Risk Management in Legal Finance in Applied Economics

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Abstract: In modern economic transactions, information asymmetry between buyers and sellers is common, and interest disputes often arise between buyers and sellers. In order to solve the legal risks caused by this phenomenon, this article mainly studied how to effectively manage legal finance and improve relevant systems. After that, it designed a risk management model for legal finance, and then conducted a functional test of the model. The test results showed that the risk identification rate of the legal and financial risk management model based on applied economics majors was as high as 93% to 95%. It has reduced various social contradictions and conflicts caused by the lack of theoretical basis for application and reduce the probability of unnecessary losses. It has also provided certain reference value for judicial practice to achieve the goal of rule of law construction, maintain stable development of market order, and promote economic transformation and upgrading.

1. Introduction

The research object of legal finance is within the scope of legal system, which belongs to the field of law. Its main content also includes the analysis and discussion of legislation, justice, and other aspects under the current national conditions. With the accelerated process of economic socialization and the continuous progress of Internet technology, people have increasingly high requirements for law to keep pace with the times. At the same time, due to the advent of the network era and the increasingly strengthening trend of economic globalization, legal finance, as a new discipline, is rapidly developing and gradually being applied to daily life and production.

Many scholars have conducted relevant research on economic law. Some scholars have analyzed the problems existing in the relevant disciplines of law and economics and found that, from the perspective of jurisprudence, unclear legislative bodies lead to confusion and disorder in judicial practice, and court decisions are affected. In the process of formulating laws and regulations, various disputes and contradictions can not be properly handled. Law is one of the indispensable topics in resolving disputes and problems, and it can also be said to be a means, tool, or method. It plays an important role in resolving conflicts by providing parties with reasonable, legal, fair and

equitable solutions to maintain social stability and harmonious development [1]. Other scholars believe that there are problems with the development of the financial legal system, such as lagging legislation and weak supervision, which have seriously affected the relevant financing methods and transaction behaviors in China's applied economics majors, and are also important reasons for using scientific theories to guide practice and solve practical problems [2]. Therefore, this article is based on the applied economics major to study the risk management of legal finance.

In the context of economic globalization, financial markets have also begun to develop gradually, which has greatly promoted the diversification of social financing and investment methods. However, the law lacks clear provisions on whether private lending is legal and how to define it. In order to make better use of these laws and regulations to regulate unfair competition in market economic activities and play an important role in maintaining the security, stability, and orderly conduct of transactions, it is necessary to strengthen the in-depth exploration and analysis of the theoretical research of civil code. Systematically study its applicability, feasibility, and necessity through case analysis to promote the establishment and improvement of relevant theoretical systems and provide reference and guarantee methods for practice.

2. Discussion on Risk Management in Legal Finance in Applied Economics

2.1 Legal Finance

Legal finance is a newly emerging discipline. Market access refers to conducting trading activities, risk control, and income distribution within a specific region, which means analyzing and evaluating various risk factors in the market and formulating corresponding strategies to ensure the stable operation of the entire economic system. For those uncertain events, appropriate measures can be taken to reduce their impact or transfer them to other places to achieve the desired purpose. "Law" refers to various behavioral norms or rules that people use in their daily lives or activities. "Covenant" is mainly used to explain some social phenomena, political events, etc., which are formulated through legal means and recognized by the government to form a series of systems, regulations, and methods. Its purpose is to ensure that citizens' rights and national interests are not infringed upon, and establish a form of financial activity with a certain social and economic foundation and organizational functional structure and its matching legal relationship through legislation, with the guidance of the national government, the supervision of various departments as the main body, and the participation of civil society as the main body. Law is an important way to regulate people's behavior. It not only effectively restricts the rights and obligations between parties, but also enables them to better use the information they have and make corresponding decisions. By formulating sound and reasonable rules and regulations as well as implementation methods, it can greatly promote social and economic development, thereby achieving the objectives of optimizing the allocation of resources, improving production efficiency, and maintaining social order and stability. It is one of the more common and simple and practical forms, characterized by strong comprehensiveness, intersection, and cross sectoral cooperation, and can provide good services to society. At the same time, it also involves to a high degree various rules and institutional issues needed in various fields, so it plays an important role in the entire process. Legal finance is a discipline that applies economic principles to the study of modern economic issues. From its nature, it belongs to a relatively special and representative branch of jurisprudence. In economic activities, people use various means to analyze and solve social problems. Legal finance mainly studies the quantitative treatment of legal issues. These qualitative data can help people better understand some abstract facts and laws, as well as solve the contradictions between actual situations. It can also provide more accurate and comprehensive information for this article, thereby formulating correct and feasible strategic plans, and achieving the goal of mutual restriction, interaction, and

coordinated development among various risk factors in economic society. It includes many basic issues in economics, such as whether the market mechanism is sound and whether prices can stably reflect the operating conditions of enterprises. Legal finance mainly addresses issues such as how to determine the rights and obligations between various transaction entities and the resulting risk sharing, thereby reducing the likelihood of various potential crises and unsafe factors encountered in the economic operation process, reducing economic losses and the degree of losses, and maintaining social fairness and justice.

2.2 Applied Economics

It is a new way of thinking to explore legal finance using the thinking mode of economics. It organically combines law with other disciplines and explores them in depth through analytical and research methods. This new perspective not only breaks the traditional theory that only exists in the academic field and does not involve topics in the field of life and practice, but also provides a good direction and way to solve problems arising in the practical application process, enabling the development of the new discipline of legal finance to be better promoted. The core of applying economic methods to analyze problems is to use mathematics and language to think, and to draw conclusions from various phenomena in real life through logical reasoning. When solving some complex, cumbersome, or even difficult problems, deductive methods can be used. However, when these relatively abstract and regular problems exist in real social and economic activities, it is necessary to use legal and financial theories to explain them, provide solutions, and cite relevant economic knowledge to analyze the problem. Applying the method of law to thinking is mainly to grasp the development trend of the entire world economy and the relationship between various aspects from a macro perspective [3-4]. Legal finance can help this article better understand the capital demanders in society and their choices regarding investment or financing. It can also enable investors to more rationally utilize the proportional relationship between investment returns and risk levels, and it can also make it easier for investors to identify problems and take timely measures to remedy or avoid expanding losses, thereby achieving the goal of maximizing one's own interests [5-6]. Through analysis of the operational rules of the market economy and trading activities, it is determined that all participants need to achieve consistent goals and interests, and then through contract agreements and negotiations between both parties to establish the basic principles of their own code of conduct, ultimately forming a unified standard and regulatory system, which is clearly defined in legal form. It also plays an important role in solving various complex social relationships, and can provide enterprises with a reasonable and fair competition environment, as well as functions such as supervising and standardizing the market, and maintaining order [7-8].

In the process of applying economics, it can be found that for legal finance, the most important thing is to use mathematical methods for research. Because in real life, there is a large amount of capital flow issues involved. By using relevant knowledge in disciplines such as law, participants can have a more rational understanding and understanding of it, and make reasonable decisions and management behaviors based on actual situations. At the same time, attention should be paid to preventing possible economic disputes and losses, as well as the harm caused by factors such as the probability of potential uncertain events [9-10]. For example, whether the trading parties have reached a consensus, whether the buyer and seller have credit risks, and so on, all require theoretical knowledge such as probability theory and mathematical statistics to better solve these complex and difficult to calculate quantitatively data, providing a decision-making reference basis for people.

2.3 Risk Management Technology

From the perspective of applied economics, risk management is the use of scientific, systematic, and standardized methods to reduce the adverse effects of uncertainty. Figure 1 shows the risk management process.
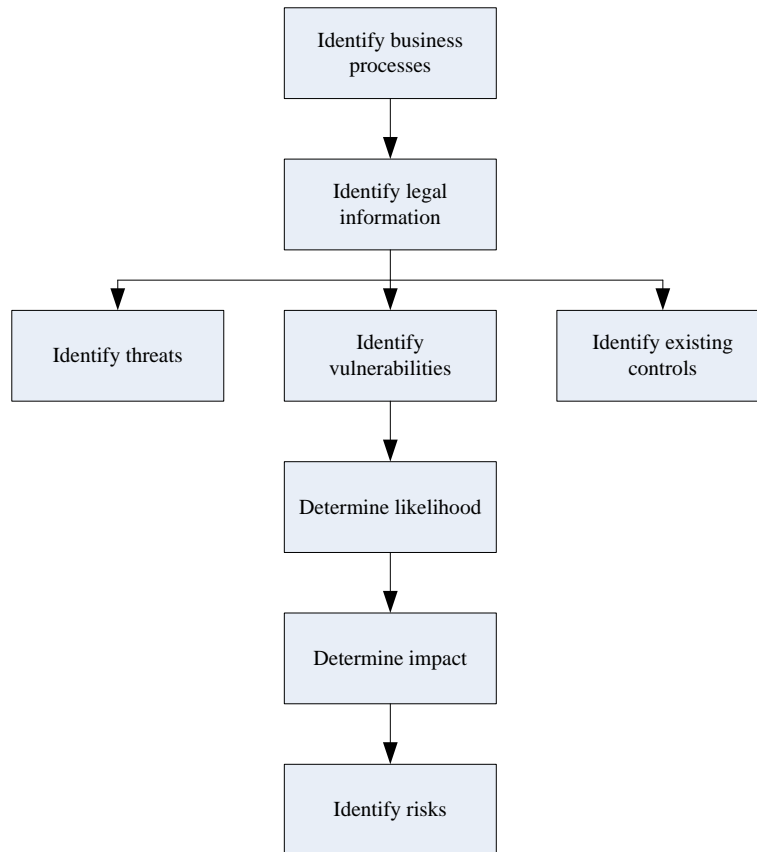

Figure 1: Risk management process

Based on the analysis of market environment changes and future trends, corresponding countermeasures are formulated to reduce losses, minimize costs, and improve revenue levels. It is necessary to promptly understand information such as risk events and potential threats, so as to take measures to reduce the impact of uncertainty, reduce a series of problems that may occur during the transaction process, and achieve optimal conditions for the entire social and economic system [11]. For risk to be minimized, it is necessary to consider all factors that may lead to results deviating from expected goals, causing losses, and increasing opportunity costs without paying a price. At the same time, it is also necessary to effectively control and optimize these factors through the allocation of information and resources in risk management activities. It is based on rational people rather than relying on subjective judgment to determine market participants' behavior patterns, strategies, and profit distribution mechanisms. In other words, game theory is to analyze the results of interdependence and influence between different decision-makers in the trading process, and adopt corresponding countermeasures to minimize risks. By making judgments about these potential factors and the consequences and impact of uncertain events, it is necessary to have an effective means to effectively solve these economic problems, that is, use scientific and reasonable methods to analyze various behaviors and conditions that may cause hazards, and develop a series of measures and plans to reduce hazardous losses [12-13]. Figure 2 shows the composition of risk factors.
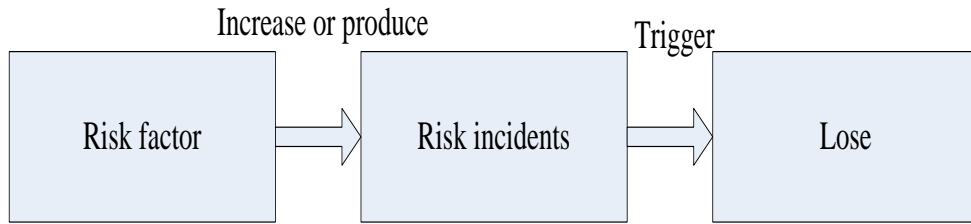
Figure 2: Risk factor composition

When there are a large number of stakeholders and resources are scarce in the financial market, opportunism should be introduced into the financial system. This means that there is a need to use a method to enable these participants to obtain more profits, but also because this method can effectively reduce transaction costs, thereby increasing their economic benefits, avoiding risks, and other purposes [14-15]. The Pearson correlation coefficient p and Kendall correlation coefficient t can be given as follows:

$$\rho_{x,y} = \rho = \frac{Cov(X_i, Y_i)}{\sqrt{\sigma^2(X_i)\sigma^2(Y_i)}} \tag{1}$$

$$\rho_{x,y} = \rho_s = 3(P[(X_1 - X_2)(Y_1 - Y_3) > 0] - P[(X_1 - X_2)(Y_1 - Y_3) < 0]) \tag{2}$$

$$\tau_{X,Y} = \tau = P[(X_1 - X_2)(Y_1 - Y_2) > 0] - P[(X_1 - X_2)(Y_1 - Y_2) < 0] \tag{3}$$

Among them, Cov (X, Y) is the covariance between X and Y. P is the probability of an event, P $\in$ [- 1,1], τ $\in$ [- 1,1], and the greater the s, the stronger the correlation between variables.

3. Experimental Process of Risk Management in Legal Finance in Applied Economics

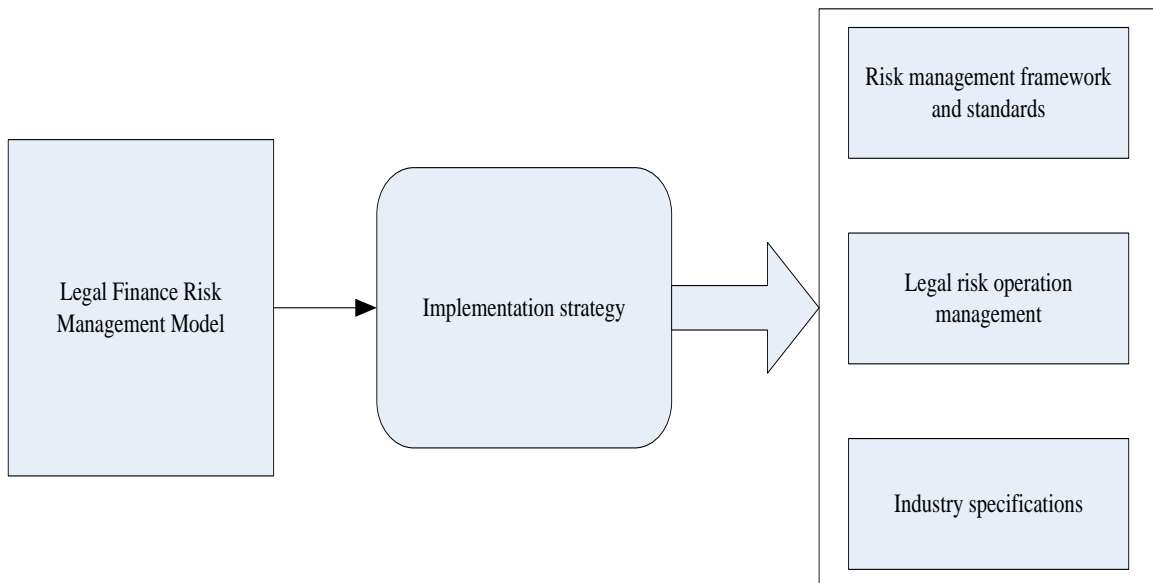## 3.1 Composition of Legal Finance Risk Management Model Based on Applied Economics

Figure 3: Risk management model of legal finance based on applied economics major

The risk management model of legal finance in the major of applied economics (as shown in Figure 3) takes legal finance as the research object, uses qualitative and quantitative analysis to deeply explore it, and proposes a theoretical framework of legal finance based on principles such as probability theory, mathematical statistics, and operational research. According to the above content, this article can know that there are many uncertain factors in the actual operation process, and by establishing a complete and effective system, relevant disputes can be resolved [16-17]. In this system, it is necessary to take into account a series of complex situations such as various connections and conflicts of interest between the parties to the contract and the counterparties, and develop corresponding management mechanisms and risk control measures based on these factors, so as to better handle and achieve the objectives of the issues studied. By using a model to calculate the difference between the optimal value and the optimal value of a specific scheme, and then combining the two to compare them according to the actual situation, an appropriate proportion of the optimal scheme management mode selection and risk control objectives is selected to achieve [18-19]. During the transaction process, the rights and obligations between the parties are clearly stipulated, and relevant laws and regulations are established to regulate the behavior of both parties to the contract. The issues involved in the entire process are explained from the three stages of controlling the situation before, during, and after the event. These potential or hidden disputes and risks are avoided, which can reduce losses or even avoid unnecessary losses or reduce economic losses [20].

3.2 Legal Finance Risk Management Function Test Process Based on Applied Economics

The testing process of legal finance risk management models based on economics is a dynamic, continuous, and systematic project. Statically speaking, it means that social costs can be reduced to a certain extent by establishing strict, scientific, and reasonable policies that are consistent with the actual situation. From a dynamic perspective, it is necessary to conduct a comprehensive and effective operational analysis of the products or services involved in the entire system that are related to the field, and make corresponding evaluations before determining whether there are legal risks. After completion, this module automatically generates a corresponding relationship file for users to view and modify after inputting it onto the professional platform of applied economics. At the same time, it provides an operational step or result required to perform the task when meeting the expectations of the demander and achieving the expected goals. The software system is used to address issues related to specific business processes, control procedures, and operating modes. After analyzing relevant data and reaching conclusions, relevant theoretical knowledge is used to solve similar events encountered in actual situations. Corresponding measures are made based on the results, and implemented to ensure the smooth operation of the entire system.

4. Experiments on Risk Management in Legal Finance in Applied Economics

Table 1: Model function test parameters

Test module	Response time (s)	Run life cycle (year)	Average idle time (h)	Number of concurrent users
Risk management framework and standards	3	5	2000	134
Legal risk operation management	3	5	2188	145
Industry specifications	2	5	2543	163

Table 1 shows the model test parameters. The legal and financial risk management model based on the major of applied economics is mainly based on risk identification, evaluation, and control, and relevant conclusions are obtained after analyzing and processing the data. After using this method, what this article needs to do is extract this information, establish a systematic framework to describe its functional modules in detail, establish a complete, clear, and executable model based on this information, and then achieve the goal of risk identification and control through this system.
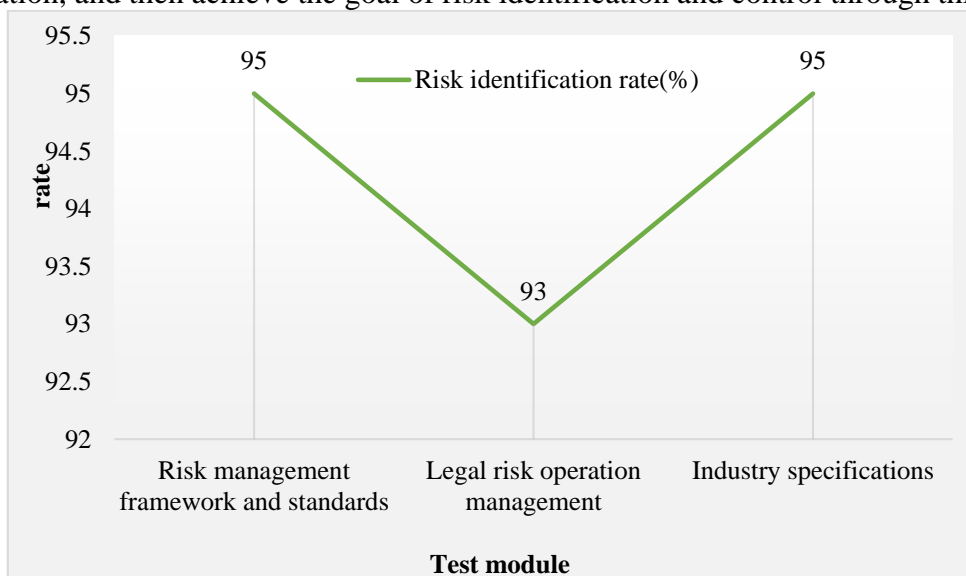

Figure 4: Risk identification rate

The design of legal finance risk management models based on applied economics majors is mainly based on relevant economic theories, analyzes and studies them, and puts forward suggestions. This method can enable this article to understand various issues in this field from a more perspective. This article needs to convert these data into a mathematical expression that can be used and used by people, and use it as a tool to solve some complex situations encountered in practice, such as legal and financial disputes arising from social life. Using this model, risk information can be effectively obtained to solve problems. As can be seen from Figure 4, the risk identification rate of the legal finance risk management model based on applied economics majors is as high as 93% to 95%.

5. Conclusions

The theory of economics has been applied to analyze and conduct in-depth research on risk management issues in legal finance in real life. By applying relevant knowledge and putting forward corresponding measures and suggestions, it is expected to reduce or avoid the adverse effects of unnecessary losses caused by lack of professionalism in the practical operation process, as well as disputes. At the same time, it is also hoped to provide some valuable and effective methods for reference and reference in the construction of a legal society. Finally, it is hoped to conduct a more in-depth study of legal finance through the discipline of applied economics and discover its shortcomings.

References

[1] Yousef Alabbasi: Governance and Legal Framework of Blockchain Technology as a Digital Economic Finance. Int. J. Innov. Digit. Econ. 11(4): 52-62 (2020).
[2] LG Mvnchen I: Keine Aktivlegitimation von financialright - Legal Tech. Comput. und Recht 36(6): 410-418 (2020).

[3] Robertas Damasevicius, Ligita Zailskaite-Jakste: Impact of COVID-19 pandemic on researcher collaboration in business and economics areas on national level: a scientometric analysis. J. Documentation 79(1): 183-202 (2023).

[4] Michael Kampouridis, Panagiotis Kanellopoulos, Maria Kyropoulou, Themistoklis Melissourgos, Alexandros A. Voudouris: Multi-agent systems for computational economics and finance. AI Commun. 35(4): 369-380 (2022).

[5] Nir Kshetri: Economics of Nonfungible Tokens. Computer 55(10): 94-99 (2022).

[6] Mohammad Alamgir Hossain, Shahriar Akter, Shams Rahman: Customer behavior of online group buying: an investigation using the transaction cost economics theory perspective. Electron. Mark. 32(3): 1447-1461 (2022).

[7] Friso Bostoen: Online platforms and pricing: Adapting abuse of dominance assessments to the economic reality of free products. Comput. Law Secur. Rev. 35(3): 263-280 (2019).

[8] Helen Eenmaa-Dimitrieva, Maria Jose Schmidt-Kessen: Creating markets in no-trust environments: The law and economics of smart contracts. Comput. Law Secur. Rev. 35(1): 69-88 (2019).

[9] Cui Jing, Dianbing Wang: The Study on the Needs of English Skills in Economics and Management Industries Based on Mobile Big Data Management and Innovative Applications. Inf. Resour. Manag. J. 35(3): 1-12 (2022).

[10] Albese Demjaha, Simon Parkin, David J. Pym: The boundedly rational employee: Security economics for behaviour intervention support in organizations. J. Comput. Secur. 30(3): 435-464 (2022).

[11] Niklas Berger, Stefan Schulze-Schwering, Elisa F. Long, Stefan Spinler: Risk management of supply chain disruptions: An epidemic modeling approach. Eur. J. Oper. Res. 304(3): 1036-1051 (2023).

[12] Ahmed Amro, Vasileios Gkioulos: Cyber risk management for autonomous passenger ships using threat-informed defense-in-depth. Int. J. Inf. Sec. 22(1): 249-288 (2023).

[13] Komal Rauniyar, Xiaobo Wu, Shivam Gupta, Sachin Modgil, Ana Beatriz Lopes de Sousa Jabbour: Risk management of supply chains in the digital transformation era: contribution and challenges of blockchain technology. Ind. Manag. Data Syst. 123(1): 253-277 (2023).

[14] Yixiao Jiang, Zongguo Ma, Xiquan Wang:The impact of knowledge management on intellectual property risk prevention: analysis from China's strategic emerging industries. J. Knowl. Manag. 27(1): 197-207 (2023).

[15] Byung-Cheol Kim: Dependence Modeling for Large-scale Project Cost and Time Risk Assessment: Additive Risk Factor Approaches. IEEE Trans. Engineering Management 70(2): 417-436 (2023).

[16] Zhi-Peng Yuan, Peng Li, Zhen-Long Li, Jing Xia: Data-Driven Risk-Adjusted Robust Energy Management for Microgrids Integrating Demand Response Aggregator and Renewable Energies. IEEE Trans. Smart Grid 14(1): 365-377 (2023).

[17] Giovanni Barone-Adesi, Ephraim Clark, Jean-Luc Prigent: Risk management decisions and value under uncertainty. Ann. Oper. Res. 313(2): 603-604 (2022).

[18] Sabri Boubaker, Zhenya Liu, Yaosong Zhan: Risk management for crude oil futures: an optimal stopping-timing approach. Ann. Oper. Res. 313(1): 9-27 (2022).

[19] Manuel J. Hermoso-Orzáez, J. Garzón-Moreno: Risk management methodology in the supply chain: a case study applied. Ann. Oper. Res. 313(2): 1051-1075 (2022).

[20] Rabin K. Jana, Aviral Kumar Tiwari, Shawkat Hammoudeh, Claudiu Tiberiu Albulescu: Financial modeling, risk management of energy and environmental instruments and derivatives: past, present, and future. Ann. Oper. Res. 313(1): 1-7 (2022).