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Analysis of the Effects of Marketing Cooperative Strategies on Entrepreneurial Orientation of Agricultural Marketing Cooperative Unions in Western Oromia, Ethiopia

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Abstract

Cooperative societies implement diversified marketing cooperative strategies (MCS), and it is believed that practicing entrepreneurial orientation (EO) plays a wide-ranging role in the success of cooperative firms' endeavors. From this perspective, the study intended to analyze the effects of MCS on the EO of agricultural marketing cooperative (AMC) unions in Western Oromia. To achieve the study objective, the data were collected from sample AMC unions by using semi-structured questionnaires, in-depth interviews, and discussion. The collected data were analyzed using descriptive data analysis methods, mainly the relative importance index (RII) to rank the MCS implemented and EO practiced by the AMC unions of the study and ordinal logistic regression (OLR) to explain and explore the effect of predictor variables on the response variable of the study. The descriptive results of the study reveal that transaction cost reduction and diversification market strategies are the top two ranked marketing strategies implemented by AMC unions in Western Oromia. It is also found that autonomy, managerial entrepreneurial competence, and risk-taking are the top three EO dimensions practiced by the AMC unions. From OLR analysis, the Nagelkerke pseudo-R-square result (0.804) indicated that 80.4% of the EO practiced by the AMC of the case is explained by the predictor variable used in the study. The parameter estimates from OLR analysis reveal that all the explanatory variables included in the model have a statistically significant effect on the EO of the AMC union. Regarding this, there is no evidence to support rejecting the hypothesized association of marketing cooperative strategy dimensions with EO. Hence, the study concluded that marketing strategies implemented have significant and positive effects on the entrepreneurial orientation of AMC unions.

Keywords: cooperatives, agricultural cooperatives, cooperative unions, marketing strategies, entrepreneurial orientation.

1. Introduction

Cooperative societies are business firms established by compatible people to satisfy the particular economic needs of member-owners and are characterized by cooperation, democratic decision-making, and education and training to enlighten members and leaders, for which EO plays a diverse role (Ojiagu and Ezemba, 2021; Soares and Perin, 2020). EO is the approach and action deeds of firms that lead to business achievement and have an enthusiastic effect on firm business through their dimensions (Alam *et al.*, 2022; Khan *et al.*, 2021; Setyawati *et al.*, 2020; Gupta *et al.*, 2019; Wales *et al.*, 2019; Kosa *et al.*, 2018).

Encouragement and committed EO by business firms have considerable potential for creating innovative businesses in a dynamic marketing situation (Maina *et al.*, 2018; Maina, 2019; Daneluz *et al.*, 2021). This is supplemented by Wales *et al*. (2019); Boabeng and Li (2018); Kosa *et al*. (2018); and Wales (2016), as EO contributes to the success of cooperative firms' endeavors from various perspectives. More specifically, EO influences the marketing cooperative through the application of its dimensions of innovativeness, proactiveness, risk-taking, autonomy, and entrepreneurial managerial competency (Guzman *et al.*, 2020**;** Sofoluwe, 2020; Tehseen *et al.*, 2020; Situma, 2021; Kaluarachchige *et al.*, 2021).

Empirical evidence indicated that firms, including AMCs, practice EO, consequently taking risks in business and sharing risks in investment (Daneluz *et al.*, 2021; Guzman *et al.*, 2020). Besides, focusing on EO contributes to minimizing risk through market control and market evaluation, which help the business keep the project on track and ensure sustainability (Ojiagu and Ezemba, 2021; Soares and Perin, 2020; Sutrisno, 2019).

Likewise, AMC is concerned with EO in building entrepreneurial managerial competency from which the cooperatives retain their autonomy (Sofoluwe, 2020; Simamba, 2018; Wales *et al.*, 2019). It is certain that building and retaining autonomy through giving attention to EO strengthens the leadership and administrative competency of the cooperative, helping to develop network and technology competencies for exploring and seizing marketing opportunities (Kaluarachchige *et al.*, 2021; Ojiagu and Ezemba, 2021; Tehseen *et al.*, 2020; Simamba, 2018).

On the other hand, the marketing strategies of the cooperative affect the cooperative enterprises' success. In cooperatives, the member-centered organization strives to attain a common goal through the implementation of diversified marketing cooperative strategies (Henry, 2018; Ashenafi, 2016; Karthikeyan, 2013). These effects of marketing strategies on the success of cooperative societies are also influenced by EO practices in cooperatives (Shakouri and Shakouri, 2020; Liang and Wang, 2019).

With this regard, AMC implements a cooperative member returns strategy for running business operations and satisfying members' needs (Faysse and Onsamrar, 2018; Gashaw, 2014). This

member-based marketing strategy implemented by cooperatives is explained by its dimensions of fair costs, member demand-based, and member-promising marketing strategies, as well as community service marketing strategies (Liang and Wang, 2019; Assibey-Mensah, 2015). According to Liang and Wang (2019) and Faysse and Onsamrar (2018), AMC is implementing risk management marketing strategies to ensure member benefits expected from the cooperative. This marketing strategy comprises direct marketing, predictable marketing investment, mutual marketing, and so forth (Shakouri and Shakouri, 2020; Akwar *et al*., 2019).

Besides AMC, marketing strategies are used to reduce transaction costs, for instance, by eliminating intermediaries, marketing integration, and maintaining market information flows to improve business outcomes (Anwar, 2021; Sofoluwe, 2020; Sarma *et al.*, 2019). Furthermore, AMC implements diversification marketing strategies for serving members by sustaining the business in the agricultural market (Pingali *et al.*, 2019; Grashuis, 2018; Siddique, 2015), which ensures the service-oriented business of the cooperative and hence contributes to the sustainability of the cooperative society.

The above-mentioned reviews portray the background of the cooperative and the importance of the EO and MCS for the success of the cooperative, including AMC. Yet none of the reviewed evidence indicated the effects of the MCS used by AMC on its EO practices. Therefore, it is pointed out that there is no significant study that precisely indicates the effects of MCS on EO practiced by AMC, which is considered a gap in the study. Therefore, the current study is designed to analyze the effects of marketing cooperative strategies on the EO of agricultural marketing cooperative unions in Western Oromia, Ethiopia.

2. Empirical Literature Review

EO is a pioneering business practice among firms that influences the operation and then the success of the business. With this regard, study findings portray that adopting and then dedicating EO contributes to a company's sustainability by differently attaining its desired operation (Alam *et al.*, 2022; Kosa *et al.*, 2018; Lajevardi and Faez, 2015). These implementations of EO drivers such as innovativeness, pro-activeness, autonomy, and risk-taking and ensuring managerial competence for skimming market opportunities have foreseen the uncertainty in the marketing environment changing (Ilesanmi *et al.*, 2022; Guzman *et al.*, 2020; Setyawati *et al.*, 2020; Gupta *et al.*, 2019; Wales *et al.*, 2019). In a similar manner, EO is essentially practiced by agricultural marketing cooperatives to ensure a constructive business operation (Khan *et al.*, 2021; Khan *et al.*, 2020; Junior *et al.*, 2016). This is due to the fact that the cooperative is required to entrepreneurially interact with its members on the one hand and customers on the other (Anwar, 2021; Guzman *et al*., 2020; Lajevardi and Faez, 2015). Indeed, EO is focused on cooperative societies for improving their creativity, managerial capability, autonomy, and risk-taking in investment and business operations, consequently enhancing their sustainability in the market (Daneluz *et al.*, 2021; Situma, 2021; Sofoluwe, 2020).

Empirical studies concluded that practicing EO by marketing cooperatives is affected specifically by marketing strategies (Shakouri and Shakouri, 2020; Hakala, 2015; Lechner and Gudmundsson, 2014). This is indeed aligning marketing and entrepreneurial orientation, which are considered among the main characteristics of strategic thinking in business organizations (Kaluarachchige *et al*., 2021; Lajevardi and Faez, 2015). Based on these empirical points of view, the following hypothesis is formulated:

H_1: There is a positive and significant association between the member return marketing strategy and the EO of AMC.

This assumption of the relationship between marketing strategy and EO was formulated based on the different empirical study conclusions. The views of scholars revealed that member-oriented strategies of AMCs have direct influence on the EO through different marketing cooperative strategy dimensions (Kaluarachchige *et al.*, 2021; Sofoluwe, 2020). According to Anwar (2021), Sofoluwe (2020), Soares, and Perin (2020), the strategy applied by the business firm influences EO in facilitating the firm to explore and exploit business opportunities in the emerging market for the benefit of cooperative members.

Empirical studies ensured that the implementation of marketing strategies provided an effective vehicle for achieving entrepreneurial direction within the cooperative (Situma, 2021; Ilesanmi *et al.*, 2022). Likewise, operationalizing risk management marketing strategies by AMC is the home for facilitating the entrepreneurial process (Tehseen *et al.*, 2020; Ojiagu and Ezemba, 2021). Accordingly, the following relationship between marketing strategy and EO is hypothesized:

H_2: There is a positive and significant relationship between RMMS and the EO of AMC.

This hypothesis is postulated due to the empirical evidence that risk management-related marketing strategies such as direct marketing, promotion, and customer-promising strategies as dimensions of RMMS affect the EO (Situma, 2021; Kaluarachchige *et al.*, 2021). Essentially, this marketing strategy enhances creativity and pro-activeness in marketing while also developing business competitiveness (Okwara *et al.*, 2019; Sarma *et al.*, 2019).

AMC is applying TCRMS to regain a cost-benefit advantage to allocate resources for creativity in marketing as part of EO (Anwar, 2021; Shakouri and Shakouri, 2020; Liang and Wang, 2019). Hence, the following relationship between MCS and EO is assumed:

H_3: There is a positive and significant effect of TCRMS on the EO of AMC.

In this perspective, AMC applied TCRMS to serve members' needs, thereby acquiring EO (Anwar, 2021; Pingali *et al.*, 2019). Besides, the implementation of TCRMS is enhancing EO, mainly as

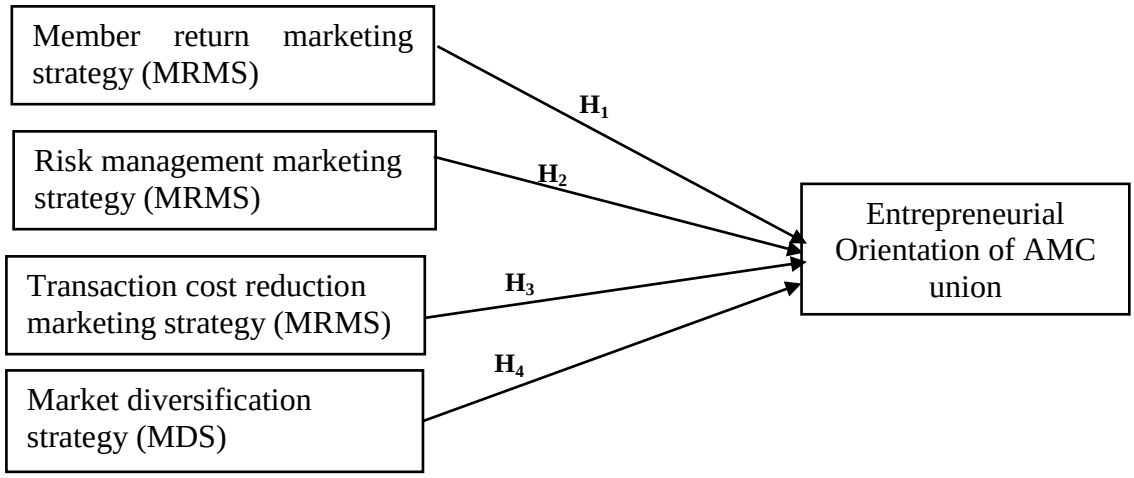
concluded by Situma (2021); Shakouri and Shakouri (2020); and Soares and Perin (2020), which contributes to entrepreneurial competence and enhances the competitiveness of AMC.

According to Pingali *et al*. (2019) and Grashuis (2018), AMC is required to concern itself with marketing diversification strategies for sustaining the business in the agricultural market. This is for ensuring risk-taking and enhancing managerial competency in marketing operations, as well as practicing EO. Based on this, the following relationship between MCS and the EO of AMC is assumed:

H_4: The market diversification strategy is positively and significantly influencing the EO of AMC.

This relationship is hypothesized for the reason that AMCs applying diverse marketing strategies can discover, create, analyze, and use entrepreneurial orientation (Liang and Wang, 2019; Faysse and Onsamrar, 2018; Henry, 2018). Indeed, according to study findings by Sofoluwe (2020); Tehseen *et al*. (2020), market diversification strategies affect marketing competency, proactiveness, and risk-taking dimensions of EO by AMC.

Based on these empirical reviews and the postulated hypotheses, which indicated the relationship between marketing strategies and the EO of AMC, the following conceptual framework was developed:



Source: Researcher own sketch (2022) based on the empirical literature

3. Research Methodology

This section of the article presents the research methods used in the study. These data analysis methods include research design, sampling design, data collection, and analysis methods. These methods help to come up with the findings of the study and track them to a conclusion.

3.1. Research design

Using a fitting research design is a vital issue in research, for it is the procedure and guidelines within which the research is conducted (Akhtar, 2016; Sekaran and Bougie, 2016; Eastham, 2012; Kothari, 2004). Descriptive, exploratory, and explanatory research designs are used in research. These research designs are used when the study is intended to describe the phenomena of study variables by exploring and building insights and explaining the relationship between variables (Eastham, 2012; Krishnaswamy *et al.*, 2012; Kothari, 2004). Hence, this study used descriptive, exploratory, and explanatory research designs to describe the study variables, gain new insight into the practices of EO by AMC, and explain the effects of MCS on the EO of AMC unions. Besides, the study used a mixed quantitative and qualitative research approach; indeed, the collected data were quantified by Likert scale responses and qualitative from interviews and discussions.

3.2. Sampling design

The study was conducted in western Oromia, which encompasses four zones from which six AMC unions were selected for the study. The general assembly meeting members of the sample AMC

unions, which account for 926, are the target population of the study. Certainly, these groups of the target population are more informed about their respective AMC unions.

Next to establishing the target population of the study, the main issue of the research is determining the sample size. In determining the sample size, according to Sekaran and Bougie (2016), the research scholars required to take the representativeness of the sample size into consideration to ensure the credibility and validity of the results to generalize to the study population. Consequently, the study used the following sample size determination formula by Kothari (2004):

$$n = \frac{N * p * q * z^2}{e^2\,(N-1) + p * q * z^2}$$

Where:
n is the sample size for the study.
N is the target population of the study (N = 926).
e is an acceptable error term (0.05 for the 95% confidence interval),
z is the standard variate for the normal curve (1.96 for the 95% confidence interval),
p is the proportion to be included in the sample. The study has given equal opportunity for the study population to be selected. Hence, p = 0.5.
q is the proportion not to be included in the sample (1-p = 0.5).
Based on this sample size determination formula, the sample size of the study could be

$$n = \frac{926 * 0.5 * 0.5 * 1.96^2}{0.05^2\,(926-1) + 0.5 * 0.5 * 1.96^2} = \frac{930.8416}{2.3125 + 0.9604} = \frac{804.8152}{3.2729} = 284.408 \cong 284$$

This illustrates that the sample size of the study was 284 respondents. Once the sample size of the study is determined, the next concern is indicating the sampling method. The study used the purposive sampling method to select six AMC unions, namely Gibe Didessa, Chaffe Bulluk, Jorgo Birbir, Dilla Alaltu, Malka Gudina, and Torban Anfillo, from the study area, western Oromia, Ethiopia. This study area and also the AMC union were selected because there was no in-depth study on the farmers' cooperative union, yet they are engaging in a wide range of agriculture marketing operations and serving a wider group of farmer members.

From the sample AMC unions, respondents were sampled using systematic and proportionate sampling methods due to the fact that there is a formal list of the study population from each sample cooperative union. As a result, the study determined the sampling interval using the following formula. $I = \frac{N}{n}$ Where" I" is the sampling interval, N is the target population, and n is the sample size of the study. Hence, the I^{th} respondents were selected from the sample of AMC unions proportionally.

The chairperson of the board of directors, the manager, and the senior expert of the sample AMC union were sampled for in-depth interviews. The board of directors and management members were sampled for focus group discussion by using the judgment sampling method. This sampling method was used to include those who are well-informed about their cooperative union. Accordingly, 18 key informants (KI), three from each AMC union, were sampled, and six focus group discussions (FGD), one at each AMC union, were administered.

3.3. Data collection methods

The study used primary data to achieve its objective. The data were collected from the respondents, KI and FGD, using a questionnaire, in-depth interview, and focus group discussion checklist. The data that were collected from KI and FGD were used primarily to supplement and triangulate with the results analyzed from the respondents' perspectives.

Regarding the questionnaire, a semi-structured questionnaire was used to collect data from sample respondents. The closed-ended parts of the questionnaire are dichotomous and five-point Likert scale questions. The open-ended questions were posed to respondents to supplement the results that were analyzed from closed-ended questionnaires. The in-depth and face-to-face interview and discussion checklists were used for collecting data from KI and FGD, respectively.

3.4. Data analysis methods

The collected data were sorted, checked, and coded using a data codebook for analysis. Statistical Package for Social Science (SPSS) version 26 was used because it is convenient for supporting statistical data analyses such as the descriptive and ordinal logistic regression (OLR) methods used by the study.

The study used descriptive data analysis regarding the perceptions of respondents regarding the study variables. Particularly, frequencies of Likert scale responses were used to compute the Relative Important Index (RII) for ranking marketing strategies implemented and EO dimensions practiced by AMC unions in the case.

The RII data analysis method was used to rank the marketing strategies implemented and EO dimensions practiced by the AMC unions in the cases. The study used RII for the fact that it is used to rank entities from the pool based on the Likert scale response (Kassem *et al.*, 2020; Davoodi and Dagh, 2019; Nassar, 2018; Aziz *et al.*, 2016; Gosavi, 2015). The ranking was made based on the RII, which was analyzed using the formula by Rooshdi *et al*. (2018); Aziz *et al*. (2016).

$$RII = \frac{\sum w_i n_i}{A * N} \quad \text{.......} (1)$$

Where:
RII is the relative importance index,
W_i weight of each i^{th} total response given by the respondents. In this study, it ranges from 1 to 5.
n_i is the total number of responses (frequency) in each category of the Likert scale response.
A is the highest weight in the Likert response categories (A=5).
N is the total number of the samples (N = 284) for the study.

The study also used the OLR data analysis method to analyze the ordinal categorical responses, which support predicting the effect of MCS on the EO of the AMC unions under study. This is based on the views of Muluken and Guta, (2021); Sesay *et al.* (2021); and Frank and Harrell (2015), which indicated that OLR is an inferential statistic used in survey studies for predicting an ordinal response variable and determining the factors affecting the response variable.

Model specification

OLR model specification constructed for MCS explanatory variables determining EO as

$$\log\left[\frac{EO}{1-EO}\right] = \beta_o + \beta_1 MRMS + \beta_2 RMMS + \beta_3 TCRMS + \beta_4 DMS \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:
EO is entrepreneurial orientation (the probability occurrence of an outcome variable).
MRMS is a member return marketing strategy.
RMMS is a risk management marketing strategy.
TCRMS is a transactional cost-reduction strategy.
DMS is a diversification marketing strategy,
β_o is constant intercept of the outcome variable.
$\beta_1, \beta_2, \beta_3, \beta_4$ are coefficients of the predictor variables.

For using OLR in this study, logistic regression assumptions, including measures of dependent and independent variables and multi-collinearity tests, were made. In addition, model fitting information and model goodness-of-fit were checked for interpretation of the effect of MCS on the EO of AMC unions in the case.

4. Result and Discussion

Results and discussion of the study concern the presentation of results from descriptive and OLR analyses and respective interpretations of the findings. This is for describing and explaining the findings based on the descriptive and inferential statistical outputs, respectively.

4.1. Descriptive analysis

A descriptive analysis as the first step for conducting further statistical analyses was used by the study to describe MCS implemented and EO practiced by AMC unions in the study area. Regarding this, the frequencies of the responses were used to estimate the relative importance index (RII) for ranking the MCS implementation and EO dimension practices.

4.1.1. Marketing cooperative strategy implemented

Table 1 presents the responses on the implementation of MCS by sample AMC unions. As per the views of respondents, MRMS (RII = 0.7618), RMMS (RII = 0.7904), TCRMS (RII = 0.8257), and DMS (RII = 0.8081) are implemented by the AMC union in western Oromia.

Table 1 Relatively important of CMS

	Response categories					Weighted total	RII	Rank
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree			
MRMS	7	2	37	216	10	1036	0.7618	4
RMMS	0	2	37	205	28	1075	0.7904	3
T|CRMS	7	5	7	180	73	1123	0.8257	1
DMS	0	4	11	227	30	1099	0.8081	2

The result indicated that TCRMS with RII = 0.8257 is the first-ranked marketing strategy implemented by AMC unions in the study area, followed by DMS with RII = 0.8081. The third and fourth-ranked marketing strategies are RMMS (RII = 0.7904) and MRMS (RII = 0.7618), respectively.

This finding of the study is supplemented by the results from the open-ended responses, interviews, and FGD, which indicate that cooperatives, including AMC unions, are service motives, hence minimizing the transaction cost for which TCRMS is most important. Furthermore, the views of KI and FGD support the result that AMC unions diversify services and products provided based on member-owner needs so as to ensure member return and manage risks.

From these triangulated results, the study explored the insights that AMC unions in the study area are implementing MCSs that help the cooperative unions retain their cooperative nature and ensure sustainability in agricultural marketing to benefit members.

Empirical evidence also supports the findings that cooperatives strive to serve member needs by using varied strategies, including marketing strategies for reducing transaction costs and diversification strategies for serving members by sustaining the business in the agricultural market (Pingali *et al.*, 2019; Grashuis, 2018). Study findings also supplement the findings in that AMC used marketing strategies to ensure member benefits from the operation (Liang and Wang, 2019; Faysse

and Onsamrar, 2018). These views of the KI, FGD, and empirical evidence aligned with the findings, which portray that AMC used different marketing strategies for serving members' benefits.

4.1.2. Entrepreneurial orientation practices

The EO practiced by the AMC union is analyzed descriptively using RII to see the relative importance of the EO dimension as per the perception of respondents. As the result is presented in Table 2 below, the AMC unions in the case practiced innovativeness (RII = 0.6875); pro-activeness (RII = 0.7684), risk-taking (RII = 0.7904), autonomy (RII = 0.8434), and managerial entrepreneurial competence (RII = 0.8081).

Table 2 Relatively important of EO practiced

	Response categories					Weighted total	RII	Rank
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree			
Innovativeness	2	4	146	113	7	935	0.6875	5
Pro-activeness	1	2	46	213	10	1045	0.7684	4
Risk Taking	0	2	37	205	28	1075	0.7904	3
Autonomy	1	1	9	188	73	1147	0.8434	1
Managerial entrepreneurial competence	0	4	11	227	30	1099	0.8081	2

The result reveals that autonomy, with RII = 0.8434, is the first-ranked EO practice, followed by managerial entrepreneurial competence (RII = 0.8081). The result also indicated that risk-taking (RII = 0.7904) and pro-activeness (RII = 0.7684) are ranked third and fourth in practice by AMC unions in the study area, respectively. However, innovativeness (RII = 0.6875) is the least ranked EO dimension in practice by the AMC of the case.

The analyzed views of the open-ended responses, KI, and FGD supplement the findings, which revealed that cooperatives are retaining their autonomy in business operations and ensuring management competency through training and experience sharing. AMC unions in the study area are also proactively identifying and taking moderate risks to serve members in agricultural production and marketing. From these triangulated findings of the study, new insights are explored, including that AMC unions practiced EO to be entrepreneurial in providing competitive services and products to members. The study believed that this insight enriches the entrepreneurial knowledge of cooperative societies.

Furthermore, previous empirical findings are also in harmony with the study findings, which concluded that AMC unions safeguard a productive business operation by retaining autonomy, risk-

taking, and managerial capability (Ilesanmi *et al.*, 2022; Situma, 2021; Guzman et al., 2020). According to a study by Khan *et al.* (2021), Setyawati *et al*. (2020), marketing cooperatives realized their sustainability in agricultural marketing by applying EO dimensions including pro-activeness, risk-taking, and managerial competency, which indicated that AMC is practicing EO dimensions with different degrees of application.

4.2. Effects of marketing cooperative strategies on EO

The study used OLR analysis to examine the association of the categorical explanatory variables MCS with one response variable, EO, thereby predicting the effects of the explanatory variables on the response variable. In order to proceed with OLR, testing the OLR assumptions and model fitness to confirm the reliability of the model is essential.

4.2.1. Testing assumptions of OLR

It is essential to check certain assumptions that need to be met in the fitted OLR model. Accordingly, the study checked the assumption that the dependent variable is ordered; the independent variables are continuous, categorical, or ordinal and have no multi-collinearity effects.

The dependent variable of the study, entrepreneurial orientation (EO), and the explanatory variables were also ordinal and both measured by categorical responses ranging from strongly disagree to strongly agree on a five-point Likert scale. Hence, the first and second assumptions were met. For testing the third assumption, collinearity statistics were used, in which variable inflation factors (VIF) are used as an indicator of the multi-collinearity effects. Table 3 presents collinearity statistics for which all VIF were between one and ten (1<VIF < 10) indicating that there is no multi-collinearity effect among the variables. This also reveals that the multi-collinearity assumption for running OLR analysis is met.

Table 3 Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
	Member return marketing strategies (MRMS)	.775	1.291
	Risk management marketing strategy (RMMS)	.775	1.291
	Transaction cost reduction strategy (TCRMS)	.708	1.412
	Market diversification strategy (MDS)	.787	1.270

4.2.2. Testing model fitness

Model fitting information and model goodness-of-fit are used to test whether the fitness model is consistent with the observed data, respectively. Table 4 displays the model fitting information

containing the likelihood ratio chi-square test. The test is used to check if the final model with predictor variables included improves the model as compared to the intercept-only model.

Table 4 Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	190.735			
Final	37.249	153.486	4	.000

Link function: Logit.

The test result presented in Table 4 above is statistically significant. The significant chi-square (153.486; $p < 0.001$) indicates that the final model provides a significant improvement over the baseline model. Hence, the model is fitting very well with the data, and the explanatory variables included in the model have sufficient power to predict the response variable, EO.

Besides, goodness-of-fit is an essential test for OLR data analysis. Table 5 presents the output of the goodness-of-fit test containing Pearson's chi-square test statistics. This statistical test is intended to test whether the observed data are consistent with the model fit.

Table 5 Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	135.961	125	.237
Deviance	29.225	125	1.000

Link function: Logit.

From the test statistics, Pearson's Chi-square statistics (135.961; $p > 0.05$) reveal that it is not statistically significant. Therefore, the model is a good fit, and the data are reliable with the fitted model.

Table 6 below presents the pseudo-R-square statistics of the OLR model containing Cox and Snell, Nagelkerke, and McFadden pseudo-R-squares. These R-squared statistics are used to estimate the variance explained by the predictor variables considered by the model.

Table 6 Pseudo R-Square

	Pseudo R-Square
Cox and Snell	.431
Nagelkerke	.804
McFadden	.734

Link function: Logit.

From the pseudo-R-square statistics presented in Table 6 above, the Nagelkerke pseudo-R-square is 0.804. This depicts that the predictor variables considered by the model explained a larger proportion (80.4%) of the variation in EO practice by the AMC union in the study area.

4.2.3. Parameter Estimates and Hypothesis Testing

Table 7 presents the values of the OLR coefficients and intercepts, together with the corresponding standard errors and their p-values. The coefficient of parameter estimates is used to indicate the extent of the effects of predictor variables on the response variable and the significant level used to test the hypotheses of the study.

Table 7 Parameter Estimates

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[EO = 2]	28.184	9.225	9.335	1	.002	10.104	46.264
	[EO = 3]	40.630	9.993	16.531	1	.000	21.044	60.217
	[EO = 4]	59.691	14.548	16.834	1	.000	31.177	88.205
Location	MRMS	1.454	.708	4.212	1	.040	.065	2.843
	RMMS	7.041	2.116	11.075	1	.001	2.894	11.187
	TCRMS	1.274	.568	5.022	1	.025	.160	2.388
	MDS	2.544	.900	7.980	1	.005	.779	4.308

Link function: Logit.

The study brought the insight that MRMS, RMMS, TCRMS, and MDS are MCS implemented by AMC unions and are significantly influencing EO practiced by the AMC unions in the study area. Moreover, from the result, it can be explained that the marketing strategies included in the model have positive and statistically significant effects on the EO of the AMC unions. In addition, the parameter estimates under consideration are statistically significant for the confidence interval (lower and upper bounds) for all parameter estimates that have not crossed zero (0).

From the OLR significant parameter estimate, the OLR equation is constructed for further interpretation of the estimates as follows:

$$\log\left[\frac{EO}{1-EO}\right] = 59.691 + 1.454MRMS + 7.041RMMS + 1.274TCRMS + 2.544DMS$$

From the parameter estimates, the coefficient of MRMS is 1.454 (p-value < 0.05) implies that, for a unit increase in MRMS, it is expected that 1.454 times increases in ordered log odds of the practice of EO by the AMC unions in western Oromia state, given all of the other variables in the model remain constant. Therefore, it is pertinent that there is no evidence to reject H_1, which was postulated as MRMS has a significant and positive effect on EO.

The OLR analysis reveals that the coefficient of RMMS is 7.041 (p value < 0.05). This indicates that, for a unit increase in RMMS, it is anticipated that 7.041 times increases in ordered log odds of

higher practices of EO by the AMC unions are expected, provided that the other variables in the model are kept constant. This also illustrates that there is adequate evidence to accept the second hypothesis (H_2), which was assumed as there is a positive and significant relationship between RMMS and EO in AMC.

For TCRMS, the OLR coefficient of 1.274 (p value < 0.05) implies that, for a unit increase in TCRMS, it is expected that 1.274 times increases in ordered log odds of practice of EO by the AMC unions in western Oromia state are expected, given all of the other variables in the model are held constant. With this regard, it is apparent that there is sufficient evidence not to reject the third hypothesis (H_3) which assumes that there is a positive and significant effect of TCRMS on the EO of AMC.

Likewise, from the parameter estimate, the coefficient MDS is 2.544 (p value < 0.01). This demonstrates that, with a unit increase in MDS, it is expected that 2.544 times the increase in ordered log odds of higher practices of EO by the AMC unions is expected given that the rest of the variables in the model remain constant. This also demonstrates that it is apparent to accept the fourth hypothesis (H_4) which was claimed as MDS is positively and significantly influencing the EO of AMC. Therefore, it is concise, as the study explored how MDS has a positive and significant effect on the EO of AMC unions.

5. Conclusions and Recommendations

This study was planned to analyze the effect of MCS on the EO of AMC unions in western Oromia, Ethiopia. Hence, the study collected and analyzed data on these aspects of the cooperative unions, from which the results were conferred in detail and from which the subsequent conclusions are drawn.

From the descriptive analysis, the result indicates that AMC unions in Western Oromia implemented MCS. From this, it is concluded that transaction cost reduction marketing strategies and market diversification strategies were implemented more as compared to risk management and member return marketing strategies.

From the study, it was found that AMC unions in Western Oromia practiced dimensions of EO. Based on the RII, it is concluded that AMC unions in the study area are autonomous, more focused on managerial entrepreneurial competence, and take risks in running businesses to serve their members.

The OLR result reveals that all the explanatory variables, such as member return, risk management, transaction cost reduction, and market diversification marketing cooperative strategies, are statistically and positively significant in influencing the EO of AMC unions. Hence, it is concluded

that all the marketing strategy dimensions have a significant and positive effect on the EO of AMC unions in Western Oromia.

From the study findings, the RIIs of member return marketing strategy, innovativeness, and pro-activeness are relatively small. Therefore, the study recommended that AMC unions in the study area further improve member return marketing strategy implementation and practices of innovativeness and pro-activeness for further improving agricultural marketing operations for ensuring sustainability in the market and, consequently, excel in business operations.

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