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TELEMATICS-DRIVEN STRATEGIC RISK MANAGEMENT FOR SECURING VEHICLE CREDIT FINANCING IN LAGOS STATE

BY

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ABSTRACT

This study investigates telematics-driven strategic risk management in securing vehicle credit financing in Lagos State, Nigeria. The study adopted a survey research design. A sample of 286 respondents was drawn from stakeholders in vehicle financing, telematics, and insurance. One hundred and sixty-eight (168) of the respondents were males and one hundred and twelve (112) were females. Four hypotheses were raised and tested using descriptive statistics, Pearson correlation, t-tests, and regression analysis. The findings of the study revealed a significant difference [$t(284) = -18.452$, $p < .01$] in default rates of vehicles with telematics monitoring ($\bar{x} = 8.42$) compared to those without telematics monitoring ($\bar{x} = 16.68$). Also, telematics adoption was found to significantly predict asset recovery performance ($R^2 = .666$, $\beta = .816$, $p < .001$). Furthermore, integrated stakeholder frameworks incorporating telematics data was found to be significantly related intervention effectiveness ($r = .789$, $p < .001$). Finally, the result revealed that telematics usage intensity showed a strong positive correlation with portfolio performance metrics ($r = .698$, $p < .001$). The combined results affirm the transformative role of telematics in mitigating risk, improving recovery efficiency, and strengthening portfolio outcomes. The study concluded that adopting comprehensive telematics systems and fostering stakeholder integration are essential for effective risk management in vehicle financing. It was recommended that financiers, regulators, and technology providers collaborate to promote cost-effective telematics adoption, strengthen awareness campaigns, and establish supportive policy frameworks that enhance credit security and financial stability in Nigeria's automotive finance sector.

Keywords: Telematics, Strategic Risk Management, Vehicle Financing, Asset Recovery, Portfolio Performance

INTRODUCTION

The vehicle financing sector in Nigeria has experienced unprecedented growth in recent years, driven by rapid urbanization, the proliferation of fintech platforms, and increasing demand for personal mobility solutions (Adeniran *et al.,* 2022). This growth trajectory reflects broader economic trends across Sub-Saharan Africa, where expanding middle classes seek improved access to transportation infrastructure and personal mobility options. Lagos State, as Nigeria's economic hub with over 15 million residents, represents the largest market for automotive credit, accounting for approximately 35% of the country's vehicle loans (Nigeria Inter-Bank Settlement System, 2023).

The emergence of digital lending platforms has fundamentally transformed the automotive finance landscape, enabling faster loan origination processes, improved customer experience, and expanded market reach. Digital lenders, commercial banks, and specialized automotive financiers have expanded their offerings to serve a growing middle class seeking access to personal transportation. These platforms leverage mobile technology, alternative credit scoring mechanisms, and streamlined application processes to reach previously underserved market segments (Okafor & Williams, 2023).

However, this rapid expansion has not been accompanied by commensurate improvements in risk management infrastructure. Traditional credit assessment methods, largely dependent on income verification and basic collateral evaluation, have proven inadequate for managing the complex risk environment characteristic of emerging markets. The reliance on conventional risk assessment approaches has created significant vulnerabilities in portfolio quality, as evidenced by elevated default rates and substantial asset recovery challenges across the sector (Adebayo & Thompson, 2023).

The integration of Internet of Things (IoT) technologies, particularly telematics systems, presents a significant opportunity to transform credit risk management in the automotive finance sector. Telematics technology combines global positioning systems (GPS), onboard diagnostics, and wireless communication to provide real-time monitoring of vehicle location, usage patterns, and operational status. This technological convergence offers unprecedented visibility into asset performance and borrower behavior,

creating new possibilities for proactive risk management and enhanced recovery capabilities (Kumar & Sharma, 2023).

International experience demonstrates the transformative potential of telematics-enabled risk management in automotive finance. Advanced markets have successfully implemented integrated systems that combine real-time vehicle monitoring with predictive analytics, intervention effectiveness, and automated intervention capabilities. These implementations have demonstrated significant improvements in portfolio performance, reduced default rates, and enhanced asset recovery outcomes (Chen et al., 2023).

Objectives of the Study

The aim of this study is to examine telematics-driven strategic risk management for securing vehicle credit financing. Specifically, this study aims to:

1. Establish the relationship between telematics monitoring and default rate.
2. Determine the influence of telematics on asset recovery performance.
3. Ascertain the relationship between telematics-integrated stakeholder framework and the effectiveness of vehicle credit financing intervention.
4. Establish the link between telematics usage and portfolio performance.

LITERATURE REVIEW

This chapter presents a comprehensive review of existing literature on telematics-driven strategic risk management in vehicle credit financing, with emphasis on emerging technologies, risk assessment frameworks, and stakeholder coordination mechanisms. The chapter is structured into four main sections: this preamble, theoretical and conceptual review, empirical review, and identification of gaps in the literature. The theoretical and conceptual review examines fundamental theories that underpin telematics applications in financial services, including Technology Acceptance Model, Stakeholder Theory, and Financial Risk Management Theory.

Conceptual Review

Telematics in Vehicle Financing

Telematics as vehicle financing is a combination of telecommunications, vehicle technologies, informatics, and data analytics to create real-time monitoring, evaluation and management of financed vehicles during

the loan lifecycle (Kumar & Sharma, 2023). This concept involves both physical devices that are fitted in the vehicles (GPS trackers, onboard diagnostic ports, accelerometers, and cellular communication modules) and software platforms, which gather, process, and analyze the data on the vehicle operations to aid in the process of credit risk assessment and asset management. Telematics has a financial implication that is not limited to basic tracking of assets but extensive behavioral analytics to forecast potential default risk of a borrower, implement optimal recovery approaches, and enable proactive intervention systems.

As Chen et al. (2023) underline, contemporary telematics systems generate continuous data streams that allow lenders to have operational transparency on their loan portfolios in addition to adopting more advanced risk management strategies as compared to the conventional approaches of analyzing the credit status of loans through a static system. Modern literature has contributed substantially to the knowledge about the telematics usage in the financial services sector and has come to understand that they are not the same as the primitive vehicle tracking tools that mainly sported simpler text messages that were sent to drivers, but as a sophisticated system of risk management tools that incorporate various types of data.

According to Rodriguez and Kim (2023), to successfully deploy the use of telematics in financing vehicles, it should be integrated with vehicle operating data, behavioral patterns of the borrower, geographical risk variables, and macroeconomic variables to develop comprehensive risk assessment systems, which can realign themselves with emerging market variables. The introduction of Internet of Things (IoT) technologies into telematics systems has brought in new possibilities to monitor risks in real-time and decide on the automated level when it comes to vehicle financing. The article by Patel and Chen (2022) focuses on discussing how telematics systems with the IoT can help to supply a continuous risk assessment, automated early warning, and predictive analytics to the lenders to take immediate actions to reduce risks before defaults can happen. According to their study, the incorporation of IoT will allow turning the field of telematics into predictive risk management systems as opposed to reactive ones. None of the existing telematics data analysis machine learning applications can be ignored as essential elements of a modern

vehicle financing risk management system. Williams and Thompson (2023) discuss the ways in which artificial intelligence algorithms can be used to analyze large volumes of telematics data to identify the patterns of risks, anticipate the risk of default and recovering methods more accurately than the conventional statistical techniques. This technology allows more efficient pricing of risk and more customized lending strategies which can be used to enhance the profitability of lenders and the credit accessibility of borrowers.

The authors Johnson and Lee (2023) consider how telematics platforms can be used to share information among lenders, dealers, insurance companies, and recovery agents without violating data privacy and security standards. Their discussion shows that effective implementation of telematics needs advanced data governance models that have the potential to balance transparency with confidentiality across several organizational boundaries. Telematics application aspects of regulatory compliance in the financial services sphere have complicated challenges of data privacy, consumer protection and ethical lending practices.

Green and Wilson (2022) examine the issues of the compliance of the telematics data collection and usage with the financial services regulation, data protection laws, and consumer privacy provisions and the operational effectiveness. In their study, they highlight that the answer to this is the existence of compliance framework that is capable of supporting technological innovation without affecting regulatory goals. The opportunities of dynamic credit management strategies that can modify the terms of loans, intervene strategy, and optimization of recovery processes due to the presence of the real-time decision-making capabilities that telematics systems introduce are created by the current state of borrowers and assets. In their study, Kumar and Smith (2023) explore the way in which the real-time telematics information can be used to assist adaptive credit management systems, which will react to the altering risk profiles during the loan lifecycle. Their research throws light on the prospect of dynamic pricing and risk sensitive loan structure made possible by telematics.

Strategic Risk Management in Financial Services

Financial services strategic risk management entails the process of identifying, evaluating, overseeing, and addressing financial risks that might have a profound effect on the capacity of an organization to realize its strategic goals and remain financially stable (Kaplan and Mikes, 2022). The idea is not just limited to the conventional credit risk management, but carries with it operational risks, market risks, regulatory risks and emerging technology risks resulting out of a complex interplay of various stakeholders, market conditions and technological abilities. The idea focuses on the active inclusion of the risk management considerations in the strategic planning activities, business models and operational decision-making structures. The classic financial risk management methods typically consider the risk types separately without acknowledging the interdependence of various risk types as well as the overall effect of risk factors on organizational performance (Rodriguez & Kim, 2023).

Modern financial services scholarship has outlined some major dimensions of strategic risk management that are especially specific to lending activities which are technology-enabled. Digital risks of transformation are because new technologies are introduced in old business practices, and organizations have to balance the risks of technology adoption, threats of cybersecurity, data management issues, and difficulties of regulatory compliance at the same time (Chen and Martinez, 2022). These multidimensional risks necessitate complex management structures that can tackle technological, operational as well as regulatory aspects in combined initiatives. The presence of stakeholder coordination risks is a grave type of strategic risks within complicated financial ecosystems with various actors having accountability over different elements in the lending procedure.

Morrison and Clark (2022) explore the ways, in which lenders, technology providers, dealers, recovery agents, and regulatory authorities need to ensure the coordination of their actions in order to give successful risk management results. Their study indicates that misalignment of the stakeholders may result in systemic risks, which are greater than the aggregation of individual risks in the organization and the level of risk management requires joint risk management strategies.

Financial services market evolution risks are a manifestation of the dynamism of competitive environments, regulatory

frameworks and customer expectations that can significantly change the efficacy of current risk management methods in a short period.

Dubois and Herrmann (2023) examine the way in which financial institutions in the emerging markets have to revise their risk management frameworks in order to cope with the varying economic factors, the regulatory demands, and the growing customer sophistication. They highlight in their work that adaptive risk management systems are required so that they can adapt with the changing market conditions. The effects of operational scalability risk arise when the efficacious risk management strategies worked out in small-scale operations fail to be useful in large-scale deployment.

The article by Ahmed and Nakamura (2022) focuses on the problem of the possibility of unexpected difficulties when risk management systems that work successfully in pilot projects are applied to larger market segments or geographical areas. They have used the research to demonstrate the significance of scalability in the strategic risk management planning. Technology integration challenges are particular issues that deal with the difficulties of introducing new technological capabilities into the existing organizational systems and regulations.

Taylor and Brown (2021) explore how financial institutions can take the risks of implementing the emerging technologies, and remain stable in their operation and compliance with regulations. Their discussion shows that the integration of technology has to be properly balanced in terms of benefits of innovation and the risk of implementation. The risk of data governance has gained much prominence as financial institutions are increasingly depending on data based decision making and automated risk assessment mechanisms. Thompson and Lee (2022) discuss the necessity of organizations to deal with data quality, data security, data privacy, and algorithmic bias risks and obtain competitive advantage by using data analytics capabilities. Their study highlights that strategic consequences of risks in data governance may not simply be restricted to the operations. The risks of regulatory adaptation indicate the difficulties encountered by the financial institutions in their endeavor to stay afloat with the new requirements by the regulators as they strive to achieve the strategic goals.

Vehicle Credit Financing Ecosystem

The vehicle credit financing ecosystem is the extremely complicated network of financial institutions, technology suppliers, car dealers, regulatory agencies, and service providers that cooperate in their efforts to offer vehicle financing services to consumers and businesses (Adeniran et al., 2022). The digital lending platforms, finance technology innovation, and changing the consumer demands have transformed the ecosystem in numerous aspects which has offered new opportunities and challenges to risk management and coordination of operations. The stakeholders of modern car finance markets are more varied with the usual banks experiencing new specialized car finance firms, peer-to-peer lending platforms, technology-enabled fintech companies.

Okafor and Williams (2023) explain that this diversity simultaneously presents both the opportunities of innovations and issues with the coordination of risk management as the different kinds of lenders with various regulatory frameworks apply different risk assessment strategies. The digitalization of vehicle financing has transformed the ecosystem in that it has also enabled the quickness of the loans, risk assessment, and customer experience. However, new dependence on technology infrastructure, data sharing infrastructure and cybersecurity processes have also been involved in this change, which must be adequately dealt with to maintain the stability of the system and consumer privacy (Nigerian Fintech Association, 2023).

The automotive dealers play a significant intermediary role in the vehicle financing ecosystem since they are the channels of contacts, determining the value of the vehicle, and the preliminary creditors. The lack of information asymmetries and the agency problem between dealers and lenders, as well as the association between the two entities, makes it a complicated matter and subjects it to the performance of risk management.

Adebayo and Thompson (2023) believe that dealer incentive schemes, training policies, and supervisory different mechanisms have an influence on the quality of loans originations and risk management in their initial stage. Another change in the ecosystem is that technology service providers are now very important players in terms of the process of vehicle financing becoming increasingly more digitalized, which is informed by data analytics and

automated decision-making systems. These providers must integratively add their services to other stakeholders and maintain the safety of data, system reliability, and adherence to different jurisdictions and regulatory demands (Chen et al., 2023).

Insurance companies and warranty brokers are another important risk-sharing participants in the vehicle financing ecosystem, which cover most risks, including the damage of the vehicle, theft, mechanical breakdown, and default of borrowers. Vehicle financing and insurance products integration opens the prospect of viewing the risks in a comprehensive way but entails coordination of diverse risk assessment strategies, in addition to claims management processes (Kumar & Sharma, 2023). The recovery service providers and enforcement service providers have played a very critical role in asset recovery process and non-performing loan management process. The effectiveness of these services is actually significant in the results of lender risk management and experiences of borrowers in the financial distress process.

The complex urban environment of the Lagos State poses certain barriers of asset recovery, which require certain local experience and coordination abilities (Lagos State Ministry of Transportation, 2022). Car financing eco system can be controlled through various mechanisms that entail banking regulation, consumer law, data privacy regulation and car industry requirements. The multi-regulatory environment entails intricacies of adhering to the system by those involved in the ecosystem and meaning much in stabilizing the systems and protecting consumers (Central Bank of Nigeria, 2023).

Credit bureaus and credit information sharing systems are very crucial in the vehicle financing ecosystem because they provide an easy access to credit histories of borrowers by lenders and share the performance information. However, the coverage and quality of data in credit information systems in the emerging markets is low that creates a certain risk in risk assessment and coordination (Nigeria Inter-Bank Settlement System, 2023). The performance of vehicle financing ecosystem regarding the consumer demand, default rates, vehicle value and cost of funding is also hugely affected by the economic environment. The stability of the ecosystem is also a particular problem of the volatility of the macroeconomic system of emerging markets, and requires adaptive risk

management strategies to overcome the economic uncertainty (Eze & Okwu, 2023).

Theoretical Framework

Technology Acceptance Model (TAM)

Technology Acceptance Model Technology acceptance model was initially conceived by Davis (1989) and later on improved by Venkatesh et al. (2023) offers an all-round perspective on decision making by individuals and organizations about adoption of new technologies. The model estimates the role of the perceived usefulness and perceived ease of use as the key variables that determine the technology adoption intention mediated by attitudes towards the use of the technology and moderated by diverse external variables such as support provided by the organization, quality of training, and properties of the system. Applied to the situation of telematics implementation in vehicle financing, TAM assists in understanding why the rates of adoption among various groups of stakeholders and organizational settings are different. The perceived usefulness here is associated with the beliefs of stakeholders regarding the extent to which the telematics systems can be effective in the risk management, operational cost reduction and competitive positioning. The perception of ease of use considers the issues of implementation complexity, training needs, and integration with the current systems. The modern usage of TAM to the technology adoption in financial services acknowledges the multi-stakeholder character of the current financial ecosystems in which decisions regarding technology adoption should take into account not only the personal gain of an organization but also network effects and coordinating needs of the entire ecosystem.

The long version of the TAM includes other variables such as trust, security issues, mandatory regulatory compliance and inter-organizational compatibility which are relevant especially to financial services. The external variables focus of the model gives it analytical resources to explain the impact of some of the attributes of organizations, the technological infrastructure, regulatory environment and market conditions on the decision to adopt technology. These external factors, which can be resource constraint, uncertainty in regulation, infrastructure, and other forms of technological sophistication that vary considerably relative to others countries, can be applied in an emerging market situation.

METHODOLOGY

The research design was established as a two-research design because of the nature of issues under study and answering research questions and testing hypotheses. The former design is exploratory research design that assists in formulating problems, developing hypotheses and understanding the subject matter. The other is descriptive research design that assists in gathering first hand information of the respondents such that rational and valid conclusions and recommendations on population, sample and sampling techniques, research instrument and instrumentation, validity of the instrument, reliability of the instrument, data collection procedure and data analysis procedure.

Research Design

The type of research that was adopted in this study was quantitative research approach. It is also known that research design is the primary frame through which the data collection procedure is indicated by the sources and the nature of the data to be collected (Ferber, Robert and Verdoon, 2013). In particular, the cross-sectional research design will be employed in order to sample the population opinion at a single point in time. The quantitative method was specifically suitable in this research because it allows the researcher to gather numerical data concerning the adoption of telematics technology, risk assessment processes, credit financing processes, and strategic risk management performance.

Population of the Study

The population of the study will include all the stakeholders of vehicle credit financing in Lagos State. These are vehicle financing institutions, insurance companies, telematics service providers, credit and risk management professionals, vehicle dealers and other relevant regulatory officials. The target population is narrowed down to professionals in credit financing, insurance and telematics firms with practical experience and knowledge in the application or exploration of the telematics-based risk management system. This group was selected as they are the ones that are directly involved with the technologies and strategies that are the focus of the study.

Sample and Sampling Techniques

The methods that are used in the process of choosing samples that reflect the population are referred to as sampling techniques.

These are the methods of sampling the population under analysis according to Adedayo (2006) because in most instances it is not always possible and practical to use the entire population when examining the findings. The sample size of the study was calculated using the formula below.

$n = N / (1 + N(e)2)$

Where:

n = required sample size

N = sample population

e = level of significance (a fixed constant) 0.05.

Considering the fact that the number of professional people, who are likely to be interested in the project, in vehicle credit financing, in telematics companies, and insurance companies in Lagos State is estimated to be about 1,250:

n = 1,250 / (1 + 1,250(0.05)2) n = 1,250 / (1 + 1,250(0.0025)) n = 1,250 / (1 + 3.125) n = 1,250 / 4.125 n = 303

Thus, 303 respondents will be chosen to participate in this research.

The Stratified Random Sampling technique will be used to perform a sample distribution of the study. The sampling will be done in this way to have equal representation of various types of stakeholders such as:

Vehicle financing companies (40% -121 respondents)

Telematics service providers (25% -76 respondents)

Insurance companies (20% -61 respondents)

Credit analysts and risk managers (15% -45 respondents)

Simple Random Sampling was applied within each stratum to identify individual respondents and every member of the population has an equal opportunity of being selected.

Data Collection Instrument/Validation

The questionnaire is a tool of collecting data that cannot be readily accessed by the researcher, through physical means (Asika, 1999). The data collection tool that would be applied in the survey is a structured questionnaire. The views of the respondents on questions were measured on a Likert scale of 5 points with the extremes of 1 (Strongly Disagree) to 5 (Strongly Agree).

The content validity of the questionnaire would be handed over to the project supervisor and subject matter experts and then finally used. Besides, the instrument has been verified by experts in telematics technology, risk management, and vehicle financing to achieve face validation and content adequacy.

Data Analysis

The data analysis approaches in this research were inferential and descriptive. The statistics to be presented and analyzed concerning the biographical data and the research questions of respondents will be done through descriptive statistics in terms of frequency distributions, percentages, means, and standard deviations. The descriptive analysis will entail the knowledge of the present condition of the telematics adoption, the risk management practices, and the credit financing security practices among the sampled people. The strength and direction of correlation between the adoption of telematics technology and the effectiveness of strategic risk management will be established through Pearson Product-Moment Correlation. The analysis will be performed with the help of a software tool that is the IBM Statistical Package of social sciences (SPSS) version 28.0. This software is equipped with rigorous statistical analysis which is applicable both on descriptive and inferential statistical tests needed in this study.

FINDINGS

Hypothesis One

Ho: Vehicles with telematics monitoring will not significantly differ in default rates compared to those without telematics monitoring

H1: Vehicles with telematics monitoring will significantly differ in default rates compared to those without telematics monitoring

Table 4.6: Independent Samples T-test comparing default rates between vehicles with and without telematics monitoring

Group	N	$\bar{x}$	SD	df	t	P
With Telematics	154	8.42	3.21	284	-18.452	<.001
Without Telematics	132	16.87	4.18			

able 4.6 demonstrates that there is a big difference in default rates of vehicle loans with telematics monitoring and none with telematics monitoring [t (284) = -18.452, p<.001). Carm with telematics recorded very low default (x = 8.42, SD = 3.21) in comparison to vehicle without telematics (x = 16.87, SD = 4.18). Thus, the alternative hypothesis is accepted and the null hypothesis is rejected. This means that in vehicle financing, telematics monitoring is one of the factors that decrease the default rates.

Hypothesis Two

H_0: Telematics adoption will not significantly predict asset recovery performance.

H_1: Telematics adoption will significantly predict asset recovery performance.

Table 4.7: Simple regression analysis showing telematics adoption as predictor of asset recovery performance

Model	R	R^2	Adjusted R^2	β	F	P	t	Sig.
(Constant)	.816	.666	.665		565.876	<.001	6.842	.000
Telematics Adoption				.816			23.788	.000

a. **Dependent variable:** Asset Recovery Performance

b. **Predictor variable:** Telematics Adoption

The outcome in Table 4.7 indicates that the adoption of telematics is a significant predictor of asset recovery performance [F (1,284) = 565.876, p<.001), accounting 66.6 percent of the variance in asset recovery performance (R2 = .666, p<.001). The standardized beta coefficient (b =.816) suggests a positive strong connection. Thus, the null hypothesis is dismissed and alternative hypothesis is accepted. This means that the use of telematics technology has a great impact on the recovery rate of assets and the recovery time.

Hypothesis Three

H_0: There will be no significant relationship between integrated stakeholder framework incorporating telematics data and intervention effectiveness.

H_1: There will be significant relationship between integrated stakeholder framework incorporating telematics data and intervention effectiveness.

Table 4.8: Pearson product moment correlation test on research hypothesis III

	Integrated Framework	**Intervention Effectiveness**
Integrated Framework	Pearson Correlation: 1	Pearson Correlation: .789**
	Sig. (2-tailed): -	Sig. (2-tailed): .000
	N: 286	N: 286
Intervention Effectiveness	Pearson Correlation: .789**	Pearson Correlation: 1
	Sig. (2-tailed): .000	Sig. (2-tailed): -
	N: 286	N: 286

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

As the outcome of Table 4.8 shows, the relationship between integrated stakeholder framework and intervention effectiveness is strongly positive ($r = .789$, $p < .001$). The p-value is.000, that is below the 0.05 significant level. Thus, the null hypothesis is dismissed, and the alternative one is accepted. It means that an integrated stakeholder system that includes telematics information influences the effectiveness of the intervention greatly.

Hypothesis Four

H_0: There will be no significant relationship between telematics usage intensity and overall portfolio performance metrics among vehicle financiers

H_1: There will be a significant relationship between telematics usage intensity and overall portfolio performance metrics among vehicle financiers.

Table 4.9: Pearson product moment correlation test on research hypothesis IV

	Telematics Usage Intensity	Portfolio Performance
Telematics Usage Intensity	Pearson Correlation: 1	Pearson Correlation: .698**
	Sig. (2-tailed): -	Sig. (2-tailed): .000
	N: 286	N: 286
Portfolio Performance	Pearson Correlation: .698**	Pearson Correlation: 1
	Sig. (2-tailed): .000	Sig. (2-tailed): -
	N: 286	N: 286

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

Table 4.9 result indicates that there is significant positive correlation (r =.698, p<.001) between the metrics of portfolio performance and the telematics usage intensity. The p-value =.000, which is not greater than the significance level of 0.05. Thus, the null hypothesis is disapproved and the alternative one is approved. The implication of this is that telematics intensity of usage and the entire portfolio performance metrics have a strong relationship among vehicle financiers.

Discussion of Findings

This paper examined strategic risk management through telematics as a factor in achieving vehicle credit financing in Lagos State on risk triggers, trends in technology adoption, advantages of integration and efficiency of operations. The initial hypothesis was whether the telematics monitoring has a significant impact on the default rates.

The independent samples t-test found the significant difference [t (284) = -18.452, p<.001], and vehicles monitored using telematics had much lower rates of default (8.42%) than the vehicles that were not monitored (16.87%). The identified result is consistent with the global studies conducted by Handel et al. (2021) who proved that the concept of real-time monitoring technologies produces alterations in the behavior of borrowers, turning them into more responsible financial actors and making them less likely to default. The second hypothesis was whether the prediction of asset recovery performance is presented by the adoption of telematics.

The simple regression factor analysis verified that the adoption of telematics has a significant predictive power on the performance of asset recovery [F (1,284) = 565.876, p<.001) with 66.6 percent variance. Such a high predictive correlation confirms the results of Martinez and Chen (2022),

who found that GPS-tracked vehicle tracking systems decreased the average recovery time by 45 days to 12 days in an emerging market situation.

The third hypothesis was on integrated framework efficacy and intervention abilities. The positive correlation between the two variables ($r = .789$, $p < .001$) is significant, which proves that the cooperation of the stakeholders with the data, using the telematics, improves the predictive abilities and interventions efficiency significantly. This supports the study by Thompson et al. (2023), who realized that default prediction was enhanced by 60% through built-in risk management systems that integrated multiple sources of data.

The fourth hypothesis tested the interaction between the intensity of the use of telematics and the portfolio performance. High positive correlation ($r = .698$, $p < .001$) is observed to show that the stronger the telematics adoption intensity, the better overall portfolio metrics. This observation speaks in the favor of Rodriguez and Kumar (2023), who reported better portfolio performance relationships with a thorough implementation of telematics in emerging financial markets.

Conclusions

In accordance with the research findings, a number of conclusions can be made on the strategic risk management based on telematics and financing of vehicles. This research conclusively proves that telematics technology is an innovative tool that can be used to mitigate risks, since the traditional reactive tools have limitations, and proactive risk management measures can be adopted. Companies that introduce comprehensive telematics systems are able to benefit by increasing their decision-making power due to real-time data analytics and risk prediction modeling.

The study also arrives at a conclusion that efficiency of asset recovery and prevention of default directly depends on the intensity and sophistication of the implementation of telematics in the vehicle financing operations. Well-designed and executed integrated stakeholder frameworks generate synergy effects, which greatly enhance the personal organizational risk management capacity.

Through the study, it is determined that telematics technology is used to solve the underlying information asymmetry issues in the vehicle financing markets, especially in

the emerging economies where the standard mechanisms used in credit evaluation might fail. The technology is able to offer round the clock monitoring, speed of intervention capabilities which makes it a necessary ingredient of state of the art vehicle financing risk management model.

Moreover, the study establishes that the implementation of telematics should be done in a collaborative fashion between financiers, technology suppliers, enforcers and regulators. The combination of various forms of data and stakeholder potential results in full-fledged risk management ecosystems that are greater than the total of parts.

Recommendations

The recommendations are based on findings of the study and the following recommendations are offered to practice in the industry, policy formulation and the collaboration of stakeholders.

1. Companies need to focus on the creation of all-encompassing telematics-supported risk management systems instead of the prevalent use of conventional evaluation tools. This proactive level involves investing in combined technology solutions, employee training and collaboration building with special telematics providers. Graduated levels of telematics adoption should be adopted by financiers starting with high-risk areas of portfolio and extending it upon value creation realization.
2. Service providers in Telematics should aim at coming up with user friendly and cost effective solutions that are specific to the market conditions in the emerging markets. These entail development of modular systems that can be implemented on a scaled basis, building local technical support systems and developing structures of partnership with financial institutions.
3. Regulatory bodies are encouraged to come up with elaborate systems that will regulate the use of telematics in financing vehicles that include consumer protection, privacy of data, and fair lending. The laws are to promote innovation and provide proper consumer rights protection, and market stability.
4. The stakeholders are expected to form industry consortium to help in sharing of best practices, technical standards and making integrated data platforms to enable all the participants get the benefits without derailing competitive

benefits. Such collaborative models must comprise standardized data formats, interoperability protocols and shared infrastructure development.

5. The government agencies are expected to initiate the policies that promote the use of telematics by using tax reduction policies, regulatory sandboxes, and offering the opportunities of public-privacy partnership. Infrastructure development that facilitates the use of internet of things and data transmission is to be prioritized to facilitate the extensive implementation of the technology.

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