



Competitiveness Review: An International Business Journal

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Article information:

To cite this document:

Vilani Sachitra, Siong-Choy Chong, (2018) "Resources, capabilities and competitive advantage of minor export crops farms in Sri Lanka: An empirical investigation", *Competitiveness Review: An International Business Journal*, Vol. 28 Issue: 5, pp.478-502, <https://doi.org/10.1108/CR-01-2017-0004>

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Resources, capabilities and competitive advantage of minor export crops farms in Sri Lanka

An empirical investigation

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Received 6 January 2017
Revised 14 March 2017
22 May 2017
18 September 2017
Accepted 12 November 2017

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Abstract

Purpose – The agribusiness sector has long been acknowledged as a major source of livelihood to many people in developing countries. Hence, determining the resources and capabilities influencing farm-level competitive advantage are vital to better understand and formulate appropriate strategies to increase the competitiveness of minor export crops farms. This study aims to understand of the link between resources-capabilities-competitive advantage for appropriate measures to be recommended to enhance the competitive position of the smallholding farms.

Design/methodology/approach – This study adopts the resource-based view in combination with dynamic capabilities. The scope comprises owners of farms who possess experience in commercial cultivation of minor export crops in Sri Lanka. A self-administrated structured questionnaire was used to collect data.

Findings – Based on the responses from 456 farm owners, results of the multiple regression analysis indicate that variables representing resources such as human assets, physical assets, financial assets, institutional capital, collective action and entrepreneurial identity; and dynamic capabilities such as organisational learning, relationship building, quality management and marketing are significantly associated with competitive advantage of the minor export crops farms. Reputation and farm process management capability are the only two insignificant variables. Taken together, the resources and dynamic capabilities investigated explain 89.3 per cent of the variation in competitive advantage, in which 82 per cent is contributed by resources.

Originality/value – The findings provide useful insights not only in terms of understanding the link between resources, dynamic capabilities and competitive advantage but also how resources and capabilities can be channelled and leveraged to bring about competitive advantage to the minor export crops farms. Theoretical and practical implications as well as future research directions are provided.

Keywords Resource-based view, Dynamic capabilities, Competitive advantage, Firm level, Minor export crops farms

Paper type Research paper

Introduction

Scholarly attention on agribusiness has increased in recent years as the sector becomes more industrialised, competitive, as well as technologically and managerially intensive (Wilk and Fensterseifer, 2012). Coupled with the growing global demand for agricultural products, all these require the sector to be more competitive in the world market to reap the benefits of increased demand (Yercan and Isikli, 2007). These explain why competitiveness of this



sector has become an interesting area of academic study (Mann *et al.*, 2011; Mugeru, 2012), particularly in the developing countries (Dziwornu, 2014; Tálas and Rózsa, 2015). Recent literature suggests that this sector contributes significantly to enhance capital inflow, reduce trade balance deficits, create balance of payment surplus, increase employment and expand the production base of any developing nation (Gaytán and Benita, 2014; Nwachukwu *et al.*, 2014). While the agribusiness sector is recognised as a provider of major livelihood support, it is increasingly facing competitive challenges which include technological innovation and changes in global economies and climate (Mugeru, 2012). It is apparent that the agribusiness sector needs to be more competitive if it is to meet these challenges.

The term “agribusiness” encompasses farms operating within the agricultural sector, including bulk commodities and high value fresh products (Ibeh, 2003). This study focuses on the minor export crops sector as it contributes to the highest foreign exchange earnings to Sri Lanka, i.e. 38.8 per cent of total agricultural products and 5.4 per cent on total export. Among the minor export crops, cinnamon, clove and pepper are the main agricultural products representing spices where 66.2 per cent of contributions toward export earnings are derived from them (Sachitra and Chong, 2015). This creates an interesting research proposition to explore the competitiveness of farms growing these crops.

There are three theoretical foundations in explaining the sources of competitive advantage at the firm level, namely the structure–conduct–performance framework from industrial organisation, the resource-based view (RBV), as well as the relational perspective (Lages *et al.*, 2009). Of the three, the RBV is the leading theory of sources of competitive advantage (Barney, 1991; Powell, 2001). The RBV is based on the economic rent concept which explains two basic maxims:

- (1) resource endowments which are heterogeneously distributed; and
- (2) capabilities which allow a firm to sustain its competitive advantage (Martin-de-Castro *et al.*, 2006).

The RBV theory suggests that firms should be heterogeneous with regard to their resources and capabilities.

Due to the growing world demand for spices, farm owners of the minor export crops are increasingly feeling the pressure of boosting the productivity of their family-owned, small-scale businesses (Spice Council Sri Lanka, 2014). As minor export crops producers have little or no control over their product prices as well as input prices due to the competitive nature of the market, a more practical way of achieving competitive advantage is by looking at the resources they own and the dynamic capabilities they possess (Sachitra and Chong, 2017). Hence, the minor export crop sector represents a rich context in which the RBV is explored because resources and capabilities appear to be important for the success of farms (Sachitra *et al.*, 2016).

A cursory review of the literature shows that there is a significant lack of published research analysing the relationships between resources, capabilities and competitive advantage in the agribusiness sector (Baleevskikh and Galeev, 2012; Dlamini *et al.*, 2014; Dziwornu, 2014; Gaytán and Benita, 2014; Lamprinopoulou *et al.*, 2006), more so on the minor export crops farms. The available studies related to these crops (Sachitra and Chong, 2015; Sachitra *et al.*, 2016; Sachitra and Chong, 2017) do not capture the resources and capabilities relating to competitive advantage in detail. Hence, there is still an opportunity to research on this area where the resulting findings will allow a clearer understanding of the link between resources-capabilities-competitive advantage for appropriate measures to be recommended to enhance the competitive position of the smallholding farms.

The rest of this article is organised as follows. The literature on RBV, resources, dynamic capabilities and competitive advantage are reviewed, resulting in the formulation of a series

of hypotheses to be tested. This is followed by the research design in terms of the methodological approach used. The results and subsequently the implications are presented before the paper is concluded with future research directions.

Theoretical reviews

Resource-based view

The RBV consists of a rich body of related theoretical tools to analyse sources of competitive advantage at the firm level (Barney *et al.*, 2001). For that reason, the RBV has emerged for over two decades to explain competitive advantage differences amongst firms (Mugera, 2012). Kortelainen and Karkkainen (2011) describe the RBV as a theory of rent which explains the resource market imperfections. Accordingly, the sources of competitive advantage should be valuable, rare, imperfectly imitable and non-substitutable, expressed as VRIN (Barney, 1991). The basic tenet of the RBV is that resource heterogeneity of a firm explains performance differences between firms (Wong and Wong, 2011). In other words, it clearly emphasises that the resources a firm owns and the ways it controls those resources generate long-lasting competitive advantage for the firm (Ismail *et al.*, 2012).

According to Newbert (2007), resources must be deployed to obtain competitive advantage and therefore firms must organise themselves to utilise their valuable, rare and inimitable resources. As such, the VRIN framework is renamed as the VRIO framework. To do so, the required capabilities need to be identified (Grant, 1996). Similarly, Hinterhuber (2013) proposes that to obtain competitive advantage, the resources and capabilities should share the traits of being valuable, rare and inimitable, and that the firm is organised to deploy sufficiently large resources to cover its fixed costs and address the unmet needs of customers. This framework, called VRIO, contributes to the understanding of which resources and capabilities are valuable and allows an ex-ante prediction of competitive advantage.

Winter (2003) notes that there is a difference between dynamic capability and ordinary capability. If a firm keeps earning by producing and selling the same product, on the same scale to the same customers, the capabilities exercised in this firm is referred to as zero-level or ordinary capabilities. By contrast, capabilities that could change the product, production processes or customers are referred to as dynamic capabilities. Based on these theoretical underpinnings, this research focuses on resources and dynamic capabilities that could lead the minor export crops farms toward achieving competitive advantage.

Resources

Resources refer to the stock of available assets that are owned, controlled and used by a firm (Amit and Schoemaker, 1993; Makadok, 2001; Morgan *et al.*, 2004; Oliver, 1997) to develop and implement its strategies. Generally, resources can be divided into several categories such as physical, financial, human and organisational (Barney, 1991; Cater and Cater, 2009; Grant, 1991; Habbershon and Williams, 1999).

Studies have identified different resources leading to competitive advantage. For instance, Baleevskikh and Galeev (2012) found that people, price, non-price factors, internal factors, quality and external factors are associated with competitiveness of agricultural products in the Perm Region. Dlamini *et al.* (2014) suggest that professional labour, input cost, public sector support and product quality affect the competitiveness of the agribusiness sector in Swaziland. Dziwornu (2014) emphasises that cost, experience and capacity utilisation are the main resources which significantly affect the competitive advantage of the agribusiness sector in Ghana. In addition, Lamprinopoulou *et al.* (2006), Rao and Rogers (2006) and Talbot (2013) found that the driving forces of the agricultural sector consist of natural capital, human capital, financial capital, physical capital, social capital, technology, reputation and collective action.

As the minor export crops farms are small-scale in nature, among those resources that can affect the competitive advantage of small businesses include physical, technology, organisational factors, human, entrepreneurial identity and reputation (Kraja and Osmani, 2013). This is aligned to the agricultural sustainability assessment framework (Rao and Rogers, 2006) which lists natural capital, human capital, financial capital, physical capital and social capital as the valuable resources of the agricultural sector. However, Ismail *et al.* (2010) propose that institutional capital can also play a significant role in enhancing the competitiveness of small-scale firms. All these resources are posited as significant sources of competitive advantage to the minor export crops farms. Hence, the following hypothesis is proposed:

H1. Resources of farms significantly affect the competitive advantage of minor export crops farms in Sri Lanka.

Accordingly, this study proposes seven resources: human assets; physical assets; financial assets; institutional capital; collective action; entrepreneurial identity of farm owners; and reputation. Expert interviews conducted by the authors prior to the administration of the questionnaire survey have confirmed the importance of these resources to the minor export crops farms. Table I describes each of the resources proposed in this study.

The following sub-hypotheses are formulated based on the identification of the seven resources:

H1a. Human assets significantly affect the competitive advantage of minor export crops farms.

H1b. Physical assets significantly affect the competitive advantage of minor export crops farms.

H1c. Financial assets significantly affect the competitive advantage of minor export crops farms.

H1d. Institutional capital significantly affects the competitive advantage of minor export crops farms.

Resource type	Description	Source(s)
Human asset	Experience, intelligence and training of employees	Barney (1995)
Physical asset	Plant and equipment, geographical location, access to raw materials and the technology used	
Financial asset	Debt, equity and retained earnings	
Institutional capital	Unique resource that the farm acquires from its institutional environment like government programmes	Lu <i>et al.</i> (2010) Kata and Zajac (2007)
Collective action	Actions of group members to share market knowledge, sell together and develop business opportunities	Gyau <i>et al.</i> (2014)
Entrepreneurial identity	Entrepreneurial traits related to risk taking, growth orientation and innovativeness	Ridha and Wahyu (2017) Vesala <i>et al.</i> (2007)
Reputation	Opinions of stakeholders regarding the products, services and processes of the farm	Dlamini <i>et al.</i> (2014) Perez-Cabanero <i>et al.</i> (2012)

Table I.
Resources proposed
in this study

H1e. Collective action significantly affects the competitive advantage of minor export crops farms.

H1f. Entrepreneurial identity significantly affects the competitive advantage of minor export crops farms.

H1g. Reputation significantly affects the competitive advantage of minor export crops farms.

Based on the premises that there is a possibility of obtaining competitive advantage if farms are heterogeneous in terms of controlling and deploying their resources, scholars have extended the RBV with an understanding of dynamic capabilities (Eisenhardt and Martin, 2000) where farms can control and deploy the same resources differently based on their capabilities to achieve competitive advantage (Lu *et al.*, 2010). This calls for the examination of the dynamic capabilities of minor export crops farms.

Dynamic capabilities

Dynamic capabilities are defined as the ability of a firm to perform a productive task repeatedly, which relates either directly or indirectly to its capacity for creating value through effecting the transformation of inputs into outputs (Grant, 1996) and reconfiguring internal and external competences to address the rapidly changing environment (Teece, 2007). Kortelainen and Karkkainen (2011) define dynamic capability as a process that changes the resource configurations of firms. As such, dynamic capabilities are rooted in the resources and processes of firms that are difficult to observe and imitate (Makadok, 2001), hence becoming a source of competitive advantage. Thus, the following hypothesis is proposed:

H2. Dynamic capabilities of farms significantly affect the competitive advantage of minor export crops farms in Sri Lanka.

Literature has identified a number of conceptualisations of different capabilities (Agada, 2014; Grant, 1996; Ismail *et al.*, 2012; Lages *et al.*, 2009; Lu *et al.*, 2010; Talbot, 2013), categorised as cross-functional, broad-functional, activity-related, specialised, organisational learning, core competences, organisational integration, alliance-building, product development, informational and technological capabilities, market linking, marketing and management-related capabilities. These capabilities define how resources are controlled, configured and deployed.

Within the agribusiness sector, Agada (2014) identifies several important capabilities of farms. They include:

- learning capability with regard to planting, land preparation and harvesting;
- investment capability with regard to labour, fertilisers, packaging and transportation;
- process and technical capability in terms of weeding practices, soil preparation and fertiliser utilisation;
- linkage capability; and
- strategic marketing capability.

This study proposes five capabilities that are consistent with [Grant's \(1996\)](#) dynamic capability model:

- (1) organisational learning;
- (2) relationship building;
- (3) quality management;
- (4) farm process management; and
- (5) marketing capability.

Likewise, these capabilities were determined to be the more significant ones after consultation with experts. [Table II](#) describes these dynamic capabilities.

On the basis of the five dynamic capabilities, the following sub-hypotheses are formulated:

H2a. Organisational learning capability significantly affects the competitive advantage of minor export crops farms.

H2b. Relationship building capability significantly affects the competitive advantage of minor export crops farms.

H2c. Quality management capability significantly affects the competitive advantage of minor export crops farms.

H2d. Farm process management capability significantly affects the competitive advantage of minor export crops farms.

H2e. Marketing capability significantly affects the competitive advantage of minor export crops farms.

Competitive advantage

The concept of competitive advantage is widely used in modern economic literature to evaluate the patterns of trade and specialisation of firms in commodities which possess

Capability type	Description	Source(s)
Organisational learning	Ability to develop knowledge that facilitates changes in the behaviour of employees for the production process to function	Ismail (2013) Lages et al. (2009)
Relationship building	Ability to share information, communication and develop long-term relationships with stakeholders such as with other farms, customers, competitors, government and other authorised parties	Lages et al. (2009)
Quality management	Ability to design, develop and produce products to fulfil customer requirements	Lages et al. (2009)
Farm process management	Integration of a set of tasks performed by a farm to enhance its output through efficient use of its technology (in control of cost, harvesting and record keeping) and flow of materials (fertilizers and ideas)	Nath et al. (2010)
Marketing	Ability to market the product [yield] by gathering knowledge of customers and competitors, integrating markets and pricing effectiveness	DeSarbo et al. (2007)

Table II.
Capabilities proposed
in this study

competitive advantage (Cho *et al.*, 2016; Gonçalves *et al.*, 2015; Saboniene, 2009). Porter (1985) defines competitive advantage as the value a firm is able to create for its buyers that exceeds its cost of production. Although competitive advantage could occur at international, regional, national, industry or even firm levels, firm- or institutional-level competitive advantage has received the greatest attention from researchers and practitioners (Akpınar *et al.*, 2017; Arslan and Tatlıdil, 2012; Hanafi *et al.*, 2017; Kharub and Sharma, 2017; Porter, 1990).

Firm level competitive advantage 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 (Bhuiyan, 2011; Kennedy *et al.*, 1997; Martinez *et al.*, 2014; Porter, 1990; Srivastava *et al.*, 2006). This study defines competitive advantage as a specific approach of using resources and dynamic capabilities to keep a minor export crops farm separate from its competitors and to keep it active and growing.

Nevertheless, the conceptualisation and measurement of competitive advantage at the firm level still generates controversial discussion in the field of management. In prior studies, competitive advantage dealt with the variables of value and quality, which could be listed as cost-based, product-based and service-based (Ismail *et al.*, 2012). Based on the variables recommended by Li *et al.* (2006), Newbert (2008) and Thatte (2007), competitive advantage of agribusiness farms can be operationalised using price, quality, delivery dependability, time to market and exploiting market opportunities. Hence, the present study measures competitive advantage of minor export crops farms based on the five variables. The five variables were operationalised with 18 measurement items measured on a five-point Likert-scale, ranging from strongly disagree and strongly agree.

Methodology

Sample and data

The scope of this study includes entities with experience in the commercial cultivation of three minor export crops, namely, cinnamon, pepper and clove. Their importance is reflected in their significant contributions in terms of total agricultural exports as well as total minor agricultural exports to the Sri Lankan economy. In addition, this study considers three crops instead of one to increase the observed variances as well as to strengthen the generalisability of findings.

At present, the minor export crops cover 14 districts[1] in Sri Lanka (Census and Statistic Department, 2014). As commercial cultivation is concentrated along in the highest growing districts, the study first identified the two highest growing districts of each of the three crops, i.e. cinnamon in the districts of Galle and Matara, clove in the districts of Kandy and Kegalle, and pepper in the districts of Kandy and Matale, to form the population frame. Subsequently, the two highest growing District Secretarial Divisions (DSDs) of each of the two selected districts were determined. There are 26,413 households (farms) in the target population. According to Sekaran (2010), the sample size for this target population is 380. However, the study selected 152 households for each crop, which made up a total of 456 farm owners. To obtain an adequate sample, the proportionate stratified random sampling technique was used with respect to the DSDs, taking the cue from other empirical studies (Dlamini *et al.*, 2014; Hchaichi and Ghodbane, 2014; Ismail *et al.*, 2012). The farm owners constitute the units of analysis.

The majority of respondents are more than 50 years old with 10 to 20 years of farming experience. This enables them to provide adequate and meaningful responses to the study. In addition, the majority of them also reported the use of less than 5 acres of land to cultivate the crops, indicating the small-scale nature of their ventures.

Variables and measures

After reviewing the literature, expert interviews were conducted with three academics and two industry experts in order to understand the nature of resources and dynamic capabilities related to the competitiveness of minor export crops farms. This resulted in the identification of seven resources (Table I) and five capabilities (Table II). A self-administered structured questionnaire was used to collect data. The survey was administered in December 2015 and ended in April 2016 when data have been collected from the 456 farm owners.

The survey questionnaire comprises a total of 80 items (Table III). These included three categorical items which were used to solicit demographic information from the owners of the minor export crops farms such as age, experience in farming and size of land used to cultivate the three crops. The remaining 77 items representing the three constructs (resources, capabilities and competitive advantage) and their associated variables were measured on a continuous, itemised rating scale (five-point Likert-scale) with end points of strongly disagree and strongly agree. Such itemised rating scale is frequently used in business research (Sekaran and Bougie, 2010).

The questionnaire was reviewed by several academics with relevant expertise to ensure comprehensiveness and clarity. The questionnaire was then translated into the Sinhala language in order to avoid any language barrier affecting the responses. The translated questionnaire was re-tested on three academic staff and three farmers to ensure no translational errors.

Data analysis methods

This study follows two primary procedures:

- (1) the assessment of the adequacy of the measurement items; and
- (2) the assessment of the hypotheses constructed.

To assess the adequacy of the measurement items, individual-item reliability, construct reliability, discriminant validity and multicollinearity were tested. For the second procedure, correlation analysis was used to examine the association amongst variables in this study. This is followed by the multiple regression analysis which was used to test the hypotheses (Hair *et al.*, 2010). Analysis of variance (ANOVA) was also carried out to control for the types of crops and locations of farms.

Findings

Assessment of adequacy of measurement

Factor analysis was applied using principal axis factoring method for data reduction and purification of the items under each variable of the study. As there are latent variables measured through the itemised rating scale (five-point Likert scale), the principal axis factoring method must be used in extraction (Leech *et al.*, 2005, p. 76). The Kaiser–Meyer–Oklin (KMO) measure of sample adequacy was used to determine the appropriateness of factor analysis. Generally, a KMO measure of 0.50 or higher indicates the appropriateness of factor analysis (Malhotra and Birks, 2006), and that factor loadings with values above 0.70 are acceptable (Barclay *et al.*, 1995). Table IV shows that the KMO measure of the variables were greater than 0.50 ($p < 0.05$) and that the Bartlett's test of sphericity showed a significant level ($p < 0.001$), indicating the appropriateness of factor analysis. The loadings of the items on their corresponding variables ranged from 0.703 to 0.874 (greater than 0.50). Hence, none of the items were dropped from analysis.

Construct	Variable	Measurement items	Source	
Resources	Human assets (HA)	Experienced employees	Ismail <i>et al.</i> (2012)	
		Employees come up with new ideas	Voulgaris <i>et al.</i> (2013)	
		Trusted employees		
		Employees are dedicated towards their work		
	Physical assets (PA)	Acquire suitable raw materials	Employees are capable of carrying out their own work without supervision	
			Adequate farming equipment	Ismail <i>et al.</i> (2012)
		Adequate harvesting equipment	Located at favourable geographical location	Habbershon and Williams (1999)
			Farm developed fertiliser	Morgan <i>et al.</i> (2004)
	Financial assets (FA)	Adequate money to devote to farm operational activities	Voulgaris <i>et al.</i> (2013)	
			Adequate money to buy capital equipment	Ismail <i>et al.</i> (2012)
Institutional capital (IC)		Get loans from banks	Habbershon and Williams (1999)	
		Get loans from informal channels	Morgan <i>et al.</i> (2004)	
	Get low interest rates for credit capital	Voulgaris <i>et al.</i> (2013)		
	Government offers subsidy	Lu <i>et al.</i> (2010)		
Collective action (CAc)	Government conducts workshops to improve quality	Divisional Agricultural Officer gives advice and guidance	Kata and Zajac (2007)	
		Regular meetings with the Divisional Agriculture Officer	Gyau <i>et al.</i> (2014)	
	Trading partners share market information	Government supports for identifying customers	Lu <i>et al.</i> (2010)	
		Trading partners discuss production issues		
Reputation (REP)	Shared credit facilities with other farmers are available	Trading partners assist to find new customers	Gyau <i>et al.</i> (2014)	
		Other farmers share business knowledge	Lamprinopoulou <i>et al.</i> (2006)	
	Good reputation about product(s)	Maintain our good reputation of product(s) over last five years	Habbershon and Williams (1999)	
		Customers value farm reputation	Perez-Cabanero <i>et al.</i> (2012)	
Entrepreneurial identity (ENT)	Employees value farm reputation	Do not avoid taking risk	Carter (1998)	
		More careful with risk-taking	Vesala <i>et al.</i> (2007)	
	Try to expand my business	Prefer to keep doing things the way familiar with		
		Do not believe in success without risk-taking		
Capabilities	Organisational learning capability (OLC)	Employees openly discuss mistakes	Lages <i>et al.</i> (2009)	
		Employees help each other to learn	Vorhies and Morgan (2005)	
	Invest in new ideas from employees	Employees learn through activities		
		Able to devote employees commitment towards the goal(s) of farm		
Relationship building	Openly communicate with employees	Openly communicate with customers	Ngugi <i>et al.</i> (2010)	
			Lages <i>et al.</i> (2009)	

Table III.
Measurement items
of the study

(continued)

Construct	Variable	Measurement items	Source
	capability (RBC)	Maintain close relationship with agricultural supportive institutions Able to share financial assistances with other farmers Build relationship for identifying market opportunities	
	Quality management capability (QMC)	Have clear quality goal of product(s) Comply with the specific cultivating standards imposed by the Agricultural Department Practice environmental friendly operations to improve product quality Employees are well aware about maintaining product quality Manage to maintain quality raw material suppliers	Lages <i>et al.</i> (2009) Lakhal (2009) Jie <i>et al.</i> (2013)
	Farm process management capability (FPMC)	Able to control the cost of fertiliser Adapt timely harvesting Maintain financial records (cost and income) properly Able to gather employees ideas when making farm's decisions Encourage environmental friendly cultivation practices	DeSarbo <i>et al.</i> (2007) Nath <i>et al.</i> (2010)
	Marketing capability (MC)	Have knowledge of customers Have knowledge of competitors Develop pricing programmes Discover strategies and tactics of other farmers Monitor prices and price changes of competitors	DeSarbo <i>et al.</i> (2007) Forsman (2000) Morgan <i>et al.</i> (2009) Ngo and O'cass (2012)
Competitive advantage (CAAd)	Price	Offer competitive price Able to offer price as low as other farmers Able to offer price lower than other farmers	Li <i>et al.</i> (2006) Thatte (2007) Newbert (2008)
	Quality	Able to compete based on our product quality Offer products that are highly reliable Offer products that are very durable Offer high quality products to customers	Sachitra (2016)
	Delivery Dependability	Deliver customer orders on time Provide dependable delivery Deliver the kind of product needed by customers Deliver product to market quickly	
	Time-to-market	Time-to-market lower than industry average Product delivery time is lower than other farmers	
	Exploiting market Opportunities	Able to expand customer base than other farmers Able to expand supplier base than other farmers Able to access financial resources than other farmers Able to obtain human resources than other farmers Able to access capital goods than other farmers	

Table III.

In addition, the reliability of variables was also assessed by examining their internal consistency values through computing the construct reliability (<0.90), average variance extracted (AVE) (<0.50) and Cronbach's Alpha values (<0.70) (Hair *et al.*, 2010; Vinayan *et al.*, 2012). The results in Table IV show that the construct reliability,

Table IV.
Assessment of the
measures

Variable	KMO measure	Bartlett's test of sphericity	AVE	Construct reliability	Cronbach's alpha
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
REP	0.850	0.000	0.66	0.946	0.824
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
FPMC	0.751	0.000	0.62	0.935	0.849
MC	0.877	0.000	0.70	0.955	0.830
CAD	0.857	0.000	0.61	0.978	0.857

AVE and alpha values were above the suggested cut-off values, suggesting adequate reliability of the items.

As summary, it can be concluded that the resources, capabilities and competitive advantage measures met adequate validity and reliability requirements.

Variance analysis of competitive advantage

As the study focuses on three different crops in different districts, it was necessary to control the types of crops and locations to increase the observed variances. To do so, one-way ANOVA was used to test the mean differences. The results of Levene's test of equality of variances was 0.274 ($p > 0.05$), suggesting that the assumption on the homogeneity of variances was not violated. The results of the ANOVA analyses show that the p -values were 0.075 and 0.328, respectively, which were greater than 0.05. As the p -values were greater than 0.05, there are no significant differences among the type of crops and locations of minor export crops farms with regards to the competitive advantage measures (Hair *et al.*, 2010).

Correlation analysis

Table V illustrates the descriptive statistics and intercorrelational values between the variables. There were statistically significant correlations between resources (human assets, physical assets, financial assets, institutional capital, collective action, reputation, entrepreneurial identity), capabilities (organisational learning, relationship building, quality management, farm process management, marketing) and competitive advantage at 0.05 significance level. Further, none of the correlation coefficient was above 0.85, indicating the absence of multicollinearity in the variables (Hair *et al.*, 2010).

As correlation is not an indicator of causal effect (Hayes, 2009), multiple regression analysis was used to determine whether the seven resources and the five dynamic capabilities have any significant effect on the competitive advantage of the minor export crops farms.

Multiple regression analysis

The results of the multiple regression analysis are presented in Tables VI-VIII. Table VI shows that the adjusted R -squared value was 0.890 ($F = 307.734$, $p < 0.05$), which implies that 89 per cent of the variation in competitive advantage can be explained by the resources and dynamic capabilities identified in this study. In addition, the Durbin-Watson (DW)

Table V.
Descriptive statistics and correlation analysis between variables

Variable	Mean	SD	HA	PA	FA	IC	CAC	Rep	Ent	OLC	RBC	QMC	FPC	MC
HA	3.59	0.82												
PA	3.55	0.79	0.73*											
FA	3.38	0.84	0.76*	0.62*										
IC	3.35	0.90	0.70*	0.63*	0.69*									
CAC	3.54	0.87	0.54*	0.54*	0.51*	0.51*								
REP	3.28	0.91	0.23*	0.29*	0.21*	0.34*	0.30*							
ENT	3.41	1.03	0.65*	0.66*	0.64*	0.59*	0.53*	0.27*						
OLC	3.13	0.86	0.68*	0.60*	0.62*	0.55*	0.48*	0.31*	0.62*					
RBC	3.37	0.88	0.67*	0.66*	0.65*	0.51*	0.53*	0.30*	0.69*	0.58*				
QMC	3.38	0.91	0.66*	0.68*	0.64*	0.58*	0.58*	0.28*	0.66*	0.67*	0.64*			
FPMC	3.07	0.78	0.32*	0.24*	0.30*	0.26*	0.31*	0.27*	0.26*	0.34*	0.29*	0.31*		
MC	3.31	0.82	0.50*	0.52*	0.51*	0.57*	0.60*	0.25*	0.55*	0.51*	0.66*	0.60*	0.29*	
CAd	3.34	0.77	0.69*	0.68*	0.69*	0.61*	0.62*	0.38*	0.60*	0.54*	0.61*	0.52*	0.37*	0.67*

Note: *Correlation is significant at the 0.05 level (2-tailed)

statistics was 1.787, which falls within the acceptance range of 1.53 to 2.50 to ensure that there is no autocorrelation problem in the data (Chittithaworn *et al.*, 2011; Jie *et al.*, 2003). Table VIII further shows that the variation inflation factor (VIF) values of all the independent variables were above 1 and below the threshold value of 5. In addition, the tolerance values of all the independent variables were higher than 0.20. The results further indicate that there is no multicollinearity issue in the variables.

In residual diagnostics, assumption of the regression analysis is that residuals are independent and distributed normally, with a mean of zero and a constant variance (Garson, 2012). In the regression plot of standardised residuals with the standardised predicted value, all the points were plotted randomly and fell within ± 3 . Hence, there is no violation of the assumption of homoscedasticity. Further, to test the normality of the residuals, Shapiro–Wilk test of normality was performed. The Shapiro–Wilk test of normality on the residuals records a *p*-value of 0.465, which is more than 0.05. Thus, the assumption of normality of the residual terms is met and hence, the residuals were independent and normally distributed. In Table VII, the *p*-value was less than 0.05, implying that at least one of the resources and dynamic capabilities can be used to model competitive advantage. To examine which resources and capabilities represent sources of competitive advantage, the *p*-value of individual sources needs to be assessed. Table VIII shows that the *p*-values of human assets, physical assets, financial assets, institutional capital, collective action and entrepreneurial identity of farmers were less than 0.05. Hence, those resources are statistically significant sources of competitive advantage. Further, the *p*-values of organisational learning capability, relationship building capability, quality management capability and marketing

Model	<i>R</i>	<i>R</i> square	Adjusted <i>R</i> square	Std. error of the estimate	<i>R</i> square change	Change statistics			Sig. <i>F</i> change	Durbin–Watson
						<i>F</i>	df ¹	df ²		
1	0.945 ^a	0.893	0.890	0.25677	0.890	302.157	12	443	0.000	1.787

Note: ^aPredictors: (Constant), MC, CAC, IC, OLC, ENT, PA, REP, QMC, FA, FPMC, HA, RBC

Table VI.
Model summary

capability were less than 0.05, implying that these dynamic capabilities are significant sources of competitive advantage.

However, the p -values for reputation and farm process management capability were greater than 0.05. Thus, reputation and farm process management capability are not significant predictors of competitive advantage of the minor export crops farms. Among the seven resources, collective action recorded the highest beta value (beta = 0.177, $p < 0.05$) and financial assets recorded the second highest value (beta = 0.143, $p < 0.05$). Similarly, quality management capability recorded the highest beta value (beta = 0.193, $p < 0.05$), followed by marketing capability (beta = 0.098, $p < 0.05$). Despite the insignificant results for reputation and farm process management capability, the six resources and four dynamic capabilities as constructs explain the variation in competitive advantage of minor export crops farms, confirming $H1$ and $H2$ to a large extent. All of the sub-hypotheses are supported, except for $H1g$ and $H2d$.

Taking a closer look, the effects of resources and dynamic capabilities on competitive advantage were identified separately using stepwise regression analysis. The seven resources were first entered into Model 1 and subsequently the five capabilities were entered into Model 2. The adjusted R -squared value of Model 1 indicated that 82 per cent of variability in competitive advantage was explained by resources, while 7 per cent was explained by dynamic capabilities.

Model	Sum of squares	df	Mean square	F	Sig.
Regression	243.463	12	20.289	307.734	0.000 ^a
Residual	29.207	443	0.066		
Total	272.669	455			

Table VII.
ANOVA^b

Notes: ^aDependent variable: Cad; ^bPredictors: (Constant), MC, CAc, IC, OLC, ENT, PA, REP, QMC, FA, FPMC, HA, RBC

Model	Unstandardised coefficients		Standardised coefficients		Sig.	Collinearity statistics	
	B	Std. error	Beta	t		Tolerance	VIF
(Constant)	-0.134	0.064		-2.101	0.036		
HA	0.062	0.028	0.066	2.238	0.026	0.280	3.577
PA	0.056	0.021	0.064	2.675	0.008	0.416	2.404
FA	0.132	0.026	0.143	5.109	0.000	0.307	3.256
IC	0.093	0.026	0.095	3.560	0.000	0.338	2.962
CAc	0.134	0.017	0.177	3.272	0.001	0.600	1.668
Rep	0.028	0.024	0.034	1.165	0.250	0.322	3.102
Ent	0.056	0.019	0.066	7.037	0.000	0.381	2.626
OLC	0.074	0.023	0.083	3.255	0.001	0.375	2.664
RBC	0.060	0.027	0.069	2.210	0.028	0.249	4.022
QMC	0.193	0.027	0.193	7.170	0.000	0.334	2.994
FPMC	0.042	0.025	0.050	1.669	0.096	0.270	3.706
MC	0.092	0.020	0.098	4.519	0.000	0.519	1.928

Table VIII.
Coefficients^a

Note: ^aDependent variable: CAD

Discussion

The identification of the sources of competitive advantage has in fact become a major area of study in business strategy and management. The agricultural sector is no exception where the growing demands for agricultural products across the world require this sector to be continuously competitive. In this study, theoretical concepts, managerial concepts and ideas have been explained, tested and analysed within the context of the minor export crops farms in Sri Lanka. The study developed an instrument to empirically examine the significant sources of competitive advantage by using survey questionnaires.

From the theoretical perspective, this study has extended knowledge by integrating resource-based and capability-based views which have been identified as a unified theoretical model of competitive advantage at the firm level. It is probably one of the first empirical investigations to integrate resource-based and capability-based views in the minor export crops sector. Although prior related studies have explored the different resources and capabilities that determined the competitive advantage at farm level, they were investigated independently and there is an absence of a unifying theory. In addition, although a few studies have investigated the determinants of success (Apasingha *et al.*, 2014; Thamiem *et al.*, 2011), they were limited in scope. As such, an important contribution of this research is that it has addressed the significant dearth of research analysing such relationships in a comprehensive manner.

The research has also established goodness of measures, supported by a large sample size. This measure is considered important since there is a significant lack of published research regarding the source of competitive advantage amongst family-owned businesses (Perez-Cabanero *et al.*, 2012) which characterise the minor export crops farm owners. The high *R*-square value indicates a comprehensive coverage of the resources and dynamic capabilities as a result of the validation by experts. By controlling the locations and types of crops, the findings show that significant relationships exist between the six resources, four dynamic capabilities and competitive advantage. Further, resources have been found to account for a very significant portion in explaining competitiveness of the minor export crops farms based on the high *R*-square value. The findings imply that the key to competitive advantage depends on how similar resources possessed by the farms are owned, controlled, configured and channelled (Amit and Schoemaker, 1993; Barney *et al.*, 2001; Ismail *et al.*, 2012; Lages *et al.*, 2009; Makadok, 2001; Martin-de-Castro *et al.*, 2006; Morgan *et al.*, 2004; Oliver, 1997; Powell, 2001; Wong and Wong, 2011) based on their dynamic capabilities (Eisenhardt and Martin, 2000). In other words, while resources are tangible and hence its account for a significant variation in explaining competitive advantage, it is the intangibles inherent in dynamic capabilities that exert a powerful effect in terms of how resources are configured (from its nature of homogeneity to heterogeneity) to achieve competitive advantage.

The results indicate that human assets, physical assets, financial assets, institutional capital, collective action and entrepreneurial identity of farm owners are significantly associated with the competitive advantage of farms, hence consistent with the RBV theory (Amit and Schoemaker, 1993; Ismail *et al.*, 2012; Kata and Zajac, 2007; Kumar and Rai, 2007; Lamprinopoulou *et al.*, 2006; Lu *et al.*, 2010; Vesala *et al.*, 2007). On the other hand, organisational learning, relationship building, quality management and marketing are important dynamic capabilities of the farms (Bhardwaj *et al.*, 2011; DeSarbo *et al.*, 2007; Franzak and Pitta, 2005; Lages *et al.*, 2009; Lakhal, 2009; Morgan *et al.*, 2009; Nath *et al.*, 2010; Ngugi *et al.*, 2010; Ritala and Ellonen, 2010; Sirmon *et al.*, 2007; Vorhies and Morgan, 2005; Ziggers and Henseler, 2009). The understanding of the resources-capabilities-competitive advantage link and the resulting findings provide useful directions in terms of

how each of the significant resources owned and controlled by the minor export crops farms can be configured by the dynamic capabilities and subsequently deployed for greater competitiveness.

The significant relationship between human assets and competitive advantage is reflected by the statistical results which provide support for *H1a*. Human asset cannot be isolated from the agribusiness sector (Lamprinopoulou *et al.*, 2006) due to their strong connection which is evident from the mean score obtained. Accordingly, employees who are experienced and dedicated to their work and those who require less supervision are valuable assets that farm owners owned, controlled and deployed in order to generate high quality yield (Talbot, 2013). Further, the level of productivity and innovation can be enhanced through trusted employees. However, Sachitra *et al.* (2016) observe that farm owners do not seem to emphasise on trust-based relationships due to the threat of fraud and other undesirable practices. In addition, the farm owners prefer a centralised decision-making authority, as they believe it is easier to control their employees. Hence, the findings imply that systematic strategies to narrow the employer-employee gap based on capabilities are required.

The importance of physical assets to the competitive advantage of farms has also been reflected in their significant relationship as shown in *H1b*. Being in business for no less than 10 years, the farm owners understand that possessing suitable raw materials, farming and harvesting equipment, as well as favourable geographical location and having fertilisers developed by farms are necessary pre-requisites to be successful. However, the average mean score can be explained by the current cultivation method which has been deployed for many years. If the farm owners desire to increase production, it is important that they familiarise themselves with the latest raw materials and equipment, and plan for their acquisition so that higher quality yields which require shorter period of cultivation can be obtained.

Likewise, the importance of financial assets to the competitive advantage of minor export crops farms is also reflected in the high beta values and support for *H1c*. However, the average mean score suggests that financial constraints is one pressing issue encountered by the small-scale farmers (Simpson *et al.*, 2004; Zaridis and Mousiolis, 2014). This issue is one of growing concern, particularly when farm owners are pressured to increase their yields to meet the demands imposed on them. Yet, many export orders cannot be fulfilled due to the insufficient volume of production, and this creates a vicious cycle of financial constraints (Sachitra and Chong, 2015). This emphasises on the need for adequate financial resources for and knowledge of farm operations and the purchase of appropriate capital equipment (Agada, 2014; Lamprinopoulou *et al.*, 2006). Having said so, the finding is also reflective of the source of finance of the farm owners. Of the total loan disbursements between formal and informal sources, the non-institutional or informal sector remains relatively high at 34 per cent of total rural sector loans (Central Bank of Sri Lanka, 2015). This implies that farm owners who are not aware of the interest-free and/or low interest loan facilities and/or subsidies offered by the government and banks may have secured loans from informal channels such as individual money lenders. They may fall into financial difficulties due to high interest rates which will further exacerbate their financial standing.

This study also confirms the important role of government as one of the key elements in enhancing the competitiveness of smallholding farms (Ismail *et al.*, 2010), hence supporting *H1d*. This is not unexpected since the nature of small-scale agribusiness firms demands that they seek resources from the institutional environment (Kata and Zajac, 2007) which includes government programmes (Lu *et al.*, 2010) to be more competitive. The resources provided by the government such as training and workshops, subsidies, advice and

guidance from officers of the Agricultural Department as well as support in identifying customers are important to the minor export crops farms. However, although the Department of Export Agriculture has been organising meeting sessions and conducting training programmes and workshops covering the planting process from nurseries to harvest, as well as marketing and producing standard certifiable products, [Sachitra et al. \(2016\)](#) found that a low participation rate was recorded along with the low take up rate of government subsidies.

The importance of collective action is reflected in the culture of sharing and caring inherited by the Sri Lankans and hence the support for *H1e*. To some extent, the farm owners have been working with their trade partners to share market information and discuss production issues as well as to seek their assistance to find new customers. In addition, they also share business knowledge and credit facilities with other farm owners ([Lamprinopoulou et al., 2006](#)). However, the low mean score explains the indifferent reaction from the farm owners. The importance of collective action cannot be under-emphasised to address the common issues faced such as lack of knowledge, cost control and capital constraints.

In contrast to financial assets, institutional capital and entrepreneurial identity, reputation scored a slightly higher average mean. Reputation is related to trust. When the products of a seller have a positive reputation, customers buy more, giving the seller the benefits of doubt. In addition, employees will value farm reputation and stay on with the farm. This explains why it is a unique characteristic of family-owned businesses and determines the competitiveness of farms ([Habbershon and Williams, 1999](#); [Talbot, 2013](#)). However, the regression analysis indicates that reputation is not a significant predictor of competitive advantage although this is proven to be otherwise in the correlational analysis, thus *H1f* was not supported. The finding is not in line with the literature ([Barney, 1995](#); [Carmeli and Tishler, 2004](#); [Itami, 1987](#); [Habbershon and Williams, 1999](#); [Perez-Cabanero et al., 2012](#); [Talbot, 2013](#)) where intangible assets such as the reputation of firms is very difficult to imitate and thus represents a real source of competitive advantage that can be retained over time. A possible explanation is that the farm owners view their processes as similar to others and hence they do not value the importance of maintaining a good reputation with their employees and customers.

The significant relationship between entrepreneurial identity and competitive advantage is reflected by the support for *H1g*. Corroborating [Rosairo and Potts \(2016\)](#), [Ridha and Wahyu \(2017\)](#), [Vesala et al. \(2007\)](#), the findings suggest that the farm owners viewed themselves as entrepreneurs who are characterised by risk taking, growth orientation and innovation. This study defines risk taking as the willingness to bear uncertainties; growth orientation as the aim to expand business activities and growth of their farms; and innovativeness as the willingness to search, develop and try new products, markets or methods. These characteristics could have been shared with the farm owners through the regular workshops jointly organised by the Divisional Secretariat Offices and several state universities to enhance the entrepreneurial role of small and medium enterprises. However, the mean score implies that such an entrepreneurial mindset needs to be developed over time.

In light with the findings, it is imperative for the minor export crops farm owners to configure their resources effectively and efficiently based on the dynamic capabilities they possessed. This is because capabilities are deeply rooted in the resources and processes of firms that are difficult to observe and imitate ([Makadok, 2001](#)) and hence allow the farm owners to achieve competitive advantage. [Table V](#) shows the interaction between the resources and capabilities which can serve as a useful guide to the minor export crops farm

owners. To some extent, some capabilities need to be further developed and/or harnessed for a more effective deployment of resources.

Taking a closer look, human assets are highly associated with organisational learning capability, physical asset with quality management capability, financial asset with relationship building capability, institutional capital with quality management capability, collective action with marketing capability and entrepreneurial identity with relationship building capability. These findings reflect important evidence regarding the effective channels of resources of minor export crops farm owners in Sri Lanka on competitive advantage by concerning the functions of different resources with different capabilities.

To begin with, the significant relationship between organisational learning capability and competitive advantage is confirmed by the support for *H2a*. Competitiveness of firms relies on knowledge which should be developed through organisational learning mechanism (Wong and Wong, 2011) as learning is critical to the success of firms in this dynamic environment in their quest to adapt and survive (Sirmon *et al.*, 2007). The findings of this study echo the ideas of Amarakoon *et al.* (2016), Gaytán and Benita (2014), Lages *et al.* (2009), Sirmon *et al.* (2007) and Wong and Wong (2011) where organisational learning capability is a vital factor leading to the competitiveness of the minor export crops farms. The average mean score suggests that the farm owners should leverage on their human assets by encouraging continuous learning among their employees through training and development, decentralised decision-making authority and application of new ideas on routine-based farm activities. An incentive plan needs to be developed around these efforts to build trust and team work, which eventually leads to better productivity and quality, innovation, commitment and ethical practice among the farm employees.

In addition, the significant relationship between relationship building capability and competitive advantage as reflected by *H2b* demands that small-scale farms enhance the ability of forming relationships with their employees, other farms, customers, as well as with governmental and agricultural institutions. The average mean score suggests that besides forming relationship with employees, the farm owners should also improve their relationship building capability further by enhancing their entrepreneurial identity, financial standing, collective actions with other farm owners to share relevant information, advices and credit availability, and leveraging on institutional capital in order to deploy their resources effectively and efficiently. The farm owners should take cognisance of the financial- and non-financial incentives (such as equipment) offered by governmental and agricultural institutions such as the Ministry of Export Crops, Ministry of Industry and Commerce, Export Development Board, Department of Export Agriculture and the Spice Council. There are also numerous low-interest loan facilities for small-scale farmers such as the Saubhagya loan scheme and small holder entrepreneurship development scheme that the minor export crops farmers can take advantage of to sustain their farms. This suggests that the farm owners should strengthen their financial standing by leveraging on the support provided by the government and other agricultural institutions.

The increasing demands for spices by both food and medical industries has created the pressure for the minor export crops farm owners to increase their production and to ensure that the crops produced meet certain quality standards. This explains the highest beta score and support for *H2c* that quality management capability significantly affects the competitive advantage of minor export crops farms. The finding suggests that possessing capabilities such as setting a clear quality goal for the yields produced, adopting the cultivation standards imposed by the government, employing environmental-friendly approaches, possessing adequate awareness of product quality among employees and having suppliers supplying high-quality materials are important for competitiveness of

small-scale farms (Franzak and Pitta, 2005; Simpson *et al.*, 2004; Spice Council Sri Lanka, 2014). This emphasises on the need to reconfigure the physical assets by leveraging on institutional capital support in terms of training programmes and incentive schemes.

The significant relationship between marketing capability and competitive advantage of minor export crops farms is reflected by the support for *H2e*. This finding is also supported by prior studies (Benedetto and Song, 2003; Forsman, 2000; Grande, 2011; Talbot, 2013). Possessing adequate capability in marketing allows farms to take advantage of market sensing activity to obtain information on their customers and competitors, as well as skills in developing pricing strategies and monitoring the pricing tactics of their competitors. To broaden the scope of marketing capability, farm owners should expose themselves to training related to the identification of customers and logistics, product innovation as well as time-to-market advice offered by The Department of Export Agriculture and the Spice Council in addition to enhancing their collective actions through relationship building capability.

However, a contradiction on the relationship between process management capability and competitive advantage has been recorded (Agada, 2014; Borch and Forsman, 2001; Day, 1994; DeSarbo *et al.*, 2007; Nath *et al.*, 2010; Priem and Butler, 2001); thus, *H2d* was not supported. In other words, the farm owners do not regard processes such as fertiliser control, timely harvesting, collective decision and environmental friendly practices as a dynamic capability but as an ordinary capability based on the perception that the processes ought to be similar across different farms. This reinforces the need to develop the aforementioned capabilities which may indirectly lead to the effective deployment of resources to manage the processes better.

Conclusion and future research

The study has achieved its objectives of investigating the relationships between resources, dynamic capabilities and competitive advantage in the minor export crops sector in Sri Lanka, drawing on the rich context of which the RBV is explored. The findings demonstrate that the minor export crops farms may own and control similar resources, but the way of which the resources are configured and deployed on the basis of the dynamic capabilities they possess may determine the achievement of competitive advantage. This is only possible through a better understanding on the resources-capabilities-competitive advantage link of the context under study which provides rich insights in terms of how the resources and capabilities possessed can be developed, channelled and harnessed.

This study contains several important managerial implications. It is considered to be very significant to Sri Lanka as far as the three minor export crops are concerned since they are the main agricultural products representing spices and their significant contributions in terms of foreign exchange earnings and the employment generated. Hence, a better understanding of the sources of competitive advantage enables appropriate recommendations to be made in terms of how the resources and capabilities possessed by the minor export crops farms can be developed, channelled and harnessed. It is hoped that the recommendations provided in the last section will be helpful to the smallholder farms in enhancing their competitive position through appropriate development, channelling and harnessing of their resources and capabilities. In addition, the suggestions are equally beneficial to decision makers in their strategic planning at the farm level. The findings are also insightful in providing policymakers with directions in developing effective policy measures.

From the research perspective, it is hoped that this study provides the impetus for more research to be conducted in the future. The valid and reliable variables used in designing

this study can be used by other researchers in determining farm level competitiveness. As this study is set in the context of three crops, the ability to generalise the reported results to other types of minor crops remains restricted. Further research is required to test the proposed research framework on other minor export crops. It is also recommended a wider study to confirm the differences among the locations of minor export crops farms with regards to the resources, capabilities and competitive advantage. In addition, the framework portraying the resource-capability-competitive advantage link should also be applied to farms in emerging nations such as Indonesia, Vietnam, Madagascar, Tanzania and India which mainly export cinnamon, clove and pepper.

While the key sources proposed in this study serve as a basis to determine a set of variables, there may be other important latent variables such as productivity, customer expectations, internationalisation of firms and national competitive strategies, which are associated with competitive advantage that future studies should focus on. The causality interaction between the resources and dynamic capabilities can also be established through the use of a more powerful statistical tool such as Structural equation modelling in coming up with a more conclusive finding and directed practical implications. This includes the possible moderating effects of demographic variables such as gender, age, land extend and experience which could impact on the resource-capability-competitive advantage link. Further, the functions of different resources with different capabilities on competitive advantage need to be examined. Finally, as the sources of competitive advantage change over time, a longitudinal study on the resources and capabilities is necessary to capture the finer details.

Note

1. *Cinnamon* – Galle, Matara, Hambantota, Gampaha, Kalutara, Colombo and Ratnapura; *Pepper* – Matale, Kandy, Kegalle, Badulla, Ratnapura, Ampara, Puttalam, Monaragala and Kurunagala; *Clove* – Kandy, Kegalle and Matale.

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