sciendo

Financial Internet Quarterly 2025, vol. 21 / no. 2, p. 1-18

DOI: https://dx.doi.org/10.2478/fiqf-2025-0008

Financial Internet Quarterly

SYMBIOTIC HARMONY: EXPLORING THE INTERPLAY BETWEEN INVESTMENT STRATEGIES AND INSURANCE IN THE CZECH REPUBLIC

Jan Neugebauer[1], Marek Vokoun[2]

Abstract

This study investigates the complex relationship between insurance and investment strategies in the Czech Republic using a PICOT-PRISMA approach that focuses on high-impact Social Sciences Citation Index (SSCI) articles from Q1-Q3 journals. By examining both mandatory and optional insurance types, we highlight their impact on societal welfare and individual autonomy. The study also uses VECM econometric analysis to reveal distinct patterns across different economic agents: households have a stable long-term equilibrium, with increased insurance coverage correlated with higher investment levels, implying complementarity. Non-financial companies, on the other hand, show a substitution effect, with increased insurance coverage resulting in lower investment. At the aggregate economic level, we see a stronger positive relationship, with investment serving as the primary driver and insurance playing a more passive role. These findings contribute to the literature by providing empirical evidence on the nuanced interaction of insurance and investment in a small open economy, highlighting the impact of specific economic, regulatory, and sociocultural factors, as well as divergent incentives and risk profiles among households and corporate entities.

JEL classification: G11, G22, C32, R28

Keywords: Housing Investment, Insurance, Czechia, Strategies, Economy, Financial Planning

Received: 23.05.2024 Accepted: 27.12.2024

Cite this:

Neugebauer, J. & Vokoun, M. (2025). Symbiotic harmony: Exploring the interplay between investment strategies and insurance in the Czech Republic. Financial Internet Quarterly 21(2), pp. 1-18.

[1] University of Jan Evangelista Purkyně in Ústí nad Labem, Faculty of Social and Economic Studies, Department of Economics and Management, Czech Republic, e-mail: st102396@students.ujep.cz, ORCID: https://orcid.org/0000-0001-5216-1015.

[2] University of Jan Evangelista Purkyně in Ústí nad Labem, Faculty of Social and Economic Studies, Department of Economics and Management, Czech Republic, e-mail: Marek.Vokoun@ujep.cz, ORCID: https://orcid.org/0000-0001-5659-3085.

Introduction

Insurance and hedging are an integral part of the investment strategies of economic agents. Financial goals, risk tolerance, and overall financial situation influence individuals' financial decisions. Insurance strategies are employed to manage risk, preserve capital, maximize portfolio returns, and maintain financial stability. As economic agents consider investment as part of their insurance strategies, there is an intriguing "vice versa" perspective. Life insurance is an example; in addition to providing financial security to their loved ones in the event of their death, it also allows people to grow their wealth over time through various tax and non-tax incentives provided by the insurance company.

At the macroeconomic level, massive foreign direct investment (FDI) inflows were observed in the Czech Republic during the transformation period at the beginning of the twenty-first century. Foreign direct investment (FDI) inflows were not always successful, and state incentives were ineffective (Bolcha & Zemplinerová, 2012), however, during the transformation period, foreign-owned companies served as a creative-destructive business process innovation wave in the Shumpeterian sense, particularly in the manufacturing industry, and contributed to technological knowledge spillovers and productivity growth (Vokoun, 2016).

The "vice versa" investment-insurance perspective here is also intriguing, as we can see that state insurance (risk mitigation) policies for investors, such as tax holidays, direct investment incentives, and long-term provision of national subsidies for companies, served as a crucial decision factor for their investment strategies, a type of rent-seeking behavior that resulted in crowding-out even in the case of foreign-owned innovators (Vokoun, 2020). Nowadays, the Czech Republic exemplifies economic resilience and sustainable growth in the heart of Europe (Ženka et al., 2019). The interplay between insurance and economics emerges as a pivotal factor influencing the nation's trajectory as it continues to forge its path in the global economy (Oprea et al., 2020; Bilenko, 2022). This article examines the complex relationship between insurance and investment in the Czech Republic, shedding light on the key drivers, challenges, and opportunities that shape the process of decision-making and policy-making (Bilenko, 2022; Odei et al., 2021; Paleckova & Preckova, 2023).

The background

Individuals and businesses regularly evaluate their investment and insurance strategies in light of changing economic conditions and risks. New threats are emerging due to the ongoing international conflict between Russia and Ukraine, trade wars between the United States and China, etc. Traditional risk factors are managed by organizations through internal risk management departments and procedures, as well as professional financial advice to stay informed about market developments and a diversified approach to investments and risk management. These are critical principles for organizations in the Czech Republic and the European Union to adapt to changing economic landscapes and improve financial resilience.

The European Union's core objective is to promote peace, adhere to many practical, cultural, and ethical values, and shape Europe as a single economic space (Fiala et al., 2021). Numerous indicators can be used to compare countries or regions, including GDP and GNI (Stanickova et al., 2018). Other factors such as people's social circumstances, attitudes towards environmental protection, sense of security, and happiness are also assessed as GDP is increasingly seen as an insufficient indicator of living standards.

Organizations, particularly global corporations, recognize that gross value-added and profit maximization depend on environmental, societal, and governmental (ESG) objectives. New risk management processes must be implemented in light of ESG goals and increasing globalization tendencies. The most feared new threats are terrorism, cybernetic incidents, hybrid wars, cultural diversity issues, and the return of eradicated or global civilization diseases (Maresova et al., 2018; Landovska & Karbanova, 2022; Polat & Andres, 2019).

All these factors contribute to the necessity of research on increasing demand for insurance products and developing new hedging strategies for investment projects. Policy-makers are recognizing the new threats; however, the economic policy response lag and implementation lag and the delay in passing new laws is a new source of uncertainty and heated political debate. That is why Czech households and organizations are now more open to new investment strategies, including insurance, increasing their incomes, and it impacts the economy and money flow in the Czech Republic (Blaschke, 2022).

Insurance in the Czech Republic

Insurance moves beyond its traditional role as a risk mitigator to become a significant economic contributor. The Czech Republic is one of the countries with the highest incidence of insurance products, based on knowledge of commercial and non-commercial insurance (Bryndová et al., 2019). In addition, it is a country with many types of insurance, ranging from life and property insurance to insurance against theft, vandalism, or damage to third parties (Budská & Fleischmann, 2021). Based on the compound annual growth rate (CAGR) between 2010 and 2022, the gross premium of life insurance is growing by 0.87%, and non-life insurance is increasing by 3.11% yearly (Table 1). As is typi-

cal of non-life insurance contracts, the gross premiums of non-life insurance products are growing faster than the inflation rate (a dynamic part of contracts). When the growth rates of inflation (GAVG 1.85%) and non-life insurance (CAGR 0.87%) are compared, we can see those nominal annual figures of life insurance are growing slower than the yearly inflation rate. This development suggests a possible decrease in absolute value, and we can see a diverse growth and higher popularity of non-life insurance products alongside the effect of the Non-Life to Life Ratio (Table 1).

Table 1: Gross premium of life insurance and non-life insurance in thousands of CZK in the Czech Republic between 2010 and 2022

Year	Life Insurance (Thousands of CZK)	Non-Life Insurance (Thousands of CZK)	Non-Life to Life Ratio	Annual Inflation Rate (CPI)
2010	44 481 668.00	72 249 017.00	1.62	1.50%
2011	46 573 794.00	69 090 093.00	1.48	1.90%
2012	46 273 376.00	67 570 584.00	1.46	3.30%
2013	46 447 711.00	67 545 890.00	1.45	1.40%
2014	46 147 621.00	68 856 499.00	1.49	0.40%
2015	44 463 713.00	71 600 563.00	1.61	0.30%
2016	43 661 822.00	74 798 349.00	1.71	0.70%
2017	43 692 786.00	79 671 496.00	1.82	2.50%
2018	43 967 931.00	85 405 384.00	1.94	2.10%
2019	45 149 818.00	91 148 630.00	2.02	2.80%
2020	47 548 317.00	93 352 891.00	1.96	3.20%
2021	48 239 678.00	98 810 619.00	2.05	3.80%
2022	49 767 567.00	107 597 467.00	2.16	15.10%
CAGR	0.87%	3.11%	2.22%	GAVG: 1.85%

Notes: Based on adjusted figures for the previous year of a given annual report. Life insurance is current and single premium annualized on a 10-year basis. Non-life insurance direct and indirect business, motor liability, accident insurance, business, retail property, and liability insurance, excluding premiums ceded to Czech Association of Insurance Companies members. Compound Annual Growth Rate (CAGR). Geometric average value (GAVG). Consumer price index (CPI)

Source: Authors' own calculations based on Česká Asociace Pojišťoven (2023) datasets.

The Czech Republic has a statutory health insurance (SHI) system based on mandatory membership in one of the health insurances companies. It means that insurers are quasi-public, self-governing organizations that serve as payers and purchasers of care (Přečková & Palečková, 2023). The inhabitants can choose their health insurers and healthcare providers (Bryndová et al., 2019; Alexa et al., 2015). Mandatory health insurance was introduced in 1992, with eligibility determined by permanent residence. Initially, the insurance was administered by a single insurance company (Vseobecna Zdravotni Pojistovna, VZP), but later on, competing health insurance companies with the legal status of independent public law entities were introduced (OECD, 2017; Thomson et al., 2018; Budská & Fleischmann, 2021).

In the EU, health insurance is not always easily accessible for migrants as it is "limited only to citizens who conform to sexualized, racialized, and classist ideas about the good, hard-working citizen" (Probst, 2023, p. 7). A new research topic in insurance deals with the moral economy of EU public health insurance provision. The modern perspective describes more possibilities for how insurance can work, but the rule is that no one shall enrich themselves at the expense of insurance (Česká Asociace Pojišťoven, 2023; Danieli & Jakubik, 2022).

Investments in the Czech Republic

Investment incentives were initially designed to encourage foreign capital inflows into developing economies. They are now available in Western Europe's developed countries. They no longer serve their primary purpose but have become a standard economic policy tool for assisting specific, usually isolated, weaker regions. Like any comprehensive system, the investment incentives system has supporters and opponents who disagree with their justification. Using data on investment incentives provided by CzechInvest and selected macroeconomic indicators, it was determined that their impact on positive economic development in the Czech economy was statistically negligible (Blaschke, 2022).

Table 2: Shares of regional foreign direct inflow and regional level of GDP per capita in the Czech Republic in 2014, 2017, and 2021

Region	2021		2017		2014	
	FDI inflow (Millions of CZK)	GDP p.c.	FDI inflow (Millions of CZK)	GDP p.c.	FDI inflow (Millions of CZK)	GDP p.c.
Czech Republic (Total)	4,400,464.0	571,051.0	3,321,271.0	482,622.0	2,774,601.0	412,908.0
Capital City of Prague	64.0%	221.0%	61.7%	220.0%	54.5%	221.0%
Region Středočeský	8.2%	87.0%	7.9%	91.0%	11.9%	90.0%
Region Jihočeský	1.7%	79.0%	2.9%	81.0%	3.3%	81.0%
Region Plzeňský	2.5%	88.0%	2.8%	91.0%	3.3%	92.0%
Region Karlovarský	0.7%	59.0%	0.8%	65.0%	0.8%	68.0%
Region Ústecký	2.4%	69.0%	2.4%	71.0%	3.0%	73.0%
Region Liberecký	1.5%	74.0%	1.8%	77.0%	2.1%	77.0%
Region Královéhradecký	2.0%	91.0%	1.9%	89.0%	1.9%	84.0%
Region Pardubický	1.5%	79.0%	1.5%	81.0%	1.5%	79.0%
Region Vysočina	2.0%	81.0%	1.8%	82.0%	1.9%	83.0%
Region Jihomoravský	5.3%	98.0%	4.7%	93.0%	5.7%	94.0%
Region Olomoucký	1.5%	79.0%	1.4%	77.0%	1.4%	75.0%
Region Zlínský	1.7%	85.0%	2.0%	85.0%	2.0%	86.0%
Region Moravskoslezský	5.2%	79.0%	6.4%	81.0%	6.8%	83.0%

Note: Foreign Direct Inflow (FDI) are investments in equity capital, reinvested earnings, and other means (intercompany claims and liabilities: borrowing and lending of funds, including debt securities and trade credits). Gross Domestic Product per capita in nominal prices (GDP p.c.)

Source: Authors' own calculations based on Czech Statistical Office (2023) datasets.

Vu et al. (2023) describe the spillover effects that can be important for a country's development and economic growth. It could manifest at the firm level or the level of the whole country. This was also observed in the Czech Republic (Damborsky, 2023). The localization strategies determine the direct investments. Unfortunately, regions with more considerable unemployment and lower regional GDP are not targeted by FDIs (Table 2) or national assets.

Recent development shows a steady 4.4% annual compound growth rate of households' investments in medium- and long-term consumer durables between 2010 and 2023. The gross fixed capital formation of non-financial companies is a bit higher, about 5%. The riskier investments in research and development projects are growing by 6.28%. We can observe organizations' need to adapt to digitalization with an investment annual compound growth rate of about 12% between 2010 and 2023 (Table 3).

Table 3: Expenditures of households, non-financial corporations, and total Research and development and Software and Databases expenditures in the Czech Republic between 2010 and 2023

Year	Household expenditures on medium- and long-term consumer durables (Millions of CZK)	Gross fixed capital formation of non-financial corporations (Millions of CZK)	Gross fixed capital formation - Research and development (Millions of CZK)	Gross fixed capital formation - Software and databases (Millions of CZK)
2010	293,302.00	605,096.00	46,608.00	62,501.00
2011	297,969.00	656,160.00	49,279.00	72,162.00
2012	287,211.00	671,614.00	60,508.00	77,954.00
2013	291,087.00	669,140.00	60,324.00	77,028.00
2014	301,122.00	686,336.00	65,507.00	78,667.00
2015	324,081.00	742,631.00	69,041.00	96,270.00
2016	348,315.00	769,717.00	71,836.00	104,020.00
2017	387,444.00	839,161.00	77,886.00	117,816.00
2018	404,524.00	878,140.00	86,743.00	150,990.00
2019	422,234.00	966,954.00	106,640.00	181,171.00
2020	405,396.00	895,479.00	90,199.00	199,524.00
2021	437,659.00	950,518.00	87,559.00	217,544.00
2022	513,270.00	1,144,791.00	102,898.00	274,566.00
CAGR	4.40%	5.03%	6.28%	12.06%

Notes: Nominal values. Compound Annual Growth Rate (CAGR). Household domestic expenditures made by residents and non-residents

Source: Authors' own calculations based on Czech Statistical Office (2023) datasets.

The research dealing with Czech microeconomic agents like households and individuals is limited to financial literacy topics; however, the "Buy and Hold" strategy is the most popular in common investment strategies. Mutual funds attract investors or buy stocks and hold them for an extended time (Rihova et al., 2022).

Methodology

This study employs a dual methodological approach: (1) an econometric analysis using vector error-correction modeling (VECM), and (2) a systematic literature review using a modified PRISMA–PICOT framework.

Econometric Analysis

The econometric analysis investigates the relationship between insurance payments (D71, based on ESA methodology) and gross fixed capital formation. A vector error-correction model (VECM) is used to analyze quarterly time series data from 2001Q1 to 2024Q2. To facilitate interpretation, the variables were logarithmically transformed. The analysis is carried out under three different scenarios: household sector, non-financial private sector, and combined sector analysis.

Table 4: Summary statistics, investment expenditures and insurance paid, quarterly data of households and private non-financial sector between 2021 and 2024

Variable	Mean	S.D.	Min	Max
Investment (Households)	67433	24192	34884	$1{,}45 \times 10^5$
Insurance (Households)	5285	1838	1808	10794
Investment (Companies)	$1{,}68 \times 10^5$	52907	26097	$3{,}32 \times 10^5$
Insurance (Companies)	4134	1145	2663	8763

Source: Authors' own work.

The VECM framework was chosen due to the cointegrated nature of the dependent variables. We defined the models using three different deterministic trend specifications based on the time series development: restricted trends, constant, and restricted constant. We used the Johansen cointegration test to conduct our cointegration analysis. Prior to model estimation, we performed: (a) rank selection tests to determine the appropriate number of cointegrating relationships, (b) cointegration tests to confirm the presence of

long-run relationships, and (c) post-estimation diagnostics such as an autocorrelation, stability, and normality tests.

It should be noted that the mode of inference was conservative, as the models did not include exogenous control variables, and none of the specifications achieved strict normality in their residuals. Nonetheless, it produces the best estimates for the pure investment and insurance expenditures interactions, and we recognize these limitations in our interpretation.

Literature review

The literature review uses a simplified PRISMA-PICOT framework and focuses solely on Web of Science Q1-Q3 journals. The review was conducted in several stages. The first phase involved developing a search strategy (Kim, 2023; Bahl, 2023). We developed a PICOT research question that addresses: Population (P): Families, individuals, and businesses as economic agents; Intervention (I): Understanding of insurance, investment, and insurance-investment strategies. Comparison (C): Strategy implementation and influence on financial decision-making in the Czech Republic; Outcome (O): Implementation, stakeholder relationships, and alignment with global trends. Time (T): 2019-2023.

The second phase involved the initial search and filtering process. The initial search (July–September 2023) yielded 6,319 articles for the "invest* insur*" search phrase. The inclusion criteria were: Publication period: 2019–2023. Languages: Czech, Slovak, or English. Database: Web of Science, Index: Social Sciences Citation Index (SSCI), Journal Quartiles: Q1-Q3, and Subjects: Economics, Political Science, and Sociology.

The third phase involved conducting a systematic review. Initial screening yielded 97 relevant articles (as of September 3, 2023). The abstract review phase eliminated irrelevant articles, focusing specifically on the insurance-investment interaction. Full-text analysis of the remaining articles. Final inclusion included 18 studies that met all criteria. The review deliberately focused only on high-impact literature from the Web of Science database, with a particular emphasis on articles discussing the interaction of insurance and investment in the Czech Republic context. Conference proceedings, abstracts, and non-full-text research papers were all excluded and relevant non-high-impact literature resources are already considered in the context part in the introduction section. The filtering process emphasized the relevance to the insurance-investment relationships, resulting in a more focused analysis of this particular domain.

Results

The Czech Republic offers a unique environment for research in investment and insurance strategies in the complex realm of financial management (Fisera et al., 2023). The connection between these two domains is not merely coincidental but complex. Over the last three decades, there has been a significant increase in the adoption of explicit deposit insurance schemes that operate globally, and the literature has highlighted several effects of introducing such laws in shaping the consumer and corporate banking landscape (Meier et al., 2021).

Investment strategies can also benefit Czech citizens because, as new fintech companies demonstrate, they can be simple and easy to implement if regional internet infrastructure is inclusive (Lu et al., 2021). Individuals and families in the Czech Republic can benefit from combining investment and insurance strategies. Stable financial growth and risk management improve the security of an individual's life, a corporation, and society. (Haq et al., 2022; Torri et al., 2022; Jakubík & Teleu, 2022).

Compulsory insurance: a safety net for all

Insurance is essential in modern society because it protects individuals, businesses, and governments from unforeseen risks. As in many other countries, insurance in the Czech Republic is divided into two broad categories: compulsory and optional. These classifications represent various approaches to risk management and financial protection (Staněk et al., 2022).

Compulsory insurance requires specific coverage for certain individuals or entities (Torri et al., 2022). This type of insurance is typically mandated by law and serves as a safeguard to ensure everyone's safety. Motor Third-Party Liability (MTPL) insurance is compulsory for every vehicle owner in the Czech Republic. They must have motor third-party liability insurance to cover potential damages caused to third parties in the event of an accident. Employer's Liability insurance is compulsory for all employers who must cover workplace accidents and occupational diseases their employees suffer. While not entirely critical, health insurance in the Czech Republic is mandatory for residents (Maciak et al., 2022). This ensures universal access to healthcare services while reducing the strain on the public health system (Haq et al., 2022; Torri et al., 2022).

Optional insurance: tailoring protection to individual needs

Optional insurance, as opposed to compulsory insurance, allows individuals and businesses to select the types of coverage they deem necessary or desirable. This approach acknowledges that risks differ significantly between individuals and entities, and not all may require the same level of protection (Mazurchenko et al., 2022). Property insurance, life insurance, travel

insurance, and liability insurance are examples of optional insurance in the Czech Republic.

Property owners can choose property insurance to protect their assets from common risks such as theft, pipeline accidents, and natural disasters. Individuals can buy life insurance to support their loved ones if they suddenly die. People can purchase travel insurance to cover trip cancellations, medical emergencies, and lost luggage (Torri et al., 2022; Hodula et al., 2021). Liability insurance covers damage to another person's health (injury, illness) caused by the insured directly or indirectly by damaging or destroying an object or for other harm to which the insured corresponds according to a specific legal regulation (law). Travelers are typically offered both travel insurance and liability insurance. The Civil Code generally determines liability for injury and employment-law relations by the Labor Code (Andrlova & Korytarova, 2020).

The European Health Insurance Card, also known as the EHIC (European Health Insurance Card), covers many travel insurance services within the European Union. It is specifically about health services that the country's circumstances affect. As a result, the insured may be required to pay an additional co-payment for treatment or a fee for the medications themselves (Stanek et al., 2022). If treatment is needed, an EHIC must be presented to receive the same treatment conditions as residents. Regular health insurance (EHIC) does not provide the same financial protection as contracted travel insurance. The travel insurance company typically covers all extra expenditures (based on the sum insured) (Hodula et al., 2021; Andrlova & Korytavova, 2020).

Relationships between insurance and investment

Various environmental factors and risk management variables that influence financial decision-making influence the implementation of investment and insurance strategies. The financial stability of the insurance sector is critical to ensuring access to and continuity of insurance services, as well as the industry's ability to continue performing its role as a risk transfer mechanism from citizens and corporations, as well as its capacity to mobilize savings and invest them in the real economy (Jakubik & Teleu, 2022). This investment cycle requires the presence of the developed insurance sector. It has become an increasingly important actor in maintaining financial market stability (Meier et al., 2021). National governments' power is rooted in the implementation of social policies, and it, along with the social security system, provides conditions for free labor movement within the European Union.

People in the Czech Republic are, on average, risk-averse and insurance seeking, and in their investment decisions, they are considering not only the returns and risk-to-investment ratio but also concepts such as sustainable and responsible investing (SRI). According to recent findings, millennial cohorts appear more risk-averse than their predecessors (Formankova et al., 2019). At the economic agent level, the investment decision-making process is multifactorial and dependent on various factors.

The economic environment, the regulatory landscape, the ability to conduct and understand market research, and global dynamics affect investment strategies. The Czech economic climate is stable because of GDP growth (economic cycle), inflation rates (volatility), and fiscal policies. Understanding the regulatory landscape is critical for avoiding issues with compliance and optimizing returns and tax exemptions. Market research can reveal optimal products, fintech trends, consumer behavior, and industry projections. Global economic conditions, trade agreements, and geopolitical factors have historically had ripple effects on the Czech investment landscape and are critical decision factors, particularly for exporting corporations (Brada et al., 2019; Strakova et al., 2021).

Typical considerations for investors at the economic agent level include risk tolerance, time horizon, and the ability to obtain and comprehend expert information. Various strategies have varying levels of risk tolerance (risk appetite). Investors must assess this tolerance about their expected returns (for example, discounting rates and betas) and align strategies accordingly (Cohen et al., 2022). Investment goals and timeframes determine the appropriate mix of short-term and long-term strategy. Financial advisors, economists, and legal experts can all provide valuable insights for making informed decisions (Chovancova et al., 2019; Wang et al., 2021).

Investment strategies: the path to financial growth

Individuals and institutions use investment strategies to grow their wealth over time (Cohen et al., 2022). Two prominent investment strategies in the Czech Republic are equity investments and fixed income. Both individuals and organizations can benefit from capital appreciation and dividend income by investing in shares of companies listed on the Prague Stock Exchange (PSE) or other international exchanges. Government and corporate bonds provide investors with a consistent income stream. Investors receive regular interest payments by lending money to issuers (Vu & Pavelková, 2023). Real estate investments provide a tangible asset with capital appreciation and rental income potential. The Czech property market has attracted interest due to its growth potential (Zhao et al., 2023; Singh et al., 2020; Marszk & Lechman, 2020).

Education, research and development, transportation infrastructure, and energy are the most promising areas for investment. These sectors can also contribute to the Czech economy's growth through innovation, higher added value, human capital, and a low-carbon economy (Konieva & Stavarek, 2023). Education investment has remained stagnant over the last two decades and remains below the EU average. The difficult task is accelerating the establishment of domestic leading innovators while encouraging collaboration between science institutions and businesses (Zhao et al., 2023). Inadequate investment in transport infrastructure maintenance and renovation can, to some extent, harm the environment and economic growth in the Czech Republic's transit and export economy, as it can lead to safety and capacity issues (Wang et al., 2021). As the Czech economy is one of the most energy-intensive in the EU, there is room for energy efficiency investment (Brada et al., 2019; Fidrmuc & Horky, 2021; Brůna & Pour, 2023).

Considerations for synergy

Another popular tool in the Czech Republic is the combination of insurance and investments. Capital accumulation is a safeguard mechanism that protects against potential risks and protects in case of a loss of family or individual income. Simultaneously, financial foundations are laid for future dreams, unexpected events, inheritance, or retirement reserves (Janda & Kravtsov, 2022). People should consider the following tasks before committing to any financial strategy: goal alignment, comprehensive planning, and regular review. Investment strategies and insurance policies should be tailored to an individual's financial goals, risk tolerance, and time horizon. Combining investment and insurance planning into a comprehensive financial strategy ensures broad risk and growth protection. As financial circumstances change, regular assessment of investment portfolios and insurance coverage is critical to ensure they remain aligned with changing needs (Vecer et al., 2020).

Some other factors are related to the sociocultural environment and traditions, especially in post-communist countries like the Czech Republic. The older generations were affected by communism, which created a fearful and unstable environment. Insurance was regulated, and investment was unnecessary because communism promised a fair wage and safety for all workers during their productive life (Beesley, 2020). These promises, however, are no longer valid in this new era, and people must focus on covering risks on an individual level as well. As a result, combining insurance and investment strategies can contribute to a higher quality of life during productive periods and an increase in the long-term return of current investment portfolios and funds (Pontier, 2020; Beesley, 2020).

Table 5: Long run propensities (Granger causalities) for households

Dependent Variable	LRP (7 lags) of investment	LRP (7 lags) of insurance
Δ Investment	-0.469**	-0.385
	(0.189)	(0.153)
Δ Insurance	0.785	-1.755***
	(0.512)	(0.545)

Source: Authors' own work.

The household sector has a stable long-run Johansen cointegrating equation (Equation 1). The long-run relationship (normalized on Household Investments) is:

$$Investment = 1.535 * Insurance - 2.090 \quad (1)$$

This means that in the long run, a one-point increase in insurance expenditures is associated with a 1.535% increase in investment (ceteris paribus) expenditures in the sector of households. The relationship is statistically significant ($z = -5.29$, $p < 0.001$). Error correction terms follow the vector specification. For the investment equation, it is -0.0834301 ($p = 0.056$). This implies that the investment equation corrects approximately 8.3% of deviations from long-run equilibrium every quarter. The value for the insurance expenditures equation is 0.1791001 ($p = 0.088$, marginally significant). This suggests that insurance expenditures adjust upward by about 17.9% when it falls below the long-run equilibrium.

The long-run propensities (sum of lagged coefficients) for the investment equation are only significant for previous investments (-0.4698**). This implies that historical investment changes have a net negative impact on current investment changes. Previous insurance payments were not statistically significant. The long-run probabilities (sum of lagged coefficients) for the insurance equation are only significant for past insurance payments (-1.7559***). This implies (Granger causality) that previous insurance changes have a net negative impact on current insurance changes. Previous investments were not statistically significant in the household sector.

The model provides a good fit, with R-squared values of 85.82% for the investment equation and 77.38%

for the insurance expenditures equation. The error correction mechanism implies a stable long-run relationship between the variables, with both variables adjusting to deviations from equilibrium, though the adjustment is greater in the insurance equation.

Table 6: Long run propensities (Granger causalities) for non-finance sector companies

Dependent Variable	LRP (7 lags) of investment	LRP (7 lags) of insurance
Δ Investment	-0.326	-1.957***
	(0.198)	(0.230)
Δ Insurance	-1.518***	-0.015
	(0.302)	(0.282)

Source: Authors' own work.

For non-finance companies (Equation 2), the long-run Johansen cointegrating equation (normalized on investment) is:

$$Investment = 0.510417 * Insurance + 0.0070848 * Trend - 7.46558 \quad (2)$$

This suggests that, after accounting for the negative trend effect, a 1% increase in insurance paid is associated with a 0.510% increase in investment over time. The cointegrating relationship is statistically significant (p = 0.013, z = -2.48). The investment equation value is -0.6497 (significant at p = 0.002). This suggests that the investment equation corrects approximately 64.97% of deviations from long-run equilibrium every quarter. The insurance equation is 0.2330 (p = 0.085, marginally significant). This means that when insurance payments fall below the long-run equilibrium, they adjust upward by approximately 23.30%.

The Long-run Propensity (LRP, sum of lagged coefficients) for the investment equation is statistically significant only for the insurance variables, and we find a strong negative long-run relationship between insurance and investment expenditures changes. LRP is statistically significant for only the investment variables in the insurance equation. This suggests that changes in investments have a negative cumulative effect on changes in insurance payments.

The model fit is less than the previous one, with R-squared values of 55.46% for the investment equation and 31.57% for the insurance payment equation. However, the error correction mechanism still suggests a stable long-run relationship, with both variables adjusting to deviations from equilibrium, albeit with a stronger adjustment in the investment equation.

Table 7: Long run propensities (Granger causalities) for non-finance sector companies and households

Dependent Variable	LRP (11 lags) of investment	LRP (11 lags) of insurance
Δ Investment	-4.0393***	-4.9478***
	(0.7270)	(0.9050)
Δ Insurance	1.1249	-0.2300
	(0.4210)	(0.5380)

Source: Authors' own work.

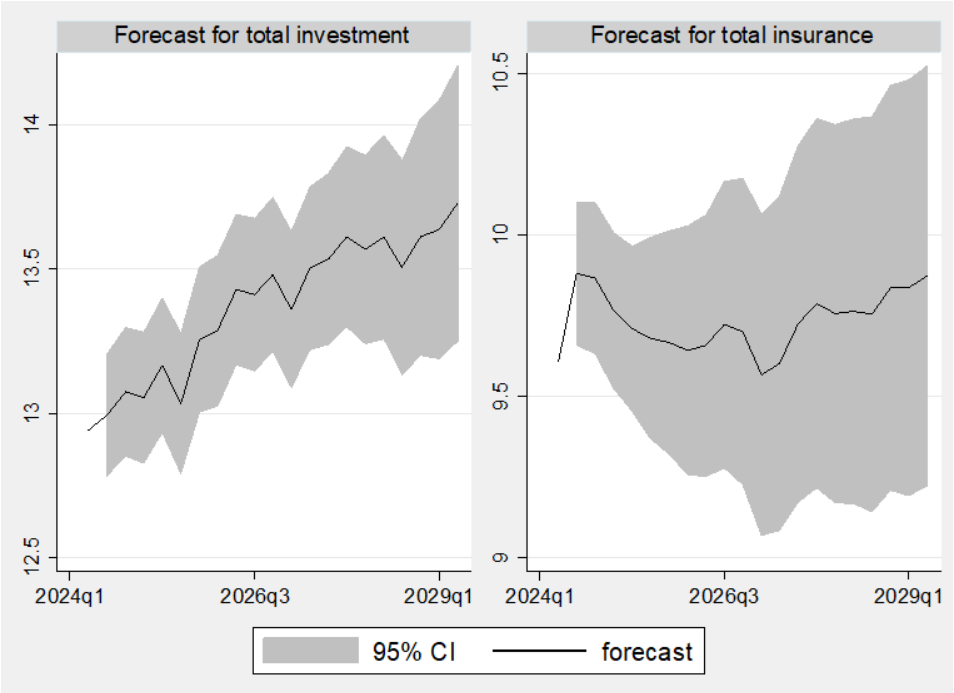
Long-run Johansen cointegrating equation (normalized on investment) is (Equation 3):

$$Investment = 2.506375 * Insurance - 10.15413 \quad (3)$$

This means that, on average, ceteris paribus, a 1% increase in total insurance payments corresponds to a 2.506% increase in total investment over time. The cointegrating relationship is statistically significant (z = -6.50, p < 0.001). The error correction term for the investment equation is -0.239 (significant at p < 0.001). This implies that the investment equation corrects approximately 23.90% of deviations from long-run equilibrium every quarter. For the insurance equation, the result was positive but not significant. This suggests that insurance expenditures do not significantly adjust for deviations from long-run equilibrium.

Long-run propensities (the sum of lagged coefficients) indicate a significant negative long-run relationship between past and current total investment changes. Insurance payments did not drive Granger's investment decisions. On the other hand, we find a significant negative long-run relationship (Granger causality) between insurance and investment changes.

Figure 1: Forecasts for total insurance and investment expenditures for households and non-finance sector companies



Source: Authors' own work.

The model fits well, with R-squared values of 75.72% for the investment equation and 71.03% for the insurance equation. The error correction mechanism indicates a stable long-run relationship, with the investment equation adjusting significantly to deviations from equilibrium while the insurance expenditures equation does not. The VEC Model was able to provide better-fitting forecasts for investment (Figure 1). Insurance, while cointegrated, requires additional exogenous variables to help predict volumes with greater certainty and lower confidence intervals.

Discussion

The results show that the combination of insurance and investment strategies suits people in the Czech Republic. Many people, very often older adults, are affected by the communist past and the values and principles of that time. These values are no longer effective in the modern era, and growing democracy reveals the need to depend less on the state and more on self-reliance. Based on the effects of globalization in the Czech Republic, it is easier to access global investment platforms and learn new strategies. Given the risk -averse trend in the Czech Republic's younger population, the financial market will continue to provide insurance and investment products to attract more people (Janda, 2011).

Significance and impact: balancing the legal obligation and option to choose

The coexistence of compulsory and optional insurance reflects the delicate balance between societal welfare and individual autonomy. Compulsory insurance guarantees that critical risks are collectively addressed, protecting vulnerable parties and avoiding the negative consequences of underinsurance. Optional insurance, on the other hand, allows individuals to tailor their coverage to their specific needs, fostering a sense of control over their financial security (Janda, 2011; Bolcha & Zemplinerová, 2012)

According to the evidence, households and individuals want to combine the legal obligation with optional insurance in the same way that accumulation insurance is connected with investment. Even though the ratio of non-life insurance to life insurance suggests a decline in popularity (Table 1), new investment-type insurance contracts are still being signed. Some authors provide examples of people who were easy targets for brokers because they didn't understand the terms and conditions of investment insurance products and had unrealistic expectations about future returns, resulting in contracts being terminated prematurely and unfavorably (Pinková, 2017).

Life insurance benefits the family's income after the insured's death as insurance claims are paid. However, it is not a beneficial investment for the client; in

most cases, life insurance is minimal, and fund valuation is mediocre at best (Pekarová, 2023). The insurance company and related funds manage the client's investments in the portfolio, from which the insured can withdraw cash only after the contract expires (usually at the age of 60). Another discouraging fact is that the insured must pay taxes on all investment income (Broukal, 2023). With the growing backlash of relatively uninformed and dissatisfied clients against investment life insurance, the Czech National Bank issued a report on its website highlighting all rights and obligations and pros and cons to the general public (CNB, 2023).

What is the alternative to life insurance that combines both components? What should a Czech citizen do to cover risk factors throughout their lifetime and build an appropriate financial portfolio to make their household financially self-sufficient? One solution is finding a good broker or financial specialist to fill the client's needs based on proper analysis and creating a viable plan (Blská, 2022). This can be a problem because the Czech Republic has a history of mistrust and frequent cases of financial fraud against retail investors.

Potential clients should double-check who they are working with and request references. Many brokers are incredibly greedy for money and focus on their personal gain by meeting set targets and recommending products with the highest margins (Janda, 2011). Although everything can look very sophisticated on the outside, the client can lose a significant part of their money because of the broker's unprofessional conduct. Therefore, it is recommended that the clients, especially first-time or less financially literate clients, have a basic understanding of investment and insurance principles and several offers explained. Then, based on their goals, they can decide who they want to work with. It is also recommended that when choosing a consultant, the client should aim at long-term cooperation (Bílská, 2022; Janda, 2011; Černá, 2009; Janoušková, 2022; Blahušová, 2021; Jirák, 2023).

As an alternative to brokers, people can use the branches of established insurance companies and take advantage of the services of the insurance specialists. This alternative provides a reasonable default choice as the general Czech population does not understand the settlement details of life and non-life insurance very well (Horáková, 2019; Janoušková, 2022).

In terms of the legal obligation to pay for insurance, many people see it as the state taking more money from them, and they see it as a tax rather than insurance. People are more likely to participate if they see personal benefits. As an example, in the case of an adverse event, they were given money back. Then, they are more likely to pay for risk coverage than people who have never needed it. Obligatory insurance measures are also affected by the Peltzman effect (Benedettini & Nicita, 2012). When safety measures like compulsory insurance are implemented, people's risk perception decreases, and the insured may make riskier decisions.

Shielding against uncertainty

Insurance acts as a safeguard against the unknown future. In the Czech Republic, insurance products are designed to protect individuals, businesses, and assets from various risks and uncertainties (Činčalová, 2022). Motor Vehicle Insurance (obligatory) and third-party liability insurance (mandatory and optional) shield drivers against potential liabilities and lawsuits resulting from accidents. Unexpected medical expenses can be offset by universal access to medical services. Property insurance (optional) protects homes and businesses from rare natural disasters and unfortunate events that would otherwise result in bankruptcy and property loss.

Mandatory insurance typically protects against common and frequent risks in the general population and can result in personal bankruptcy, social exclusion, and a lower quality of life. Pleckiené et al. (2019) discovered that economic growth is related to insurance figures. Financial literacy and segmentation of insurance clients with different life approaches are essential control factors. The findings that would support the complete demand-following hypothesis of the insurance-economic growth nexus are not analyzed in the Czech environment; however, in a sample of 14 Central and Eastern European (CEE) countries between 1998 and 2016, the Granger causality from GDP growth to insurance is supported but not the other way around (Bayar et al., 2021).

Based on financial literacy studies in the Czech Republic, three primary segments can be identified: Insurance experts, neutral clients, and illiterates. The experts possess knowledge of insurance companies, insurance products, and their options and how it all functions. On the other hand, the illiterates need to understand insurance companies or the principles of financial markets. They need help with processing data and finding relevant information sources. In the center, some individuals acknowledge their limited knowledge and wish to learn more about insurance companies, their products, and their operations. They seek further knowledge about insurance providers, policies, and their mechanisms. Nonetheless, they need to make better decisions with regard for financial planning and show a lack of interest in learning more about insurance, banking, and other financial matters (Koval et al., 2020).

In summary, Czech Republic citizens are keenly interested in insurance products that accumulate wealth. The interdependent relationship between investment and insurance strategies is based on their shared objective of risk management (Kafková, 2016; Riechetl, 2016; Vodičková, 2006; Šrámková, 2021; Broukal, 2023). There is a growing necessity for wealth protection in corporations and households. Strategic insurance planning is a safety net, allowing individuals to take calculated risks in their investment ventures. The insurance coverage offers protection, permitting investors to explore more daring entrepreneurial opportunities that they may avoid due to potential losses. Household investment life insurance is not ideal and necessitates insurance-investment reforms and subsequent innovations. It does not provide the advantages of fintech investment platforms and other incentives to alleviate dangerous behavior.

Conclusion

The cointegration analysis conducted in this study sheds light on the long-term relationships between investment and insurance strategies for both households and non-financial companies in the Czech Republic. The results for the household sector show a stable long-run equilibrium mutual relationship, with a 1 percentage point increase in insurance payments resulting in, on average, a 1.535% increase in investment expenditures. This suggests a complementary dynamic in which increased insurance coverage allows households to feel more financially secure and thus invest more. The error correction mechanism demonstrates that both investment and insurance adjust to deviations from this long-run equilibrium, with insurance responding more strongly. This suggests that households actively manage their insurance coverage in response to changing investment levels.

In contrast, the analysis of non-financial companies reveals a distinct dynamic. The long-run relationship shows that a one-percent increase in insurance expenditures is associated with only a 0.51% increase in investment. Furthermore, the error correction term shows a greater adjustment in the investment equation compared to insurance equation, implying that companies actively manage their investment levels in response to changes in insurance coverage. The negative Granger causality from insurance to investment expenditures supports this finding, implying a potential substitution effect in which increased insurance payments causes companies to reduce investment expenditures (uncertain times).

When the household and non-financial company sectors are combined, the long-run cointegrating equation reveals a stronger positive relationship, with a 1% increase in total insurance payments resulting in a 2.51% increase in total investment. However, the error correction mechanism demonstrates that only the investment equation responds significantly to deviations from equilibrium, whereas insurance equation does not. This suggests that investment levels drive the long-term relationship, while insurance plays a more passive role.

These findings add to the literature by providing empirical evidence for the complex and nuanced relationships between insurance and investment strategies in a small open economy such as the Czech Republic. The findings suggest that the relationship between these two financial domains is influenced by the distinct economic, regulatory, and sociocultural contexts, as well as the different incentives and risk profiles of households and corporate entities.

This paper also revealed a dynamic interplay that significantly influences individuals, businesses, and the Czech Republic's economic landscape in this comprehensive exploration of the complex relationship between insurance and investment strategies in the Czech Republic. As economic agents' financial goals, risk tolerance, and overall financial situations evolve, it has become clear that insurance and investment strategies are not separate decisions but are linked.

Compulsory insurance and societal welfare

In the Czech Republic, compulsory insurance serves as a critical safety net, ensuring that specific risks are collectively addressed and vulnerable parties are protected. This type of insurance, which is required by law, ensures citizens' safety and well-being. Whether it's Motor Third-Party Liability insurance, Employer's Liability insurance, or mandatory health insurance for residents, these policies promote societal welfare and provide residents with access to essential services while reducing potential burdens on the public health system.

Individual autonomy and optional insurance

In contrast, optional insurance allows individuals and businesses to tailor their coverage to their specific needs and preferences. Recognizing the wide range of risks that citizens face, optional insurance provides flexibility and control over their financial security. Individuals can choose the coverage that best fits their needs, whether it's property insurance, life insurance, travel insurance, or liability insurance, promoting a sense of personal autonomy in risk management.

The investment-insurance synergy

One of the most intriguing discoveries is the synergy between investment and insurance strategies. Indi-

viduals and institutions in the Czech Republic can protect themselves against unforeseen risks while also laying the groundwork for future financial goals by combining these two financial approaches. This dual-purpose strategy establishes the foundation for long-term financial stability and growth, protecting against life's uncertainties.

The challenges and the way forward

While the coexistence of mandatory and optional insurance provides a unique balance between societal welfare and individual choice, it is not without problems. Some citizens may lack the financial literacy needed to make informed insurance and investment decisions, leaving them vulnerable to unscrupulous brokers. Individuals must seek reputable financial specialists who can provide expert guidance in line with their goals as the financial landscape evolves.

The role of financial literacy

According to studies, there are three types of clients in the Czech Republic: insurance experts, those with neutral knowledge, and financial illiterates. It is critical to close the financial literacy gap and promote a better understanding of insurance and investment principles. It enables individuals to make informed financial decisions and ensures that insurance and investment strategies are tailored to their specific needs.

The road ahead

In the face of globalization and a shifting economic landscape, the Czech Republic is poised to continue embracing insurance and investment as complementary tools for wealth accumulation and risk management. The interdependence of these strategies presents both opportunities and challenges, but citizens can successfully navigate this landscape with proper education, responsible planning, and a commitment to ethical financial practices.

As the country progresses, it is critical that policymakers, financial institutions, and individuals work together to strike a balance between legal obligations and individual choices. This synergy will not only protect citizens' financial well-being, strengthen their sense of autonomy, but will also contribute to the Czech Republic's overall economic growth and stability.

Finally, the relationship between insurance and investment in the Czech Republic exemplifies a complex yet critical aspect of modern financial management. In an ever-changing economic environment, it emphasizes the importance of adaptability, financial literacy, and informed decision-making. The Czech Republic can chart a course towards greater financial resilience and prosperity for its citizens and businesses by leveraging the synergies between insurance and investment.

The study's limitations stem from several factors. First, reliance on data solely from the Czech Statistical Office may not fully represent the intricacies of insurance and investment interactions; more comprehensive data, including individual-level investment choices and risk profiles, would be beneficial. Second, the VECM model used, while appropriate for cointegration analysis, might not fully capture complex or non-linear relationships. Third, the focus on the Czech Republic limits the generalizability of the findings; cross-national comparisons would strengthen the analysis. Finally, a deeper exploration of behavioral factors, beyond financial literacy, is needed to understand the psychological underpinnings of investment and insurance decisions.

To enhance future research, several avenues are recommended. First, a comparative analysis across multiple countries with differing economic structures and regulatory frameworks is crucial to establish the generalizability of observed relationships. Second, integrating qualitative data through interviews or focus groups could illuminate the decision-making processes of households and firms. Third, incorporating advanced econometric techniques, like panel data analysis or agent-based modeling, may improve accuracy and capture non-linear relationships more effectively. Fourth, adding longitudinal analysis with time-series data would reveal the dynamic evolution of the investment-insurance interaction over time. Finally, explicitly incorporating the influence of external shocks (like economic downturns or pandemics) would enhance the model's predictive power and robustness.

Acknowledgement

This paper is the result of scientific research conducted at University of Jan Evangelista Purkyně in Ústí nad Labem. As a part of the project “Analýza ekonomických bariér u 2SLGBTQ+ skupiny osob v souvislosti s dostupností zdravotní péče” [Analysis of economic barriers for the 2SLGBTQ+ group of people about access to healthcare], project number: UJEP-SGS-2024-45-005-2.

References

Alexa, J., Rečka, L. & Votápková, L. (2015). Czech Republic: Health system review. Health Systems in Transition, 17, 1-168.

Andrlova, B. & Korytarova, J. (2020). Management of Business Risk Hedging in Construction Contracts from the Perspective of Public Investors. Tehnički Glasnik, 14(2), 168-173. http://dx.doi.org/10.31803/tg-20200515215502.

Bahl, M. (2013). A Step-by-Step Guide to Writing a Scientific Review Article. Journal of Breast Imaging, 5(4), 480-485. http://dx.doi.org/10.1093/jbi/wbad028.

Bayar, Y., Dan Gavriletea, M. & Danuletiu, D.C. (2021). Does the insurance sector really matter for economic growth? Evidence from central and eastern European countries. Journal of Business Economics and Management, 22(3), 695-713. http://dx.doi.org/10.3846/jbem.2021.14287.

Beesley, C. (2020). The compensation hypothesis goes east: FDI and welfare state demand in post-communist countries. European Journal of Political Research, 59(2), 354-375. http://dx.doi.org/10.1111/1475-6765.12349.

Benedetini, S. & Nicita, A. (2012). The costs of avoiding accidents: Selective compliance and the „Peltzman effect" in Italy. International Review Of Law And Economics, 32(2), 256-270. http://dx.doi.org/10.1016/j.irle.2012.02.001.

Bilenko, Y. (2022). Economic growth and total factor productivity in central and eastern European countries between two global crises and beyond. Baltic Journal of Economic Studies, 8(4), 8-18. http://dx.doi.org/10.30525/2256-0742/2022-8-4-8-18.

Bílská, A. (2022). Analýza využití služeb finančního poradenství v ČR. [Bachelor thesis, Masaryk University]. https://is.muni.cz/th/k20n3/. (Accessed: 27.09.2024).

Blahušová, V. (2021). Tvorba finančního plánu domácnosti na základě analýzy instrumentů na finančním trhu v ČR. [Bachelor Thesis, Univerzita Tomáše Bati ve Zlíně]. http://hdl.handle.net/10563/48802. (Accessed: 27.09.2024).

Blaschke, P. (2022). Investment Incentives in the Environment of the Czech Republic. E+M Ekonomie a Management. 25(1), 4-23. http://dx.doi.org/10.15240/tul/001/2022-1-001.

Bolcha, P. & Zemplinerová, A. (2012). The Effect of Investment Incentives on Investment in Czech Republic. Politická Ekonomie, 60(1), 81-100. http://dx.doi.org/10.18267/j.polek.833.

Brada, J.C., Drabek, Z., Mendez, J.A. & Perez, M.F. (2019). National levels of corruption and foreign direct investment. Journal of Comparative Economics, 47(1), 31-49. http://dx.doi.org/10.1016/j.jce.2018.10.005.

Broukal, M. (2023). Právní aspekty investičního životního pojištění. [Bachelor Thesis, Charles University]. https://dspace.cuni.cz/handle/20.500.11956/178778. (Accessed: 27.09.2024).

Brůna, K. & Pour, J. (2023). Population aging and structural over/underinvestment. Economic Change and Restructuring, 56(4), 2339-2383. http://dx.doi.org/10.1007/s10644-023-09517-5.

Bryndová, L., Hroboň, P. & Tulejová, H. (2019). The 2018 risk-adjustment reform in the Czech Republic: Introducing Pharmacy-based Cost Groups and strengthening reinsurance. Health Policy, 123(8), 700-705 http://dx.doi.org/10.1016/j.healthpol.2019.05.017.

Budská, P. & Fleischmann, L. (2021). Development and Comparison of Competition and Concentration in the Banking and Insurance Sector in the Czech Republic in the Years 2007-2019. Politická Ekonomie, 69(1), 3-25. http://dx.doi.org/10.18267/j.polek.1308.

Chovancová, B., Dorocáková, D. & Linnertová, D. (2019). Two Investment Options for Bearish ETF Investors: Inverse ETF and Shorting ETF. International Journal of Financial Studies, 7(2), 31-45. http://dx.doi.org/10.3390/ijfs7020031.

Cohen, D., Nelson, S. & Rosenman, E. (2022). Reparative accumulation? Financial risk and investment across socio-environmental crises. Environment and Planning E: Nature and Space, 5(4), 2356-2382. http://dx.doi.org/10.1177/25148486211030432.

Czech Statistical Office. (2023). Národní účty. Databáze Národních Účtů. https://apl.czso.cz/pll/rocenka/rocenka.indexnu (Accessed: 27.09.2024).

Černá, M. (2009). Finanční poradenství v České Republice. [Bachelor Thesis, Masaryk University]. https://is.muni.cz/th/fygvl/Bakalarska_prace.pdf. (Accessed: 27.09.2024).

Česká Asociace Pojišťoven. (2023). Vývoj pojistného trhu. Statistiky. https://www.cap.cz/statistiky-prognozy-analyzy/vyvoj-pojistneho-trhu. (Accessed: 27.09.2024).

Činčalová, S. (2022). The impact of the level of corporate social responsibility on financial performance: Evidence from insurance firms in the Czech Republic. Insurance Markets and Companies, 12(1), 64-71. http://dx.doi.org/10.21511/ins.12(1).2021.06.

ČNB. (2023). Upozornění pro veřejnost k uzavírání smluv investičního životního pojištění. https://www.cnb.cz/cs/dohled-financni-trh/vykon-dohledu/upozorneni-pro-verejnost/upozorneni-pro-verejnost-k-uzavirani-smluv-investicniho-zivotniho-pojisteni/. (Accessed: 27.09.2024).

Damborský, M. (2023). Regional unemployment and investment incentives in Czechia. Geographical Journal, 75(2), 107-124. http://dx.doi.org/10.31577/geogrcas.2023.75.2.06.

Danieli, L. & Jakubik, P. (2022). Early Warning System for the European Insurance Sector. Ekonomický Časopis, 70(1), 3-21. http://dx.doi.org/10.31577/ekoncas.2022.01.01.

Dhillon, P. (2022). Paraminder. How to write a good scientific review article. The FEBS Journal, 289(13), 3592-3602. http://dx.doi.org/10.1111/febs.16565.

Fiala, P., Holmerova, I., Ruda, T. & Steffl, M. (2021). Financial balance of home nursing care providers in the Czech Republic. Health Economics Review, 11(1), 1-7. http://dx.doi.org/10.1186/s13561-021-00331-1.

Fidrmuc, J. & Horky, F. (2023). Experience and Firms' Financing Behavior: A Behavioral Perspective. German Economic Review, 24(3), 233-269, http://dx.doi.org/10.1515/ger-2022-0102.

Fisera, B., Horvath, R. & Melecky, M. (2023). Natural disasters and debt financing costs. Climate Change Economics, 14(3), 1-24. http://dx.doi.org/10.1142/S201000782350015X.

Formánková, S., Trenz, O., Faldík, O., Kolomazník, J. & Sládková J. (2019). Millennials' Awareness and Approach to Social Responsibility and Investment-Case Study of the Czech Republic. Sustainability, 11(2), 1-17. http://dx.doi.org/10.3390/su11020504.

Haq, M., Tripe, D. & Seth, R. (2022). Do traditional off-balance sheet exposures increase bank risk? Journal of International Financial Markets, Institutions and Money, 80(1), 1-22. http://dx.doi.org/10.1016/j.intfin.2022.101627.

Hodula, M., Janků, J., Časta, M. & Kučera, A. (2021). On the macrofinancial determinants of life and non-life insurance premiums. The Geneva Papers on Risk and Insurance - Issues and Practice, 1, 1-39. http://dx.doi.org/10.1057/s41288-021-00249-z.

Horáková, P. (2019). Pojištění motorových vozidel v České Republice. [Bachelor Thesis, Univerzita Pardubice]. https://dk.upce.cz/handle/10195/73698. (Accessed: 27.09.2024).

Jakubik, P. & Teleu, S. (2022). Suspension of insurers' dividends as a response to the COVID-19 crisis: evidence from the European insurance equity market. The Geneva Papers on Risk and Insurance - Issues and Practice, 47(4), 785-816. http://dx.doi.org/10.1057/s41288-021-00243-5.

Janda, J. (2011). Spořit nebo investovat? Grada Publishing, Prague.

Janouškovcová, M. (2022). Finanční gramotnost v České republice. [Master Thesis, University of West Bohemia]. https://otik.uk.zcu.cz/handle/11025/48547. (Accessed: 27.09.2024).

Jirák, J. (2023). Investování do investičních nástrojů. [Bachelor Thesis, University of West Bohemia]. https://dspace5.zcu.cz/handle/11025/52695. (Accessed: 27.09.2024).

Kafková, V. (2016). Nabídka investičních produktů pro fyzické osoby v České republice. [Bachelor Thesis, University of West Bohemia]. https://dspace.jcu.cz/handle/123456789/36289. (Accessed: 27.09.2024).

Kim, H.K. (2023). Connecting authors with readers: what makes a good review for the Korean Journal of Women Health Nursing. Korean Journal of Women Health Nursing, 29(1), 1-4. http://dx.doi.org/10.4069/kjwhn.2023.02.23.

Konieva, T. & Stavárek, D. (2023). The cost of equity of Ukrainian food processing companies as a measure of competitiveness. Journal of Competitiveness, 15(2), 1-20, http://dx.doi.org/10.7441/joc.2023.02.09.

Koval, N., Priamuhina, N. & Zhmurko, I. (2020). Analysis of economic-financial experience of the world countries in the system of pension insurance. Baltic Journal of Economic Studies, 6(1), 1-8. http://dx.doi.org/10.30525/2256-0742/2020-6-1-1-8.

Landovská, P. & Karbanová, M. (2023). Social costs of obesity in the Czech Republic. The European Journal of Health Economics, 24(8), 1321-1341.

Lu, X., Guo, J. & Zhou, H. (2021). Digital financial inclusion development, investment diversification, and household extreme portfolio risk. Accounting & Finance, 61(5), 6225–6261. http://dx.doi.org/10.1111/acfi.12863.

Maciak, M., Mizera, I., & Pešta, M. (2022). Functional profile techniques for claims reserving. ASTIN Bulletin, 52(2), 449-482, http://dx.doi.org/10.1017/asb.2022.4.

Maresova, P., Valis, M., Novotný, M., Pavelek, Z. & Kuca, K. (2018). The direct costs of multiple sclerosis-study in the Czech Republic. Neurological Sciences, 39(12), 2115-2121. http://dx.doi.org/10.1007/s10072-018-3551-7.

Marszk, A. & Lechman, E. (2020). Exchange-Traded Funds on European Markets: Has Critical Mass been Reached? Implications for Financial Systems. Entropy, 22(6), 686-719. http://dx.doi.org/10.3390/e22060686.

Mazurchenko, A., Zelenka, M. & Maršíková, K. (2022). Demand for employees' digital skills in the context of banking 4.0. E+M Ekonomie a Management, 25(2), 41-58. http://dx.doi.org/10.15240/tul/001/2022-2-003.

Meier, S., Rodriguez Gonzales, M. & Kunze, F. (2021). The global financial crisis, the EMU sovereign debt crisis and international financial regulation: lessons from a systematic literature review. International Review of Law and Economics. 65, 111-137. http://dx.doi.org/10.1016/j.irle.2020.105945.

OECD. (2017). Czech Republic: country health profile 2017, State of Health in the EU, OECD Publishing, Brussels. http://dx.doi.org/10.1787/9789264283336-en.

Odei, S.A., Stejskal, J. & Prokop, V. (2021). Understanding territorial innovations in European regions: Insights from radical and incremental innovative firms. Regional Science Policy & Practice, 13(5), 1638-1660. http://dx.doi.org/10.1111/rsp3.12446.

Oprea, F., Onofrei, M., Lupu, D., Vintila, G. & Paraschiv, G. (2020). The Determinants of Economic Resilience. The Case of Eastern European Regions. Sustainability, 12(10), 1-11. http://doi.org/10.3390/su12104228.

Palečková, I. & Přečková, L. (2023). Macroeconomic Determinants of Insurance Companies' Financial Stability: The Case of the Czech Republic. Studies in Business and Economics, 18(1), 218-230. http://dx.doi.org/10.2478/sbe-2023-0012.

Pekarová, Š. (2023). Finanční zajištění na stáří v České Republice. [Master Thesis, University of West Bohemia]. https://otik.uk.zcu.cz/handle/11025/52147. (Accessed: 27.09.2024).

Peleckienė, V., Peleckis, K., Dudzevičiutė, G. & Peleckis, K.K. (2019). The relationship between insurance and economic growth: evidence from the European Union countries. Economic Research-Ekonomska Istraživanja, 32(1), 1138-1151. http://dx.doi.org/10.1080/1331677X.2019.1588765.

Pinková, K. (2018). Investiční životní pojištění v České republice v porovnání s vybranou zemí. [Bachelor Thesis, Technical University of Liberec]. https://dspace.tul.cz/handle/15240/151452. (Accessed: 27.09.2024).

Pontines, V. (2020). A provincial view of consumption risk sharing in Korea: Asset classes as shock absorbers. Journal of the Japanese and International Economies, 55, 1-19. https://dx.doi.org/10.1016/j.jjie.2020.101063.

Probst, U. (2023). Health insurance for the good European citizen? Migrant sex workers' quests for health insurance and the moral economy of health care. Social Science & Medicine, 319, 1-8. https://dx.doi.org/10.1016/j.socscimed.2022.115190.

Riechetl, P. (2016). Investiční společnosti a fondy. [Bachelor Thesis, Charles University]. http://hdl.handle.net/20.500.11956/68105. (Accessed: 27.09.2024).

Říhová, P. & Svoboda, M. (2022). Is the Czech Capital Market Weak Form Efficient? [Conference proceedings]. 40th International Conference Mathematical Methods in Economics. Jihlava, Czechia.

Schwarz, J., Bartoň, P., Bolcha, P., Heřmanský, P. & Mach, P. (2007). Analýza investičních pobídek v České Republice. Faculty of Economics at University of Economics, Prague. http://www.mpo.cz/dokument34235.html. (Accessed: 27.09.2024).

Singh, M., Mittal, M., Mehta, P. & Singla, H. (2020). Personal values as drivers of socially responsible investments: a moderation analysis. Review of Behavioral Finance, 13(5), 543-565. http://dx.doi.org/10.1108/RBF-04-2020-0066.

Staněk, R., Krčál, O. & Čellárová, K. (2022). Pull yourself up by your bootstraps: Identifying procedural preferences against helping others in the presence of moral hazard. Journal of Behavioral and Experimental Economics, 98(1), 1-35. https://dx.doi.org/10.1016/j.socec.2022.101851.

Straková, J., Korauš, A., Váchal, J., Pollák, F., Černák, F., Talíř, M. & Kollmann, J. (2021). Sustainable Development Economics of Enterprises in the Services Sector Based on Effective Management of Value Streams. Sustainability. 13(16), 1-15. https://dx.doi.org/10.3390/su13168978.

Šrámková, A. (2021). Finanční služby pro zajištění na stáří. [Bachelor Thesis, Technical University of Liberec]. https://dspace.tul.cz/handle/15240/160113. (Accessed: 27.09.2024).

Thomson, S., Evetovits, T. & Cylus, J. (2018). Financial protection in high-income countries: a comparison of the Czech Republic, Estonia and Latvia. World Health Organization, Geneva.

Torri, G., Radi, D. & Dvořáčková, H. (2022). Catastrophic and systemic risk in the non-life insurance sector: A micro-structural contagion approach. Finance Research Letters, 47(1), 1-16. https://dx.doi.org/10.1016/j.frl.2022.102718.

Vodičková, P. (2006). Životní pojištění fyzických osob v ČR. [Master Thesis, Ambis University]. https://is.ambis.cz/th/h7l7l/Zivotni_pojisteni_fyzickych_osob_v_CR.pdf. (Accessed: 27.09.2024).

Vokoun, M. (2016). Innovation behaviour of firms in a small open economy: the case of the Czech manufacturing industry. Empirica, 43(1), 111-139. https://dx.doi.org/10.1007/s10663-015-9296-0.

Vokoun, M. (2020). The efficiency of public support of innovation activities of foreign-owned companies. SHS Web of Conferences, 74(1), 1-6. https://dx.doi.org/10.1051/shsconf/20207405028

Vu, D.H., Dehning, B. & Pavelková, D. (2023). Firm life cycle and foreign direct investment spillover effect: The case of the Czech Republic. Economics of Transition and Institutional Change, 31(2), 319-340.

Vu, H.D. & Pavelková, D. (2023). Determinants of profit repatriation: Evidence from the Czech Republic and OECD countries as a group. Structural Change and Economic Dynamics, 67, 58-68.

Wang, C., Brabenec, T., Gao, P. & Tang, Z. (2021). The Business Strategy, Competitive Advantage and Financial Strategy: A Perspective from Corporate Maturity Mismatched Investment. Journal of Competitiveness, 13(1), 164-181.

Zhao, Z., Pal, S., Mahalik, M.K. & Gozgor, G. (2024). Effects of financial and trade globalization on total factor productivity growth in emerging economies. Emerging Markets Finance and Trade, 60(2), 328-344.

Ženka, J., Slach, O. & Pavlík, A. (2019). Economic resilience of metropolitan, old industrial, and rural regions in two subsequent recessionary shocks. European Planning Studies, 27(11), 2288-2311.