



## IMPLICATIONS OF INDUSTRY LOSS WARRANTY AS ALTERNATIVE RISKS TRANSFER SOLUTION ON PERFORMANCE OF MANUFACTURING COMPANIES IN NIGERIA

**OYERINDE Moses Tunde**

*PhD Student, Risks Management & Insurance, Department Of Actuarial Science & Insurance, University of Lagos.*

*Email: [oyerindemoses@yahoo.com](mailto:oyerindemoses@yahoo.com)*

### ABSTRACT

The manufacturing companies are faced with many risks which includes regular business risks such as credit risks, switch in market taste, human and personnel risks, injury, damage to third party and so on. The industry handles these risks by way of risk transferring financial liabilities to willing parties through insurance. However, there are risks that are existential to the industry that can be described as catastrophic such as natural disasters, terror attacks, pandemics, etc. These type of risks cannot be adequately covered by regular insurance. The aim of study is to determine impact of Industry Loss Warranty (ILW) as an alternative risks transfer solutions on the performance of Nigeria manufacturing companies. Based on the responses to the survey, Industry Loss Warranties (ILW) on one hand and performance of manufacturing in Nigeria on the other, revealed significant correlation between ILW as an ART solution and performance with correlation coefficient ( $r$ ) of 0.648 with a p-value of 0.000. The ANOVA findings also showed performance of manufacturing enterprises could be strongly be predicted by ILW as well as a positive association between ILW solution and performance of the manufacturing companies. Therefore, we can conclude that there is significant relationship between ILW as an ART solution and the performance of Nigeria manufacturing companies and that ILW do have real impact on the performance of the manufacturing concerns. However, stakeholders such as the Government, the Manufacturers Association of Nigeria (MAN) and Security and Exchange Commission, SEC needs to work together to create enabling environment for ART to thrive by sensitization of the industry on the concept and benefits of ART. Pricing of ART is still an issue around the world, the stakeholders including MAN must keep working on it till prefect pricing is attained. It is therefore recommended that manufacturing companies should conduct comprehensive risk assessments to understand their exposure and determine the most suitable alternative risk transfer solutions.

**Keywords:** Alternative Risk Transfer Solutions, Performance, Manufacturing Companies.

### Introduction

The human, social, economical, and environmental spheres are all vulnerable to the many risks that the modern world faces. These risks may have consequences that extend over generations. Everyone from people to governments in both rich and developing nations has the formidable task of mitigating how these affects' financial performance. To alleviate the strain caused by the costs of risk on their operations, investments, claim management, and profitability, most manufacturing companies are constantly seeking new ways to contribute to risk management. One way they do this is by offering funding for recovery and reconstruction after a risky event (Ben & Jouili, 2015).

Various types of risk might emerge in the manufacturing business, including those that occur during the hiring process, the manufacturing stage, distribution, and so on. Insurance, which entails transferring monetary responsibility for harm, loss, or damage to another party or parties, is the most prevalent kind of risk transfer. Other mechanisms for transferring risk include; non-insurance transferring the activities that causes the loss (Nwite, 2006).

In response to the widespread adoption of risk management principles in the 1950s, American businesses developed Alternative Risk Transfer (ART) systems. The pattern of insurance capacity crises from the 1970s through the 1990s caused it to develop steadily, according to Doherty (2000). It was Schnell and Eling (2017). Companies were able to insure their own risks using ART products like captives and risk retention organisations in the beginning, according to Schanz (1999), but in the 1990s, the scope expanded to include risk transfer, limited insurance, reinsurance, and tax-deductible advantages via capital markets. Reinsurance, sidecars, ILWs, CAT bonds, options, futures, and captives are all examples of ART instruments that may be used to get access to more money via the market (Huang, 2010).

The idea of ART is based on the convergence of insurance, banking, and the capital market, which aims to effectively supply businesses enough money to cover different types of risks. Asaff (2000), the European Commission (2000), and Hofmann (2000) all made contributions. Due to the individualised nature of ART products, the notion defies reduction to a single, all-encompassing description. As a result, a wide variety of business demands drive demand for ART goods. The following categories, however, are applicable to ART products: Securitization (including CAT bonds) and insurantization (including credit default swaps, collateralized debt, residual value, and revenue guarantee products) are mentioned by Allen (2002) and Gjertsen (2002). Reinsurance and captive insurance businesses are also part of finite risk insurance.

Risk securitization via catastrophe bonds, insurance industry-linked securities, and reinsurance industry sidecars are some of the alternative risk transfer covers used by manufacturing companies. Risk trading through industry loss warranties and weather derivative contracts is another option. Finally, transformer vehicles are used to transform capital market risks into reinsurance industry risks. Captive insurance businesses, longevity risk transfer, securitization tied to the life insurance sector, and other alternative risk financing approaches are sometimes considered by Burca and Batrinca (2014).

Consequently, this study aims at delving into the implications of alternative risk transfer solutions on the performance of manufacturing companies, with a specific focus on the manufacturing industry in Nigeria. By analyzing the effectiveness of these solutions, they seek to provide insights into their potential impact on operational efficiency, financial stability, and overall performance in the Nigerian manufacturing sector.

## **Statement of the Problem**

The current research seeks to explain the implications of alternative risk transfer solutions on the performance of Nigeria manufacturing companies. Fundamentally, alternative risk transfer solution is sometimes the shrewd option, but a slip-up can prove costly and create negative outcomes on the company's operations.

The use of alternative risk transfer solutions in the manufacturing companies presents several issues that need to be addressed. Understanding these problems is crucial for effectively implementing these techniques and maximizing their potential benefits.

Moreover, in Nigeria, risk exposure in some manufacturing organizations can also be overestimated; thus, they could result into a steep opportunity cost. For instance, suppose the manufacturing company puts aside large sums of money to cover losses due to an unexpected risk. If no unexpected risks occur or with much less damage than predicted, those reserved funds represent missed investment opportunities. Instead of reserving the money, the company could have invested it in research and development or in opening new locations to reach more customers. Thus, overestimating risk can cause a manufacturing company to

overcompensate, thus losing money that could go into other business and investment opportunities Ben and Jouili (2015).

It becomes easier to appreciate the fact that man cannot live a meaningful life without being involved in one form of risk or the other. However, the only wise option left for manufacturing firms is to always adopt effective alternative way of transferring risk since insurance as a risk transfer mechanism does not give full protection Morton (2002).

Addressing these problems is vital to unlock the potential benefits of alternative risk transfer solutions for Nigeria manufacturing companies. By increasing awareness, fostering collaboration with specialized experts, streamlining regulatory processes, considering cost implications, managing risk retention effectively, and providing support for implementation, manufacturing companies can overcome these challenges and leverage alternative risk transfer solutions to enhance their performance and overall risk management strategies. Then, based on the above argument, there are questions that need to be asked: Is there any impact of alternative risk transfer business decisions and investment on Nigeria manufacturing companies? Will there be a relationship between alternative risk transfer and the claim management in Nigeria manufacturing companies? And, can the effectiveness of alternative risk transfer policy affect the profitability and growth of Nigeria manufacturing companies? The answers to the questions will be fully explored, so as to look into the “gap” that will be discussed in the research work.

### **Aim and Objectives of the Study**

The aim of the research work is to examine the implication of alternative risks transfer solutions on the performance of Nigeria manufacturing companies. The specific objectives of the study are:

To identify if the use of industry loss warranties as alternative risk transfer will affect the performance of Nigerian manufacturing companies

### **Significance of the Study**

The result of this study is expected to enhance the knowledge of alternative risk transfer solution and how it affects the manufacturing companies’ profitability and growth in Nigeria. It will also be of great importance to the manufacturing industry practitioners and other experts handling alternative risk transfer solutions for manufacturing companies. It will be useful in helping to understand how alternative risk transfer solution affects manufacturing industry’s operations, profitability, and growth and suggest ways on how to choose the effective alternative risk transfer solution that would improve the performance of manufacturing companies in Nigeria. It will also serve as a basic study for those who may wish to carry out further research on the study.

### **Scope and Delimitation of the Study:**

The study covers Alternative Risk Transfer and Manufacturing companies in Nigeria. The study is limited to manufacturing companies operating in Nigeria and based in Lagos state which makes up the sub-set of the Nigeria manufacturing Industry. The reason for this choice was the need to explore this important sector which contributes a large percentage to the Gross Domestic Products of Nigeria. Lagos state is also chosen as the study area due to the large concentration of manufacturing companies in the state with the highest manufacturing activities.

## Research Questions

The specific research questions of the study are:

What is the impact of the use of industry loss warranties as alternative risk transfer on performance of the manufacturing companies in Nigeria?

## Study Hypotheses

The specific research hypothesis of the study is:

There is no significant relationship between the use of loss warranties and the performance of Nigeria manufacturing companies

## Operational Definition of Terms

**Alternative Risks Transfer:** This Technique allows companies to purchase coverage and

Transfer risk without having to use traditional commercial insurance

**Manufacturing Company:** any business that uses components, parts or raw materials to make a finished good.

**Profitability:** the degree to which a business or activity yields profit or financial gain.

**Financial Performance:** a subjective measure of how well a firm use assets from its primary mode of business t generate revenues and make profit.

**Insurance:** an arrangement by which a company or the state undertakes to provide a guarantee of compensation for specified loss, damage, illness, or death in return for payment of a specified premium.

**Self-Insurance:** insurance of oneself or one's interests by maintaining a fund to cover possible losses rather than by purchasing an insurance policy.

**Captive Insurance:** a wholly owned subsidiary created to provide insurance to its non-insurance parent company (or companies)

**Hedging:** the process of transferring risk to another party and protecting your own organization from that risk.

**Financial Derivative:** are *financial contracts, set between two or more parties, that derive their value from an* underlying asset, group of assets, or benchmark.

**Industry Loss Warranty:** a reinsurance or derivative contract that kicks in when losses experienced by an industry exceed a specified threshold. Coverage is typically triggered when an index provider says the relevant threshold has been met.

**Catastrophe Bond:** a high-yield debt instrument designed to raise money for companies in the insurance industry in the event of a natural disaster.

**Catastrophe Futures:** derivatives contracts first traded on the Chicago Board of Trade (CBOT) to hedge against catastrophic losses.

## **LITERATURE REVIEW**

### **Theoretical Framework**

Agency theory and stakeholders theory are considered appropriate theoretical basis for this research.

#### **Agency Theory**

Agency theory is an economic theory that views the firm as a set of contracts among self-interested individuals Ross and Mitnick, (1970). Agency theory, as applied to the context of alternative risk transfer solutions, posits that there is a fundamental principal-agent relationship within organizations. Shareholders (principals) delegate decision-making authority to management (agents) to act on their behalf. In the realm of risk management, the adoption of alternative risk transfer solutions such as industry loss warranties introduces a dynamic where the interests of shareholders and management might not perfectly align. The principals seek to maximize shareholder value, while agents may have their own objectives, which can lead to a potential conflict of interests.

In the case of Nigerian manufacturing companies, the introduction of alternative risk transfer solutions may influence the decision-making processes and risk management strategies. Potential conflicts of interest might arise if management perceives risk differently from shareholders. Understanding and addressing these agency issues are crucial for effective implementation and optimization of alternative risk transfer mechanisms, ultimately impacting the overall performance of the manufacturing companies.

#### **Stakeholder Theory:**

Stakeholder theory posits that organizations should consider the interests of all stakeholders, not just shareholders according to Freeman (2016). In the context of alternative risk transfer solutions, stakeholders include not only investors but also employees, customers, suppliers, and the broader community. The effective management of risks through alternative risk transfer solutions can impact various stakeholders differently, and their perceptions and reactions can, in turn, influence the company's performance.

For Nigerian manufacturing companies, the implications of alternative risk transfer solutions extend beyond financial metrics. Stakeholder theory suggests that a company's reputation, relationships with suppliers and customers, and overall social responsibility are critical aspects of performance. How a company manages risks can affect its standing in the eyes of various stakeholders. A well-executed risk management strategy not only protects financial interests but also contributes positively to the company's relationships with stakeholders, influencing its long-term sustainability and performance.

However, these two theories provide a theoretical lens through an understanding gained of the implications of alternative risk transfer solutions on the performance of Nigerian manufacturing companies. The nuanced interplay between agency relationships, and stakeholder considerations contributes to a holistic understanding of how risk management strategies impact the overall performance of manufacturing firms in Nigeria.

### **Conceptual Framework**

#### **The Concept of Alternative Risk Transfer**

The concept of alternative risk transfer (ART) does not have a precise definition. Most organizations see alternative risk transfer (ART) as a use of alternative techniques to achieve the same hedging and transfer of risk without involving a risk bearing entity as with traditional insurance company or reinsurance company. Alternative risk transfer (ART) is not just a product, but rather a pattern of doing business which

has two generally accepted segments- risk transfer through alternative risk carriers and risk transfer through alternative products Swiss-re (2014). One reason for this is that the range of risk products that can reasonably be defined as ART have expanded over time as product innovation continues. Alternative risk transfer enables companies to transfer risks to another party or to the capital market by way of converting these risks into tradable securities with long term maturation.

Alternative risk transfer techniques allow organizations to purchase a coverage and transfer risks through manufacturing industry pools and more conveniently securitizing underwriting proceeds. Securitizing underwriting proceeds here entails making the capital market to take more direct role in providing insurance` industry and reinsurance industry services by hedging manufacturing industry risks against long term tradable securities De-Mey (2017). This practice which is the broad field of alternative risk transfer (ART) is said to bring about a convergence of insurance industry services and financial markets. Alternative risk transfer covers include; risk securitization through catastrophe bonds, insurance industry-linked securities and reinsurance industry side-cars, trading of risk through industry loss warranties, weather derivative contracts by transforming capital market risks into reinsurance industry through transformer vehicles.

Transferring risk to alternative carriers entails funding organizations, such as captive business investors or pools, which are willing to take on some of the business investor's risk for a fee. Generally, alternative risk transfer (ART) emphasizes capital preservation over operating performance and place greater weight on business retention over market share. Ryan et al, (2017) categorized alternative risk transfer (ART) vehicles into the following broad groupings:

1. Captive or self-insurance methods: Known to be the most common form of alternative risk transfer. This is a type of alternative risk transfer established by organizations to cover their own risk but do not insure the risk of the public. Hence, they have access to reinsurance industry market and enjoy tax haven. Self-insurance industry is the largest portion of the alternative carrier market available for companies under state insurance industry commission regulation as it allows the company (adjust the amount of risk that they have on their portfolio) to reduce costs and streamline the claims process.
2. Risk retention groups and captive insurance company tends to be more popular with large corporations. A captive is an insurance company that insures the risks of its owner, affiliated businesses or a group of companies. It issues policies, collects premiums and pays claims just like a traditional insurance company. What fundamentally distinguishes a captive and makes it alternative to commercial insurance company is the form of ownership and who keeps the insuring company's profit.
3. Single-parent captives are owned by one company or group (the parent). Pure captives are single parent captives that accept only the risks of the owner (or owner-affiliates). Not all single-parent captives are pure captives; in some instances, a single-parent captive can accept business from third parties.
4. Group captives offer insurance services to several or many unrelated policyholder and owners and can take many forms. Some group captives dedicate themselves to a particular industry, while others choose to write in a limited geographic area, such as a single state. Group captives are the alternative risk transfer (ART) vehicle that most resembles a commercial business investor and have similar rating dynamics.

### **Industry Loss Warranty, ILW**

The conceptual framework of industry loss warranties provides a comprehensive understanding of these instruments as integral components of catastrophe risk management. As the insurance industry continues to evolve, ILWs offer a dynamic and flexible tool for efficiently transferring and managing risk on a broader scale. According to Ali Ishaq (2005) in his study, industry loss warranties, sees industry loss warranties (ILWs) as a representative of a crucial facet of the risk management landscape within the insurance and reinsurance industry. These financial instruments serve as a link between the insurance and financial markets, providing a unique mechanism for managing catastrophic risks.

Zeng's (2005) study on catastrophe risk financing, posited that an industry loss warranty is essentially a financial contract where the payout is triggered by an industry-wide loss exceeding a predefined threshold. Unlike traditional reinsurance, ILWs are not linked to the losses of a specific company but are contingent on aggregate industry losses. The primary purpose of ILWs is to provide insurers and reinsurers with a tool for transferring and managing catastrophe risk efficiently.

Furthermore, Bockius and Gatzert's (2022) study on navigating basis risk in industry loss warranties, posited that industry loss warranties (ILWs) are a type of insurance contract that provides coverage to a group of insurers against aggregated losses from a specified peril. ILWs are typically designed to protect insurers from catastrophic losses that could exceed their individual risk appetites. Industry loss warranties (ILWs) have become increasingly popular in recent years, as insurers have sought to manage their risks more effectively in the face of increasing climate change and other natural catastrophes. ILWs can also be used to protect insurers from losses from other types of events, such as pandemics and terrorist attacks.

ILWs offer a number of benefits to insurers. First, they can help insurers to manage their risks more effectively by pooling their risks. This is how insurers can reduce their individual exposure to catastrophic losses. Second, ILWs can help insurers to improve their financial performance. By reducing their volatility, ILWs can help insurers to achieve more stable earnings.

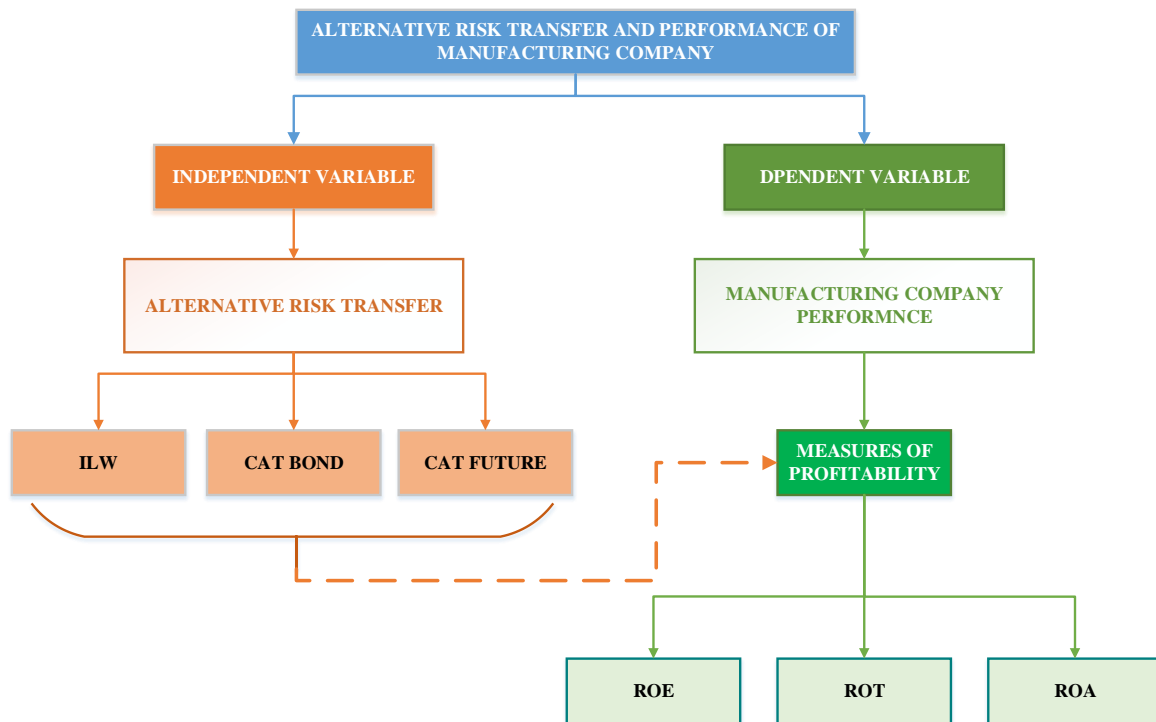
However, ILWs also come with some risks. First, ILWs can be expensive. The cost of an ILW will depend on a number of factors, including the type of peril covered, the level of coverage, and the size of the pool of insurers. Second, ILWs can be complex to structure and administer. This can be particularly challenging for smaller insurers.

ILWs have a number of key characteristics which include the follows: ILWs are typically structured as a pool of insurers, each of which contributes a certain amount of capital to the pool. The pool is used to pay claims to insurers in the event of a triggering event Swiss-Re (2009). ILWs typically have a trigger that must be met in order for a claim to be paid. The trigger is based on the level of losses incurred by the pool of insurers. For example, an ILW might have a trigger of \$10 billion in losses. If the pool of insurers incurs \$10 billion or more in losses from a covered event, then all insurers in the pool would be eligible to receive a payout from the ILW, Gatzert and Schmeiser (2009).

## **Nigeria Manufacturing Sector**

In manufacturing industries, risks arise in different forms; it could be at the process of staffing, production stage, distribution etc. The most common form of risk transfer is by way of insurance which involves shifting of the financial liability for loss, injury or damage to another person or persons. Other mechanisms for transferring risk include; non-insurance transfer and transferring the activities that causes the loss (Nwite, 2006). To ensure future growth on alternative transfer mechanisms, there has been a development of independent, alternative risk consulting firms that works with agents and brokers. These alternative risk transfer firms educates the agents and brokers on expertise general experience in the ART market as well as those that may need to supplement their ability to execute these tasks with a team of industry specialist Artemis (2010) The manufacturing companies in Nigeria operate in the current unstable environment which is fraught with numerous risks that could endanger its survival and success. These risks include political risk, credit risk, liquidity risk, foreign exchange risk, market risk, interest rate risk, among others. However, Nigeria is rarely exposed to catastrophic disruptions such as of earthquakes, hurricane or epidemic of avian flu that caused large scale damage to businesses and manufacturing setup in other part of the world such as North America and Asia.

## RESEARCHER'S CONCEPTUAL MODEL



### Empirical Review

#### The Use of Industry Loss Warranties

Bockius and Gatzert (2022) in their study investigated the impact of counterparty risk on the basis risk of industry loss warranties as well as on reinsurance with or without collateral under different dependence structures. The authors propose a model framework extension to account for the counterparty risk of risk transfer arrangements. Using Copulas and Monte Carlo simulations, the authors showed that the impact of counterparty risk is particularly pronounced for higher degrees of dependencies and tail dependent losses i.e. in cases of basis risk levels that appear low if counterparty risk is not considered. With respect to counterparty risk management, the authors find that already partial collateralization limits counterparty and basis risk to more acceptable levels.

Ishaq (2005) in his research work noted that within the last couple of decades natural and man-made catastrophes have become a source of increasing concern for the insurance industry. Hence, there is growing market for ILWs because they provide a viable alternative reinsurance and catastrophe bond for mitigating losses from such events. Conceptually they concluded that it is simple to go from a given industry loss distribution to pricing an ILW, but ILWs can vary in terms and conditions depending on the needs of a particular client. The study shows how to account for some of these terms and conditions to price ILW and provides an example of such calculation.



## RESEARCH METHODOLOGY

### Research Design

The research employed pragmatism paradigm descriptive survey design and mixed method approach for collection of both qualitative and quantitative data for results triangulation Wambugu et al, (2015).

The method was employed to free the results of the study from bias so as to produce the least margin of error with increased trust in the precision of data collected and thus provide results that are judged to be credible. The design also helped the researcher to plan and implement the study in a way that helped to obtain intended results, and thus helped increased the chances of obtaining information that could be associated with the real situation. The research design is premised on a quantitative approach to provide a reliable result. The design is less time-friendly and cost effective.

### Population of the Study

The population of this study consist of all the manufacturing companies in Nigeria. The total number of registered manufacturing companies in Nigeria is 565 out of which 550 resides in Lagos Dun and Bradstreet (2023). The choice of Lagos state as a study area was supported by the fact that 97% of the total number of manufacturing companies and products generated in Nigeria was from Lagos State alone. (Dun and Bradstreet (2023)

### Sampling Techniques

The convenience sampling technique was used to select participants from the strata of the study that are accessible and willing to participate in the survey. The researcher selected 10 manufacturing companies based on their availability and readiness of the respondents to complete the research instrument.

### Sample Size

The study employed the Yemane (1967) formula from which a minimum sample size of 200 was determine. Due to low rate of response with survey design, a total of 232 copies of questionnaire were deployed for the study. Since the target population comprised of all manufacturing companies in Lagos metropolis, then the total sample size for the study was statistically determined by Taro Yamane's (1967) formula as cited in Ajay and Masuku (2014) as:

$$N = N/1+Ne^2$$

$$N= 550/1+ 550(0.05)^2 = 232$$

Where: N=the sample size, N=the population size, e = the acceptable sampling error

95% confidence level and  $\alpha=0.05$  are assumed.

The respondents are selected from the 10 manufacturing companies. The distribution of the research instrument was conducted proportionally in all the selected manufacturing companies.

## Data Collections Instrument

To ensure proper capturing of adequate information relating to the impact of the alternative risk transfer and performance of manufacturing companies in Lagos, Nigeria, data required for the study were generated from a primary source of information. The primary data source instrument was a well-structured and self-administered questionnaire.

The research instrument was divided into 2 sections. Section A constitutes of respondents socio-demographic information relates to the background information of the respondents, section B relates to method of alternative risks transfer namely Industry Loss warranty as dependent variables. Background information of the respondents consist of 4 items. In Section B, eight items were used as measuring dimensions for industry loss warranty.

The data instrument adopted a liker scale measurement of 'strongly agree', 'agree', 'undecided', disagree, and strongly disagree. The responses, according to Pallant (2011) were accorded values as follows; strongly agree=5, agree=4, undecided =3, disagree = 2, strongly disagree= 1

## Test of Validity and Reliability of the Research Instrument

Regarding the correctness of the survey instrument, logical and criterion-related types of validity were adopted. While the congruent (construct) validity was carried out through variables explained from literature, the logical (content) validity was employed via administration and distribution of chosen and decided survey instruments to my supervisors, risk management experts and academia in the manufacturing and insurance and risk management professions. Having distributed the research instrument, experts thoroughly examined it, came up with logical and reasonable suggestions, and thus gave advice that assisted in designing a questionnaire that accurately measured the variables. For criterion related validity, the risks managers' behavior was further scrutinized to ensure the appropriateness of the survey instrument.

A pilot study was conducted to confirm the validity and reliability of the research instrument. To ensure the instrument reflected the variables of the study, experts in the field of management reviewed the research instrument and found them to be suitable. Cronbach Alpha test was further used to test the reliability of the instrument and all results were above the required minimum of 0.7 in line with the position of Nunnally and Bernstein (1994)

## Method of Data Analysis

Descriptive Statistical analysis with the aid of Mean, frequency and percentage employed for demographic data collected. Inferential statistical analysis (regression and modeling analysis) was used to test the study variables.

## Model Specification

To analyze the implication of alternative risks transfer solutions on the performance of Nigeria manufacturing companies, (formula) were adopted;

Performance = f(Alternative risk transfer, random variable)

$Y = B_0 + B_1 X_1 + a$

## Operationalization of Research Variables

Variables used in the analysis are chosen based on relevant theory and literature in line with similar studies on the subject and based on the availability of data (primary source). The data collected are presented in a tabulated and in interpreted in relation to the research objectives.

Then, in the study, normal variables are used to measure the variables. The nominal variables can be placed into categories like male/female, young, adult, senior or freshman/ sophomore/ junior/ senior. The study has two measurement variables (alternative risks transfer solutions and manufacturing companies), to analyzing the data (hypothesis test).

## Dependent Variables

Manufacturing companies' performance was the independent variable for the study.

## Independent Variables

Industry Loss warranty, ILW is independent variables of the study.

## RESEARCH INTERPRETATION

This research aims to delve into the nuanced relationship between alternative risk transfer solutions and the performance of manufacturing companies in Nigeria.

## Descriptive Statistics

Table1.

Descriptive Statistics			
	N	Mean	Std. Deviation
PMC	221	1.8235	0.48724
ILW	221	1.8047	0.50346
Valid N (listwise)	221		

## Interpretation

The mean performance score of manufacturing companies (PMC) stands at 1.8235, accompanied by a standard deviation of 0.48724. This implies that, on average, the performance of manufacturing companies in Nigeria hovers around this central value. The standard deviation suggests a moderate level of variability, indicating that while there is a degree of consensus in performance, there are discernible variations among the sampled companies.

For companies utilizing Industry Loss Warranties (ILW), the mean performance score is 1.8047, and the standard deviation is 0.50346. This signifies a relatively narrow dispersion of performance scores around the mean. The findings suggest that the use of ILW is associated with a performance level that is slightly below the overall mean. Further exploration is warranted to ascertain the significance of this difference and to uncover potential contributing factors.

The initial findings offer valuable insights into the mean performance scores and variability associated with alternative risk transfer solutions in Nigerian manufacturing companies. However, a comprehensive understanding requires advanced statistical analyses.

## Correlation Analysis

The goal of the study was to investigate the connection between manufacturing organization's performance and alternative risk transfer. The performance of manufacturing companies was compared to alternative risk transfer using the Pearson correlation coefficient, with a 95% confidence level applied. All indicators of alternative risk transfer and manufacturing company performance were examined using the aforementioned assumptions in order to determine the strength of the association between the two variables.

**Table 2.**

Correlations			
		PMC	ILW
PMC	Pearson Correlation	1	.648**
	Sig. (2-tailed)		0
	N	221	221
ILW	Pearson Correlation	.648**	1
	Sig. (2-tailed)	0	
	N	221	221

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The findings derived from the research study unveiled compelling insights into the intricate relationship between Alternative Risk Transfer (ART) and the performance of manufacturing companies. The investigation scrutinized a key variable within the realm of ART namely Industry Loss Warranties (ILW).

The statistical analyses revealed noteworthy correlations, thus establishing a robust foundation for comprehending the impact of ART on manufacturing company performance. Specifically, the study found that Industry Loss Warranties (ILW) exhibited a correlation coefficient (r) of 0.648, coupled with a p-value of 0.000, which is less than the conventional significance level of 0.05.

This compelling evidence led to the rejection of the three null hypotheses, which posited no correlation between ART variables and manufacturing company performance. Instead, the acceptance of the alternative hypothesis underscores the presence of a substantial and meaningful relationship between Industry Loss Warranties (ILW) and the performance of manufacturing companies.

In light of these robust statistical findings, the research study concludes that Industry Loss Warranties (ILW) is intricately linked to the performance of manufacturing companies.

## Regression Analysis

With an emphasis on the manufacturing sector in Nigeria specifically, simple linear regression was used to examine the effects of alternative risk transfer strategies on the performance of manufacturing enterprises. The purpose of the simple regression model was to determine whether the performance of manufacturing organizations can be predicted by alternative risk transfer solutions.

**Table 3.**

Variables Entered/Removed <sup>a</sup>			
Model	Variable Entered	Variables Removed	Method
1	ILW	.	Enter

a. Dependent Variable: PMC

b. All requested variables entered.

The model summary results indicate that the performance of manufacturing companies and those anticipated by the regression model have a good positive association ( $R=0.772$ ) with ILW. Furthermore, alternative risk transfer methods account for 59.6% ( $R^2=0.596$ ) of the variance in the performance of manufacturing enterprises. The outcomes align with the research conducted by Wing and Jin (2015), who discovered a noteworthy correlation between Performance and Alternative Risk Transfer. The table below displays the summary findings of the regression model.

**Table 4: Regression Model Summary of Alternative Risk Transfer and Performance of Manufacturing Companies**

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.772 <sup>a</sup>	.596	.591	.31170	.596	106.861	3	217	.000	1.781

a. Predictors: (Constant ILW)

b. Dependent Variable: PMC

The study sought to determine which regression model best predict manufacturing companies' performance following the application of Industry Loss Warranties (ILW). The ANOVA findings showed that regression model produces a considerably superior forecast of the performance of manufacturing enterprises, with F-statistics  $(3,217) = 106.861$  being significant at  $P \text{ value} = 0.000 < 0.05$ . The table below displays the output statistics findings of the regression ANOVA.

**Table5: An ANOVA of the Regression of Industry Loss Warranties (ILW) and Performance of Manufacturing Companies**

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	31.146	3	10.382	106.861	.000 <sup>b</sup>
	Residual	21.083	217	.097		
	Total	52.229	220			

a. Dependent Variable: PMC

b. Predictors: (Constant) ILW

### Discussion of Findings

The results of this research align with the findings put forth by Amolo et al (2021) in their comprehensive exploration of Alternative Risk Transfer (ART) and its impact on the performance of power projects. Amolo et al (2021) assert that ART plays a significant role in influencing the performance of hydroelectric energy projects. This further confirms the work of Sunday and Torutein (2018) as it contributed to the academic discourse through their meticulous study on the Analysis of Alternative Risk Transfer strategies in Manufacturing Organizations.

Sunday and Torutein's research sheds light on the positive effects of Alternative Risk Transfer strategies on manufacturing firms. Their findings underscore that the implementation of such strategies is associated with favourable outcomes including peace of mind for effective business operations and ventures, as well as serving as a preventive measure against economic losses. These insights collectively contribute to a growing body of knowledge that emphasizes the importance of Alternative Risk Transfer mechanisms in diverse sectors, ranging from power projects to manufacturing organizations.

The standard deviation suggests a moderate level of variability, indicating that while there is a degree of consensus in performance of the companies as a result of ILW application. There are, however, discernible variations among the sampled companies. But ILW is agreed to have impact on the performance.

Furthermore, alternative risk transfer methods, in this case, ILW accounts for 59.6% ( $R^2=0.596$ ) of the variance in the performance of manufacturing enterprises. The outcomes align with the research conducted by Wing and Jin (2015), who discovered a noteworthy correlation between Performance and Alternative Risk Transfer.

The convergence of evidence from both studies suggests a generalizable trend wherein the adoption of Alternative Risk Transfer approaches as a valuable factor in enhancing the overall performance and resilience of projects and organizations. The implications of these findings extend beyond specific industry contexts, offering valuable insights for decision-makers, practitioners, and scholars alike. As businesses continue to navigate a dynamic and unpredictable environment, understanding and leveraging Alternative Risk Transfer strategies may prove instrumental in mitigating uncertainties, sustained success, and fostering a climate conducive to economic growth. Thus, our findings coupled with the findings presented by Amolo et al, (2021) and Sunday and Torutein (2018) collectively contribute to the evolving landscape of risk management practices, providing a foundation for further exploration and application in various domains.

## CONCLUSION AND RECOMMENDATIONS

Based on the responses to the survey to determine relationship between Industry Loss Warranties (ILW) as Alternative Risk Transfer solution on one hand and performance of manufacturing companies in Nigeria on the other, the study revealed significant correlation between ILW and performance with correlation coefficient ( $r$ ) of 0.648 with a  $p$ -value of 0.000. The ANOVA findings also showed performance of manufacturing enterprises could strongly be predicted by ILW as well as a positive association between ILW as an ART solution and performance of the manufacturing companies.

Therefore we could reject the first null hypothesis that there is no significant relationship between ILW and the performance of Nigeria manufacturing companies.

This prove that all the benefits offered by ILW do have real impact on the performance of the manufacturing concerns. By shifting the risk exposure of the sector to the capital market not only protect against catastrophic losses that could have sunk an enterprise into oblivion, it provides another means of profit making opportunity to investors.

The study underscores the potential role of ART strategy can play in shaping and influencing success trajectory of the manufacturing industry. Understanding of a positive relationship between ART and performance as shown in this study can provide a valuable compass for strategic decision making, risk mitigation strategy and basis for organizational resilience.

The empirical findings reveal that Industry Loss Warranties (ILW) as a form of Alternative Risk Transfer solutions is expected to wield a positive and significant effect on Performance of manufacturing companies (PMC). This implies that average coefficient of 0.342 and  $p$ -value of 0.000, shows that Industry Loss Warranties (ILW) has a positive and significant impact on the Performance of manufacturing companies. That is the initiation of a unit change in Industry Loss Warranties (ILW) confirms the theory to the time about 0.342, which means increase in Industry Loss Warranties (ILW) causes 0.342 increases in the Performance of manufacturing companies. Hence, we fail to accept the first null hypothesis and we accept the alternate hypothesis that there is a significant relationship between the use of loss warranties and the performance of Nigeria manufacturing companies. The implication of this study to policymakers and regulators of pension funds business in Nigeria is that it informs them that different assets and liabilities contribute differently to the profitability of the company. This creates a need to identify assets with higher returns and liabilities with lower cost in order to increase profitability. Efficient management of these assets and liabilities will enable pensioners maximize profit and create value for shareholders.

### Recommendations

Based on the findings of the study, the researcher recommends:

1. Manufacturing companies should seek to understand their exposure and develop appropriate alternative risk transfer solutions that cater to their specific needs and risk profiles, rather than adopting a one-size-fits-all approach.
2. Manufacturing companies should engage with risk management consultants or insurance brokers who have expertise in alternative risk transfer solutions to ensure the chosen strategies are effective and appropriate.
3. Manufacturing companies should implement a system for continuous monitoring and evaluation of the alternative risk transfer strategies to ensure they remain effective over time.
4. Manufacturing companies should maintain transparency with stakeholders about the company's risk management strategies and comply with international standards to build trust and confidence.

5. Manufacturing companies should stay abreast of the latest developments and innovations in alternative risk transfer solutions to leverage new opportunities and improve risk management.
6. Government and the Manufacturers Association of Nigeria, MAN should create an enabling environment for Alternative Risk transfer, ART to thrive in the Nigerian space in conjunction with the Security and Exchange Commission, SEC. To do this, MAN needs to sensitize and engage its members on ART and its benefits.
7. Appropriate pricing for ART is still an issue across the world. It will be more so in Nigeria given its relative novel status. Therefore, MAN and SEC must work together and keep at it till perfect pricing mechanism can be achieved.
8. The industry or organization must determine the upper limit of business investment in ART as a percentage of the balance sheet beyond which there is no significant positive impact on performance or result in negative performance.

## Further Study

As it was not possible for the researcher to cover all investigate the impact of alternative risk transfer solutions on hidden liabilities and contingent risks that may not be fully reflected in all studies. Thus, beyond the two used in the study, further studies will be on the effects on other relevant assets and liabilities, such as receivables, payables, inventory, and long-term debt. Analyze the impacts of various alternative risk transfer options, including captives, insurance-linked securities, and catastrophe bonds. Further studies would explore risk transfer solutions tailored to the specific risks faced by different manufacturing sub-sectors in Nigeria. Further studies could be carried out using variables like interest rate etc. In addition, other the impact of alternative risk transfer solutions on hidden liabilities and contingent risks

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