiterating the two previous concept-based publications and opening up new avenues instead of wrapping up the issue of holistic risk management. The holistic risk management model is not accentuated strongly enough. According to the monograph's introduction, the purpose of task number 3 entitled "Practical verification of proposed insurance products and developing a holistic risk insurance (pilot) system" was to come up with a final pool of five proposals of insurance products/schemes, and thereby verify the variant resulting from task number two. According to the author, some of the content of this monograph should have appeared in previous monographs, especially since the study was designated as a "pilot". Content such as the characteristics of disaster risk is valuable, but should not be included in the final pilot study of "the variant resulting from task number two". The best example of content that does not contribute to the pilot is a presentation of the crop and animal insurance market, a discussion decidedly out of place at the final stage of the work. On the other hand, chapters 1–3 from the first block ("Problems of implementing insurance programmes in agriculture") should, as noted above, have been made less extensive or moved to the second monograph.

Viewing the topics presented in the monographs in general terms, they have an interdisciplinary nature but lack sufficient ordering with regard to the holistic model. Analysing the theoretical objectives of the tasks, the first deals with theory, the second with operationalisation, and the third with verification of the variant. Nevertheless, all three monographs are to some extent theoretical and the substance of the project, i.e. designing a model through successive iterations, does not form the majority of each part.

These discrepancies can be justified by risks that affected the study. The outbreak of COVID-19 took place as the first monograph was being finalised, while the Russian aggression in Ukraine probably affected the final touch stage of the third volume.

A major advantage of the monographs is the oft-repeated reference to sustainable development, which is mostly – due to the title of the project – in the environmental¹⁸ and economic aspects. This reference can be seen directly in the titles of chapters, for example "Insurance of crops and livestock versus sustainability of agricultural farms" (second monograph), as well as frequently in their content.

18. In the content, other terms such as "ecological" or "climate" are also used.

Summary

The reviewed studies were written with knowledge of the study topic, and the author praises the choice of topics for the conducted study. The topics are unique, both due to their subject and scope, as well as their interdisciplinary nature, which is repeatedly mentioned in this article.

In addition, the extensive scope of substantive and organisational work that most probably accompanied the project should be emphasised. As the project's timeline shows, it was initiated in 2019 and the monographs appeared in three successive, challenging pandemic years.

The name of the project refers to holistic risk management in agriculture, with the reviewed publications likewise holistic, referring not only to managing risk in agricultural farms, but also in agriculture in general. Therefore, they also touch upon the issue of risk in home farms, which can hardly be separated from agricultural farms and are basically the same in the case of family-run farms. The studies also deal with risk in a broader sense, not merely the most often mentioned insurance of crops and property, but the equally important social insurance.

Reading the discussed monographs is recommended for everyone dealing with agriculture, especially in an academic setting, as well as with finance, economics, political sciences and politics. These works extend our previous knowledge not only with regard to the titular “business insurance”, but also agriculture and, most importantly, risk management in agriculture.

The publications deserve to be more widely promoted, as having been financed from public funds (which, in the opinion of the review author, have been correctly expended), they are available online and, most importantly, refer to a crucial research problem that they attempt to resolve. The project itself and the consortium involved in its implementation, led by the Ministry of Agriculture and Rural Development, with the Institute of Food and Agriculture Economics – State Research Institute as the financial leader and scientific coordinator, and the University of Economics in Poznań, the Warsaw School of Life Sciences, and the Institute of Soil Science and Plant Cultivation – State Research Institute as members, should therefore be assessed positively.

After revision (which was possible once all the parts had been submitted)¹⁹, editing and minor abbreviations, the monographs should be published in a single volume,

19. The title of the final publication should not, however, contain the word “analysis”, which can be found in the titles of the first two monographs. Analysis is a research method, while the works refer to “assessment”, “characteristics” or “identification” (a word that appears in the title of the third monograph).

undoubtedly producing an eminent work spanning several academic disciplines related to agriculture, which could then be quoted by and recommended to practitioners, theory makers and, as a likely objective of the study notwithstanding, to university students.

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