

# ISSUE OF RISK IN LITERATURE

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## Abstract

Any attempt to explicitly define the property market involves an interdisciplinary approach. Commonly applied notions referring to the genesis of risk in the area of medicine, humanities and, in particular, social and other sciences, have a significant impact on the strictly technical definition. The juxtaposition of the established definitions concerning the phenomenon of risk is an attempt to refer their types and risk factors to the extensive subject area of risk concerning the property market itself. In the future, this may contribute to the development of new risk analysis methods or methods of determining its probability and, therefore, levelling the effect of uncertainty in developing real estate management processes. The aim of the paper is to carry out a review of literature for a deeper analysis of this issue.

**Key words:** *risk, probability, real estate market.*

**JEL Classification:** *R21, R31, R33.*

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## 1. Introduction

Each business, economic or life decision taken has its basis and foreseen results in the future, which are not conditioned by anything other than the risk factor. The commonness of the phenomenon of risk is expressed both by neglecting and by undertaking (carrying out) an intended activity, which has direct consequences in the near or further time horizon (ed. MONKIEWICZ 2000). The forecasting nature of the phenomenon, as a rule, is related to assumptions, approximations, vagueness, or simply to calculation errors. The main aim of each science is to indicate the risk, as precisely as possible, in order to reduce or entirely eliminate it. However, for a property market, the definitions that are currently in operation, due to the lack of a uniform paradigm and providing a basis for further studies, are not precisely specified or are borrowed from other fields of science. The aim of this paper is to indicate the genesis of the phenomenon and the notion of risk as it is commonly used, along with its classification, and to refer it to the property market.

## 2. Genesis of the phenomenon and the notions of risk

The existence of the issue of risk could be observed in prehistoric times, where people looking for food and shelter were exposed to physical danger. At that time, opportunities and threats went hand-in-hand, as avoidance of danger ultimately meant death by starvation, while exposure to danger did not exclude the chance of survival. Subsequent development of the higher civilizations of Sumer, Babylon or Greece, capable of reducing the previous impact of the environment on the phenomenon of risk, created new varieties, e.g., wars and diseases. Successive further development of humanity

continuously provided new possibilities of risk generation and elimination. Expeditions organized for various reasons (trade, raid or sailing) involved exposure to the loss of cargo, the value of goods at the place of selling (trade expeditions starting from the 4th century BC) or the loss of the travelers' health/life (the Age of the Vikings in the 7th century A.D.). These behaviors created the relation between the risk and profit, and transferring a part of the risk from a wealthy investor to poorer groups of society, exposed on their behalf, provides an important example of risk division into physical and economic risks (DAMODARAN 2008, trans. MACIEJEWSKI 2009).

Development and evolution of the phenomenon of risk in all aspects of life was initiated by a group of people, i.e. "Asipu", who, since 3200 BC, provided advice concerning difficult, uncertain and risky decisions taken by the society living in the Tigris and Euphrates valley. The practice of Asipu was based on the repetitive and consistent process of identifying the problem through a set of data and alternatives that may occur. The risk analysis method applied was close to the modern risk management methodology (COVELLO, MUMPOWER 1985).

Ancient Greeks and Romans also perceived the possibility of uncertain complications arising as a result of the steps they took. This resulted mainly from the observation of cause-effect relationships between the environmental conditions and the state of health of the society. In the 4th century BC, Hippocrates, the father of medicine, made the risk of health loss conditional on external conditions. In the first century BC, the Roman architect Vitruvius demonstrated the toxicity of lead, and finally, in the 10th century AD, Georgius Agricola described the health effects of working in a mine (KUBIŃSKA-KAŁETA 2008).

Pursuant to the examples presented, the phenomenon of risk was initially recorded mainly with regard to human life and health, and only later to other areas of human activity. As research on risk consistently grew, it was revolutionized by the theory of probability, published in 1657 by Pierre de Fermat and Blaise Pascal, which provided a specific method for analysing future events and allowing the probability of possible and measurable results to be determined. This systematic method exerted a significant impact on the development of economics and social sciences. Another revolutionary publication was Halley's life table of 1693, developed on the basis of the registry of deaths and an equally important prototype dated to 1792 by Pierre Simon de La Place concerning "quantitative methods for risk analysis, with evaluation of the probability of death and/or survival with the application of a smallpox inoculation or without it". The development of capitalism and research on risk initiated the use of statistical methods with regard to non-human health factors of life, including economics and management (KUBIŃSKA-KAŁETA 2008).

Because of the direct relationship between risk and human activity, risk was classified as one of the major categories of global economics. An increased interest in risk after the terrorist attack of 11 September 2001 in the USA and stronger relations between social and economic fields contributed to the emergence of a new discipline, i.e., "integrated management of diversified risk" - Risk Management (KACZMAREK 2006).

Research in various fields, based on non-uniform sources, created different research methods for diversified risk, thus contributing to the construction of multiple definitions presenting, from different perspectives, the process of risk emergence, its description, evaluation and management. This is tantamount to the lack of a uniform paradigm understood as a synthetic theory of the notion of risk, applicable in several different disciplines (KACZMAREK 2006 after BANSE, BECHMANN 1998).

Attempts to define risk in explicit terms have been made for a several dozen years. In 1901, A.H. Willet defined risk as "objectified uncertainty regarding the occurrence of an undesirable event" and made it dependent not on the probability, but only on the degree of the uncertainty itself (WILLET 1951). However, the imprecision in the notion of "uncertainty" in the above definition brought about new deliberations on the complete definition. A fundamental work distinguishing immeasurable uncertainty from measurable risk was the book titled "Risk, Uncertainty and Profit" by F.H. Knight, published in 1921 in the USA. At that time, the concept of measurable and immeasurable uncertainty emerged, where the former constituted risk, and the latter - "uncertainty in the strict sense of the word" (KNIGHT 1921 cf. KEYNES 1921). In turn, H.S. Denenberg perceives risk as "uncertainty of the loss and a psychological phenomenon of importance with regard to human reactions and experiences" (DENENBERG 1964). Vaughan relates risk to the "state of psyche, referring to the human mind characterized by doubts or the conscious lack of knowledge about the effects of events" (VAUGHAN 1992). The work of I. Pfeffer - *Insurance and Economic Theory* - brought about highly

important academic achievements in the risk theory, since it clearly differentiates between risk and uncertainty: "risk is a combination of elements of gambling and it is measured by probability; while uncertainty is measured by the belief level. Risk is the state of the world, uncertainty is a state of mind," (PFEFFER1956). However, only in 1966 did the first definition of risk emerge. Risk definitions published at that time, providing that "Uncertainty as to the outcome of an event when two or more possibilities exist" and "an insured person or object" did not render the entire issue of the notion of risk, since they lack a clear division between the notions of risk and uncertainty (BULLETIN OF THE COMMISSION OF INSURANCE TERMINOLOGY OF THE AMERICAN RISK AND INSURANCE ASSOCIATION, vol. 2, no. 1, 1966).

Polish theoreticians also dealt with the synthesis of the risk definition. W. Grzybowski demonstrated universality and resultant directions of deviations as an element dividing the notions of risk and uncertainty. He claims that unclearly described situations with an unknown direction of deviation allow only the notion of uncertainty to be applied, since risk refers only to a situation with an alternative existence of a negative deviation (KALINOWSKI 2007 after GRZYBOWSKI 1984). On the other hand, J. Zieleniewski and S. Szczypiorski suggest defining risk using the perspective of the emergence of failure – the lack of possibility to prevent the occurrence of uncontrollable and unpredictable events, causing, in effect, lower usefulness and/or higher expenditure, i.e. depriving the activity in whole or in part of its efficiency, usefulness or cost-effectiveness (ZIELENIEWSKI, SZCZYPORSKI 1963). K. Jajuga suggests defining risk as "the possibility of the occurrence of an effect inconsistent with expectations". Although it does not include the basic division into risk and uncertainty, and does not take into account more precise determination of the conditions of occurrence, despite its simplicity, this seems to be the most precise definition (JAJUGA, JAJUGA1996).

Figure 1 presents the risk definitions most often found in literature.

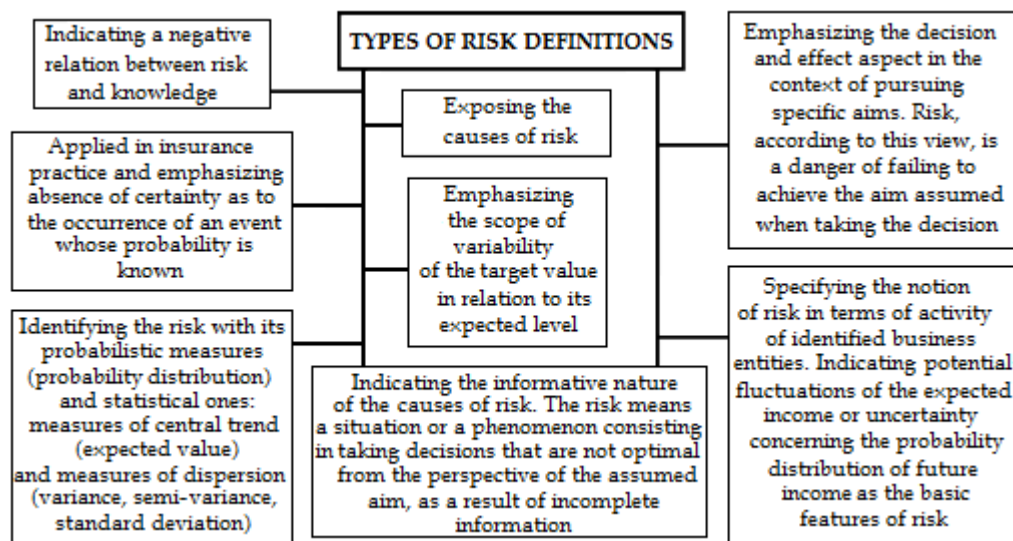


Fig. 1. Types of risk definitions in literature. Source: KUBIŃSKA-KALETA 2008 after NIEDZIÓŁKA 2002.

The basic conclusion that may be derived from the above-mentioned definitions is the relationship between risk and uncertainty (risk as the effect of uncertainty), which results in discovering the crucial value of time determining the level of risk, since, as the time horizon extends, the uncertainty of forecasting grows (KALINOWSKI 2007 after TARCZYŃSKI, MOJSIEWICZ2001).

Uncertainty, which is generally related to randomness, is a phenomenon that is difficult to examine. This results mainly from its source in social and economic phenomena, marked with complexity, nonlinearity and indeterminacy, which has a direct impact on subjective, objective and structural uncertainty. At the same time, it should be emphasized that the source of risk are people, conditioned by historically variable culture, but also making decisions in a deliberate manner, who expose themselves (or not) to the occurrence of external and (un)controllable danger. Consequently, risk does not form an objective category, since it "requires multiple compromises, arrangements and social acceptance". Therefore, there is not a fixed point of reference to construct an objective, interdisciplinary and universal definition and classification of risk (KACZMAREK 2006).

### 3. Risk classification

The complexity of the problem of risk leads to difficulties in constructing a uniform and interdisciplinary paradigm of the definition. Therefore, its various classifications are currently in use, adjusted to the analyzed fields of life and science. In 1928, Kulp classified risk in terms of factors shaping it, i.e. distinguished systematic risk and specific risk. At the same time, unavoidable risk is determined by external forces (e.g. environmental conditions, global economics, social and economic situation) with an unknown effect to the subject. Specific risk, in turn, is the relation between the area of the activity and the possible control of a given object (KULP 1928). Within the classification presented, K.Jajuga and T.Jajuga proposed specification according to the following figure:

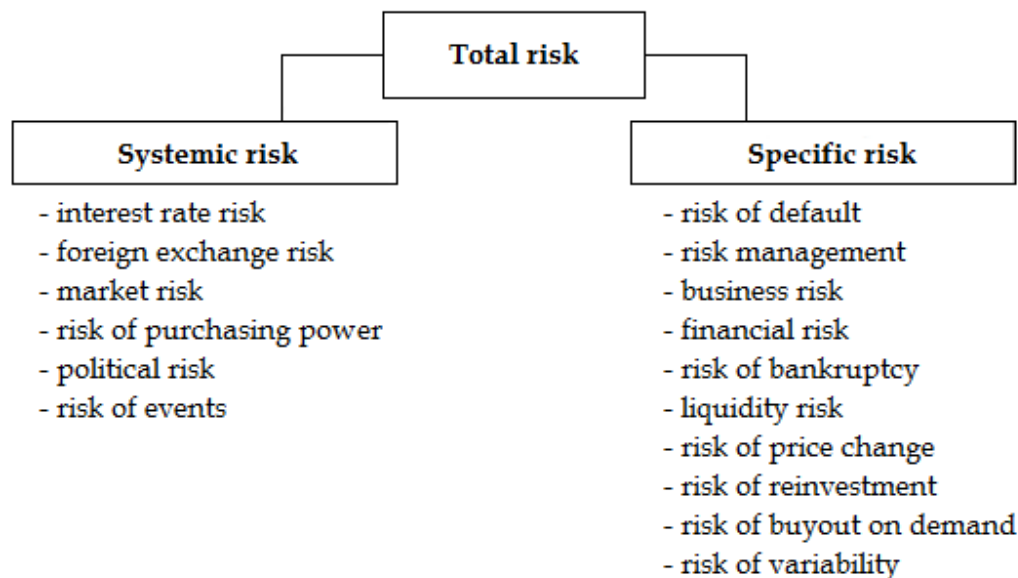


Fig.2. Systemic and specific risk. Source: KALINOWSKI 2009 based on JAJUGA, JAJUGA1996.

According to Tarczyński and Mojsiewicz, risk can be classified into: **proper** (catastrophic phenomena), **subjective** (evaluation of the probability of occurrence of specific phenomena) and **objective** (understood as the lack of possibility to predict certain phenomena) (TARCZYŃSKI, MOJSIEWICZ 2001).

Several divisions of risks were also presented by EMMETT VAUGHAN (1992):

- 1) **Financial and non-financial risk** - probability of the occurrence of financial or non-financial loss;
- 2) **Static risk** (e.g. environmental conditions, independent on economics and management) and **dynamic risk** (prices, technology, income, expenditure depending on changes in the economy and management);
- 3) **Basic risk** (impersonal loss with reference to the source and consequences) and **specific risk** (non-individual occurrences, but affecting the individuals) - "differences in the source and consequences of losses" (KULP1956);
- 4) **Pure risk** (perspective of a loss or its absence, including personal risk, risk of ownership, responsibility and failure of others) and **speculative risk** (probability of loss or gain) (MOWBRAY, BLACHARD 1961).

In turn, D. Dziawgo presented a detailed division of risk with reference to six categories (KALINOWSKI 2007 after DZIAWGO 1998) (Fig. 3). Risk Management Guidelines for Derivatives compiled by the Basel Committee (1994) provide a classification of the actual financial risk for the enterprise (Fig. 4).

However, the classification presented below seems to be most universal and useful for property market analysis, since its structure is so general and flexible that it can be referred to each subject and object operating in the property market, as well as offering multiple possibilities for interpretation and specification. Each of the risk classes presented is both static (occurring at a given moment of time), and dynamic (with a long term effect), leaving, at the same time, a wide range of possibilities for unit analyses and for taking into account the time trend (Fig. 5).

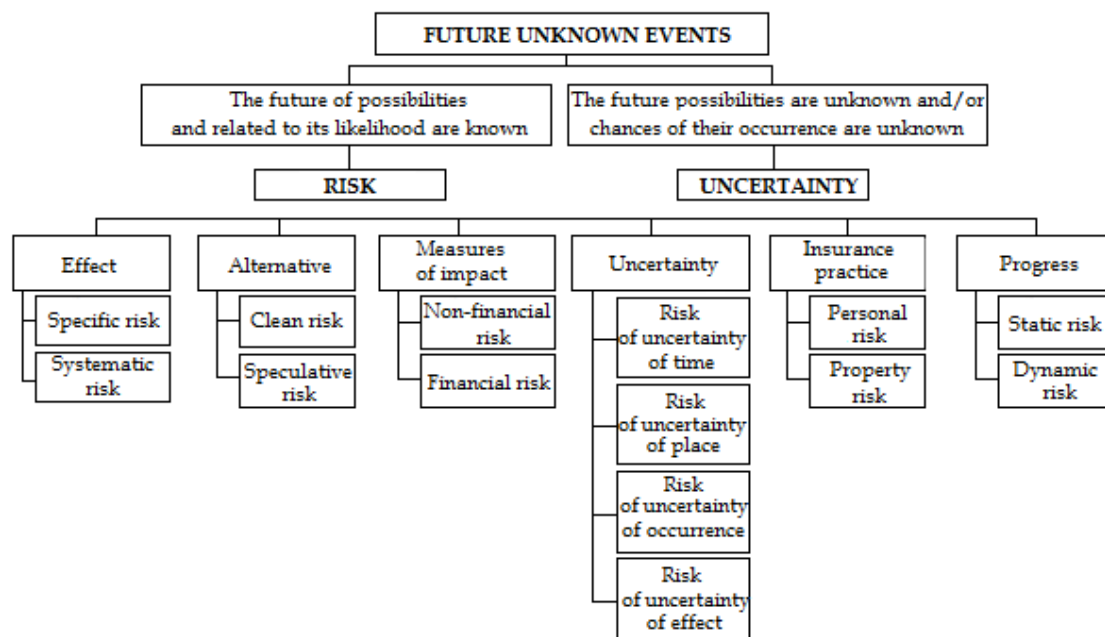


Fig.3. Types of risk. Source: KALINOWSKI 2009 after DZIAWGO 1998.

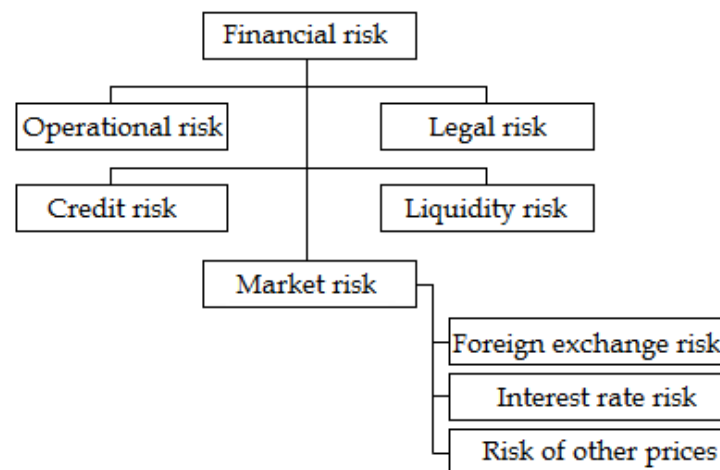


Fig.4. Division of financial risk – Basel Committee. Source: KALINOWSKI 2007 based on RISK MANAGEMENT GUIDELINES FOR DERIVATIVES 1994.

### 3.1. Financial risk

Generally, financial risk concerns operations taken by an individual, which are related to the management of financial means and instruments. However, most frequently, this type of risk is closely related to the capital structure of the economic entity financing its assets with foreign capital. The Borrower is exposed to the multiplication of risk along with an increase in the share of liabilities in the capital structure and an increase in the costs of its acquisition. By incurring credit, the risk is naturally transferred to the creditor of a given entity, including investors and lending banks (<https://www.nbpportal.pl/slownik/pozycje-slownika/ryzyko-finansowe> 31.01.2017).

Dependence of financial risk on liabilities is also visible in KOZOJĆ and TUCZKO, in whose works the relation to credit risk, interest rate risk or liquidity risk can be perceived (KOZOJĆ 2014 after TUCZKO 2001).

The compendium of 2015 also pointed to financial leverage, i.e. costs and financial liabilities in the capital structure, as a condition of the existence of financial risk. Additionally, through financial risk,



the possibility of determining the inclination to changes in value of the financial assets owned was indicated (PATTERSON 2011).

On the other hand, F. Borys defines financial risk as a result of a higher level of tax inflation than assumed by the government, changes in interest rates or the failure to obtain credit (MALARA, KROIK, MALARA, SOBOL-WOJCIECHOWSKA 1999 after BORYS 1999).

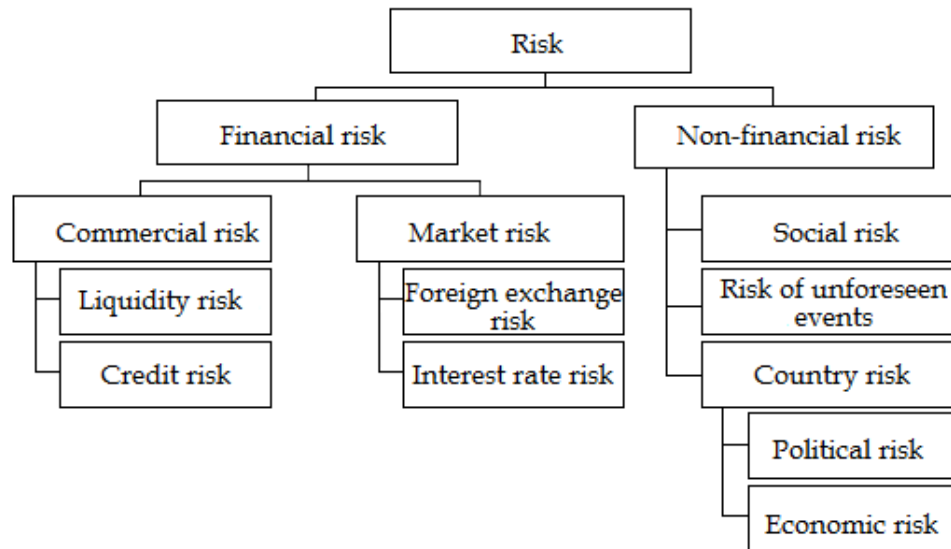


Fig.5.Types of risk - financial and non-financial. Source: ŚLIWIŃSKI2006.

### 3.1.1. Commercial risk

For S. Kuczyński, commercial risk is a direct effect of the conducted commercial activity, which includes liquidity risk and credit risk. It occurs in both classic transactions (foreign currency settlement, deferred payment) and in specific transactions (foreign investments, cooperation, licence trade, bartering arrangement), and results from unsatisfactory market size diagnosis (trends, market segments, demand for goods/services, level of existing competition) ([http://www.exporter.pl/zarzadzanie/eksport/5ryz\\_handlowe.html](http://www.exporter.pl/zarzadzanie/eksport/5ryz_handlowe.html) 04.02.2017). On the other hand, E. Krzemińska determines commercial risk as insolvency and significant defaults in payment forming a basis for merchant credit insurance (<http://www.rozumiemowu.pl/ryzyko-handlowe> 04.02.2017).

### 3.1.2. Liquidity risk

The term financial liquidity is commonly defined as the possibility to repay incurred financial liabilities. Therefore, liquidity risk is a threat of default in payment within the date due, most often caused by an unsatisfactory amount of financial means. In theory, this risk can be reduced to the level of credit risk by preserving full deposits although, in practice, it is possible to invest the means entrusted and achieve high profits. This makes sense only when a continuous analysis of the structure of assets and liabilities is carried out, along with forecasts and assumptions for the future cash demand ([https://www.nbportal.pl/wiedza/artykuly/na-poczatek/ryzyko\\_w\\_bankach](https://www.nbportal.pl/wiedza/artykuly/na-poczatek/ryzyko_w_bankach) 31.01.2017).

The lexicon of finances describes risk as the inability of an entity to meet liabilities when they fall due without incurring losses, which can be caused both by liabilities and assets of the balance sheet (GOŁAJEWSKA, LEKSYKON FINANSÓW,2001), (RISK MANAGEMENT GUIDELINES FOR DERIVATIVES 1994). Jajuga T. and Jajuga K. approach the issue of liquidity risk in a slightly different way, by making the liquidity conditional on the sale of the financial instrument at the assumed price (JAJUGA, JAJUGA 1996).

Most often, this term is referred to banks, which should act as liquidity providers in a non-liquid economy; however, it can be also referred to other enterprises and institutions, which have liabilities towards their employees, contractors, etc.

### 3.1.3. Credit risk

A significant difference between liquidity risk and credit risk is the duration of the default. In most publications, credit risk is defined as the general inability of the borrower to repay the financial loan granted (RISK MANAGEMENT GUIDELINES FOR DERIVATIVES 1994). For Gołajewska, credit risk is the result of the borrower's failure to meet the requirements of the liability (credit) agreement. Therefore, the repayment of liabilities granted to contractors, most often concerning active bank operations, is the main risk in active bank operations and a risk of failing to recover the bank's funds involved (GOŁAJEWSKA, LEKSYKON FINANSÓW, 2001).

On the other hand, Kaczmarek defines credit risk as circumstances in which contractors, for various reasons that are (un)controllable by them, do not meet liabilities undertaken towards each other. This should be mainly understood as the risk of the emergence of the inability to repay financial means borrowed by the bank client. Credit risk is the "danger of failing to pay by the debtor the credit incurred together with interest rates and fees (...) and amounts due for managing the warranties and guarantees granted," (KACZMAREK 2006).

The definition presented in Patterson's compendium is tantamount to the definition provided by Kaczmarek. It mentions components of the source of risk in the form of the continuation or discontinuation of activities understood as current financial flows or liquidation of assets which does not cover the debt. In the majority of commercial banks, this type of risk is the major source of threat, although with a growing trend to omit the intermediary in fund flows, it has been displaced in the ranking by market risk (PATTERSON 2015).

The probability of temporary or total inability of the borrower to meet their debts, in the form of credit risk, involves the danger of a decrease in the current value of bank assets and, therefore, the need to cover the loss from its profit or equity. Of course, the real risk of contractors' insolvency also concerns enterprises; however, despite diversification, the banks – operating as financial intermediaries – are significantly more economically active. The reduction of credit risk takes place through the minimization of the amount of loans and losses related to borrowers with low scoring results ([https://www.nbportal.pl/wiedza/artykuly/na-początek/ryzyko\\_w\\_bankach](https://www.nbportal.pl/wiedza/artykuly/na-początek/ryzyko_w_bankach) 31.01.2017).

### 3.1.4. Market risk

Generally, market risk depends on unfavorable fluctuations of market prices and on the general situation on the market (JAJUGA, JAJUGA 1996). Additionally, it is related to the financial condition of the enterprise, and results from the susceptibility to changes in interest rates or prices of financial instruments (RISK MANAGEMENT GUIDELINES FOR DERIVATIVES 1994). However, in financial terms, market risk is presented as a possibility to lose credibility, economic strength and market position. Generally, it involves suffering a loss as a result of a decrease in the market price or a low selling price (which finally grew) during a trade made in assets on the market. Intensification of market variability increases risk, which is an inherent part of all trade-related activities, including speculative operations (PATTERSON 2011).

All investors operating in the property market, including speculative ones, are assumed to be exposed to market risk, since prices of properties traded in the market depend on the supply/demand level and domestic/global economic situation.

In a manner similar to the previous authors of the quoted definitions, Zarzecki presents market risk, consisting of foreign exchange risk and interest rate risk, as a threat of suffering a loss resulting from changes in prices of contracts and assets, which are determined by changes in price parameters (FINANSE, ZARZECKI (ed.), 2003).

### 3.1.5. Foreign exchange risk

The component of market risk in the form of foreign exchange risk emerges in the case of a change in foreign exchange rates and, in particular, in the case of holding a financial instrument denominated in a currency that is foreign to the owner (JAJUGA, JAJUGA 1996).

Wojciechowski understood foreign currency risk as the possibility to incur a loss as a result of fluctuation of foreign exchange rates (WOJCIECHOWSKI 1999). In turn, Bennett considered it as a present or future position, or a projected new item of assets/liabilities, expressed in a foreign currency and converted into another currency according to foreign exchange rates which are unknown at the moment (BENNETT 2000). Dziawgo reduced (foreign) currency risk to the possibility of earning profit from securities or bank deposits denominated in a foreign currency (KALINOWSKI 2007 after DZIAWGO 1998). Lewandowski narrowed the notion of foreign exchange risk only to financial

institutions, in which it was expressed as a consequence of an unfavorable change in the currency rate in the form of a loss of an unhedged currency position (LEWANDOWSKI 1993).

In another publication, Dziawgo maintained his approach to the notion of currency risk, but at the same time, specified the risk of transaction and translation. The former denotes changes in foreign exchange rate between the moment when the debt/liability emerges and the moment the transaction is settled. A real financial profit or loss occurs at the moment of transaction and exchanging of currency. Translation risk involves a similar situation, the difference being that the transaction time is replaced by the moment of making a financial statement, which is not directly related to currency exchange (fictitious nature of risk). Nevertheless, both of those terms affect the financial results of entrepreneurs (DZIAWGO, LEKSYKON FINANSÓW, 2001). The cause of foreign exchange risk, according to Gołajewska, are banks maintaining positions denominated in foreign currency, deposits, credits or securities, which are only periodically required to proportionally indicate domestic values denominated in foreign currencies (GOŁAJEWSKA, LEKSYKON FINANSÓW, 2001).

### 3.1.6. Interest rate risk

Kaczmarek describes interest rate risk as the susceptibility of financial balance sheet items (assets and liabilities of an entity) to interest rate changes. The threat of loss emerges, even for a balanced net position, at the moment when dates of purchase and sale differ. This risk can be reduced by indicating limits for individual currencies, periods of maturity and open forward positions (KACZMAREK 2006).

Jajuga proposed defining interest rate risk as the variability of the interest rate affecting the level of income possible to be achieved from the invested capital and the value of financial instruments held (JAJUGA, JAJUGA 1996). In the definition provided by Gołajewska, interest rate risk depends on possible changes in interest rates at the moment when the values of assets and liabilities of an identical date of the interest rate change do not match. The risk of a financial loss to the client occurs when a decrease in market interest rates occurs at a time when liabilities exceed assets of fixed interest rate in the balance sheet of the financial entity. In a reverse situation, with a surplus of assets over liabilities during an increase in market interest rates, it is the bank that is exposed (GOŁAJEWSKA, LEKSYKONFINANSÓW, 2001).

The term discussed was most broadly presented by H. Schienbeck, who distinguished interest rate risk depending on the fixed or variable interest rate of assets and liabilities (KALINOWSKI2009 after SCHIENBECK 1987).

Additionally, literature provides a four-element division of interest rate risk definitions. The first group concerns defining the situation of a unit investor, which covers the definition provided by Ch. S. Morris, describing the above-mentioned risk as "variability of prices (financial instruments) caused by changes in interest rates" (SMITH, SPUDECK1993). The second group reduces the notion of risk to the perspective of the occurrence of only negative deviations from the assumed aim, tantamount to the occurrence of losses. The Basel Committee on Banking Supervision describes interest rate risk as the exposure of a bank's financial condition to adverse movements in interest rates (RISK MANAGEMENT GUIDELINES FOR DERIVATIVES 1994). Interest rate risk is presented in a similar manner by G.H. Hempel (HEMPEL, COLEMAN, SIMONSON 1990), J.W. Bitner and R.A. Goddard (BITNER, GODDARD 1992) and W.R. Payant (PAYANT 1992), whose definitions are based on the potential adverse effect of the change in the interest rate on the bank's income and net value (KALINOWSKI2009).

The third group includes definitions regarding risk in positive and negative terms. For S. Bereza, interest rate risk meant susceptibility of recorded income to later changes in interest rate (BEREZA1992). In turn, D.E. Fischer and R.J. Jordan described the type of risk under discussion as fluctuations of the general level of interest rates affecting the uncertainty of the level of income and value of financial instruments reached within the time perspective (FISCHER, JORDAN1991).

The fourth and the last group is made up of simple and common definitions, an example of which includes the term proposed by J.F. Sinkey Jr., associating interest rate risk with the possibility of unexpected fluctuations of the interest rate level. M.J. Gardner and D.L. Mills approached this notion in a similar manner, describing interest rate risk as a possible change in income as a consequence of unexpected movements in interest rates (GARDNER, MILLS 1988).

Another definition of interest rate risk mentions a situation in which the borrower, with a debt that bears interest at variable interest rates, suffers a loss at the moment when his income and cash flow equalize as a result of fluctuations in interest rates. The volume of the loss depends on the "financial



lever of the borrower and the flexibility of credit demand related to the level of interest rates". Certainly, such a risk can be reduced, e.g., by applying hedging instruments or incurring a credit-bearing interest at a fixed interest rate (PATTERSON 2015).

### 3.2. Non-financial risk

A basic difference between financial and non-financial risk is the effect on the financial result of a given business entity (financial risk has a direct effect, while non-financial risk has an indirect effect) and monitoring and managing possibilities (financial - monitoring, influence on its emergence and course; non-financial - attempts to monitor and possible preparation of alternative actions). Therefore, as regards non-financial risk, its types that have been distinguished and described below include social risk, risk of unforeseen events and political and economic risk (understood as country risk).

#### 3.2.1. Social risk

Social risk, which includes accumulated categories of individual risk, is shaped differently in various religions, systems or traditions, since different conditions cannot result in a uniformly shaped society of the same pattern of thinking and behavior.

Considering the nature of this type of risk, two areas can be distinguished: behavior under risk conditions and readiness to take risk (cf. FISCHHOFF, SLOVIC, LICHTENSTEIN 1981). Behavior of individuals differs in the approach to risk taking in the longer term. An increased emphasis is placed on stabilization and safety, and risk assessment is justified by a better cognitive process. Additionally, it is not a case of one, commonly accepted area of risk, but a situation where sources of danger involving risk occur in great numbers. This condition affects the departure from formal risk of insurance mathematics since, generally, it is not understood by people in terms of loss probability (KACZMAREK 2006).

Sociological sciences initially focused on individual decisions and preferences but, when ecological risks became intensified, research shifted towards the analysis of their effects in a broader social area (KACZMAREK 2006). U. Beck claims that what is currently taking place is an obligatory simulation of control in uncontrolled areas (e.g. in economy, science, politics, law or everyday life) which results from blurring the differences between awareness and measurable risk (BECK2002). Sociologists are not interested in technical and formal risk (carrying out evaluations or quantifications) but in the theory of operation, phenomenology, systemization in its sociological aspect and, first of all, an "analysis of the approach of the society to uncertainty and a decreasing sense of security in contemporary society". Consequently, the most important experience in sociology is the lack of a sense of security, and social conflicts become an issue attributed to the area of risk (KACZMAREK 2006). Sources of risk are seen in inscrutable behaviors of human beings, the technology applied and organizational methods (PERROW 1987).

#### 3.2.2. Risk of unforeseen events

The risk of unforeseen events is defined as unpredictable factors, including natural disasters, e.g. flood, fire, earthquakes, blizzards, gales, etc. (MALARA, KROIK, MALARA, SOBOL-WOJCIECHOWSKA 1999 after BORYS 1999) and accidents as a consequence of social conflicts (ŚLIWIŃSKI 2006). The risk of unforeseen events is also understood in the context of effects (objective theory) and events (subjective theory) which we are not able to prevent (KACZMAREK 2006 after MATYSIK 1973). Jajuga K. and Jajuga T. perceive the effect of unexpected events on financial instruments, without the impact on the general market situation (JAJUGA, JAJUGA1996).

There also exist such notions as systemic risk, described as the threat of a loss of trust towards the banking system as a result of violent and unexpected troubles of a major bank. In the case of such an occurrence, payment default would emerge in settlement systems and in interbank markets, capable of causing damage in other market sectors. After the credit crisis (2007-2009) and related freezing of the credit market, as a preventive measure, apart from trust-building mechanisms, the systemic financial institutions which must maintain higher levels of capital and liquidity than other banks became referred to as: "lenders of last resort, deposit insurance and the too-big-to-fail doctrine" (PATTERSON 2015).

### 3.2.3. Country risk

Multi-faceted country risk has many different definitions, but most of them share common features. This term generally describes “a set of risk types related to investments in a given country”. The risk discussed here is the relation between the expected and actual political and economic conditions of a given country, with their impact on the ability of the government, natural and legal persons to meet their obligations. The level of this risk is subject to slow changes in developed countries, while in developing countries, a high variability is observed over the short term (MANKO 2015).

### 3.2.4. Economic risk

Economic risk, according to D. Śliwiński, depends on changes in the state economic policy and legal regulations directly affecting the fiscal or foreign currency law (ŚLIWIŃSKI 2006).

According to T. Kaczmarek, economic risk is understood as a risk of business activity (manufacturing, trade, financing operations) which provides a perspective of failing to reach the assumed aim, including suffering a loss as a result of lacking, e.g., crucial information. Risk analyses should be directed towards reducing the risk of making wrong decisions, suffering a loss or departing from the aims assumed. Therefore, risk management should include methods and tools significant for risk identification, analysis and evaluation, and for making appropriate decisions (KACZMAREK 2006).

### 3.2.5. Political risk

Political risk refers to the perspective of state intervention, both in the entire economy and with regard to individual sectors, on a domestic or international scale (ŚLIWIŃSKI 2006), thus affecting individual business entities (JAJUGA, JAJUGA1996). It results from the fear of not earning the assumed profit by the investor as a result of political and economic changes (significant legislative changes during a change of cabinet) in the country where business activities are directly conducted, or abroad. In extreme situations (e.g. war, economic crisis, catastrophes and natural disasters, political and economic scandals, political/governmental changes), the foreign entity will not be able to meet the obligation previously taken on (DZIAWGO, LEKSYKONFINANSÓW, 2001).

Political and social risk, often understood as a common entity, consists of changes in legal regulations, fears of the community, emergency states, or higher requirements concerning the natural environment (MALARA, KROIK, MALARA, SOBOL-WOJCIECHOWSKA 1999 after BORYS 1999). Policy in the field of risk consists in using a set of measures (including prohibitions/orders within the legal system) in order to avoid, foresee and compensate for risk, which often constitutes a new challenge for the political and administrative system. This also includes other tasks, such as an early warning system, appropriate classification of risk and the application of new technologies (KACZMAREK2006).

## 4. Risk in the context of the property market

The application of the above-presented systematization of market risk is justified by using the means of property investment and examination of market behavior determinants for entities participating in market activities. This division is so general and flexible that its application does not require further extension and leaves a large field for interpretation (with reference at the same time to subjects, objects and risk-generating factors in the property market), and is so detailed that it makes it possible to distinguish its specific elements. All of them are interrelated and determined by the strength and possible occurrence of other components of general risk. Examples of applying the above-described classification with regard to the property market are presented in the table below.

**Table 1**

Examples of applying financial and non-financial risks in the property market

Type of risk		Example in the property market
Financial risk	<b>Commercial risk</b>	<b>Liquidity risk</b> developers/buyers, with mismatch in the structure of liabilities (payment of creditors, employees' salaries) and amounts due (for selling the property/ payment of salary)
		<b>Credit risk</b> a borrower (developers/buyer), who, when possible, makes the decision to be active in the property market dependent on credit conditions
	<b>Market risk</b>	<b>Foreign</b> foreign investors (developers/buyers) who, during a property

Non-financial risk	<b>exchange risk</b>		purchase/sale transaction, incurred a loss or earned a profit as a result of the currency conversion carried out at the same time
	<b>Interest rate risk</b>		a borrower (developer/buyer), with debts bearing interest at variable interest rate, who suffers the moment his income and cash flow decreases as a result of market movements in interest rates
	<b>Social risk</b>		inconsistent human behavior, applied technology and organizational methods
	<b>Risk of unforeseen events</b>		unpredictable factors, e.g. flood, earthquake- (possible) damage of the object of trade in the property market (developers/buyers),
	<b>Country risk</b>	<b>Political risk</b>	legislative changes and civil unrest, including labor strikes, emergency states and increased requirements concerning the natural environment, reducing the freedom of market activity
		<b>Economic risk</b>	risk of business activity for developers, which is the possibility of failing to reach the assumed aims

Source: Own study.

Each of the presented types can be understood in terms of basic/systemic and specific, static and dynamic risk, and a spot/unit and constant risk. The choice depends only on the available data and tools, and on the expected effect of the work.

Aristotle believed that “the whole is greater than the sum of its parts”. Therefore, it is certain that systemic risk affects specific risk, but it is this individual risk that affects and describes the nature of the system. Systemic depiction of the property market indicates the complexity of the set of elements in dynamic interaction and defined with reference to one another. The quality of system operation therefore depends on its individual unit and is characterized by circularity, denoting the lack of one-sided relations between elements and their mutual impact on the entire system.

The issue of risk has been addressed in previous studies, among others, in 2015 by M. Courchane, L. Kiefer and P. Zorn (with regard to mortgage and housing credits), in 2015 by A. Pavlov, E. Steineri and S. Wachter (in the context of market and credit risk on the macroeconomic scale), in 2017 by X. Deng, S.E. Ong, and M. Qian (market risk, relations between the actual property risk and investments of enterprises), in 2012 by Mark Y. An with Zhikun Qi (credit risk), in 2016 by A. Votsis with A. Perrels (housing prices with regard to the public disclosure of flood risk), and, in 2014, by Jin, Soydemir and Tidwell (behaviors of entities in the property market). Consequently, it can be seen that studies concerning the determination of risk in the property market are being continuously carried out, though relatively selective in nature.

## 5. Summary and conclusions

The lack of a uniform paradigm of risk definition and classification makes it possible to maneuver between various approaches towards the aspect of the phenomenon of risk and creating new (most often field-related) terminology. A precise definition and, therefore, indication of risk-related research problems with regard to the property market, favors proper orientation of research and complementarity of analyses. Field-related research is being continued, and owing to the timeless nature of the phenomenon and emergence of new risk-generating factors, will be further developed. However, only complex reference to the property market guarantees success, aimed at reducing the uncertainty of the market and investments. Although the phenomenon of risk is not in itself an object of analyses but merely a means in research describing the state of the property market, the determination of risk affects the awareness of entities of risk management and results in undertaking gradual steps in order to eliminate it. A significant level of risk also affects the readiness to take it, and, as a matter of fact, without the game of risk, the property market would not exist.

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