

Risk management in insurance

mgr Dominik Fudali



UNIWERSYTET
EKONOMICZNY
W KRAKOWIE

GF 3rd year 6th term

2025

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Statistics, econometrics, financial mathematics

Finance, insurance

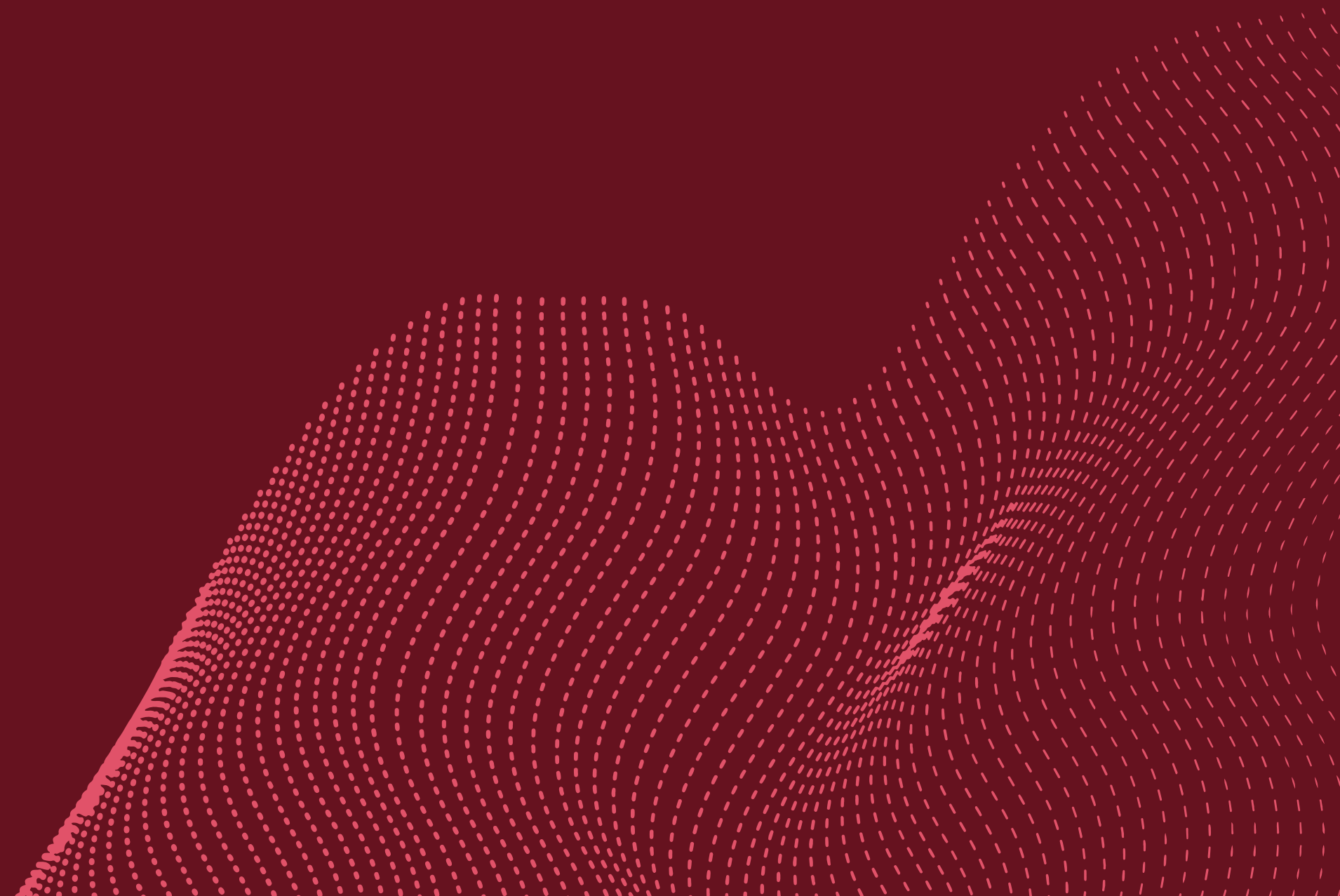


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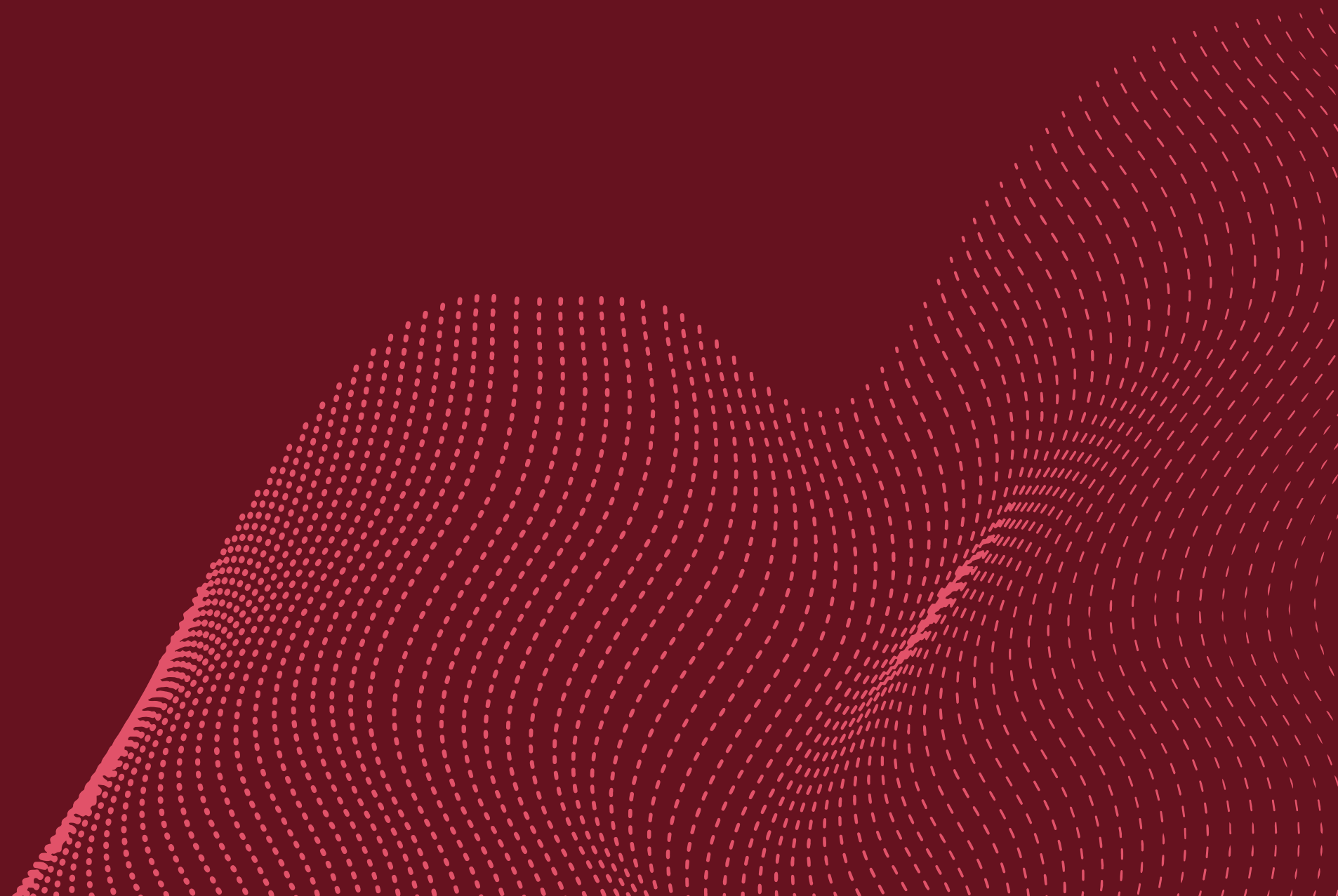


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Set of activities (...) conducted with the intention of effective pursuit and completion of organisation's goals.

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Griffin R. W. (2005) Podstawy zarządzania organizacjami,
Wydawnictwo Naukowe PWN, Warszawa, s. 6.

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1) Every activity with an uncertain outcome

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2) Probability of losses

1) Definition includes the risk of extra profits:



Paweł Biedrzycki @PawelBiedrzycki @pawel-biedrzycki-3545a49b 07.09.2017 15:4

CD PROJEKT ma tak dużo pieniędzy, że musiał powołać departament skarbu. Wiemy na co chce przeznaczyć gotówkę

582,7 mln zł dokładnie tyle miał na swoim koncie CD PROJEKT pod koniec czerwca 2017 roku. I to mimo, że spółka wypłaciła swoim akcjonariuszom 101 mln zł dywidendy. To efekt świetnych wyników finansowych. W pierwszej połowie 2017 roku twórca gry Wiedźmin zarobił na czysto 118,6 mln zł. Pieniądzy na koncie CD PROJEKT jest tak dużo, że producent gier musiał utworzyć w swojej strukturze departament skarbu.

CD PROJEKT - najbogatsza spółka na GPW

Według naszych obliczeń CD PROJEKT to w tej chwili najbogatsza spółka notowana na polskiej giełdzie. Pisząc najbogatsza, mamy na myśli różnicę pomiędzy stanem posiadanej gotówki, a jej długiem. CD PROJEKT ma 582,7 mln zł w gotówce i zaledwie 3,8 mln zł długu. Netto posiada więc na koncie grubo ponad 570 mln zł i cały czas świetnie zarabia.

Sources: Strefa Inwestorów (2017), <https://strefainwestorow.pl/artykuly/20170907/CD-projekt-gotowka> (access19.02.2025).

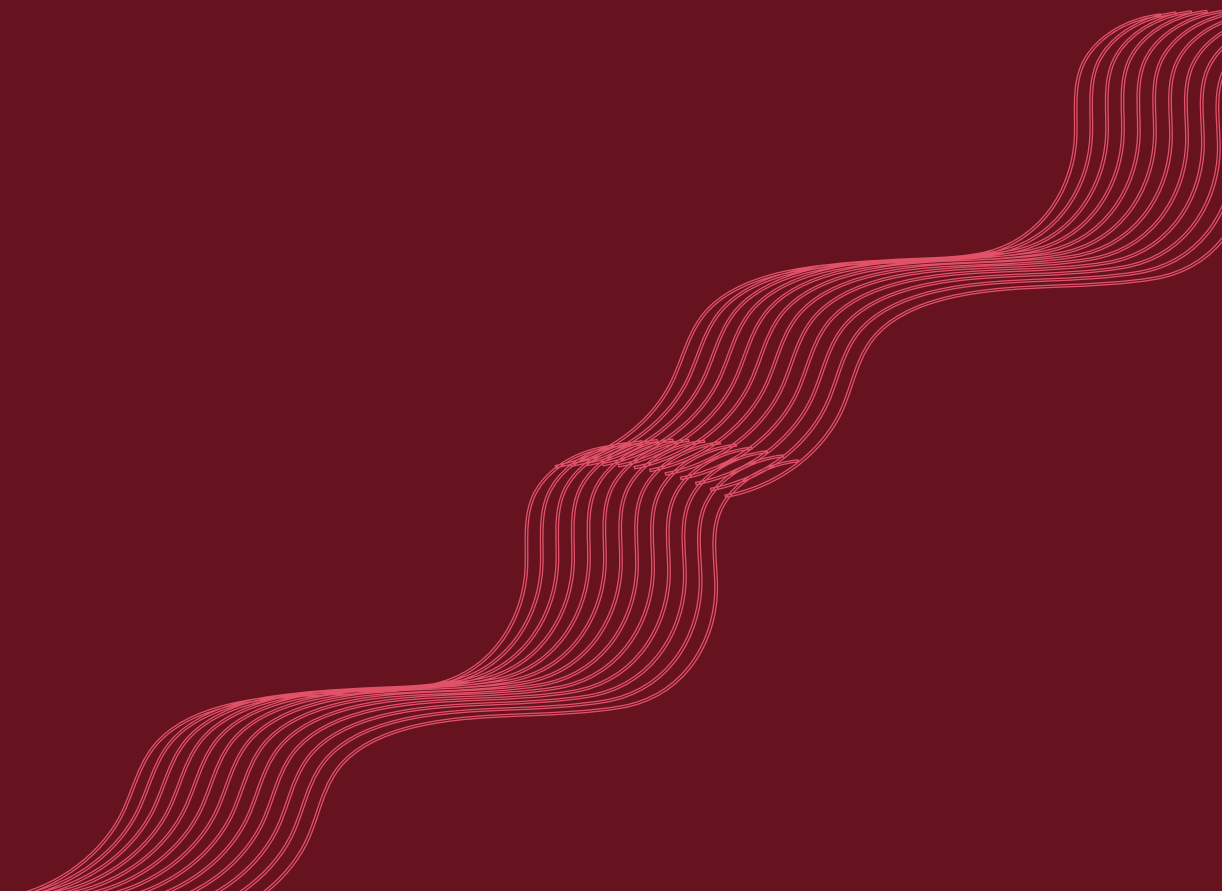
The Guardian (2025), <https://www.theguardian.com/business/2025/feb/20/energy-network-owners-have-made-39bn-from-higher-bills-says-report> (access 24.02.2025).

Energy network owners have made £3.9bn 'excess profit' from higher bills, says report

Citizens Advice believes Ofgem made flawed interest rate calculation for companies in Great Britain



For this course's sake we will use 2) definition – any ideas why?

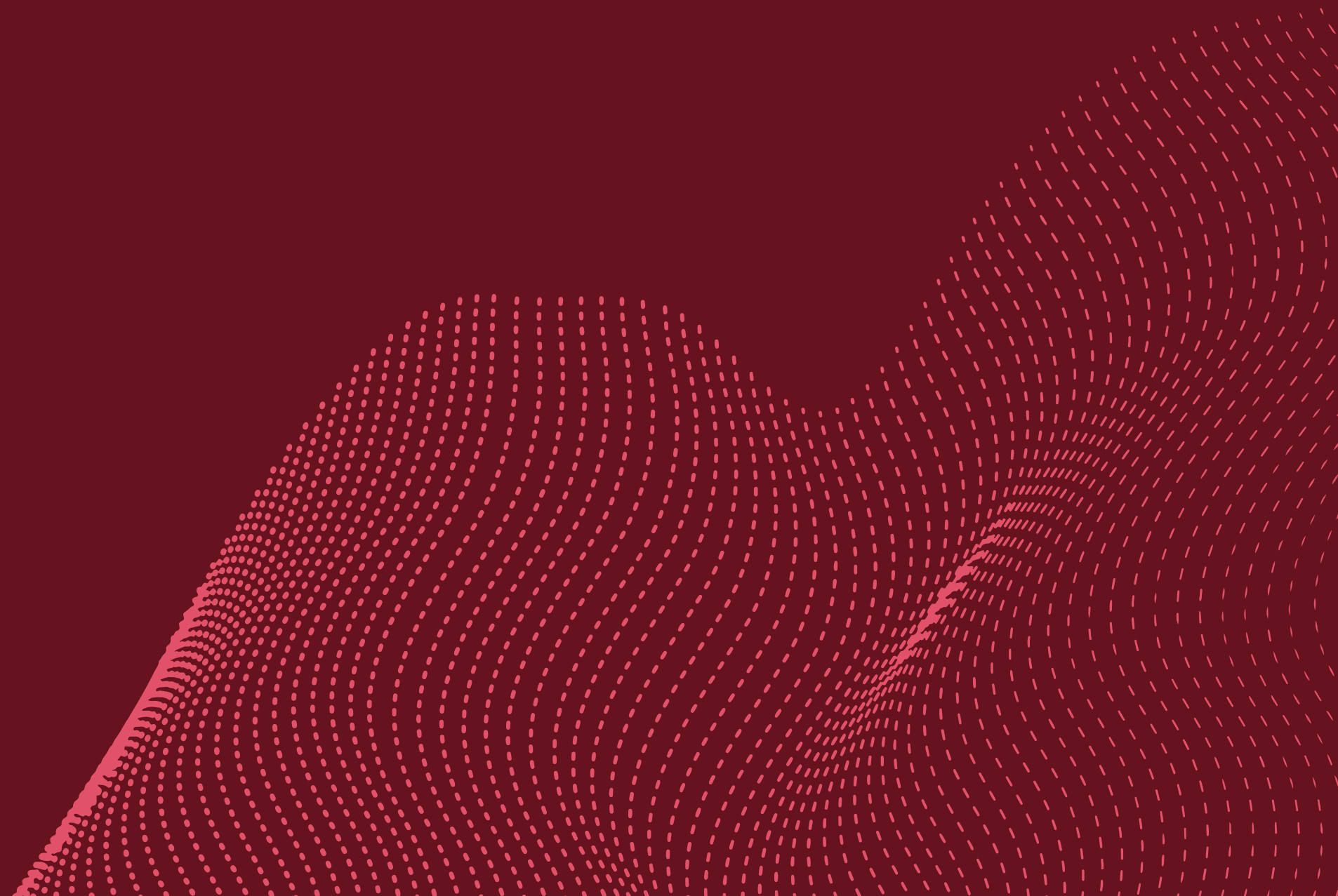


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Risk managements methods include:

- Risk avoidance (avoiding threats);
- Risk reduction (reducing potential threats and their consequences);
- Risk diversification (spreading the impact of potential threats);
- Risk retention (accepting potential losses);
- Risk transfer (transferring potential losses to another entity).

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An insurance contract is a specific, although not the only, method of risk transfer, meaning the contractual shifting of potential losses (for an agreed fee) to another entity. However, it should be noted that insurance procedures also incorporate other risk management methods:

- Rewarding risk avoidance (discounted premiums for a claim-free history);
- Taking risk reduction into account (preventive measures, security requirements);
- Aiming for risk diversification (sufficiently large insurance pools, reinsurance);
- Allowing partial risk retention (deductibles, underinsurance).

Szumlicz T. (2009) Ubezpieczenie. W sprawie zastrzeżenia terminologicznego. Wiadomości Ubezpieczeniowe (1), s. 99.

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Set of actions aimed to limit losses tied to insurance business activity

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8 classes

1. Risk as a random variable, probability distributions
2. Financial mathematics models, calculating the actuarial value of a fixed annuity
3. Individual risk model, approximation of the sum of independent random variables
4. Collective risk model, S-distribution, recursive method for the compound Poisson distribution, parameters of the compound Poisson distribution

- Be able to explain what risk is and describe various types of risk.
- Recall statistical concepts such as types of distributions, known distributions, and concepts like mean, expected value, variance, standard deviation, probability density function, cumulative distribution function.
- Recall econometric concepts such as parameter, random variable, and basic model (model operation).