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The moderating effect of religiosity on resource-capability-competitive advantage interaction: Empirical evidence from Sri Lankan agribusiness farm owners

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Empirical evidence from Sri Lankan agribusiness farm owners

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Abstract

Purpose – The purpose of this paper is to investigate the moderating effect of religiosity of farm owners on the resource-capability-competitive advantage interaction.
Design/methodology/approach – A self-administered structured questionnaire was developed to collect data from farm owners who possess the experience in commercial cultivation of three main minor export crops in Sri Lanka.
Findings – The results of linear regression analysis on 456 responses received suggest that the religiosity of farm owners significantly moderates the relationships between resources, capabilities and competitive advantage of the minor export crop farms, confirming the study hypotheses.
Research limitations/implications – Future studies should consider the specific impact of different religious affiliations, traits and/or precepts of the farm owners. In addition, educational level, income level and mental capacity of the farm owners should be considered too since they may form part of the observed relationships.
Originality/value – The study has addressed the gap in literature by highlighting the potential of religiosity in the interaction between resources, capabilities and competitive advantage. From the practical standpoint, besides providing some directions to the farm owners, the results also benefit different stakeholders such as policy makers, government and local communities in suggesting and implementing appropriate measures with regard to selecting suitable resources and integrating them with proper capabilities for greater competitive advantage of the agribusiness sector.

Keywords Capabilities, Competitive advantage, Religiosity, Agribusiness, Resourced-based view
Paper type Research paper

1. Introduction

Identifying the sources of competitive advantage in the agricultural sector has since become a major area of study, where the growing demands for agricultural products across the world require the sector to be continuously competitive (Guo *et al.*, 2016; O'Connor and Kelly, 2017; Ridha and Wahyu, 2017). Drawing on the theoretical insights obtained from the resource-based view (RBV) as a tool to analyse the sources of competitive advantage (resources and capabilities) at firm level (Barney *et al.*, 2001; Powell, 2001), a number of studies have found significant interactions between resources, dynamic capabilities and competitive advantage of agribusiness farms (Guo *et al.*, 2016; Mugera, 2012; O'Connor and Kelly, 2017; Sachitra and Chong, 2017a, b). Indeed, this topic has received considerable attention due to the significant

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contributions made by the agribusiness sector in terms of land utilisation, employment opportunities and economic growth of any nation (Sachitra *et al.*, 2016).

In addition, some factors influencing the resource-capability-competitive advantage interaction in agribusiness sector have also been investigated. For example, business intention driven by the beliefs of owners or managers (Apasingha *et al.*, 2014; Gary, 2000), gender (Danes *et al.*, 2007; Inmyxai and Takahashi, 2012), as well as experience of the owners or managers (Lu *et al.*, 2010; Morris and Snell, 2011; Newbert, 2008). However, the impact of religiosity of farm owners on the resource-capability-competitive advantage interaction is yet to be explored. As a matter of fact, studies available outside of the agribusiness setting tend to focus on cultural and social effects of leadership, ignoring the possible effects of religiosity (Hage and Posner, 2015; Morgan, 2004), although religious beliefs and practices have been found to influence economic performance through personal traits (Bellu and Fiume, 2004; Day and Hudson, 2011; Dilmaghani, 2011; Gill and Mathur, 2018; Ibrahim and Angelidis, 2005; Nkamleu, 2007; Tu *et al.*, 2011). Some studies have investigated the influences of religiosity on pro-social behaviours (Anderson *et al.*, 2010; Grossman, 2011; Ketola *et al.*, 2009; Li, 2017; Shariff and Norenzayan, 2007, 2008) or corporate social responsibility practices and firm performance (Platonova *et al.*, 2016; Zaman *et al.*, 2018) but with mixed results.

Even though prior studies have argued that religiosity is more likely to influence attitudes (Du *et al.*, 2016) and is concerned about organisational decision making (Platonova *et al.*, 2016); there is an absence of a unifying theory on what aspects and the extent of religiosity in influencing business activities and competitive advantage. It makes sense to posit that in some cultures, owners or managers of firms consider their extent of religiosity to a high degree as they engage in business activities. Specifically, the Sri Lankans are considered to be highly religious where they commit to the fundamentals of their own religions in their businesses, including those involved in the agribusiness sector. In addition, the Sri Lankans have inherited a rich religion-based culture, encouraging good religious practices in their daily routines (Pathirana, 2016). Since religion is a powerful expression of culture and is closely related to nature and that agricultural activities generally engaged with nature, agriculture and religion seem to be intertwined (Falvey, 2005).

The importance of the agribusiness sector is apparent where not only it represents a large share of the total economy in terms of land utilisation, employment opportunities and economic growth in non-agricultural markets; more significantly, it contributes to the economic development of any developing nation (Nwachukwu *et al.*, 2014). In Sri Lanka, the sector contributes 8.5 per cent to the national gross domestic product, where 23.2 per cent of export earnings are derived at from agricultural export crops and involves about 32 per cent of total land area, with 36.1 per cent or 2.6m of the employed population (Central Bank of Sri Lanka, 2017). Drawing from the aforementioned arguments, it will be interesting to investigate the impact of religiosity on business activities of the farm owners, particularly with regard to the resource-capability-competitive advantage interaction.

With the absence of studies investigating the effect of religiosity on resources, capabilities and competitive advantage, this study aims to expand the existing research base to advance our understanding on the potential influence of religiosity of farm owners on the resource-capability-competitive advantage interaction. The minor export crops are the focus of this study since it contributes to the highest foreign exchange earnings to Sri Lanka (38.8 per cent of total agricultural products) and hence are recognised as one of the emerging sectors (Sachitra and Chong, 2017a).

This study is important for three major reasons. Given the current demand for the agribusiness sector to be continuously competitive, the extant literature on sources of competitive advantage focused only on resource-capability interaction. This study

extends its focus beyond the RBV literature in understanding the impact of the degrees of religiosity of the farm owners on the selection and integration of their resources and capabilities to arrive at competitive advantage for their farms. Second, this study is also unique in focusing on agribusiness farm owners involved in cultivating minor export crops, which has received very little research attention to date. Third, since religion agricultural activities seem to be intertwined (Falvey, 2005), a better understanding of the influence of religiosity on resources and capabilities will enable the farm owners to enhance the competitive position of their farms.

The rest of the paper is organised as follows. The next section reviews the literature on religiosity, resources, dynamic capabilities and competitive advantage, resulting in the formulation of hypotheses to be tested. This is followed by the research design employed. The results and subsequently the implications are presented and discussed before the paper is concluded with future research directions.

2. Literature review

2.1 Religiosity

Religion is a component of culture, informal institutions and social capital (Tu *et al.*, 2011). Hence, religiosity is a measure of knowledge, faith, fundamentalism, beliefs, piousness and devotion of individuals, as well as the extent to which they live and use religion for their own ends (Holdcroft, 2006). According to Al-Goaib (2003), it represents the commitment to the fundamentals of (own) religion through practices and theoretical beliefs through the fulfilment of (religion) rights. In other words, religiosity is defined as the degree to which an individual is a religious person, apart from his or her particular religious beliefs and the way those beliefs are manifested (Vitell *et al.*, 2009). As such, religiosity includes having beliefs in and reverence for God and deity, as well as participating in worship and other social activities within the religious community (Adeyemo and Adeleye, 2008). Based on these definitions, religiosity can be conceptualised as including the components of cognitive (religious beliefs); affective (feelings towards religious beings, objects or institutions); and behaviour (Vitell *et al.*, 2009; Yeganeh, 2015).

Scholars have argued that religiosity is more likely to influence attitudes (Du *et al.*, 2016) and organisational decision making (Platonova *et al.*, 2016). The extant literature has also suggested that religiosity influences economic performance through personal traits (Gill and Mathur, 2018; Megheirkouni, 2016; Tu *et al.*, 2011). Bellu and Fiume (2004) and Ibrahim and Angelidis (2005) found that the religiosity of leaders is associated with the success of firms such as sales growth and returns on investment. Hage and Posner (2015) found that religion has a significant influence on leadership and that religious beliefs affect leadership style, particularly in terms of the critical thinking and decision-making processes of firm leaders (Fernando and Jackson, 2006), which subsequently influence their business activities and performance, suggesting the moderating effect of religiosity on the relationships between resources, capabilities and firm performance. However, Day and Hudson (2011) found no relationship between religiosity of leaders and the success of their firms, implying that the available findings are rather mixed and inconclusive.

In addition, it is worth noting that these studies tend to focus on firm performance, which is only a subset of competitive advantage. It is imperative to extend the focus on competitive advantage as a whole because the definition itself requires firms to capitalise on its sources of competitive advantage (resources and capabilities) which lead to firm performance (Cantele and Zardini, 2018). As aptly described by Powell (2001), whenever competitive advantage is present, superior performance is achieved and whenever superior performance is achieved, competitive advantage exists. Based on these arguments, it is necessary to emphasise on the moderating effect of religiosity on the sources of competitive advantage in the agribusiness sector.

2.2 Sources of competitive advantage and the moderating effects of religiosity

Competitive advantage at the firm level can be defined as the ability to offer products and services that meet or exceed customer values currently offered by its rivals, substitutes and possible market entrants (Martinez *et al.*, 2014; Porter, 1990). It represents the ability to conceive products or processes and optimise the entire value chain and in so doing, reduce the overall costs (Beaudreau, 2016). By identifying the sources associated with competitive advantage would enable firms to raise the economic benefits of their products and make that model economically viable in enhancing export competitiveness. In assessing competitive advantage at firm level, Li *et al.* (2006) developed five dimensions to measure competitive advantage, namely price/cost, quality, delivery dependability, product innovation, as well as time to market. The present study employed these dimensions with contextual modifications. Since product innovation is not applicable to the minor export crops, an additional dimension of exploiting market opportunities (Newbert, 2008) is incorporated in the present study.

The RBV is the leading theory of sources of competitive advantage at firm level (Alonso and Bressan, 2016), emphasising that resources and capabilities are important for the success of farms. Resources refer to the stock of available assets that are owned, controlled and used by the firm (Morgan *et al.*, 2004) to develop and implement its strategies. Prior studies (Sachitra and Chong, 2017a, b) have identified six resources that significantly affect the competitive advantage of minor export crops farms in Sri Lanka. The resources comprise human assets, physical assets, financial assets, institutional capital, collective actions and entrepreneurial identity of farm owners. The present study focuses on these resources to investigate the moderating effect of religiosity of farm owners on the relationships between resources and competitive advantage of minor export crop farms in Sri Lanka. The following hypothesis is hence proposed:

H1. The religiosity of farm owners significantly moderates the relationship between resources and competitive advantage of minor export crop farms in Sri Lanka.

Capabilities are defined as the collection of routines that together with the implementation of input inflow confers upon the management of a firm a set of decision options for producing significant outputs (Barney *et al.*, 2001). The study utilises four capabilities (organisational learning, relationship building, quality management and marketing capability) developed in prior studies (Sachitra and Chong, 2017a, b) that significantly affect competitive advantage. In order to investigate the moderating effect of religiosity of farm owners on the relationships between capabilities and competitive advantage of minor export crop farms in Sri Lanka, the following hypothesis is put forth:

H2. The religiosity of farm owners significantly moderates the relationship between capabilities and competitive advantage of minor export crop farms in Sri Lanka.

3. Research methodology

3.1 Sample and data

Since this study represents an expansion of prior studies (Sachitra, 2016; Sachitra *et al.*, 2016; Sachitra and Chong, 2017a, b) with regard to the sources of competitive advantage of minor export crop farms using the RBV theory, the study employs a similar methodological approach but with the introduction of religiosity as a moderator.

The scope of this study includes entities with experience in the commercial cultivation of three minor export crops, namely cinnamon, pepper and clove. The importance of these crops is reflective of their significant contributions in terms of total agricultural exports, as well as total minor agricultural exports to the Sri Lankan economy (Central Bank of Sri Lanka, 2017). The two highest growing districts of each of the selected crops and the two

highest growing District Secretarial Divisions of each of the two selected districts were identified, resulting in 26,413 farms as the target population. Proportionate stratified random sampling technique was employed to obtain the appropriate sample size, which included 456 farms, with 152 farms for each of the three crops.

The sample consists of 268 (58.8 per cent) male and 188 (41.2 per cent) female farm owners. The majority of respondents are more than 50 years old, with 10–20 years of farming experience. In addition, the majority of them have also reported the use of less than five acres of land to cultivate the three crops, signifying the small-scale nature of their businesses. The majority of the respondents (86.4 per cent) are Buddhists, followed by Muslims (7.0 per cent), Catholics (4.2 per cent) and Hindus (2.4 per cent). Since the majority of Sri Lankans are Buddhists, it is not surprising to see that the majority of farm owners are Buddhists, with smaller numbers of Muslims, Catholics and Hindus. Whilst Buddhist farmers engage in the cultivation of all the three crops, Catholic farmers only engage in clove cultivation, whereas many of the Muslims involve in pepper and clove cultivation. Hindu farmers also engage in cultivating all the three crops, albeit at a very small percentage. Table I shows the detail.

3.2 Variables and measures

The variables and measurement items of the study are based on established scales from the literature (see Table II). They are measured based on an itemised rating scale (five-point Likert-scale) with end points of strongly disagree and strongly agree.

3.3 Methods of data analysis

Based on the mean values recorded on the religiosity construct, we categorised the level of religiosity of farm owners as low (mean values less than 2.33), medium (mean values between 2.33 to 3.66) and high (mean values more than 3.67) based on the method proposed by Rehman and Shabbir (2010).

The general linear model (GLM) analysis is used to identify the associations between a quantitative variable and a set of quantitative and/or qualitative variables (Malhotra and Birks, 2006). In this study, the GLM univariate analysis was adopted to identify the associations between competitive advantage (dependent variable), a set of quantitative, independent variables (resources and capabilities) and a qualitative variable (the religiosity of farm owners). The model allows the relationship between a dependent variable and independent variable to depend on the level of another independent variable (Bisbe and Otley, 2004). Hence, the regular linear regression model is used to test the significant effect of the model after including the moderating variables. According to Bisbe and Otley (2004), this method is used when the moderating variable does not have any significant relationship with the dependent variable. The Statistical Package for Social Science software version 21.0 was utilised in this study.

Table I. Sample profile

Religion of farm owners	Types of minor export crops			
	Cinnamon	Pepper	Clove	Total
Buddhism	145 (95.4%)	134 (88.2%)	115 (75.7%)	394 (86.4%)
Hinduism	5 (3.3%)	3 (2.2%)	3 (2.0%)	11 (2.4%)
Islam	2 (1.3%)	15 (9.9%)	15 (9.9%)	32 (7.0%)
Catholicism	0 (0%)	0 (0%)	19 (12.5%)	19 (4.2%)

Constructs	Variables	Measurement Items
Resources		Experienced employees
	HA	Employees come up with new ideas
		Trusted employees
		Dedicated towards their work
		Carrying out their own work without supervision
		Raw materials
	PA	Farming equipment
		Harvesting equipment
		Favourable geographical location
		Fertiliser developed by own farms
		Adequate money to devote to farm operational activities
	FA	Adequate money to buy capital equipment
		Obtain loans from banks
		Obtain loans from informal channels
		Obtain low interest rates for credit capital
		Offers subsidy
	IC	Conducts workshops to improve quality
		Officer gives advice and guidance
		Meetings with the divisional agriculture officer
		Support for identifying customers
		Share market information
	CA	Discuss production issues
		Shared credit facilities
		Assist to find new customers
		Share their business knowledge
		Avoid taking risk
		More careful with risk-taking activities
	ENT	Try to expand business
		Prefer to keep doing things the familiar way
		Believe in success without risk-taking
Capabilities		Openly discusses mistakes
		Helps each other to learn
	OLC	Learns through activities
		Invests in new ideas from employees
		Commitment towards the goal(s) of farm
		Communicates with employees
	RBC	Communicates with customers
		Relationship with agricultural institutions
		Financial assistance with other farmers
		Relationship for identifying market opportunities
	QMC	Quality goal for product(s)
		Complies with the standards imposed
		Practices environmentally-friendly operations
		Employees are aware about maintaining product quality
		Maintains quality raw material suppliers
		Knowledge of customers
	MC	Knowledge of competitors
		Develops pricing programmes
		Discovers strategies of other farmers
		Monitors price changes of competitors
CAd	Price	Offers competitive price
		Offers price as low as other farmers
		Offers price lower than other farmers
	Quality	Competes based on product quality

(*continued*)

Table II.
Operationalisation of variables

Constructs	Variables	Measurement Items
		Offers products that are reliable
		Offers products that are durable
		Offers quality products to customers
	Delivery	Delivers customer orders on time
	Dependability	Provides dependable delivery
		Delivers the product needed by customers
		Delivers product to market quickly
	Time to market	Time to market lower than industry average
		Product delivery time is lower than other farmers
	Exploiting market	Expands customer base compare to other farmers
	Opportunities	Expands supplier base compare to other farmers
		Accesses financial resources
		Obtains human resources than other farmers
		Accesses capital goods than other farmers
Religiosity		Religion is important in my life
		Performs my religious behaviour
		Goes to the temple/mosque/church regularly
		Tries to follow my religious beliefs
		Tries to be honest and fair with others
		Considers myself as a religious person

Notes: HA, human assets; PA, physical assets; FA, financial assets; IC, institutional capital; CAc, collective actions; ENT, entrepreneurial identity; OLC, organisational learning capability; RBC, relationship building capability; QMC, quality management capability; MC, marketing capability; CAd, competitive advantage

Table II.

4. Findings

4.1 Measurement adequacy

Factor analysis was applied for data reduction and purification of the items under each variable. In order to determine the appropriateness of factor analysis, the Kaiser–Meyer–Oklin (KMO) measure of sample adequacy was performed. Since there are latent variables which are measured using the itemised rating scale (five-point Likert scale), the principal axis factoring method was used (Kothari, 2004). Table III shows that the KMO measure of the constructs was greater than 0.70 and that the Bartlett's test of sphericity showed a significant level ($p < 0.001$), indicating the appropriateness of factor analysis.

Variables	KMO	Bartlett's test	AVE	Construct reliability	Cronbach's α
HA	0.858	0.000	0.65	0.943	0.866
PA	0.765	0.000	0.60	0.930	0.755
FA	0.739	0.000	0.62	0.931	0.793
IC	0.814	0.000	0.68	0.937	0.814
CAc	0.875	0.000	0.63	0.952	0.793
ENT	0.860	0.000	0.68	0.952	0.832
OLC	0.826	0.000	0.63	0.939	0.808
RBC	0.828	0.000	0.60	0.930	0.791
QMC	0.836	0.000	0.64	0.940	0.814
MC	0.877	0.000	0.70	0.955	0.830
CAd	0.857	0.000	0.61	0.978	0.857
Religiosity	0.783	0.000	0.60	0.939	0.792

Notes: HA, human assets; PA, physical assets; FA, financial assets; IC, institutional capital; CAc, collective actions; ENT, entrepreneurial identity; OLC, organisational learning capability; RBC, relationship building capability; QMC, quality management capability; MC, marketing capability; CAd, competitive advantage

Table III.
Assessment of the measures

The loadings of the items on their corresponding constructs ranged from 0.703 to 0.874 (greater than 0.70). The results show that the construct reliability, average variance extracted (AVE) (< 0.50) and Cronbach's α values (< 0.70) were above the suggested cut-off values, suggesting adequate reliability of the items. Similarly, the measurement adequacy for the religiosity construct was also assessed. The results showed that the KMO measure of the construct was 0.783, which was greater than 0.70 and that the Bartlett's test of sphericity showed a significant level ($p < 0.001$), again indicating the appropriateness of factor analysis.

The loadings of the items on the religiosity construct were greater than 0.70. Further, the construct reliability (0.939), AVE (0.60) and Cronbach's α values (0.792) were above the suggested cut-off values, suggesting adequate reliability of the items. Based on the categorisation of level of religiosity of farm owners, the overall mean score was 3.47, indicating a moderate level of religiosity. In terms of the level of religiosity of individual farm owners, there were 168 (36.8 per cent) respondents at high level, 166 (36.4 per cent) at medium level and 122 (26.8 per cent) at low level.

4.2 Mean differences

Since the respondents represent different religions, it is interesting to examine the significant differences in resources, capabilities and competitive advantage with the degree of religiosity of the farm owners with different religions. The result of Levene's test of equality of variances was 0.131 ($p > 0.05$), suggesting that the assumption on the homogeneity of variances was not violated (Garson, 2012). Table IV shows the results of one-way ANOVA analysis to test the mean differences. The *p*-values were less than 0.05 for resources and capabilities, and hence it can be concluded that there are significant differences amongst the resources and capabilities with regard to the religiosity of farm owners despite the large representation of Buddhist farm owners involved in this study. However, competitive advantage showed no significant difference.

Since there are significant differences between resources, capabilities and religiosity, this finding is deemed as an interesting discovery. Subsequently, *post hoc* test was performed to identify the differences for each of the six resources and four capabilities. Human assets, financial assets, institutional capital, collective actions and organisational learning capability show significant differences. Specifically, for human assets, financial assets and institutional capital, the Catholic farm owners recorded the highest mean value, whereas for collective actions and organisational learning capability, the Buddhist farm owners recorded the highest mean value.

	Sum of squares	df	Mean square	*F*	Sig.
Competitive advantage					
Between groups	2.780	3	0.927	1.552	0.200
Within groups	269.889	452	0.597		
Total	272.669	455			
Resources					
Between groups	6.469	3	2.156	4.106	0.007
Within groups	237.399	452	0.525		
Total	243.868	455			
Capabilities					
Between groups	4.664	3	1.555	3.077	0.027
Within groups	228.361	452	0.505		
Total	233.025	455			

Table IV. One-way ANOVA results between religiosity, resources, capabilities and competitive advantage

Further, one-way ANOVA analysis was also performed to determine if there are significant differences in resources, capabilities and competitive advantage amongst the three-categorised levels of religiosity of farm owners. The result of Levene's test of equality of variances was 0.082 ($p > 0.05$), suggesting that the assumption on the homogeneity of variances was not violated. As shown in Table V, the p-values were less than 0.001, and hence it can be concluded that there are significant differences amongst the resources, capabilities and competitive advantage with regard to the levels of religiosity of farm owners involved in this study. Moreover, the *post hoc* results indicated that the highest mean values for resources, capabilities and competitive advantage were recorded for the high level of religiosity of farm owners.

4.3 GLM univariate analysis

Table VI presents the results of the GLM univariate analysis. The p-values for resources and capabilities are less than 0.001, implying that resources and capabilities were significant predictors of competitive advantage of the minor export crop farms. However, the p-value for religiosity is higher than 0.05, which implies that the religiosity of farm owners did not have a statistically significant association with competitive advantage. Hence, religiosity of farm owners can be included as a moderating variable on the relationships between resources, capabilities and competitive advantage of the minor export crop farms.

4.4 Linear regression model

The regular linear regression model was used to test the significant effect of the model after including the moderating variable. First, the data set was split based on the religiosity levels of farm owners. The regression results are then compared with the coefficients and confidence interval for all the three levels of religiosity (Pollack *et al.*, 2012).

Table V.
One-way ANOVA results of religiosity

	Sum of squares	df	Mean square	F	Sig.
Competitive advantage					
Between groups	61.882	2	30.941	66.495	0.000
Within groups	210.787	453	0.465		
Total	272.669	455			
Resources					
Between groups	43.495	2	21.748	49.167	0.000
Within groups	200.372	453	0.442		
Total	243.868	455			
Capabilities					
Between groups	41.323	2	20.661	48.824	0.000
Within groups	191.702	453	0.423		
Total	233.025	455			

Table VI.
Results of general linear models univariate analysis

Sources	Type III: sum of squares	df	Mean square	F	Sig.
Resources	23.328	1	23.328	348.162	0.000
Capabilities	15.595	1	15.595	232.759	0.000
Religiosity	0.321	2	0.160	1.056	0.078
Error	30.218	451	0.067		
Corrected total	272.669	455			

Note: $R^2 = 0.889$ (adjusted R^2 value $= 0.888$)

As indicated in Table VII, the linear regression results of competitive advantage upon resources indicated that the slope for high religiosity (0.976) does not fall within the 95% confidence interval for low religiosity of 0.608–0.816 or confidence interval for medium religiosity of 0.853–0.973. Moreover, the slope for low religiosity (0.712) does not fall within the 95% confidence interval for medium religiosity of 0.853–0.973 or confidence interval for high religiosity of 0.881–1.072. Further, the slope for high religiosity is significantly higher than the slopes of the other two levels of religiosity. Therefore, religiosity of farm owners does moderate the relationship between resources and competitive advantage of the minor export crop farms, confirming *H1*.

In addition, the study has also tested the moderating effect of religiosity of farm owners on the relationship between capabilities and competitive advantage. As shown in Table VIII, the linear regression results indicated that the slope for high religiosity (1.061) does not fall within the 95% confidence interval for low religiosity of 0.464–0.682 or confidence interval for medium religiosity of 0.855–0.987. On the other hand, the slope for low religiosity (0.573) does not fall within the 95% confidence interval for medium religiosity of 0.855–0.987 or confidence interval for high religiosity of 0.963–1.158. Further, the slope for high religiosity is significantly higher than the slopes of the other two levels of religiosity. Hence, religiosity of farm owner does moderate the relationship between capabilities and competitive advantage of the minor export crop farms, hence *H2* is confirmed.

In addition, we have also performed an individual-wise assessment of the moderating effect of religiosity on each of the resources and capabilities and competitive advantage. It can be seen from Table IX that at least one slope of religiosity does not fall within the 95% confidence interval. Further, the slope for high religiosity is significantly higher than the slopes of the other two levels of religiosity with respect to the relationships between

		Unstandardised coefficients	Standardised coefficients				95.0% confidence interval for *B*	
Religiosity	Model 1	*B*	SE	*β*	*t*	Sig.	Lower bound	Upper bound
Low		−0.080	0.159		−0.504	0.616	−0.395	0.235
	Resources	0.712	0.053	0.724	13.554	0.000	0.608	0.816
Medium		0.148	0.102		1.454	0.147	−0.053	0.348
	Resources	0.914	0.031	0.902	29.498	0.000	0.853	0.973
High		1.089	0.202		5.388	0.000	0.690	1.488
	Resources	0.976	0.048	0.912	20.267	0.000	0.881	1.072

Note: Dependent variable: competitive advantage

Table VII. Results on the moderating effect of religiosity on resources and competitive advantage

		Unstandardised coefficients	Standardised coefficients				95.0% confidence interval for *B*	
Religiosity	Model 1	*B*	SE	*β*	*t*	Sig.	Lower bound	Upper bound
Low		−0.099	0.149		−0.666	0.507	−0.396	0.198
	Capabilities	0.573	0.055	0.627	10.400	0.000	0.464	0.682
Medium		0.296	0.103		2.868	0.005	0.093	0.500
	Capabilities	0.921	0.033	0.890	27.603	0.000	0.855	0.987
High		1.747	0.200		8.724	0.000	1.351	2.142
	Capabilities	1.061	0.049	0.922	21.659	0.000	0.963	1.158

Note: Dependent variable: competitive advantage

Table VIII. Results on the moderating effects of religiosity on capabilities and competitive advantage

Table IX.
Results on the moderating effect of religiosity on item-wise resources and capabilities and competitive advantage

β and confidence interval	Religiosity levels	HA	PA	FA	IC	CAc	ENT	OLC	RBC	QMC	MC
β	Low	0.516	0.201	0.211	0.222	0.407	0.504	0.317	0.411	0.511	0.216
95% confidence	Lower bound	0.288	0.016	0.130	0.107	0.306	0.317	0.188	0.330	0.326	0.088
	Upper bound	0.442	0.184	0.202	0.192	0.394	0.429	0.242	0.402	0.418	0.042
β	Medium	0.530	0.318	0.247	0.242	0.428	0.527	0.330	0.447	0.537	0.230
95% confidence	Lower bound	0.296	0.227	0.127	0.174	0.219	0.361	0.196	0.327	0.381	0.096
	Upper bound	0.477	0.305	0.218	0.218	0.397	0.468	0.277	0.418	0.482	0.177
β	High	0.613	0.327	0.269	0.299	0.532	0.598	0.396	0.569	0.646	0.313
95% confidence	Lower bound	0.384	0.146	0.199	0.128	0.316	0.375	0.194	0.399	0.394	0.084
	Upper bound	0.573	0.220	0.246	0.242	0.520	0.492	0.316	0.486	0.508	0.273

Notes: HA, human assets; PA, physical assets; FA, financial assets; IC, institutional capital; CAc, collective actions; ENT, entrepreneurial identity; OLC, organisational learning capability; RBC, relationship building capability; QMC, quality management capability; MC, marketing capability

resources, capabilities and competitive advantage. Specifically, amongst the six resources, the moderating effect of the religiosity of farm owners on the relationship between resources and competitive advantage was the highest for human assets, whereas entrepreneurial identity recorded the second highest value. In terms of capabilities, the moderating effect of the religiosity of farm owners on the relationship between quality management capability and competitive advantage was higher, followed by the relationship building capability.

5. Discussion and implications

Falvey (2005) describes religion as a powerful expression of culture and it is closely related with nature. Since agricultural activities generally engage with nature, agriculture and religion seem to be intertwined. However, as far as agribusiness and the sources of competitive advantage are concerned, there is not enough evidence in analysing the impact of religiosity on competitive advantage of agribusiness farms in which the findings insofar are rather mixed and inconclusive. Hence, it is interesting to determine whether religiosity of farm owners affects the relationships between resources, capabilities and competitive advantage of the minor export crop farms, where the importance of this sector is apparent to the Sri Lankan economy in terms of land utilisation, employment opportunities and economic growth. This study confirms that religiosity is an important factor that influences the resource-capability-competitive advantage interaction. As such, it has extended our understanding on the implication of the dynamic RBV and its integration of resources, capabilities and competitive advantage along with the moderation effect of the religiosity of farm owners. On the basis of the findings, several theoretical and practical implications are made.

5.1 Theoretical implications

This study is probably one of the first empirical investigations on RBV in terms of the integration of resources, capabilities and competitive advantage, with the moderation effect of religiosity in the agribusiness sector. Since there is an absence of a unifying theory on what aspects of religiosity influences business activities and competitive advantage, an important contribution of this research is that it has addressed the significant dearth of analysis on such influence in a comprehensive manner. Supported by a large sample size with the goodness of measures established, this study has made yet another important empirical contribution towards the agribusiness literature by investigating the impact of religiosity of farm owners on the resource-capability-competitive advantage interaction of the minor export crop farms. The results have provided empirical evidence that agriculture

and religiosity are intertwined, and that the religiosity of farm owners is associated with the competitive position of their farms.

The empirical evidences in Tables VII and VIII confirm that the degree of religiosity has significant influence on the farm owners with respect to selecting suitable resources and integrating them with proper capabilities. The resulting outcomes indicate that there is a statistically significant moderation effect of the religiosity of farm owners on the relationships between resources, capabilities and competitive advantage of farms, confirming prior findings that the religiosity of leaders influences the (farms) in positive ways (Du *et al.*, 2016; Zaman *et al.*, 2018).

The results in Table IX further indicate that the moderating effect of the religiosity of farm owners on the relationship between human assets and competitive advantage was high. Human assets cannot be isolated from the agribusiness sector (Lamprinopoulou *et al.*, 2006) due to their strong connection. Talbot (2013) indicates that employees who are experienced and dedicated to their work are valuable assets that farm owners owned, controlled and deployed in order to generate high quality yield. Since religiosity shapes individual behaviour and promotes a social norm that reduces conflict (Croucher, 2011; Jia *et al.*, 2017), farm owners with high religiosity show higher desires to maintain positive work values. Work values in this sense include unbiased functionalities for payment, holiday, promotion and working conditions (Yeganeh, 2015). By promoting positive work values through religion affiliations, farm owners can retain experienced employees so that they can display dedication to their works.

The second highest moderating effect is recorded on the relationship between entrepreneurial identity and competitive advantage. The farm owners viewed themselves as entrepreneurs who are characterised by risk taking, growth orientation and innovation. Jia *et al.* (2017) revealed that when individuals are more religious, they are more willing to bear uncertainties, expand their business activities and growth of their farms and are more willing to search, develop and try new products, markets or methods without concerning much on financial risk. All of these contributed to the competitive advantage of the minor export crop farms.

The moderating effect of religiosity on the relationship between collective actions and competitive advantage is reflected in the culture of sharing and caring inherited by the religious beliefs and practices of the Sri Lankans in general. Since more religious farm owners are prone to social interactions (Levintis *et al.*, 2018), they are more willing to share business knowledge, market information and credit facilities, which led to greater competitive advantage.

Although the β values are relatively low on the moderating effect of religiosity on the relationships between physical assets, financial assets and institutional capital and competitive advantage, the effects were significant. All religions emphasise that people need to love their environment (Friedman, 2000). Since agricultural activities and environment are inseparable, the farm owners who show concern on environmental issues (such as fertiliser utilisation and harvesting practices) and encourage environmentally-friendly agricultural practices can gain competitive advantage from physical assets. Further, religion also encourages individuals to practice social values such as honesty, trustworthy and empathy, to name some (Jia *et al.*, 2017). These values are paramount, especially when the farm owners strive to obtain financial assets such as credit facilities which are required for the operations and purchase of appropriate capital equipment (Lamprinopoulou *et al.*, 2006). Agribusiness farms also need to seek resources from the institutional environment such as government programmes (Lu *et al.*, 2010) in terms of training and workshops, subsidies and advice. Religious farm owners who capitalise on their institutional environment can encourage the application of knowledge obtained to enhance their competitiveness.

In terms of capabilities, the moderating effect of the religiosity of farm owners on the relationship between quality management capability and competitive advantage was high (Table IX). In order to maintain certain quality standards of crops, farm owners are required to set a clear quality goal for the yields produced, adopt the cultivation standards imposed by the government, employ environmentally-friendly approaches and ensure that their employees possess adequate awareness of product quality. Hence, farm owners with high religiosity are able to influence their employees to safeguard the nature by practicing environmentally-friendly cultivation standards, as well as in maintaining the desired quality standards of their crops to fulfil their obligations to protect the consumers of their crops.

The second highest moderating effect is recorded on the relationship between relationship building capability and competitive advantage. This is congruent with the earlier argument that religious farm owners are prone to involve more in social interactions and build a strong network with their customers, suppliers and even with competitors (Tu *et al.*, 2011). This also assists them in obtaining information about their competitors regarding pricing strategies and pricing tactics. As a result, farm owners can broaden their scope of marketing capability. Having said so, future studies should consider the degree of which the religiosity of farm owners influences the development of social networks, which could probably be better tested with social network analysis tools to arrive at a more conclusive and directed managerial implications and policy suggestions.

Learning is critical to the success of firms in this dynamic environment in their quest to adapt and survive (Sirmon *et al.*, 2007). The degree of religiosity of farm owners facilitates the application of intrinsic work values like self-actualisation, achievement, social responsibility and competence (Gahan and Abeysekera, 2009). These intrinsic values are associated with the pursuit of autonomy, interest, growth and creativity at work. Within the working environment, employees are encouraged to continue learning through training and development, vested with decision-making authority and apply new ideas on routine-based farm activities, which enable the farms to achieve greater advantage through their organisational learning capability.

Interestingly, the findings in Table IV point to the significant differences in resources, capabilities and competitive advantage with the degree of religiosity of farm owners with different religions. Although there is a very large representation of Buddhist farm owners compared to the other three religions, the results showed that there are significant differences in resources and capabilities with regard to the level of religiosity of different religions of the farm owners. The comparison across religions shows how farm owners of different religions and degree of religiosity prioritise and manage their resources and capabilities to achieve competitive advantage.

Specifically, the Catholic farm owners are better in acquiring and managing their human assets, financial assets and institutional capital, confirming the results of prior study (Grandy, 2013; Nkamleu, 2007) that Christian farm owners showed better performance in utilising land, labour and fertilisers due to their acceptance of new technology and openness to new and efficient ways of managing farms. By focusing only on clove cultivation also allows them to concentrate their resources on that crop. On the other hand, we also found that Muslim farm owners have somewhat failed to absorb and exploit the full potential of new technologies, hence explaining their relatively weak performance in cultivating clove and pepper. The significant influence of Buddhist farm owners on collective actions and organisational learning is confirmed by the study of Tu *et al.* (2011) who found that they are able to explore business opportunities regardless of the crops they cultivate due to the opportunities to meet people to build social networks and learn from them. Compared to others, Hindu farm owners recorded the lowest performance in managing their resources and capabilities to achieve competitive advantage. The finding is not in line with the study of Vasconcelos (2009) where Hindu owners perceived that prayers are beneficial to them to make right decisions.

Since the present study only purports to discuss the results obtained in a general way by highlighting how farm owners of different religions and religiosity perform and/or behave in acquiring, selecting and integrating their resources and capabilities to achieve competitive advantage, the small sample sizes of the three religions (Islam, Catholic and Hindu) warrant further study to confirm the results.

Since there are significant differences between resources, capabilities and religion, *post hoc* test was performed to identify the differences for each of the six resources and four capabilities. Human assets, financial assets, institutional capital, collective actions and organisational learning capability show significant differences. Specifically, for human assets, financial assets and institutional capital, Catholic farm owners recorded the highest mean value, whereas for collective actions and organisational learning capability, Buddhist farm owners recorded the highest mean value. The findings fetch some practical implications which are discussed in the following sub-sections.

5.2 Practical implications

The study is useful in understanding how religiosity facilitates the resource-capability-competitive advantage interaction. It provides guidance to the farm owners in terms of incorporating their religiosity to achieve competitive advantage for their farms.

Specifically, the results emphasised on the influence of religiosity on work values. Promoting and/or maintaining work values within farms will enable the farm owners to retain their experienced and committed employees. Further, it will also facilitate proper learning environment for employees to engage in continuous training and development. Since religiosity shapes the behaviours of individuals, farm owners could use religiosity as a basis for influencing their employees to practice environmentally-friendly cultivation standards to maintain or enhance the quality standards of their crops since the crops produced are important spices used as main ingredients for food, medical and cosmetic industries.

The findings also suggest that the more religious farm owners also exhibit the tendency to exhibit more entrepreneurial characteristics such as risk taking, growth orientation and innovation, which are important for the success and competitive advantage of farms. Religious activities also provide opportunities for farm owners to meet people and build social networks. These interactions allow farm owners to share business knowledge and market information, discuss issues relating to cultivation, pricing strategies and obtain shared credit facilities. The findings also imply the possibility of benchmarking farm owners of different degrees of religiosity and/or religion affiliations to identify the best practices in selecting and integrating resources and capabilities that impact on competitive advantage significantly.

Besides providing directions to the farm owners on the steps to be taken, the results of the study are also helpful to policy makers, government and local communities as they arrange for specific training or knowledge sharing sessions with other farmers and/or their employees. Farm owners who are religious and/or of specific religion affiliations can be deliberately selected to share their best practices with others so that competitive advantage can be achieved for the benefit of the country as a whole.

6. Conclusion and future research directions

The study has laid a groundwork and contributed to a better understanding on the religiosity of farm owners in the resource-capability-competitive advantage interaction within the context of the three main minor export crops. As an important revenue generating sector in Sri Lanka, it is hoped that the study provides impetus for more research to be conducted in the future. Developing a deeper understanding on the potential influence of religiosity of farm owners on various agribusiness activities can increase the likelihood of business success, especially for farms dealing with the challenges of globalisation.

The study acknowledges some of the limitations. First, this study relied on self-reporting of farm owners and it did not analyse the systemic variation of religiosity amongst different religions. In view of the unbalanced sample size of the farm owners, since Table IV shows that there are significant differences amongst the resources and capabilities with regard to the religions of farm owners involved in this study, it would be interesting to know whether business practices differ with the different religious affiliations, traits and/or precepts of the owners. This will help to extend our knowledge on how farm owners of different religiosity and/or religion affiliations interact with people, technology and the environment, as well as observe, store, process and retrieve information for better decision making. In light of this, future studies are also necessary to investigate how educational level, income level or mental capacity of farm owners influence the observed relationships.

Second, the quantitative approach was used to identify the moderating effect of religiosity. Further explanatory study is necessary to investigate to what extent does religiosity of farm owners influence their critical thinking and decision-making processes of their farms. A qualitative, interview-based approach may enable further studies to look into the granularity of relationships and the dynamics involved in the relationship between the religiosity of owners and competitive advantage of farms. The use of network analysis tools will also be helpful to determine the degree of which the religiosity of farm owners influences the development of social networks.

Third, since this study focused only on three minor export crops, further research is also necessary to test the proposed research framework portraying the religiosity and resource-capability-competitive advantage interaction on other minor export crops in Sri Lanka. The framework can also be applied to farms in nations identified as highly religious countries such as Indonesia, Vietnam, Madagascar, Tanzania and India which mainly export cinnamon, clove and pepper for the purpose of comparison.

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