**Analysis of the Effects of Ex–Ante Risk Management Strategies on Agripreneurs Financial Performance in North Central Nigeria**

**N.J. Okutue and P.O. Idisi**

Department of Agricultural Economics and Extension, University of Abuja, Nigeria

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| **Abstract**This study evaluated the effect of ex-ante risk management strategies on agripreneur’s financial performance in North Central Nigeria. The multistage random sampling technique was adopted in the selection of the agripreneurs that was used to select 300 respondents from Nasarawa, Niger and Kogi States .Well -structured questionnaires were used to elicit the required data from the respondents. Descriptive statistics and multiple regression analysis were used to analyze the data. The agripreneurs adopted risk identification, risk evaluation and risk communication as ex-ante risk management strategies. Brainstorming was used by 33.33 percent of the agripreneurs, which is the major type of risk identification technique adopted. The failure mode and effect analysis method of risk evaluation was adopted by majority of the agripreneurs representing 38.67 percent of the respondents. 28.30 percent of the agripreneurs communicated issues relating to risk from the management to the worker. The value of the R2 for the input, production, processing, marketing and service models indicate that 82.1%, 87.2%, 78.4%, 90.9% and 76.9% of the total variations in the dependent variable were due to the variability of the independent variables. This implies that the ex-ante risk management strategies adopted by the agripreneurs have significant effect on their financial performance. Agripreneurs should be enlightened that risk is essential in the success of a business as entrepreneurs with high risk attitude may earn more returns. Government should come up with policies meant to protect agripreneurs from undue risk exposure to reduce the level of risk. |

**Key Words: Agripreneurs, Ex-ante Risk Management Strategies, Financial Performance**

1. **Introduction**

Risk is a major issue that affects so many aspects of people’s livelihoods in the developing world. It affects whether people can own and maintain assets and endowments, how these assets are transformed into incomes via activities and how these incomes and earnings are translated into broader development outcomes (Euphrasie, 2009). According to Salimonu and Falusi (2009), apprehension of risk induces certain behaviour into a farmer and this would grossly affect enterprise selection and consequently his resource use and allocation pattern. The rural poor are risk averse as they are always skeptical of losing the little resources that they have at their disposal and thus specialize on the risk-low return activities (Collier and Gunning, 1999). These farmers are therefore more of risk minimizers contrary to the neo-classical principle of profit maximization (Salimonu and Falusi, 2009). In rural areas, risk is present in all management decisions of agricultural systems, due to price, yield and resource uncertainty. The existence of such risks has been found to alter household behaviour in ways that at first glance seem suboptimal. Indeed, farmers take their decisions in a risky environment such that the consequences of these decisions are often not known with certainty until long after those decisions occur. As a result, outcomes may be better or worse than expected. In the empirical literature, many researchers have found that risks cause farmers to be less willing to undertake activities and investments that have higher expected outcomes, but carry with them risks of failure (Adebusuyi, 2004; Alderman, 2008).

Indeed, in economic terms, the Nigeria agriculture is still in a state of underdevelopment characterized by subsistence (peasant) activity (a way of living) instead of a commercial activity (a way of earning a living) leading to absolute lack of production plans, use of crude tools, adherence to traditional attitudes, customs and beliefs and lacking in modern management practices (Onyebinama and Onyebinama, 2010). Chijioke (2013) posits that the potential of Nigeria’s agriculture and its dwindling fortune places urgent need to develop arrangement that can support agricultural development that is presently constrained by inappropriate technologies, institutional weakness and problems of organization and management. It means, therefore, that for our agriculture to remain competitive in the global economy there needs to be injection of new and creative ideas and processes for value creation in a sustainable manner. There are little doubts, therefore, that the nexus to bringing agricultural peasantry to agribusiness lies in adoption of modern management practices, processes and structures in service of agriprenuership. In this sense, agripreneurship as a concept specific to agriculture and drawn from wider agripreneurship is very critical and urgent (Chijioke 2013), and requires application of energy and passion towards the creation and implementation of new ideas and creative solution which constitute essential ingredients to taking calculated risks in terms of time, equity or career, and ability to formulate an effective venture team the creative skills to marshal needed resources, and fundamental skill of building solid business plans and recognizing opportunity where others see chaos, contradiction and confusion (Kuratko and Hodgetts, 2004).

Luke (2011) maintains that agricultural production is inherently risky because of variability of rainfall, animal mortality due to livestock diseases and fluctuations in output prices. The environment in most of developing countries is characterized by crop diseases, flooding, illness of household members and crop destruction by herdsmen, all these create uncertainty. (Capitanio, 2008).

 Sanusi (2011) cited in Olusanmi, *et al,* (2015) stated that risk management flaws was a major factor responsible for poor financial performance of many enterprises in Nigeria. Nigeria being prone to a lot of environmental inconsistencies requires a high degree of risk aversion strategy to break the cycle of poverty which engulfed over 70% of its population and also to achieve increased food production to meet her 3.18% population growth rate (NIPC, 2007, Ojo, 2003; Federal Republic of Nigeria Gazette, 2009; Alimi and Ayanwale, 2005, FOS, 1996).

1. **Classification of Risks in Agriculture**

Many authors have made efforts at classifying different kinds of risks that hit agriprenuers income, welfare and life generally. Using the analogy of colours in the spectrum Goucher (1996) stated that the range of business risks contains many shades and variations, but can be reduced to few primary types of risk, like primary colours, to include production risks, market risk and financial risks.

Generally speaking, scholars categorize types of risk differently, most times depending on study objectives and motives. Whereas Gabriel and Baker (1980) classified general sources of risk to include; business risk (which incorporates production risk and market risk) and financial risk. Sonka and Patrick (1984) identified three additional categories of business risk to include technological, legal/social and human. More recently, comparatively though, Anderson (1994) argued that any classification of risk should include social, health and policy risks as well as the traditional yield and price risks which are familiar to agribusiness. According to a range of scholars, the main sources of risk in farming specifically and agribusiness generally include production or yield risk, financial risk, price or market risk, institutional or political risk, environmental risk, human resource or personal risk and legal risk (Boehlje and Trede, 1997, Knor, 2011; Fleisher, 1990; Yassin, 2011; Hardaker et al 2004; Banquet Hambeton and Jose 1997: kay and Edwards, 1999; Fuksaku, 2007; Dorward et al. 2007: Burgaz 2000; Laurence et al. 2013).

These related literatures have used different ways to classify types of risks; the more traditional classification distinguishes four types of risk which primarily affect agriprenuers and farmers generally. These include production risks, which are related to the unpredictable nature of weather and to the uncertainty of performance of crops and livestock, including issues of technology, and price risk, which refers to uncertainty of prices for farm inputs and outputs and institutional risk that originate from uncertainty about the impact of government policies on farm profits and finally financial risks which refer to the risks related to the way a farm firm is financed.

1. **Ex-Ante Risk Management Strategies**

Ex- ante risk management strategies are taken in advance before the occurrence of the risk, as against those strategies used once the risk has occurred (ex-post). Farmers implement ex-ante strategies because of lack of mechanism to cope with risks ex-post (Korir, 2011). Natural hazards can be managed by irrigation, crop insurance and by growing resistant varieties. Market risks are managed by price stabilization programs, provision of information and credit subsides, social and state hazards on the other hand are political issues. The situation of smallholder farmers can be improved by increasing their political participation in decisions which affect their welfare and their future (Ellis, 1998). Market risks can also be managed by inventory management as well as forward and futures contracts.

Other responses include income diversification and farm enterprise diversification, organization flexibility avoidance of high risk-enterprise and holding liquid reserves of cash and credit. Income diversification involves widening the income earning portfolio while farm enterprise diversification is used to hedge against yield and price risk, disease and pest attach as well as seasonality, including adjusting levels of input and output (Ellis, 2000). Risk management as ex-ante strategies is undertaken by people in advance to reduce the rightness of the income sources which is also called income smoothing (Yassin, 2011). One clear example of income smoothing is income diversification, which could be achieved by combining different activity with low positive covariance, like planting two crops with different inputs and water requirement in the case of having water irrigation problems. In addition, income smoothing is attained by income skewing achieved by taking low-risk, low-return activities. Morduch (1995) posits that the sufficient way to deal with risk is trying to reduce its occurrence through income smoothing.

Valdes and Konandreas (1981) report that a particular may reduce yield risk by farming geographically dispersed plots of land or may use other cultural practices like growing short-season varieties that mature early in the season. Another strategy of managing risk is investing off-farm as a portifolio of farm and off-farm investments reduces risk (Mishra and Moreheart, 2001).

1. **Research Methodology**

This research was carried out in the North Central Geo-political zone of Nigeria. Multistage sampling technique was adopted in the selection of the agripreneurs that were used for the study.

The first stage involved a purposive selection of three states in the North Central Zone namely Nasarawa, Kogi and Niger States mainly of because accessibility, security challenges and time constraint. The second stage was a fact finding visit to the agripreneurs randomly selected from the three states in the North Central to ascertain their level of commitment to agribusiness and equally to ascertain the various agribusiness subsystems (types) prevalent in the study area.

The third stage involved a process of dividing the agriprenuers in the estimate into various agribusiness types: input, production, processing, marketing and support subsystems. The fourth and final stage involved adoption of purposive sampling technique to select at least 30 agribusiness comprising of not less than six agribusiness from each of the support systems selected from each of the senatorial zones of the three states that gives a total of one hundred agribusiness per state making a total sample six of three hundred agripreneurs. Primary data were collected through the use of well-structured questionnaire.The questionnaire elicited information on risk identification technique, risk evaluation technique, risk communication technique and ex-ante risk management technique. Descriptive statistics, cost and return analysis and multiple regression analysis were used to analyze the data.

1. **Model Specification**

i)The aggripreneur cost and returns model follows (Folayan and Bifrain, 2013) and specified thus:

 NEP = TR – (TVC + TFC)……………………………… (3.1)

Where:

NEP = Net enterprise profit in naira

TR = Total Revenue in Naira

TVC = Total variable cost in naira

TFC = Total fixed cost in naira

Gross Profit= TR – TVC ……………………………….. (3.2)

TR = Total Revenue

TVC = Total variable cost

ii)The multiple regression model were used to analyze the effect of ex-ante risk management strategy on financial performance of agripreneurs.

 The model is implicitly specified as:

 Y = f(X1,X2,X3,X4,X5,X6,X7,X8,X9,X10)……………………. (1)

The explicit form of the model is stated as

 Y = b0+b1X1+b2X2+b3X3+b4X4+b5X5+b6X6+b7X7+b8X8+b9X9+b10X10+*ei*…………...(3.4)

 Where

 Y = Financial Performance of Agriprenuership Enterprises in naira

X1 = Frequency of developing of document policy on risk management (V.F = 4, F = 3, S.W.F. = 2, R. = 1)

X2 = Frequency of maintaining regular update of firms risk register

 (V.F = 4, F = 3, S.W.F. = 2, R. = 1)

X3 = Frequency of report of events to identify risk (V.F = 4, F = 3,

 S.W.F. = 2, R. = 1)

X4 = Frequency of risk review process communication (V.F = 4, F

 = 3, S.W.F. = 2, R. = 1)

X5 = Frequency of evaluation and recording of risks (V.F = 4, F = 3,

 S.W.F. = 2, R. = 1)

X6 = Cooperative membership (yes = 1, no = 0)

X7 = Frequency of risk identification and review (V.F = 4, F = 3,

 S.W.F. = 2, R. = 1)

Bo = The parameter

Ei = The error term

Note: (V.F = very frequent, F= Frequent, S.W.F. = somewhat frequent, R = rarely).

Following Olayemi (1995) the relationship between the endogenous variable and each of the exogenous variables were examined using linear, exponential,semi-logarithm and double-logarithm functional forms. The lead equation was chosen based on the value of the coefficient of determination (R2), statistical significance and economic theory.

1. **Result and Discussion**

**i) The Level of Adoption of Risk Identification Techniques**

The risk identification strategies adopted by the agripreneurs include brainstorming, interviews, checklist, SWIFT, scenario analysis, bow tie analysis, direct observation, incident analysis and surveys. These strategies were used by the agripreneurs to identify the possible risks that may affect the enterprise. The analysis is presented in Table 1

**Table 1: Risk Identification Techniques by the Agripreneurs in the North Central Nigeria**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Risk Identification Techniques** | **Input** | **Marketing** | **Processing** | **Production** | **Support service** | **Total** |
| **Brainstorming** | 17(5.67) | 48(16.0) | 18(6.0) | 13(4.33) | 4(1.33) | 100(33.33) |
| **Interviews** | 0(0.0) | 6(2.0) | 0(0.0) | 3(1.0) | 0(0.0) | 9(3.0) |
| **Checklists** | 0(0.0) | 0(0.0) | 2(0.67) | 12(4.0) | 3(1.0) | 17(5.67) |
| **Structured “What-if” Technique (SWIFT)** | 0(0.0) | 0(0.0) | 14(4.67) | 6(2.0) | 2(0.67) | 22(7.33) |
| **Scenario Analysis** | 0(0.0) | 0(0.0) | 2(0.67) | 0(0.0) | 7(2.33) | 9(3.0) |
| **Bow Tie Analysis** | 0(0.0) | 0(0.0) | 1(0.33) | 0(0.0) | 0(0.0) | 1(0.33) |
| **Direct Observations** | 13(4.33) | 0(0.0) | 27(9.0) | 46(15.33) | 0(0.0) | 86(28.67) |
| **Incident Analysis** | 15(5.0) | 21(7.0) | 16(5.33) | 0(0.0) | 0(0.0) | 52(17.33) |
| **Surveys** | 0(0.0) | 0(0.0) | 0(0.0) | 0(0.0) | 4(1.33) | 4(1.33) |
| **Total** | 45(15.0) | 75(25.0) | 80(26.67) | 80(26.67) | 20(6.67) | 300(100.0) |

**Source: Field survey data, 2020. Note: values in parenthesis are percentages**

Brainstormings were used by 33.33 percent of the agripreneurs, which is the major type of risk identification technique adopted. Brainstorming involves a group of people working together to identify potential risks, causes, failure modes, hazards and criteria for decisions and/or options for treatment. Brainstorming should stimulate and encourage free-flowing conversation amongst a group of knowledgeable people without criticizing or rewarding ideas (Dinu, 2012).The marketing agripreneurs(16.00 percent) were the major users of this risk identification technique followed by the processing group with 6.00 percent.

Direct observation is a technique of risk identification used by 28.67 percent of the agripreneurs and majority of the production agripreneurs who are simply risk neutral.  This relatively simple technique is used daily in the enterprise by staff that are risk neutral in observing risky situations and hazards regularly (Dinu, 2012). The production and processing agripreneurs were the major users of this risk identification technique with 15.33 percent and 9.00 percent respectively.

Incident Analysis of risk identification was used by 17.33 percent of the agripreneurs. Incident analysis deals with identifying and evaluating risks or control failures that have been identified and developed usually from experience, either as a result of a previous risk assessment or as a result of past failures or incidents. The technique is used mostly by input, processing and marketing agripreneurs.

Other methods prominently used by the agripreneurs in risk identification include Structured “What-if” Technique (SWIFT) technique (7.33%), scenario analysis (3.00%), survey (1.33%), interviews (3.00%) and bow tie analysis (0.33%).

This is a systematic, team based exercise, where the facilitator utilizes a set of ‘prompt’ words or phrases to stimulate participants to identify risks.

 Scenario is a short story or description of a situation of how a future event or events might turn out or look like.  For each scenario, participants reflect and analyze the potential consequences and potential causes when analyzing risk. Bow tie analysis is a diagrammatic way of describing, linking and analyzing the pathways of a risk from causes to effects/consequences.

**ii) The Level of Adoption of Risk Evaluation Techniques**

The risk evaluation techniques adopted by the agripreneurs includes what-if analysis, checklist, harzard and operability study, failure mode and effect analysis and the fault tree analysis. The analysis is presented in Table 2.

**Table 2: Risk Evaluation Techniques by the Agripreneurs in the North Central Nigeria**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Risk Evaluation Techniques** | **Input** | **Marketing** | **Processing** | **Production** | **Support service** | **Total** |
| **What-if Analysis** | 0(0.0) | 15(5.0) | 8(2.67) | 0(0.0) | 0(0.0) | 23(7.67) |
| **Checklist** | 4(1.33) | 0(0.0) | 12(4.0) | 0(0.0) | 7(2.33) | 23(7.67) |
| **Hazard and Operability Study (HAZOP)** | 2(0.67) | 0(0.0) | 32(10.67) | 0(0.0) | 10(3.33) | 44(14.67) |
| **Failure Mode and Effect Analysis (FMEA)** | 25(8.33) | 18(6.0) | 18(6.0) | 52(17.33) | 3(1.0) | 116(38.67) |
| **Fault Tree Analysis (FTA)** | 14(4.67) | 42(14.0) | 10(3.33) | 28(9.33) | 0(0.0) | 94(31.33) |
| **Totals** | 45(15.0) | 75(25.0) | 80(26.67) | 80(26.67) | 20(6.67) | 300(100.0) |

**Source: Field survey data, 2020. Note: values in parenthesis are percentages**

The failure mode and effect analysis method of risk evaluation was adopted by majority of the agripreneurs representing 38.67 percent of the respondent; fault tree analysis was used by 31.33 percent while HAZOP was used by 14.67 percent of the respondents. This result implies that most agripreneurs confidence in business is inversely affected by failure in the past. This finding disagrees with Dinu (2012) who posited that the popularity of checklist among agripreneurs is due to the flexibility of checklist techniques and agrees with Ogoegbulam (2018) who find out that past failure in business limit agripreneurs ability to cope with business challenges.

**iii) The Level of Adoption of Risk Communication Techniques**

The risk communication techniques adopted by the agripreneurs include downward risk communication, upward risk communication, horizontal risk communication, diagonal risk communication, external risk communication and lateral risk communication. The analysis are presented in Table 3

**Table 3: Risk Communication Techniques of Agripreneurs in the North Central Nigeria**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Modes of risk communication** | **Input** | **Marketing** | **processing** | **Production** | **Support service** | **Total** |
| **Downward** | 30(10.0) | 37(12.3) | 18(6.0) | 0(0.0) | 0(0.0) | 85(28.30) |
| **Upward** | 0(0.0) | 0(0.0) | 2(0.7) | 0(0.0) | 0(0.0) | 2(0.70) |
| **Lateral** | 10(3.3) | 23(7.7) | 43(14.3) | 38(12.7) | 11(3.7) | 125(41.70) |
| **Diagonal** | 0(0.0) | 0(0.0) | 2(0.7) | 30(10.0) | 9(3.0) | 41(13.70) |
| **External** | 5(1.7) | 15(5.0) | 15(5.0) | 12(4.0) | 0(0.0) | 47(15.70) |
| **Total** | 45(15.0) | 75(25.0) | 80(26.7) | 80(26.7) | 20(6.7) | 300(100.0) |

**Source: Field survey data, 2020. Note: values in parenthesis are percentages**

The downward, lateral, and external communication techniques were mostly adopted by 28.30 percent, 41.70 percent and 15.70 percent of the agripreneurs respectively. This result implies that 28.30 percent of the agripreneurs communicate issues relating to risk from the management to the worker, 15.70 percent shares risk information among different structural levels within a business while 41.70percent communicate risk to the external environment of the business.

**vi) The financial Performance of the Agripreneurs (Ex-ante/Avoidance)**

The cost and returns of the agripreneurs prior to the event of any risk occurrence were analyzed in Table 4. below in order to reveal the financial strength of the agripreneurs based on their areas of activity.

**Table 4:** **Enterprise Cost and Returns of Agripreneurs in the North Central Nigeria (Ex-ante)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Input(N)** | **Production(N)** | **Processors(N)** | **Marketing (N)**  | **Support service** |
| Total revenue | 5,068,800.00 | 21,171,020.00 | 59,169,080.00 | 19,300,000.00 | 12,600,0000.00 |
| Total variable cost | 762,000.00 | 417,200.00 | 6,300,000.00 | 1,810,000.00 | 1,260,000.00 |
| Total fixed cost | 980,000.00 | 7,820,000.00 | 14,430,000.00 | 5,800,000.00 | 3,300,000.00 |
| Total cost | 1,742,000.00 | 8,237,200.00 | 20,730,000.00 | 7,610,000.00 | 4,560,000.00 |
| Gross profit | 4,306,800.00 | 20,753,820.00 | 52,869,080.00 | 13,500,000.00 | 11,340,000.00 |
| Net profit | 3,326,800.00 | 12,933,820.00 | 38,439,080.00 | 11,690,000.00 | 8,040,000.00 |
| Estimated loss due to risk management process | 459,350.00 | 2,493,500.00 | 3,691000.00 | 843,150.00S | 568,700.80 |
| Gross profit after estimated loss due to risk | 4,766,150.00 | 23,247,320.00 | 56,560,080.00 | 14,343,150.00 | 10,771,299.20 |
| Net profit after estimated loss due to risk  | 3,786,150.00 | 15,427,320.00 | 42,130,080.00 | 12,533,150.00 | 7,471,299.20 |
| Returns per naira invested | 1.91 | 1.57 | 1.85 | 1.54 | 1.763 |
| Returns per naira invested after risk management process | 2.17 | 1.87 | 2.03 | 1.65 | 1.638 |

**Source: Field survey data, 2020.**

From Table 4, which presents the analysis of the cost and returns of agripreneur. The agripreneurs involved in input gained N459, 350.00 due to the benefit of the implementation of avoidance risk management process. Risk management resulted to the increase in the return per naira invested from N1.91 to N2.17. Farmers constantly balance many risks related to production, employees, the market, and the climate by taking proactive measure which ensures the sustainability of their business (Schuch and Teegerstom, 2006).

The agripreneurs involved in production gained N2, 493,500.00 due to the benefits of the avoidance risk management process. Risk management resulted to the increase in the return per naira invested from N1.57 to N1.87. The agripreneurs involved in processing gained N3, 691,000.00 due to the benefits of the avoidance risk management process. Risk management resulted to the increase in the returns per naira invested from N1.85 to N2.03. Risk avoidance is necessary for processors as they are faced with serious health risks and the risk of loss of the product when not properly handled, this makes proactive risk management an imperative (Bassi *et al;* 2016).

The agripreneurs involved in marketing gained N843, 150.00 due to the benefits of the avoidance risk management process. Risk management resulted to the increase in the return per naira invested from N1.54 to N1.65.

The agripreneurs involved in support service gained N568,700.80 due to the benefits of the avoidance risk management process. Risk management resulted to the increase in the return per naira invested from N 1.763to N1.638.

**v) The Effect of Risk Management Strategies (ex-ante) on the Financial Performance of the Agripreneurs**

The multiple regression analysis result of the effect of the risk management strategies (ex- ante) on the financial performance of the agripreneurs is presented in Table 5

**Table 5: Effect of the risk management strategies on agripreneurs financial performance in the North Central Nigeria (ex- ante/avoidance)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Input agripreneurs** | **Production agripreneurs** | **Processing agripreneurs** | **Marketing agripreneurs** | **Service agripreneurs** |
| Constant | -609.117 | 6.193 | 5.149 | -4907.344 | -69.201 |
|  | (-0.884) | (3.632)\*\*\* | (5.968)\*\*\* | (-2.011)\*\* | (-3.001)\*\* |
| Frequency of developing of document policy on risk management | 480.900 | 0.238 | 0.147 | 262.168 | 2.108 |
|  | (2.571)\*\* | (3.210)\*\*\* | (3.375)\*\*\* | (2.117)\*\* | (0.117) |
| Frequency of maintaining regular update of firms risk register | 23.385 | 0.010 | 0.068 | 244.999 | 4.909 |
|  | (2.111)\* | (1.221) | (0.918) | (1.169) | (4.009)\*\*\* |
| Frequency of reporting of events to identify risks  | 9.072 | 0.003 | 0.085 | 212.002 | 3.254 |
|  | (2.942)\*\*\* | (2.576)\*\* | (1.501) | (1.323) | (0.223) |
| frequency of risk review process communication | 10.891 | 0.004 | 0.021 | 152.461 | 2.401 |
|  | (2.467)\*\* | (2.349)\*\* | (0.420) | (1.089) | (1.003) |
| Frequency of evaluation and recording of risks | 124.916 | 0.201 | 0.720 | 552.641 | 5.101 |
|  | (0.424) | (1.017) | (0.051 | (0.743) | (1.251 |
| frequency of risk management committee meetings | 17.856 | 0.011 | 0.037 | -1.601 | -0.701 |
|  | (0.817) | (1.251?0 | (0.924) | (-0.013) | (-0.553) |
| Cooperative membership | -14.640 | 0.009 | -0.070 | -186.396 | -6.996 |
|  | (-0.638) | (0.977) | (-0.727) | (0.679) | (1.009) |
| Frequency of risk identification and review | 18.197 | 0.009 | 0.277 | 366.980 | 3.970 |
|  | (1.077) | (1.539) | (1.409) | (1.124) | (0.184) |
| R-squared | 0.903 | 0.883 | 0.906 | 0.915 | 0.524 |
| Adj. R-squared | 0.876 | 0.851 | 0.870 | 0.882 | 0.460 |
| F-statistic | 32.934\*\*\* | 26.830\*\*\* | 25.264\*\*\* | 28.044\*\*\* | 8.201\*\*\* |

Source: survey data, 2020. Note:values in parenthesis are t- values

The value of the R2 for the input, production, processing, marketing and service models indicates that 82.1%, 87.2%, 78.4%, 90.9% and 76.9% of the total variations in the dependent variables were due to the variability of the independent variables and the number of significant variables in the models respectively. The models are statistically fit based on the value of the F-statistics which indicates that the models are significant at 1 percent. Therefore, the null hypotheses that the included independent variables in the model have no significant effect were rejected. Hence, we accept the alternative hypothesis that the included independent variables have significant effect on the dependent variable.

The frequency of developing document policy on risk management were found to be statistically significant at 5% and positive for the input agripreneurs, statistically significant at 1% and positive for the production agripreneurs, the processing agripreneurs ,marketing agripreneurs and service agripreneurs . This result implies that the cost of formulating and developing policy documents on risk is a significant risk management variable that positively affects the profit of the firms. The document serves as a guide to both the management and staff resulting to proactive guidelines for risk management and control.

The frequency of maintaining regular update of firms risk register were found to be statistically significant at 1% and positive for the input agripreneurs and production agripreneurs. This implies that the update and availability of a risk register enables the enterprises develop a checklist of the possible occurrence of risk for the proper management of risk, thereby enhancing the profit of the enterprises.

 The frequency of report of risk events were found to be statistically significant at 1% and positive for the input, production, processing and marketing agripreneurs This result implies that the cost of risk events report is a significant risk management variable that positively affects the profit of the firms. The document serves as a guide to both the management and staff resulting in proactive guidelines for risk management and control.

The frequency of risk review process communication was found to be statistically significant at 1% and positive for the marketing and service agripreneurs. Risk reviewing is a very important proactive measure to ensure that all possible risk are known, this enhances the performance of the enterprises involved.

The frequency of recording and evaulation of risk was found to be statistically significant at 1% and positive for input, production and processing agripreneurs. It was also statistically significant at 5% and positive for service agripreneurs. Risk evaluation has been found to be a power tool for addressing risk challenges in business and when properly handled can boost financial performance of businesses (Ogoegbelam, 2018).

Cooperative Membership was found to be statistically significant at 1% and positive for processing agripreneurs while it was found to be statistically significant at 5% and positive for input and marketing agripreneurs. This result implies that belonging to cooperative is beneficial to agripreneurs as it positively affect their finance. This result agrees with Nto, (2016) who found out that cooperative membership help business to access credit facility.

1. **Conclusion**

The major objective of the study was to analyze the effect of ex-ante risk management strategy on financial performance of agripreneurs in North Central Nigeria. The result showed that agripreneurs in different sub-sector general benefitted due to the avoidance of risk. This can be seen from increase in returns invested after risk. The regression analysis result showed that the ex-ante risk management strategies explained the variation in the agripreneurs financial performance. Most of these strategies were found to be positively influence their financial performance.