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INSURANCE FRAUD RISK MANAGEMENT

'Opportunity makes thieves'

Abstract

Insurance fraud undoubtedly represents a significant challenge for insurance companies, bearing in mind that it leads to financial losses, market destabilization and loss of client confidence. Effective fraud risk management is critical to protecting insurance companies and the viability of the insurance industry. This paper explores the mechanisms used by insurance companies to identify, assess and mitigate fraud risks. This paper aims to provide insight into a comprehensive approach to insurance fraud risk management and identify critical points for dealing with threats in this sector. All this should serve to find proactive strategies.

Keywords: risk, fraud, management, insurance companies

JEL classification: G22, M41, G39

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I Introduction

Insurance frauds represent one of the most serious challenges to the sustainability of insurance companies due to their far-reaching impact.⁵ They encompass a wide range of illicit and unlawful activities that can result in changes in company ownership, loss of investor confidence, and ultimately, organizational bankruptcy.⁶ Given the growing number of fraud cases, their complexity on one hand, and the dynamic nature of the insurance industry on the other, risk management is becoming increasingly critical in this sector. Therefore, insurance companies require comprehensive risk management strategies that include both fraud risk assessment and fraud prevention.⁷ Despite the growing volume of studies on fraudulent activities, particularly in the area of fraud risk management and internal control systems in various organizations, there has been limited research deeply focused on this phenomenon. Some academic contributions that have advanced the field (e.g., Clarke⁸; Litton⁹), have been empirically scarce.

Fraud in insurance, one of the most serious issues faced by insurers, policyholders, and regulators, occurs in various forms depending on the type of policies and affects the operations of insurance companies to different extents. The manner in which policies are issued also varies significantly in terms of the level of detail required from potential policyholders. Management holds the responsibility for effective fraud risk management, as its occurrence increases insurance costs on one hand and undermines the financial strength of insurers on the other, that altogether has a negative impact on the availability of insurance services.

Moreover, there is an issue regarding the availability of data on the scope and structure of insurance fraud. Insurance companies, law enforcement, and other agencies do not give detailed information about the extent of insurance fraud. This may partly be explained by the fact that fraud, as a criminal offense, is difficult to detect and prove. In the past, there was a tendency to downplay issues related to various risks associated with their operations (at least publicly). As a result, there is a lack of information about the motivations of insurance fraud perpetrators, their

⁵ Stefan Milojević, Snežana Knežević, Vladimir Šebek, "Identification and Prevention of Fraudulent Financial Reporting", *Insurance Trends*, No. 1/2024, pp. 146–163.

⁶ Bosiljka Srebro, *at al.*, "Bankruptcy risk prediction in ensuring the sustainable operation of agriculture companies", *Sustainability*, No. 14/2021, 7712.

⁷ Although the Solvency II regulatory framework was created with the aim of contributing to a transparent risk management, for now it is certain that the risk of insurance fraud still exists. More details from the point of view of our law: Milo Marković, "Izazovi tržišta osiguranja u Srbiji na putu ka Solventnosti II", *Tokovi osiguranja*, No. 2/2024, pp. 333-361.

⁸ Michael Clarke, "Insurance fraud", *The British Journal of Criminology*, No. 1/1989, pp. 1–20.

⁹ Roger Litton, "Moral hazard and insurance fraud", *European Journal on Criminal Policy and Research*, No. 3/1995, pp. 30–47.

perception of the insurance industry, and patterns or scope of their fraudulent activities. In this context, it is emphasized that this does not provide an adequate basis for identifying a strategy for fraud prevention in fraud risk management.

This paper focuses on identifying critical points in fraud risk management in the insurance sector, which should serve as a basis for further research. The paper is structured as follows. The first section examines the nature of insurance fraud and its classification based on various criteria. The importance of internal control in fraud risk management is addressed in the second section. Traditional approaches and innovations in fraud prevention are the subject of the third section, while the fourth section presents research findings and discussion, followed by concluding remarks.

The research was conducted to gain a deeper understanding of the challenges related to fraud in the insurance sector, including its perpetrators, types, and mechanisms. Its significance stems from the need to improve the efficiency of insurance companies, increase user trust, and protect the integrity of the insurance system. The research questions, defined following the objectives and scope of the study, are as follows:¹⁰

1. Do insurance companies have effective internal systems for detecting and preventing fraud?
2. Do policyholders commit fraud?
3. Are insurance intermediaries and/or brokers perpetrators of fraud?
4. Do providers of complementary insurance services engage in fraudulent activities?

II The Nature of Insurance Fraud

The Insurance Information Institute¹¹ defines insurance fraud as „a deliberate deception committed by an insurance company or agent for financial gain“. According to Derrig,¹² insurance fraud is „a criminal act that involves obtaining financial benefits from an insurer or insured by misrepresenting facts or making false assumptions“. These criminal acts are known for being conducted remotely, meaning they do not require personal contact between the perpetrator and the victim. This reduces the perceived risk for the perpetrator, resulting in lowering both social and psychological barriers to engaging in such criminal activity. In fact, insurance fraud lacks any personal connection between the perpetrator and the victim.

¹⁰ Karen M. Gill, Adrian Woolley, & Martin Gill, „Insurance fraud: the business as a victim?“. *Crime at Work: Studies in Security and Crime Prevention Volume I*, Palgrave Macmillan UK, London, 2005, 73–82.

¹¹ The Insurance Information Institute, 2020, <https://www.iii.org/fact-statistic/facts-and-statistics-insurance-fraud>, accessed: 2. 9. 2024.

¹² Richard A. Derrig, „Insurance fraud“, *Journal of Risk and Insurance*, No. 3/2004, pp. 271–287.

Various criteria can be used to classify insurance fraud. One classification divides insurance fraud into opportunistic and premeditated. Opportunistic insurance fraud is associated with an individual's *post hoc* understanding that an insured event can be exploited for personal gain by providing false information or exaggerating a legitimate claim.¹³ Premeditated fraud, on the other hand, involves the deliberate attempt to fabricate a risk event that would be covered by an insurance policy.¹⁴ Comparing people's reactions to these types of fraud, Tennyson¹⁵ notes that opportunistic fraud is more common than premeditated fraud. According to Akomea-Frimpong et al.,¹⁶ insurance fraud can also be categorized as internal or external, based on the origin of the fraud – whether it occurs within or outside the insurance company. Olalekan Yusuf and Rasheed Babalola (2010)¹⁷ observe that two types of fraud occur within an insurance company, in the form of internal fraud: one committed by the insurer and the other by employees, both of which take place within the company. Akomea et al. (2016)¹⁸ point out two forms of external fraud: (1) fraud committed by consumers or policyholders against insurers (*policyholder fraud*) and (2) fraud committed against insurers by independent brokers or agents (*intermediary fraud*). External fraud takes the form of fraud committed by the policyholder/consumer against the insurer, either during the purchase of an insurance policy or when making a claim by obtaining false coverage or payment.^{19,20} Insurance fraud can also be classified as (1) internal vs. external, (2) underwriting vs. claims fraud, and (3) soft vs. hard fraud. Internal fraud is characterized by perpetrators who are insiders in the insurance industry, such as insurers, agents, brokers, managers, and other employees or representatives of the insurer. External fraud, on the other hand, involves deceptive activities committed by outsiders, such as claimants, policyholders, and beneficiaries involving immoral actions with insiders such as agents, brokers, or third-party service providers. "Underwriting fraud" includes deceptive activities during the renewal of insurance contracts and coverage, while "claim fraud" refers to the intentional submission of fictitious or false claims. Soft fraud occurs accidentally, as it is associated with unwanted opportunistic behavior by

¹³ K. Syamkumar et al., „Causes and effects and prevention of insurance fraud: A systematic literature review“, „Seibold Report Journal“, 6/2024, pp. 106–122.

¹⁴ Richard A. Derig, *Insurance fraud*, *Journal of Risk and Insurance*, No. 2002/3, pp. 271–287.

¹⁵ Sharon Tennyson, „Economic institutions and individual ethics: A study of consumer attitudes toward insurance fraud“, *Journal of Economic Behavior & Organization*, No. 2/1997, pp. 247–265.

¹⁶ Isaac Akomea-Frimpong, Charles Andoh, Eric Dei Ofosu-Hene, „Causes, effects and deterrence of insurance fraud: evidence from Ghana“, *Journal of Financial Crime*, No. 4/2016, pp. 678–699.

¹⁷ Tajudeen Olalekan Yusuf, Abdur Rasheed Babalola, „Control of insurance fraud in Nigeria: an exploratory study (case study)“, *Journal of Financial Crime*, No. 4/2009, pp. 418–435.

¹⁸ Isaac Akomea-Frimpong, Charles Andoh, Eric Dei Ofosu-Hene, pp. 678–699

¹⁹ Richard A. Derig, pp. 271–287

²⁰ Tajudeen Olalekan Yusuf, Abdur Rasheed Babalola, pp. 418–435

generally honest individuals and can depend on the language used by the interested party. However, hard fraud is similar to claims fraud and tends to involve carefully planned and meticulously executed schemes aimed at “scamming” the insurance, so to speak.

The diversity of *modus operandi* reflects different opportunities available to participants occupying various positions in the market, and can be categorized into four groups:

- a) *Intermediary fraud*: it is carried out by professionals such as independent brokers or insurance agents who mediate in the purchase of policies between buyers and providers. Examples include cases where exaggerated claims are submitted on behalf of policyholders, or fraudulent claims made by policyholders, and the sale of fraudulent policies.
- b) *Insurer’s fraud*: perpetrators disguise themselves as insurance companies and mislead clients by selling non-existent policies or submitting fraudulent policies to the issuer in order to fraudulently claim commissions.
- c) *Policyholder (or customer) fraud*: this refers to fraud against the insurer where the policyholder obtains incorrect coverage or finds ways to avoid payment. Examples include submitting exaggerated claims, falsifying details such as medical history, policies signed after initial meetings, car insurance fraud, and faking claims for death/kidnapping/murder by customers.
- d) *Internal fraud*: this involves employees within insurance companies exploiting their legitimate position to commit fraud. An example of such fraud is when employees collude with clients to facilitate payouts for personal gain.

Insurance fraud can occur in two main phases of a policy’s lifecycle: the beginning/renewal phase and the claims phase.²¹ Types of fraud that occur at the start of a policy include:

Fronting – This typically occurs in motor vehicle frauds — for instance, parents insuring a vehicle in their name (claiming ownership) on behalf of their child. In this way, it is possible to obtain insurance at a preferential rate or insure a risk that would otherwise be denied.

Misrepresentation – Here, an individual deliberately fails to inform the insurer about factors that could affect the risk or provides false or misleading information. Insurance can be granted where it might otherwise be denied, often at a preferential rate. For example, a claimant might tell the insurer that there were no claims in the past five years, when in fact a claim was filed during that period.

²¹ Gill, Karen Ann, *Insurance fraud: causes, characteristics and prevention*, University of Leicester, Thesis, 2002, <https://hdl.handle.net/2381/29106>, accessed: 2. 3. 2024.

False Insurance – This occurs when an individual or group seeks insurance for a non-existent risk, with the intention of later filing a claim for the policy.

Multiple policies – In this case, an individual takes out several policies with the intent to later intentionally submit multiple claims for the same loss.

Types of fraud that occur in the claims phase include the following:

Exaggeration – Exaggeration can take three forms:

- **Inflation of value:** when an individual purposely claims more than the actual value of an item.
- **Additional items:** where an individual adds one or more items to a claim.
- **Upgraded model:** where an individual claims an upgraded (and more expensive) model.

Multiple Claims – This type of fraud overlaps with multiple policies and can take two forms:

- An individual seeks compensation from more than one legitimate policy for the same loss; for example, a camera might be lost on vacation, and the policyholder claims the same loss from both their travel insurer and home insurer, receiving payment twice.
- An individual takes out several policies based on false statements to submit multiple claims for a fictitious or real loss.

False Claim – A false claim can be executed in two ways:

- An individual takes out valid insurance and later decides to file a false claim.
- A fraud is planned from the outset, and the false claim is part of the scheme.
Example: staged accidents.

III Internal Control and Its Effectiveness in Insurance

Measuring the extent of fraud in insurance is not simple. A large part of insurance fraud remains undetected, and not all frauds are well defined. For the insurer, it can be difficult to distinguish legitimate negotiation from intentional deception or mistake. Therefore, well-structured and appropriately positioned control systems are essential. A significant shift is taking place in the strategy for combating fraud. The focus is shifting from a 20% prevention/deterrence and 80% detection/investigation ratio to the opposite ratio. Some of the mistakes that insurance companies make in their efforts to prevent fraud include: failing to define specific responsibilities for fraud prevention; not setting clear goals or policies for fraud management; insufficiently assessing fraud risks, especially catastrophic ones; missing opportunities for cost savings through fraud reduction; and over-relying on inefficient controls.²²

²² Toby J. F. Bishop, „Preventing, deterring, and detecting fraud: What works and what doesn't“, *Journal of Investment Compliance*, No. 2/2004, pp. 120–127.

The effectiveness of internal control has been a subject of reporting by auditors within integrated audits. The risk management model currently used in auditing standards is designed for financial statement audits, not audits for internal control purposes, which is a key part of integrated audits. Given that process auditing (internal control) is conceptually different from result auditing (financial statements), it inevitably leads to the conclusion that auditors need a different risk management model to serve as the foundation for a conceptual framework for internal control audits (Akresh, 2010).

“Frauditing” (fraud audit; fraud investigation by auditors) has a unique position in dealing with complex issues such as bribery and corruption due to its focused approach, specialized skills, and comprehensive methodologies. “Frauditing” is a concept developed by Jonathan T. Marks in 1996²³ and represents a strategic examination of financial data and operational practices aimed at uncovering intentional frauds that jeopardize the integrity of the organization. The definition of fraud auditing was developed to highlight the proactive, comprehensive, and investigative nature of fraud as a specialized form of auditing specifically designed to fight and detect fraud within organizations. It incorporates a mix of forensic examination, analytical reviews, and investigative interviews to identify discrepancies, detect irregularities, and uncover both open and concealed frauds. As a proactive mechanism, fraud control serves as the cornerstone in safeguarding assets (especially internal control),²⁴ ensuring compliance, and promoting a culture of transparency and liability. The effectiveness and efficiency of internal controls are of particular significance in the public sector. This can be seen in the example of compliance audits with laws and regulations, where controls are aimed at reducing compliance risks, as well as audits of economy, efficiency, and effectiveness, where controls focus on risks that impede achieving their optimal values.²⁵

IV Traditional Approaches and Innovations for Fraud Prevention

In order to effectively manage the risk of fraud, a holistic approach must be applied, which considers all six fraud management activities, namely, (1) deterrence, (2) prevention, (3) detection, (4) investigation, (5) sanctioning and compensation, and

²³ Jonathan T. Marks, 2020, <https://www.linkedin.com/pulse/use-red-flags-detect-misconduct-fraud-even-bribery-jonathan-t-/>, accessed: 4. 9. 2024.

²⁴ Marko Špiler, *et al.*, „Does the Internal Control System Play a Strong Safeguarding Role Against Fraud in Local Communities?”, *Lex Localis: Journal of Local Self-Government*, 3/2024, pp. 188–208.

²⁵ Jozefina Beke Trivunac, Nebojša Jeremić, „Jedinstvene karakteristike interne revizije u javnom sektoru i Globalni standardi interne revizije“, *Revizor – časopis za upravljanje organizacijama, finansije i reviziju*, No. 2-3/2023, pp. 83–93.

(6) monitoring.²⁶ Measurement, detection, and prevention of fraud are advancing through the application of statistical models and intelligent technologies, which are used for analyzing databases in order to ensure the efficient resolution of issues related to various types of claims. At the same time, strategic analysis is applied to property liability and health insurance cases.²⁷

It is well-known that insurance fraud is a serious and growing problem, so it is indisputable that traditional approaches to combating fraud are inadequate. Considering the frequency of fraud in insurance in developed countries, private investigators and public authorities must continually learn how to use new technologies to help insurance companies effectively detect and prevent fraud, which would have a positive impact on the insurance industry. The increasing presence of digital services in this sector has prompted insurance companies to collect and analyze information to assess the risk of fraudulent activities effectively. However, this issue can be linked to the problem that intensifies under circumstances when control over the process is handed over to a developing intermediary services market.

Among other things, computer technology has significantly impacted administration and investigative techniques. There is significant pressure to identify activities that may appear fraudulent within a very short time frame to initiate the appropriate investigation. Advanced computer software opens up possibilities for creating more efficient strategies to successfully identify and distinguish legitimate claims from those that are not. Recently established computer platforms, such as spreadsheets, tables, big data, forensic analytics, text analytics, and expert systems, are increasingly being used as tools for fraud detection and prevention.²⁸ The longer fraud remains undetected, the greater the potential for loss and the fewer the chances for recovery. On the other hand, it is important to keep in mind that, with advancements in computer technology, fraud has become one of the highest-risk criminal activities worldwide, making early detection and prevention essential.²⁹ Today's technology used in the fight against fraud continues to expand and become more efficient, and therefore, it is important to evaluate how fraud schemes are changing. Software solutions have made the most progress in areas where learning from experience can increase efficiency in detecting fraudulent activities and identifying patterns.³⁰

²⁶ Štefan Furlan, Marko Bajec, „Holistic approach to fraud management in health insurance“, *Journal of Information and Organizational Sciences*, No. 2/2008, pp. 99–114.

²⁷ Richard A. Derrig, „Insurance Fraud“, *Journal of Risk & Insurance*, 3/2002, pp. 271–287.

²⁸ Rafidah Zainal, Ayub Md. Som, Nafsiah Mohamed, „A review on computer technology applications in fraud detection and prevention“, *Management & Accounting Review (MAR)*, No. 2/2017, pp. 59–72.

²⁹ *Ibidem*.

³⁰ „The State of Insurance Fraud Technology – A study of insurer use, strategies and plans for anti-fraud technology, November 2016“, SAS, *Coalition Against Insurance Fraud*, <https://www.the-digital-insurer.com/wp-content/uploads/2017/05/901-coalition-against-insurance-fraud-the-state-of-insurance-fraud-technology-105976.pdf>, accessed: 24. 9. 2024.

V Methodological Section

Empirical research was conducted using a survey method with a selected sample of 313 respondents. For the purpose of this research, a questionnaire was prepared and distributed online. The questionnaire used in this study consisted of 48 statements, which were grouped into five domains based on thematic similarities. Respondents indicated their level of agreement with each statement on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In the sample, 39.0% (122) of respondents were male, while 61.0% (191) were female. The largest group of respondents, 40.3% (126), belonged to the age group of 35 to 44 years, followed by 22.7% (71) who were under 35, 27.5% (86) in the 45 to 54 age group, and 9.6% (30) who were older than 54. Regarding educational level, the majority of respondents, 63.3% (198), had completed a university degree, while 13.1% (41) had completed high school, 21.2% (66) held a master's degree, and 2.6% (8) had a PhD. When it comes to work experience, the largest number of respondents, 40.6% (127), had between 11 and 20 years of work experience, 26.5% (83) had between 0 and 5 years, 14.7% (46) had between 6 and 10 years, and 18.2% (57) had more than 20 years of experience. In the sample, 29.4% (92) of respondents worked in sales and brokerage, while 16.9% (53) worked in risk assessment and liquidation. In the finance and accounting sector, 4.8% (15) of respondents were employed, and 9.9% (31) worked in legal and regulatory issues. Additionally, 3.2% (10) worked in marketing and customer service, while the largest group, 35.8% (112), worked in management and administration. The demographic characteristics of the respondents are presented in Table 1.

Table 1. Demographic Characteristics of Respondents

DEMOGRAPHIC CHARACTERISTICS	N (%)
Gender	
Male	122 (39,0%)
Female	191 (61,0%)
Age	
Under 35 years	71 (22,7%)
35-44 years	126 (40,3%)
45-54 years	86 (27,5%)
Over 54 years	30 (9,6%)
Education	
High school	41 (13,1%)
University degree	198 (63,3%)
Master's degree	66 (21,2%)
PhD	8 (2,6%)

Work experience	
0-5 years	83 (26,5%)
6-10 years	46 (14,7%)
11-20 years	127 (40,6%)
More than 20 years	57 (18,2%)
Job position	
Sales and brokerage	92 (29,4%)
Risk assessment and liquidation	53 (16,9%)
Finance and accounting	15 (4,8%)
Legal and regulatory issues	31 (9,9%)
Marketing and customer service	10 (3,2%)
Management and administration	112 (35,8)

For data analysis in this study, SPSS software (IBM SPSS Statistics), version 20, was used. The data collected were analyzed using descriptive statistics methods. The results of the questionnaire were presented as frequencies, i.e. the number of respondents who selected specific answers, and as the percentage of their representation. Pearson's correlation coefficient was used to examine the relationship between numerical variables. Reliability and internal consistency of the variables were assessed using the Cronbach's alpha coefficient. Linear regression was applied to examine the relationship between independent variables and the dependent variable.

VI Results and Discussion

The first domain, "Measurement of internal factors" included a total of eight statements, with the distribution of responses based on the level of agreement and the average value for each statement presented in Table 2. The average values for the statements within the first domain ranged from a minimum of 1,96 for the statement *The insurance company does not develop new services* to a maximum of 4,08 for the statement *The insurance company has a complex organizational structure*. This indicates that respondents most strongly perceive the complexity of the organizational structure and the presence of a centralized management system (3,56), while they least agree with statements pointing to a lack of new service development, operational performance stability (2,00), and investment in employee qualifications (2,10). Other statements, such as inadequate technological infrastructure (2,36) and a reward system that does not meet employees' needs (2,85), have average values suggesting neutrality or slight disagreement.

Table 2. Distribution of responses to statements in the domain “Measurement of internal factors”

	1 – Strongly Disagree	2 – Mostly Disagree	3 – Neither Agree Nor Disagree	4 – Mostly Agree	5 – Completely Agree	Average Value ± SD
T1: The insurance company has a complex organizational structure	6 (1,9)	16 (5,1)	48 (15,3)	119 (38,0)	124 (39,6)	4,08±0,961
T2: The organizational structure of the insurance company lacks a clear separation of duties and responsibilities	103 (32,9)	93 (29,7)	49 (15,7)	47 (15,0)	21 (6,7)	2,33±1,260
T3: The insurance company’s reward and incentive system does not meet employees’ needs	52 (16,6)	68 (21,7)	94 (30,0)	72 (23,0)	27 (8,6)	2,85±1,200
T4: The insurance company has a centralized management system	17 (5,4)	32 (10,2)	87 (27,8)	112 (35,8)	65 (20,8)	3,56±1,093
T5: The insurance company has inadequate technological infrastructure	98 (31,3)	82 (26,2)	72 (23,0)	44 (14,1)	17 (5,4)	2,36±1,212
T6: The operational performance of the insurance company is unstable	135 (43,1)	85 (27,2)	62 (19,8)	19 (6,1)	12 (3,8)	2,00±1,105
T7: The insurance company does not invest in enhancing employee qualifications or provide professional and technical training	122 (39,0)	92 (29,4)	58 (18,5)	29 (9,3)	12 (3,8)	2,10±1,134
T8: The insurance company does not develop new services	143 (45,7)	90 (28,8)	42 (13,4)	26 (8,3)	12 (3,8)	1,96±1,127

The responses to the eight statements were collected, and a score for this domain was calculated for each respondent. The average total score for the domain was 21,24±5,613, out of a maximum possible score of 40. These results indicate that, while respondents do not fully agree with statements pointing to shortcomings in technological infrastructure, operational performance stability, and employee training investment, they do recognize the complexity of the organizational structure.

The second domain, *Statements on Policyholder Factors*, included a total of seven statements (Table 3). The average values for the statements within this domain show that respondents generally disagree with statements suggesting problems in dealings with policyholders. The lowest average value was for the statement *The insurance company rarely reviews and updates the content and terms of its insurance contracts* (2,02), while the highest was for *Policyholders exaggerating the size of claims* (3,16). The average total score for the domain was 17,35±5,200, out of a possible 35. This result indicates a moderate perception of issues related to policyholder factors.

Table 3. Distribution of Responses to Statements in the Domain “Statements on Policyholder Factors”

	1 – Strongly Disagree	2 – Mostly Disagree	3 – Neither Agree Nor Disagree	4 – Mostly Agree	5 – Completely Agree	Average Value ± SD
T9: The insurance company rarely reviews and updates the content and terms of its insurance contracts	132 (42,2)	89 (28,4)	57 (18,2)	23 (7,3)	12 (3,8)	2,02±1,116
T10: The insurance company issues incomplete insurance policies, requiring additional information upon client request	147 (47,0)	77 (24,6)	49 (15,7)	31 (9,9)	9 (2,9)	1,97±1,133
T11: Policyholder claims are often fraudulent	72 (23,0)	110 (35,1)	86 (27,5)	35 (11,2)	10 (3,2)	2,36±1,054
T12: Payments made to policyholders represent unexpected amounts	107 (34,2)	84 (26,8)	90 (28,8)	25 (8,0)	7 (2,2)	2,17±1,060
T13: Policyholders exaggerate the size of claims	25 (8,0)	54 (17,3)	110 (35,1)	93 (29,7)	31 (9,9)	3,16±1,078
T14: Occasionally, there is collusion among professionals in favor of policyholders	63 (20,1)	67 (21,4)	98 (31,3)	55 (17,6)	30 (9,6)	2,75±1,233
T15: Policyholders fail to meet deadlines specified in their insurance policies	30 (9,6)	79 (25,2)	115 (36,7)	70 (22,4)	19 (6,1)	2,90±1,047

The average values for the statements within the third domain *Measurement of Intermediary Products and Broker Factors*, as well as the distribution of responses, are presented in Table 4. The results show that respondents mostly agree with the statement that the majority of significant insurance services are offered through the company, agents, and brokers (3,77), as well as with the statements that the company uses a large number of agents and brokers to provide insurance services (3,56) and that agents have the authority to sign contracts (3,57). The statement *Agents and brokers receive premiums and issue false documents* has the lowest average value (2,02). The average value of the total score for this domain is 22,29±3,856, out of a maximum of 35. This result suggests that respondents recognize the importance of intermediaries and brokers in providing insurance services, but also indicates the possibility of ambiguities or concerns regarding their activities and transparency, which may require further investigation and analysis.

Table 4. Distribution of responses to statements from the domain “Measurement of Intermediary Products and Broker Factors”

1 – Strongly Disagree	2 – Mostly Disagree	3 – Neither Agree Nor Disagree	4 – Mostly Agree	5 – Completely Agree	Average Value ± SD	1 – Strongly Disagree
T16: Most significant insurance services are offered through the company, agents, and brokers						
17 (5,4)	17 (5,4)	67 (21,4)	132 (42,2)	80 (25,6)	3,77±1,061	
T17: Brokers keep records that contain the names of clients						
13 (4,2)	19 (6,1)	152 (48,6)	75 (24,0)	54 (17,3)	3,44±0,982	
T18: Agents and brokers receive premiums and issue false documents						
140 (44,7)	58 (18,5)	90 (28,8)	19 (6,1)	6 (1,9)	2,02±1,074	
T19: The company uses a large number of agents and brokers to provide insurance services						
7 (2,2)	23 (7,3)	121 (38,7)	113 (36,1)	49 (15,7)	3,56±0,919	
T20: Representatives have the authority to sign contracts						
27 (8,6)	20 (6,4)	103 (32,9)	74 (23,6)	89 (28,4)	3,57±1,210	
T21: Intermediaries and brokers charge commissions and premiums						
32 (10,2)	21 (6,7)	116 (37,1)	81 (25,9)	63 (20,1)	3,39±1,180	
T22: The number of uncollected claims from policyholders has significantly increased						
63 (20,1)	70 (22,4)	137 (43,8)	32 (10,2)	11 (3,5)	2,55±1,034	

The fourth domain covers the respondents’ views on the behavior of complementary service providers (“Measurement of Complementary Service Providers”). The average values for the statements within this domain, as well as the distribution of responses, are presented in Table 5. According to the results, the average values indicate a moderate level of disagreement or neutral views when it comes to statements such as inflating claims and intentionally issuing incorrect invoices. The highest level of agreement was achieved for statements suggesting that some actions of these service providers might be unnecessary, where the average score was 3,04. The average value of the total score for the domain *Measurement of Complementary Service Providers* was 14,08±3,851, out of a maximum of 25, indicating a lower level of agreement among respondents with statements about potential irregularities among complementary service providers. These results suggest that respondents are aware of potential issues but do not perceive them as ubiquitous or seriously threatening the transparency and efficiency of insurance services delivery.

Table 5. Distribution of responses to the statements from the domain “Measurement of Complementary Service Providers”

	1 – Strongly Disagree	2 – Mostly Disagree	3 – Neither Agree Nor Disagree	4 – Mostly Agree	5 – Completely Agree	Average Value ± SD
T23: Complementary service providers (related services) inflate claims	40 (12,8)	47 (15,0)	145 (46,3)	58 (18,5)	23 (7,3)	2,93±1,067
T24: Complementary service providers intentionally issue incorrect invoices	81 (25,9)	56 (17,9)	133 (42,5)	34 (10,9)	9 (2,9)	2,47±1,077
T25: Occasionally, cases of insurance services being provided by non-insurers arise	61 (19,5)	48 (15,3)	138 (44,1)	48 (15,3)	18 (5,8)	2,73±1,116
T26: Some actions taken by complementary service providers are unnecessary	24 (7,7)	36 (11,5)	177 (56,5)	54 (17,3)	22 (7,0)	3,04±0,936
T27: The company uses a large number of complementary service providers	25 (8,0)	40 (12,8)	195 (62,3)	43 (13,7)	10 (3,2)	2,91±0,841

The next domain includes statements that examine the presence of “red flags” in business operations, or indicators that could signal potential risks and problems in financial practices and accounting (“Red flags”). The average values, as well as the distribution of responses for the statements within this domain, are shown in Table 6. The analysis of the responses shows that the highest level of agreement was achieved with the statement regarding the existence of barriers that hinder efficient business operations, with an average value of 2,94±1,207. In contrast, the lowest level of agreement, 2,42, was observed with the statement regarding an overly complex organizational structure involving unusual legal entities or management lines, indicating that participants identified the complexity of the structure as the least significant obstacle. Responses to these statements were summed to obtain an overall score for each respondent in this domain. The average total score for the domain, which includes 21 statements, was 54,51±17,870, out of a possible maximum of 105. This value indicates the average level of agreement among respondents with statements indicating the presence of “red flags” in business operations.

Table 6. Distribution of responses to statements in the “Red flags” domain

	1 – Strongly Disagree	2 – Mostly Disagree	3 – Neither Agree Nor Disagree	4 – Mostly Agree	5 – Completely Agree	Average Value ± SD
T28: The dominant behavior of management in dealing with auditors, particularly attempts to influence the scope of the auditors’ work	73 (23,3)	43 (13,7)	148 (47,3)	40 (12,8)	9 (2,9)	2,58±1,068
T29: Significant, unusual, or very complex transactions particularly occur near the end of the year	62 (19,8)	53 (16,9)	131 (41,9)	49 (15,7)	18 (5,8)	2,71±1,125

T30: Significant related-party transactions not involved in regular business operations or business with related parties that are not audited or audited by another company	66 (21,1)	43 (13,7)	176 (56,2)	19 (6,1)	9 (2,9)	2,56±0,982
T31: Frequent disputes with the current or previous auditor regarding accounting, auditing issues, or reporting matters	80 (25,6)	36 (11,5)	165 (52,7)	25 (8,0)	7 (2,2)	2,50±1,029
T32: Repeated attempts by management to justify marginal or inadequate accounting based on materiality	87 (27,8)	34 (10,9)	151 (48,2)	30 (9,6)	11 (3,5)	2,50±1,101
T33: Inadequate monitoring of significant internal controls	93 (29,7)	52 (16,6)	116 (37,1)	41 (13,1)	11 (3,5)	2,44±1,148
T34: Dominant management by one person or a small group in a business not controlled by owners without compensation controls	81 (25,9)	39 (12,5)	145 (46,3)	33 (10,5)	15 (4,8)	2,56±1,125
T35: Excessive pressure on operational management or staff to achieve financial goals (sales and profitability as incentive goals) exerted by the board of directors or CEOs	48 (15,3)	40 (12,8)	120 (38,3)	80 (25,6)	25 (8,0)	2,98±1,149
T36: Significant bank accounts or subsidiaries or branches of companies in tax jurisdictions that seem to have no clear business justification	87 (27,8)	41 (13,1)	152 (48,6)	23 (7,3)	10 (3,2)	2,45±1,070
T37: Inefficient accounting and information systems	93 (29,7)	53 (16,9)	109 (34,8)	44 (14,1)	14 (4,5)	2,47±1,182
T38: Failure by management to promptly correct a report regarding known internal control conditions	49 (15,7)	138 (44,1)	25 (8,0)	11 (3,5)		2,42±1,092
T39: Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend	41 (13,1)	162 (51,8)	44 (14,1)	14 (4,5)		2,77±1,032
T40: Repeated negative cash flows from operations or inability to generate cash flows during earnings reports and earnings growth	34 (10,9)	169 (54,0)	20 (6,4)	11 (3,5)		2,52±1,047
T41: Unrealistic profitability or expectations at the trend level by management in overly optimistic press releases or annual report messages	51 (16,3)	139 (44,4)	38 (12,1)	20 (6,4)		2,67±1,125
T42: High turnover or hiring of inefficient personnel in accounting, internal auditing, or in IT	48 (15,3)	125 (39,9)	53 (16,9)	23 (7,3)		2,75±1,174
T43: Unreasonable demands on the auditor, such as unreasonable time limits regarding the completion of the audit or issuance of the audit report	42 (13,4)	159 (50,8)	21 (6,7)	16 (5,1)		2,56±1,082
T44: Assets, liabilities, revenues, or expenses based on significant estimations that involve subjective judgments or uncertainties that are difficult to verify	30 (9,6)	179 (57,2)	29 (9,3)	11 (3,5)		2,66±1,017
T45: Rapid growth or unusual profitability, especially compared to other companies in the insurance industry						

	48 (15,3)	141 (45,0)	34 (10,9)	15 (4,8)	2,57±1,110
T46: Excessive influence of non-financial management in selecting accounting principles or determining significant estimations					
	43 (13,7)	152 (48,6)	30 (9,6)	8 (2,6)	2,50±1,053
T47: Too complex organizational structure which involves unusual legal entities or management lines					
	60 (19,2)	126 (40,3)	33 (10,5)	8 (2,6)	2,42±1,077
T48: Do you think there are obstacles that hinder the efficient performance of the work?					
	52 (16,6)	103 (32,9)	76 (24,3)	30 (9,6)	2,94±1,207

The total score, obtained by summing the scores of all five domains (a total of 48 statements), reflects various aspects covered by the research. The average value of this total score was $129,47 \pm 29,27$, out of a possible maximum of 240, which indicates moderate agreement among respondents with the statements across all domains. The minimum score was 53, while the maximum was 208, showing considerable variation in the perception and assessments of different risk factors and measures in insurance among the respondents.

The results indicate the presence of internal consistency across most domains and a high level of reliability for the entire questionnaire. The domains *Measurement of Internal Factors* ($\alpha=0,766$), *Statement about Insurer Factors* ($\alpha=0,798$), and *Measurement of Complementary Service Providers* ($\alpha=0,818$) show good reliability, considering that Cronbach's alpha values are above 0,7, suggesting that the items in these domains correlate well with each other. The domain *Measurement of Intermediaries and Broker Factors* ($\alpha=0,538$) shows low reliability, while the *Red Flags* domain ($\alpha=0,967$) has extremely high reliability. The entire questionnaire shows high reliability ($\alpha=0,953$), indicating the overall consistency of the entire questionnaire (Table 7).

Table 7. Cronbach's Alpha Values by Domain and for the Entire Questionnaire

DOMAIN	Cronbach's alpha
Measurement of internal factors	0,766
Statement about insurer factors	0,798
Measurement of intermediaries and broker Factors	0,538
Measurement of complementary service Providers	0,818
Red flags	0,967
ENTIRE QUESTIONNAIRE	0,953

The domain *Measurement of Internal Factors* has a strong positive statistically significant correlation with the overall score ($r=0,703$, $p=0,000$), indicating that responses in this domain are significantly related to the overall results of the questionnaire, which is also the case for the domain *Statement on Insured Factors*

($r=0,768$, $p=0,000$). The domain *Measurement of Intermediary Products and Broker Factors* shows a moderate correlation ($r=0,531$, $p=0,000$) with the overall score. The correlation coefficient is lower compared to other domains, which aligns with the lower reliability of this domain. Such results potentially suggest that there is greater variability in responses or lower relevance of this domain to the overall score. The domain *Measurement of Complementary Service Providers* has a strong positive significant correlation with the overall score ($r=0,695$, $p=0,000$), while the *Red flags* domain shows a very high correlation with the overall score ($r=0,929$, $p=0,000$), indicating that this domain has the greatest impact on the overall result. Given the high Cronbach's alpha for this domain (0,967), we can conclude that the responses in this domain are highly homogeneous and extremely relevant for the entire questionnaire. These results can be visualized in the graphs presented in Figure 1.

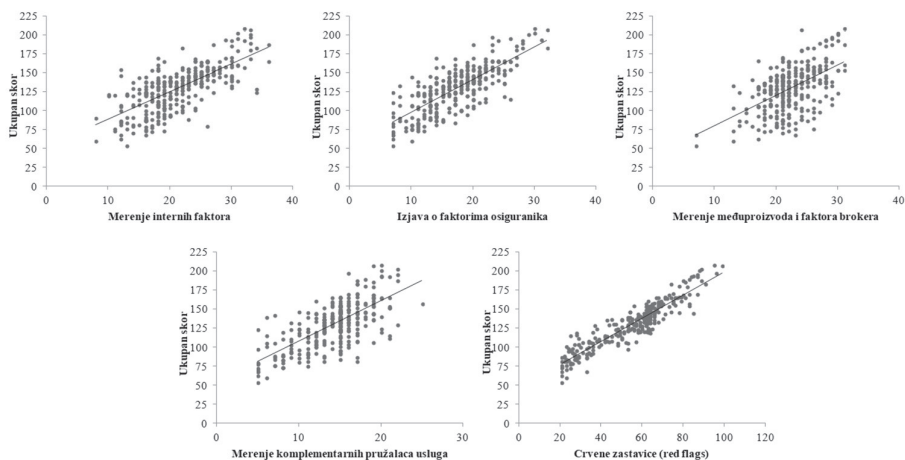


Figure 1. Correlation between individual domains and the overall score (measurement of internal factors, statement on insured factors, measurement of intermediary products and broker factors, measurement of complementary service providers, and “red flags”).

Analysis of factors affecting domain scores and overall score

By examining the data in Table 8, several conclusions can be made. In terms of gender, a statistically significant difference was observed only in the domain *Measurement of Complementary Service Providers*, where men had significantly higher values than women (14,71 versus 13,68, $p=0,020$), indicating a higher degree of agreement with statements about potential irregularities in the behavior of these service providers, such as inflating claims or issuing incorrect invoices. Regarding

age, the results show significant differences between age groups only for the domain *Measurement of Internal Factors* ($p=0,003$). Respondents older than 54 years had the highest average score in this domain ($23,87\pm 6,19$), suggesting that older employees experience more challenges within the organizational structure of the insurance company. This may indicate that older respondents, compared to younger respondents, perceive the complexity of the organizational structure, inadequate technological infrastructure, or instability in operational performance as more significant issues. The results showed that education level significantly influences the perception of internal factors within the insurance company, as well as the overall score. The group of respondents with a PhD had the highest average score in the *Measurement of Internal Factors* domain ($26,13\pm 5,41$), indicating that highly educated individuals assess the complexity of the organizational structure, technological infrastructure, and company operational performance more critically. On the other hand, the group with a high school education had the lowest average score ($20,49\pm 6,01$). Regarding the overall score, the group with a PhD had the highest average value ($155,13\pm 30,518$), suggesting their greater criticality or awareness of all aspects examined through the questionnaire. No statistically significant differences were found for other domains between groups with different educational levels. The results showed that groups with 11 to 15 years of work experience and more than 16 years of work experience had the highest average values in most domains. However, the results indicated that no statistically significant differences were observed between groups in any of the analyzed domains. The results show that job position significantly affects perceptions in three domains and the overall score. The highest average scores in the *Measurement of Internal Factors*, *Statement on Insured Factors*, and *Red flags* domains, as well as in the overall score, were found among respondents whose positions were related to finance and accounting. This suggests that employees in these sectors assess various aspects of business operations more critically, including the organizational structure, insured factors, and risks within the company. On the other hand, employees in management and administration had the lowest average in the *Measurement of Internal Factors* domain ($19,77\pm 5,035$), which indicates that they may not notice the same challenges or are less critical to internal processes compared to employees in other sectors. Respondents employed in sales and brokerage positions had the lowest average in the *Statement on Insured Factors* domain ($16,53\pm 5,381$), which may indicate that they evaluate the factors affecting insured parties differently, likely due to their direct interaction with clients. Respondents working in legal and regulatory fields had the lowest scores both in the *Red flags* domain ($49,68\pm 17,099$) and in the overall score ($122,97\pm 29,150$), which may indicate that they are less inclined to recognize potential irregularities or risks within the insurance company, a point that should be given special attention.

Table 8. Impact of Demographic Characteristics on Domain Scores and Total Score

	D1	D2	D3	D4	D5	TOTAL SCORE
Gender^a						
Male	21,04±5,843	17,98±5,053	22,28±3,577	14,71±4,097	53,69±18,989	129,70±30,547
Female	21,38±5,473	16,94±5,265	22,30±4,034	13,68±3,640	55,04±17,149	129,32±28,511
Age^b						
Under 35	22,35±6,148	16,80±6,413	22,45±4,519	13,89±4,348	56,80±19,854	132,30±35,210
35-44 years	20,17±4,915	17,27±4,524	21,94±3,655	14,11±3,402	54,57±16,012	128,06±24,624
45-54 years	20,99±5,540	17,48±4,891	22,43±3,394	13,84±3,979	51,86±17,335	126,59±27,786
Over 54	23,87±6,191	18,57±5,569	23,00±4,267	15,10±4,046	56,43±21,470	136,97±35,211
Education^b						
High School	20,49±6,009	16,44±5,540	21,59±3,886	13,78±3,410	56,22±17,362	128,51±30,351
University	21,13±5,501	17,29±5,196	22,25±3,900	14,06±3,838	53,49±17,501	128,22±28,478
Master's Degree	21,47±5,548	17,65±5,160	22,64±3,550	14,26±4,085	54,71±18,546	130,73±30,005
PhD	26,13±5,410	20,88±2,949	24,13±4,853	14,75±4,892	69,25±20,091	155,13±30,518
Work experience^b						
0-5 years	21,75±5,953	16,67±5,990	21,82±4,625	14,06±4,148	57,69±18,766	131,99±33,180
6-10 years	20,87±5,999	17,43±5,402	22,24±3,401	13,87±3,403	54,43±16,412	128,85±28,470
11-20 years	20,59±5,095	17,32±4,402	22,49±3,354	14,12±3,670	53,17±16,766	127,65±25,328
More than 20 years	22,35±5,789	18,30±5,431	22,58±4,053	14,19±4,219	52,95±19,829	130,37±32,398
Job position^b						

Sales and brokerage positions	22,07±5,930	16,53±5,381	22,16±3,993	13,87±3,920	58,50±17,486	133,13±30,350
Risk assessment and liquidation	22,19±5,533	18,26±4,221	21,70±3,061	15,00±2,889	53,89±15,207	131,04±22,587
Finance and Accounting	24,87±5,730	21,60±5,262	24,60±3,621	15,60±4,323	66,27±15,746	152,93±31,891
Legal and Regulatory issues	20,65±5,419	17,32±5,192	21,61±3,499	13,71±4,398	49,68±17,099	122,97±29,150
Marketing and customer service	21,70±5,964	18,20±6,015	22,40±3,098	14,70±3,498	61,00±17,397	138,00±30,467
Management and Administration	19,77±5,035	16,94±5,157	22,54±4,185	13,66±3,951	50,71±18,625	123,63±29,015

^a Independent Samples t-test ^b One-Way ANOVA

The results of the linear regression (Table 9) show that demographic factors significantly affect the scores in several domains and the overall score. In the domain *Measurement of Internal Factors*, education is a significant $\beta=0,128$, $p=0,024$, 95% CI: 0,147–2,042), with higher levels of education having a positive impact on perceptions, while the position in the job had a negative impact ($\beta=-0,212$, $p<0,001$, 95% CI:-0,859–(-0,251)).

In the domain *Measurement of Complementary Service Providers*, gender stood out as a significant factor ($\beta=-0,142$, $p=0,014$, 95% CI: -2,011–(-0,233)), with men showing a higher tendency to report irregularities. In the *Red flags* domain, the position at work is a significant predictor ($\beta=-0,152$, $p=0,011$, 95% CI: -2,245–(-0,289)). Regarding the overall score, education had a significant positive effect ($\beta=0,103$, $p=0,042$, 95% CI: 0,412–9,600), while the position at work had a negative impact ($\beta=-0,151$, $p = 0,012$, 95% CI: -3,672–(-0,460)). On the other hand, the regression models for the *Statement on Insured Factors* ($p=0,102$), brokers, and *Measurement of Intermediates and Broker Factors* ($p=0,417$) were not statistically significant.

Table 9. Results of Linear Regression for the Observed Domains – Measurement of Internal Factors, Measurement of Complementary Service Providers, and Red Flags

	B	β	P	95% confidence interval
Measurement of Internal Factors				
Education	1,094	0,128	0,024	0,147-2,042
Job Position	-0,555	-0,212	0,000	-0,859-(-0,251)
Measurement of Complementary Service Providers				
Gender	-1,122	-0,142	0,014	-2,011-(-0,233)
Red flags				
Job Position	-1,267	-0,152	0,011	-2,245-(-0,289)
Total Score				
Education	4,594	0,103	0,042	0,412-9,600
Job Position	-2,066	-0,151	0,012	-3,672-(-0,460)

Within the domain of measuring internal factors, the highest percentage of respondents agreed with statements indicating that the insurance company has a complex organizational structure and a centralized management system. This suggests that the organization and management of the company are structured in a way that enables control and oversight, which is crucial for the effective detection and prevention of fraud. On the other hand, most respondents disagreed with the statements that the insurance company has inadequate technological infrastructure and that operational performance is unstable. These results address *the first*

research question, indicating that insurance companies possess effective internal systems capable of detecting and preventing fraud. Regarding the statement that insurance claims are often fraudulent, most respondents disagreed, whereas the claim that policyholders tend to exaggerate the value of their claims received a high level of agreement. These data pertain to *the second research question*, suggesting that insurance companies do face instances of fraud to some extent. Although most respondents do not agree with statements about direct fraud, certain aspects, such as claim exaggeration and deadline violations, indicate potential cases of policyholder manipulation, implying that fraud does exist to some degree. These data provide an answer to *the third research question*: insurance companies rarely encounter fraud perpetrated by intermediaries and brokers. Most respondents disagreed with statements about fraud involving false documents or unpaid claims. This implies that insurance intermediaries and brokers are generally reliable and rarely face fraud in their operations. Most respondents were neutral about statements suggesting that complementary service providers inflate claims, issue inaccurate invoices, or undertake unnecessary actions. These results address *the fourth research question*, indicating that insurance companies generally do not encounter fraud committed by complementary service providers.

VI Conclusion

Fraud is a significant issue for insurance companies, and the only way to combat it is by using specialized fraud management systems. The current research community has made substantial efforts in developing various fraud detection techniques, often neglecting other equally important fraud management activities. It is necessary to openly and constructively discuss the risk of fraud at all levels within the organization. Promoting a positive fraud risk management culture stands out as a particularly important activity. Combating insurance fraud benefits society as a whole.

As with all thorough research, a deeper understanding of the process raises additional questions. It is important to consider the potential subjectivity of respondents in providing answers, as well as the sample size, in order to discuss any generalization of the results.

A risk management strategy should be strongly focused on outcomes that help insurance organizations achieve their goals. The risk of fraud should be evaluated in the context of its potential value (both creation and destruction) and its impact on reputation, which is a particularly sensitive issue for financial institutions. Additionally, it is crucial to emphasize the importance of compliance with regulatory standards, strengthening internal controls, and employee education. Together, these represent the key elements of fraud prevention upon which a fraud risk management strategy should be based. Fraud control is a much more complex and challenging issue than is commonly assumed.

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