

# Testing the Zero-Sum Game Hypothesis: An Examination of Motor Vehicle Insurance Uptake among BA ISAGO Staff Members

Olebogeng Mokgware, Lecturer, : Department of Risk Management, Insurance and Actuarial Sciences  
BA ISAGO University, Botswana

Roland Moyo, Lecturer, : Department of Risk Management, Insurance and Actuarial Sciences  
BA ISAGO University, Botswana

**Abstract:- Zero-sum thinking has consumed economic agents in financial decision-making. Zero-sum thinking is more often associated with adverse consequences. Individuals who assume that their interests are opposed to their counterparts' interests frequently overlook possibilities for mutually beneficial contractual agreements. Zero-sum reduces trust, honest, good faith. Consequently, this increases the two fundamental challenges of the insurance business: Adverse selection and moral hazard. The consequences of the zero-sum game hypothesis are manifested in the low uptake of motor vehicle insurance uptake, where erroneous assumptions about opposing interests interfere with enrolling for Motor Insurance policy. The study will explore the zero-sum game theory among the economic agents in purchasing insurance products ie. insuring their vehicles for comprehensive cover.**

## I. INTRODUCTION

Insurance is a necessary risk management tool that fosters economic growth although being described as a grudge purchase over the years. Trust is crucial to economic growth and development in the international banking industry (Yousafzai et al., 2005). When trust erodes from one side of the relationship, it may lead to the same process on the other side of the relationship. In the relationship marketing literature, there is a strong argument that opportunism and trust are exclusive and incompatible values (Wathne and Heide, 2000; Mukherjee and Nath, 2003, Dahlstrom et al, 2014). In a business relationship, one party might behave opportunistically if s/he knows that the other party trusts him/her (Williamson, 1993; Gill et al., 2006, Dahlstrom et al, 2014). Opportunistic behavior can be defined as seeking self-interest with guile (c.f., Ping 1993), taking advantage of opportunities as they arise, exploiting opportunities with little regard to principles or consequences (Merriam-Webster Online Dictionary), giving preference to what can rather than what should be done in a context, that is, being able to “get away” with it (Concise Oxford Dictionary), and as taking advantage, often unethically, of any circumstance of possible benefit (The Free Dictionary.com).

In a service recovery context, an opportunist has been described as someone who “may not be a chronic gold digger, but rather just someone who recognizes an opportunity to take financial advantage of a company’s service failure and recovery efforts” (Berry and Seiders 2008, p. 34). Therefore, the study seeks to test the zero-sum game hypothesis in motor vehicle insurance uptake. The literature argues that the perennial problem of the insurance business is moral hazard and adverse selection (Information asymmetry). Opportunism is a behavioral aspect associated with asymmetric information between the two parties in a relationship (Williamson, 1985). The zero-sum game thinking refers to utility, the individual policyholder has a decision whether to purchase insurance or forego it. If s/he values the consumption-smoothing effects of paying premiums and collecting claims, his/her preferences are better satisfied by buying, and so buying increases his utility. When economic agents are consumed with this line of thinking it leads to opportunistic behavior as alluded to by (Berry and Sadiers, 2008) implying that financially speaking, zero-sum games are the ones in which whatever is made is made at the direct financial expense of another player in the opposite side of the trade/deal. The presence or lack of thereof of trust is particularly important in the insurance industry because the risk is inherent to all economic transactions (Mukherjee and Nath, 2003; Kesharwani and Bisht, 2012).

It is essential for prospective policyholders to trust the insurance model. Trust is central to any sector development, Bu’ibu” (2013) opines that lack of trust played a crucial role in the 2008 bank crisis. Low levels of trust increase vulnerability, hurt investments and curtail economic growth (Armstrong, 2012). Inter-organizational behavior affects the trust-risk relationship (Møllering, 2001). Trust is an inter-organizational factor that creates stability in the relationship (Seppänen et al., 2007). Consequently, trust is a catalytic managerial factor to decrease perceived risk. While most research in marketing has investigated how risk is based on external conditions (e.g. social, political, technological, and cultural constraints), the research presented here looks into the “negotiated environment” (Pfeffer and Salancik, 2003) between parties in a business relationship.

In this setting, trust is a resource employed to stabilize outcomes and reduce potential risks. The authors use the zero-sum game hypothesis to ascertain if it can be explicitly used to describe the low uptake of insurance services particularly motor insurance. The risk of opportunism or unjustified enrichment suggests that participants to exchange may attempt to expropriate the benefits from the relationship that persuaded a partner to enter an exchange in the first place. Opportunism is especially important in small number bargaining situations when perfect market conditions do not exist. Therefore, in a relationship between an insurer and its customers, opportunistic intentions might exist.

➤ *Hypothesis*

Ho: *Zero-sum thinking is manifested in the low uptake of motor vehicle insurance among BA ISAGO staff members.*

➤ *Game theory*

The two perennial problems of insurance-moral hazard and information asymmetry breed a situation whereby the policyholder or the insurer pursue self-interests by cheating the agreement to get away with benefits violating the model of insurance. Game theory is a branch of economics that studies the interaction between profit-driven players (Zhou, 2021). As its name suggests, its primary concept is originated from games, like chess. Concepts in game theory can include all kinds of interactions between the brokers. The central question in game theory is that what is the best and most rational thing a player needs to do to win? In many transactions, the answer is that what is gained by a player depends on the choices made by other players. As a result, if the player is looking to optimize his/her revenue, a situation should be imagined in which all players are looking to optimize their results.

Game theory provides us with the analysis and formulation of these conditions (Parsons, 2010, Khanizad & Montazer, 2018). Game theory investigates conflict situations, the interaction between the agents and their decisions. It is given by several players who interact according to given rules. The result of one player does not only depend on the decision that they make but also, the behavior of the other players play an important role in the results. The assumption about the rationality of the players is a fundamental in-game theory approach. Rationality here means that all players consider available alternatives, form assumptions about unknown parameters, have clear preferences, and act according to some optimization process (maximization of profit). It is also important that all players

know that other players are rational. The problem of the best strategy choice becomes more complicated, as it depends on the opponent's strategy, which is unclear for the players. Game theory has been used as a comparison in insurance before. Lemaire (1980) gave a theoretical view for life insurance using game theory. The writer studied two methods, the minimax method, and Bayes's theorem. The idea was to bring an insurer and a potential policyholder, the aim of each player is to see how they can maximize their utility from the other one.

➤ *Zero-sum game theory*

This type of analysis is found in game theory, and it is defined as one player's gain is another player's loss. Backovic, Popovic & Stamenkovic (2016) wrote a paper on the reflexive game theory approach applied to a mutual insurance problem. In their paper, they defined mutual insurance under complete and partial information. Complete information implies that all players are aware of the interconnection of their decisions and the effects their decisions will affect the other players. That is, it forces the players to act in the way.

➤ *Research Key Questions*

Would explicit reference to zero-sum thinking explain the reluctance of staff members to have comprehensive insurance?

## II. METHODS

The research adopted a survey design in which questionnaires were used to collect data from individuals who own Motor Vehicles in the University. A sample of 50 respondents comprising of 25 Academic members and 25 non-academic members was used. To avoid non-response bias associated with low response rates, we choose those with work email domains. Data was gathered from both primary and secondary sources.

➤ *Ethical Statement*

Oral informed consent was obtained from all participants in this study and all of them were assured of the confidentiality of their responses.

## III. DISCUSSION OF FINDINGS

Cronbach Alpha Test is at 86% an indication that the research instrument was robust and valid for analysis.

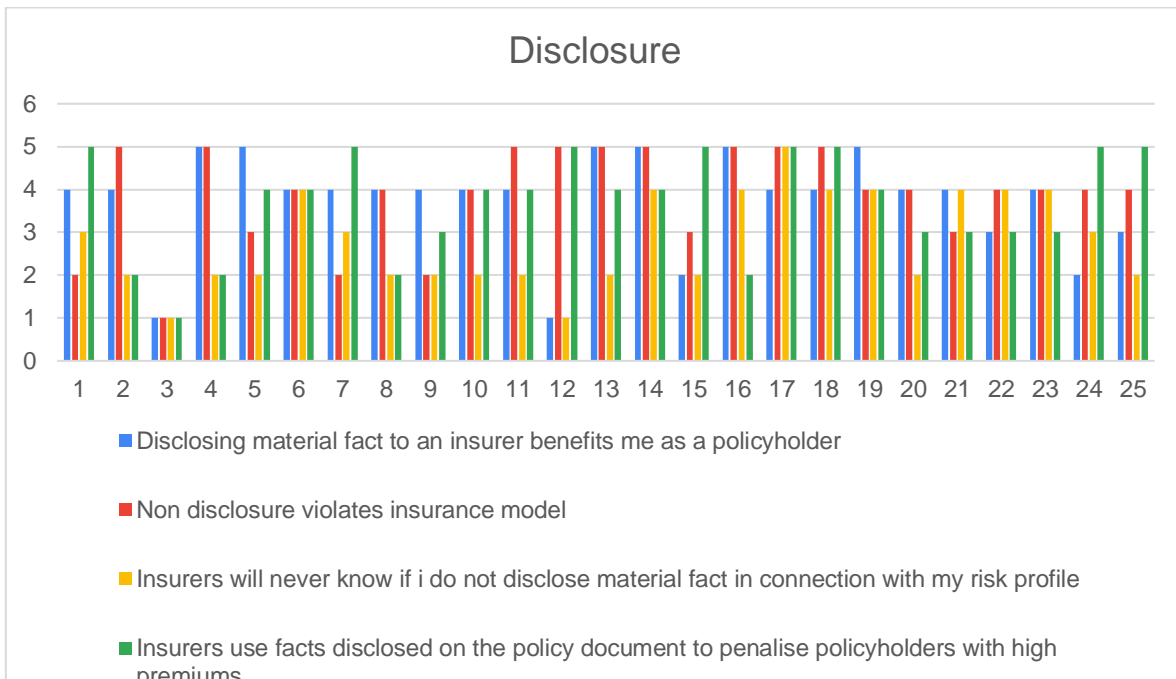


Fig 1

Disclosure in insurance is fundamental to an insurance arrangement(Meng,2020). From the survey participants highlighted that disclosure done by them to insurers is key and is a benefit to the established relationship and if not done it violates the insurance model. However the participants

revealed that the disclosed facts are used by insurers to penalise them with high premiums. This kind of thinking can to a certain extent be consistent to the hypothesis argued in this paper but it falls short as many participants postulated that disclosure benefit them as policyholders.

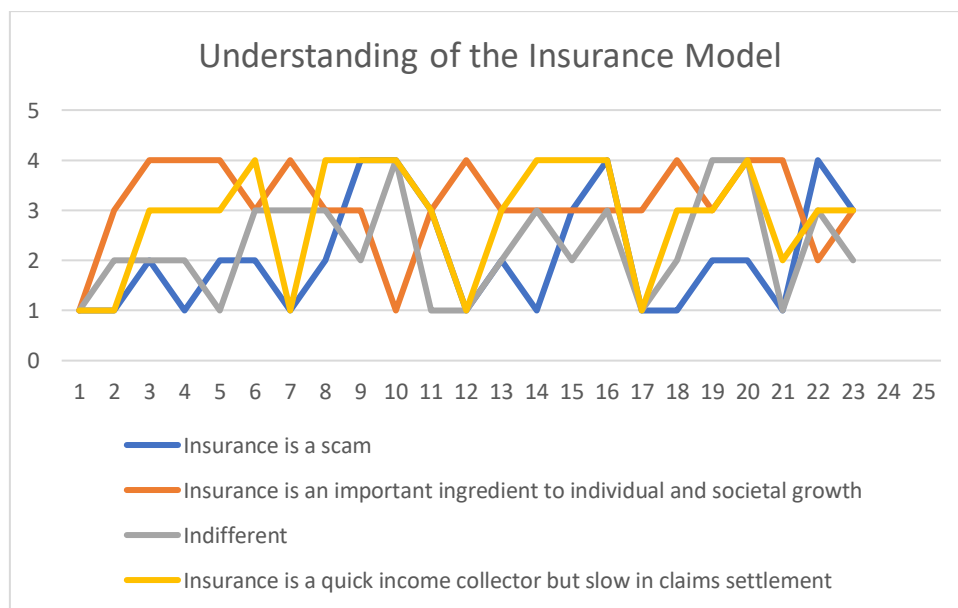


Fig 2

The greater percentage of the participants revealed that insurance is an important ingredient to individual and societal growth, this is consistent with(). However, they was a significant percentage that believe that insurance is a quick income collector but slow in payment of claims. Participants where at crossroads in understanding of the insurance model

and it is inconsistent with our hypothesis. It is evident from the results that the zero-sum game hypothesis cannot explicit explain the low uptake of motor insurance among BA ISAGO staff members but is significantly explained by not understanding how the motor insurance model works.

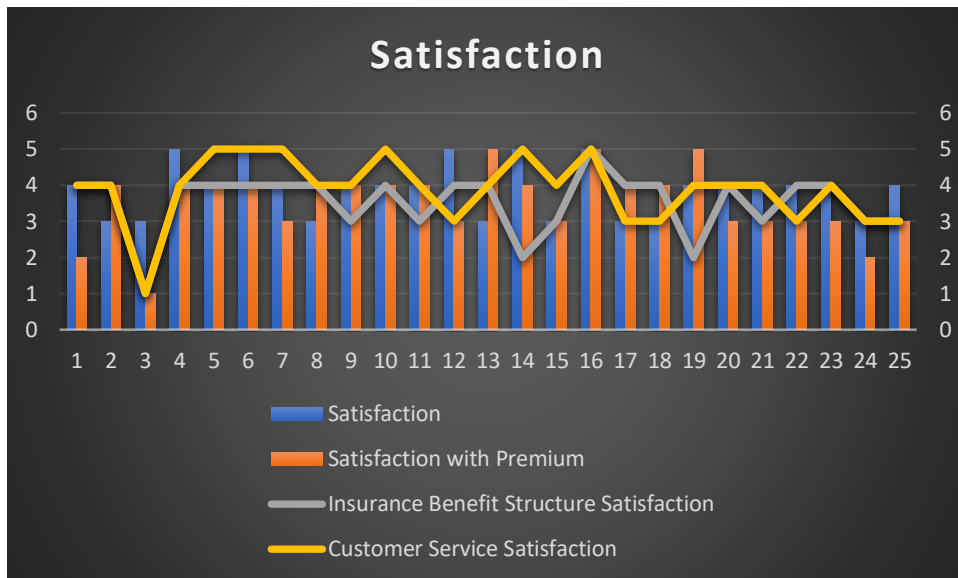


Fig 3

Moreso looking at the figure on satisfaction index of policyholder on insurance policies they currently have, few showed less satisfaction with the infrastructure of the policies they had in terms of premiums, general satisfaction with services, benefit structure design. This is also inconsistent

with zero sum thinking on insurance purchase as a reason of low uptake of motor insurance. Participantys indicated that they are satisfied with policies that they so the low uptake can be explained by other factors which might need to be explored.

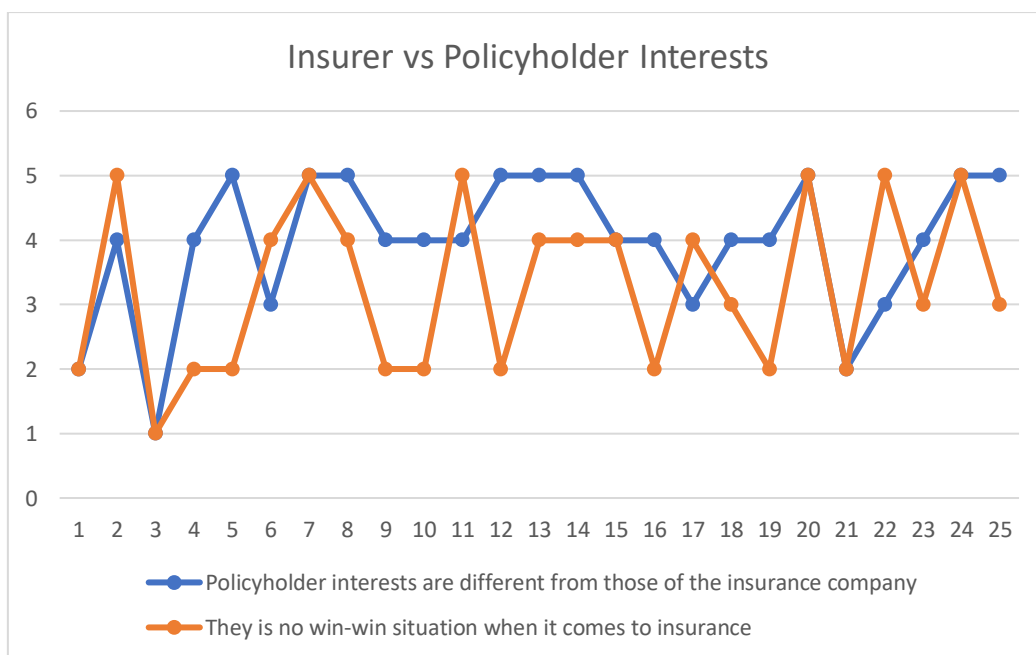


Fig 4

Furthermore, the study interrogated the interests or potentially conflict of interest that might exist on the policyholder side that can explain the low uptake of motor insurance. Policyholders indicated that they is no win-win

situation when it comes to insurance. They is a conflict of interest between the two parties. This was consistent to our hypothesis of explaining the low uptake of comprehensive motor insurance.

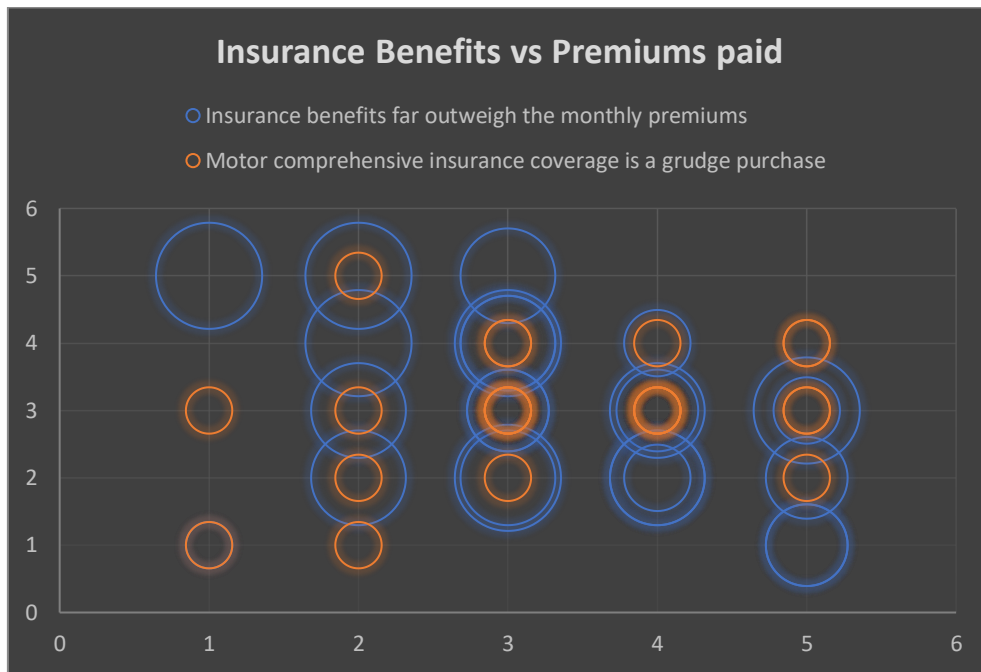


Fig 5

An additional parameter that was explored was the premiums and benefit structure on how the policyholder explain them in relation to purchase of motor insurance. The scatter was evenly spread between those who hold a view that insurance benefit far outweigh the monthly premiums and those that hold a view that insurance is a grudge purchase.

Again, this was somewhat consistent with our hypothesis but could not be explicitly dissect that premium paid and benefit structure consume policyholders to act selfishly when buying insurance policies which can be characterised by zero sum game thinking.

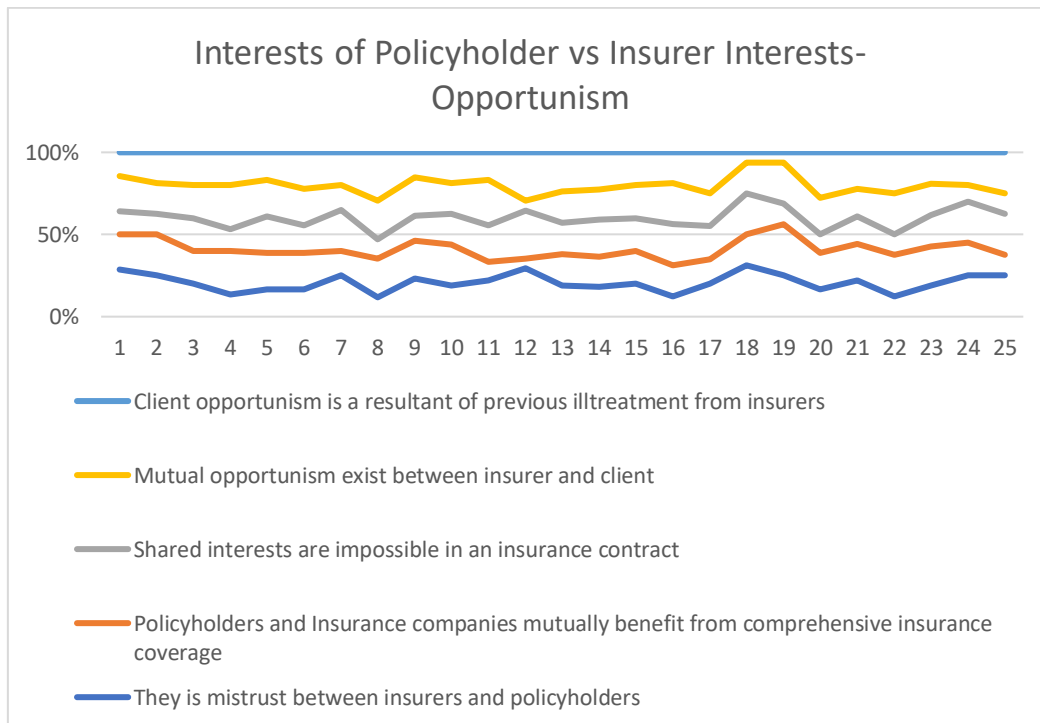


Fig 6

Zero-sum thinking is associated with various adverse consequences such as opportunism (Shai & Ongis, 2019). From the figure above it is worthy to note that mutual opportunism exists between insurers and policy holders with evidence that there is mistrust between policyholders and insurance companies. Players who assume that their interests are opposed to their counterparts' interests frequently overlook possibilities for mutually beneficial agreements, discredit advantageous offers proposed by the other side, and consequently fail to reach "win-win" resolutions (mutual benefit). Policyholders who view success as zero-sum (such that all person's accomplishments come at their expense) are more likely to act selfishly in an economic decision (Bu'ibu', 2013). More generally, zero-sum thinking reduces interpersonal trust and increases people's feeling that they are being taken advantage of and that the social system is illegitimate and unjust. The adverse consequences of zero-sum thinking are especially prevalent in insurance purchase, where erroneous assumptions about opposing interests interfere with reaching winning solutions. Moreover, the Chi Square calculation was done; it was approximately 0.013. A Chi-Square P-Value less than 0.05 usually leads to rejection of the hypothesis. We therefore reject the hypothesis (H<sub>0</sub>: Zero-sum thinking is manifested in the low uptake of motor vehicle insurance among BA ISAGO staff members).

#### IV. CONCLUSION AND RECOMMENDATIONS

In the traditional insurance model, members pay their premiums into a central pot. This pot is used to pay claims and the funds that are still left are the profit of the insurer. Although pure zero-sum situations are rare, many people perceive non-zero-sum situations as zero-sum, believing that one person's gains are balanced by another person's losses. Consistent with our hypothesis, we found a negative relationship between motor insurance purchase and zero-sum thinking. This is meant to avoid the real or perceived conflict of interest between insurers and their clients. The study highlighted that there are other factors that explain the minimum uptake of insurance such as unclear policy conditions, availability of Motor vehicle accident fund, failure to explain benefits to policyholders by the insurers. Future research would benefit from examining additional factors that, together with ideology, are related to zero-sum thinking. First, people may be more prone to view life as zero-sum after experiencing personal hardships. Cultural differences may also influence zero-sum thinking.

#### REFERENCES

- [1]. Armstrong, A. (2012), "Restoring trust in banking", *National Institute Economic Review*, Vol. 221 No. 1, pp. 4-10
- [2]. Bu'ibu', D. (2013), "Determinants of trust in banking networks", *Journal of Economic Behavior & Organization*, Vol. 85 No. 1, pp. 236-248.
- [3]. Meng, C. (2020). The insurer's duty of disclosure under Cambodian insurance law: A comparative perspective, *Cogent Social Sciences*
- [4]. Dahlstrong, R. Nygaard, A. Kimasheva, M. and Ulvnes, A. 2014, 'How to recover trust in the banking industry?

- A game theory approach to empirical analyses of bank and corporate customer relationships' *International Journal of Bank Marketing* Vol. 32 No. 4, pp. 268-278
- [5]. Deng, C., Zeng X., Zhu H., 2017, 'Non-zero-sum stochastic differential reinsurance and investment games with default risk. *European Journal of Operational Research* 264(2018) 1144-1158
  - [6]. Khanizad R and Montazer G., 2018, 'Participation against competition in banking markets based on cooperative game theory', *The Journal of Finance and Data Science* Vol. 4 No. 1 16-28
  - [7]. Mo'llering, G. (2001), "The nature of trust: from Georg Simmel to a theory of expectation, interpretation and suspension", *Sociology*, Vol. 35 No. 2, pp. 403-420.
  - [8]. Pfeffer, J. and Salancik, G.R. (2003), *The External Control of Organizations: A Resource Dependence Perspective*, Harper and Row, New York, NY.
  - [9]. Shai, D & Ongis, M. (2019) "The Politics of Zero-Sum Thinking: The Relationship Between Political Ideology and the Belief That Life Is a Zero-Sum Game." *Science Advances* 5, no. 12.
  - [10]. Backovic, Popovic & Stamenkovic (2016) insert
  - [11]. Wang, Ning & Zhang, Nan & Jin, Zhuo & Qian, Linyi, 2019. "Robust non-zero-sum investment and reinsurance game with default risk," *Insurance: Mathematics and Economics*, Elsevier, vol. 84(C), pages 115-132.
  - [12]. Wirtz, J. and McColl-Kennedy, J.R. (2009), "Opportunistic customer claiming during service recovery", *Journal of the Academy of Marketing Science*, Vol. 38 No. 5, pp. 654-675.
  - [13]. Yousafzai, S.Y.J., Pallister, J. and Foxall, G.R. (2005), "Strategies for building and communicating trust in electronic banking: a field experiment", *Psychology & Marketing*, Vol. 22 No. 2, pp. 181-201.
  - [14]. Zhou Z, Bai, Y, Xiao, H, Chen, X. (2021) A non-zero-sum reinsurance-investment game with delay and asymmetric information. *Journal of Industrial & Management Optimization*, 17 (2) : 909-936