



Sources of Competitive Advantage Measurement in the Minor Export Crop Sector in Sri Lanka: Result from Pilot Study

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Authors' contributions

This work was carried out in collaboration between all authors. Author VS designed the study, wrote the literature, performed the statistical analysis and set the first draft of the manuscript. Authors SCC and AAK reviewed the draft manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Purpose: This study aims to identify the items associated with sources of competitive advantage in the minor export crop sector.

Design/Methodology/Approach: The measures were identified based on literature review and expert opinions which took into account theories of resource-based view (RBV) and firm-specific dynamic capabilities. They were piloted on 30 farmers engaged in the commercial cultivation of minor export crops of cinnamon, cloves and pepper in Sri Lanka. The measures were subject to reliability and validity tests to ascertain the items to be retained to represent the sources of competitive advantage in the minor export crop sector.

Findings: The RBV comprises human asset (7 items), financial asset (7 items), physical asset (6

items) and reputation (5 items), whilst firm-specific dynamic capabilities consist of quality management capability (8 items) and marketing capability (8 items). About 19 items were identified as measures of competitive advantage. The statistical results showed that 5 items were retained for each of the human and financial assets, respectively; 5 and 4 items were retained for physical assets and reputation; 5 items were retained for each of the quality management capability and marketing capability, respectively; and 12 items were retained as measures of competitive advantage in the minor export crop sector.

Originality/Value: Although the results exemplify the initial step towards a more detailed research in the future, they shed light in terms of the future development of a simple specification model, as well as a diamond specification model specifically for the sector. Several implications are provided with the intention of advancing research in this important yet interesting area.

Keywords: Agribusiness sector; competitive advantage; dynamic capabilities; reliability; resource-based view; validity.

1. INTRODUCTION

Porter [1] defines competitive advantage as the value a firm is able to create for its buyers that exceeds its cost of production. Specifically at the firm level, competitive advantage reflects the ability of a firm to offer products and services that meet or exceed customer values currently offered by its rivals, substitutes and possible market entrants [2-6].

Taking a deeper look, the Industrial Organisation Economics (IOE) identify the sources of competitive advantage of a single firm in the form of market structure, behaviour of firms and the social benefits as well as costs associated with the market structure [7]. It describes a firm as a set of strategic activities which leads it into having an attractive position in the market. Accordingly, a firm with an attractive market position is able to achieve market power and gain monopoly rents by focusing on the actions of other players in the market such as co-operative partners and rivals [8]. Nevertheless, monopoly rent is just one source of competitive advantage. [8] indicates that besides monopoly rent, the performance a firm derives at through competitive advantage also includes Recardian rents (generated through specific resources a firm owns such as knowledge of employees as well as culture, traditions and leadership of a firm) and Schumpeterian rents (the dynamic capabilities of a firm). It can be seen that competitive advantage and its sources appear to be a relative term [9]. It is for this reason that [10] suggests that the definition of competitive advantage still has an opportunity to be developed.

Notwithstanding this, competitive advantage can serve a useful scientific purpose which is

beneficial to different industries and the agribusiness sector is no exception. Whilst the sector is recognised as a provider of major livelihood support to many people in developing countries [11], it is increasingly facing competitive challenges due to technological innovation and changes in global economies and climate [12-14]. It is apparent that the agribusiness sector needs to achieve competitive advantage if it is to meet those challenges. Hence, exploring the sources of competitive advantage of firms in this sector still provides great opportunities for further studies to be conducted.

This study responds to the call by focusing on the minor export crops sector in Sri Lanka such as the cinnamon, clove and pepper farms due to their economic value creation. This sector has since become one of the emerging sectors in the country due to its highest foreign exchange earnings. Currently, Sri Lanka is the largest exporter of cinnamon, fourth largest exporter of pepper and fifth largest exporter of clove in the world [15]. Because of the increasing demands for these spices by the food and medical industries, the government of Sri Lanka has set high export target to be achieved by 2020 from these crops [16].

However, besides the aforementioned environmental challenges, the major producers of these crops are increasingly feeling the pressure of growing demand and productivity due to their family owned small-scale nature [16]. In order to overcome the challenges, these farms must first identify which of their resources and capabilities that could lead to the creation of economic value, in other words, competitive advantage. Since not all of the farms achieve similar performance despite them possessing

more or less the same resources, it is intriguing to determine how some farms outperform others. This explains as to why the issue of improving the agricultural development of smallholders is receiving more attention recently [17]. The results will inform the farm owners on what it takes to achieve competitive advantage.

This study integrates the resource-based view (RBV) and firm-specific dynamic capabilities in determining the sources of competitive advantage. Based on the literature and expert opinion, six sources are proposed, namely human asset, financial asset, physical asset, reputation, quality management capability, and marketing capability. Since the objective of this study is to determine goodness of the measures (reliability and validity) proposed, only results of the pilot study will be reported. Having said so, this research signifies the first step towards a more robust analysis of the measures in the future.

The rest of this article is organised as follows. After a review of literature that covers the discussion on RBV, resources, firm-specific dynamic capabilities and competitive advantage, the study presents the research design in terms of the methodological approach used in the pilot study. The results of the measurements are presented next before the paper is concluded with future research directions.

2. REVIEW OF THE CONCEPTS

Porter's diamond model [6] provides useful guidance to analyse the current situation of the industry and it explains the competitive power of an industry in general. The diamond model identifies the determinants of competitive advantage, namely infrastructure and skilled labour (factor conditions), local demand for goods and services in an industry (demand conditions), existence or absence of supply industry (related and supporting industry) and managerial structure as well as competition amongst themselves (context for firm strategy and rivalry). However, the performance of firms is argued to be determined mostly by firm-specific rather than industry-specific factors [9]. Hence, firm-specific factors such as resources and capabilities become more important as the drivers of competitive advantage [10,12,14]. This implies the need to translate the macro-level determinants in the diamond model into micro-level factors which directly impact on strategies of firms.

2.1 Resource-based View

In line with the recent trends in the global agribusiness sector, competitive advantage of agribusiness has garnered much interest in the academic literature [14]. The term agribusiness adopted by [18] encompasses firms operating within the agricultural sector, including bulk commodities and high value fresh products. Since 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 in this sector is to look at the resources they owned to reduce production costs [15]. Hence, the minor export crop sector represents a rich context in which the RBV is explored because resources appear to be important for the success of farms.

Retrospectively, there are two theoretical paradigms used to explain the framework of competitive advantage at firm level, namely the RBV and the relational perspective [19]. Of the two, the RBV is the leading theory of competitive advantage [20,8]. The RBV consists of a rich body of related theoretical tools to analyse sources of competitive advantage at firm level [21]. For that reason, the RBV has emerged for over two decades, explaining competitive advantage differences amongst firms [14].

Kortelainen and Karkkainen [22] described the RBV as a theory of rent which explains the resource market imperfections. Accordingly, the sources of competitive advantage are VRIN resources where resources are defined to be valuable, rare, immobile and non-substitutable [20], thus making up the acronym. The basic tenet of the RBV is that resource heterogeneity of a firm explains the performance differences between firms [23]. It clearly emphasises that the resources a firm owns and the ways it controls those resources generate long lasting competitive advantage for the firm [20,24].

Although the RBV theorises the relationship between resources and competitive advantage, [25] argues that the RBV lacks of a causality chain between resources and competitive advantage. In other words, the understanding of how resources lead to competitive advantage is minimal in the RBV [22]. Further, although the RBV is simple and easy to apply, there is little empirical evidence regarding the application of the RBV theory in the agribusiness sector [14].

All being said, the RBV remains a useful theory to analyse inter-firm cooperation as a source of competitive advantage amongst firms [7]. In order to complement its limitations, the firm-specific dynamic capability theory was integrated with the RBV [26,27]. This is done in light with the recent shift of attention from resources to capabilities [28].

Some studies tend to refer to resources and capabilities as synonymous [29]. This is the reason [20] defines resources as the combination of firm assets, capabilities, processes and knowledge. However, [30] clearly distinguishes resources from capabilities where resources are lists of tangible or intangible assets such as physical, financial, information, technology, human and brand; whilst capabilities refer to the ability of a firm to absorb, integrate and transform internal and external resources into competitive advantage. In other words, it is the firm-specific capabilities that transform resources into productivity [31]. As such, the capabilities can be dynamic and hence different across firms along with the resources inherited [29].

Hinterhuber [25] proposes that in order to obtain competitive advantage, the resources and capabilities share the traits of being valuable, rare, and inimitable, that the firm is organised to deploy resources, sufficiently large to cover fixed cost and address unmet needs of customers. This framework, called VRIOLU, contributes to understanding of which resources and capabilities are valuable and allow an ex-ante prediction of competitive advantage.

Although [30] found no pre-determined functional relationship between the resources and capabilities of a firm, the capability of firms and its associated analysis related to competitive advantage receive very little attention in the literature to date [32]. Specifically, how firms utilise their resources that relate to their specific capabilities to achieve competitive advantage has received little attention [25,22,33,34].

In order to narrow the gap, it is imperative to focus on the resources that could lead a farm towards achieving competitive advantage, the important farm-specific capabilities that are valuable as well as how farms combine and transform their resources via the farm-specific capabilities. The first two gaps will be addressed by this study.

2.2 Resources

Resources refer to the stock of available assets that are owned, controlled and used by the firm [31,35,36,34] to develop and implement its strategies. They consist of tangible assets such as financial, physical and human along with the intangible assets [37]. According to [38], resources include skilled employees, technology knowledge, brand names, trade contracts, machinery and procedures as well as capital.

Generally, resources can be divided into several categories which are physical, financial, human and organisational [20,39,30,40]. However, those resources may not be generalisable to all types of firms. According to the agricultural sustainability assessment framework [11], resources of the agricultural sector comprise natural capital, human capital, financial capital, physical capital and social capital. [41] adds two key resources of the agricultural farm to include technological and reputation.

Albeit the attempts to identify resources in the agricultural farms, the key question lies on whether farms with identical resources will achieve competitive advantage. In this sense, scholars have extended the RBV with an understanding of the dynamic capabilities of firms [42]. The dynamic capabilities are discussed in the following sub-section.

2.3 Capability

Capabilities can be defined as the ability of a firm to perform its task which is related either directly or indirectly to its input-output process [26], capacities to coordinate and deploy resources to perform tasks [34], processes in which available resources are developed, combined and transformed into valuable goods or services [36] as well as a 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 [43].

There is a difference between dynamic capability and ordinary capability. For a firm that keeps earning by producing and selling the same product on the same scale to the same customer(s), the capabilities exercised in this firm is referred to as zero-level or ordinary capabilities. In contrast, capabilities that could change the product, production process or customers are referred to as first-order dynamic capabilities [44]. For this, [45] define dynamic

capabilities as the ability of a firm to integrate, build and reconfigure internal and external competencies to address the rapidly changing environment. Similarly, [4] define dynamic capability as a process that changes the resource configurations of a firm.

The literature has identified a number of conceptualisations of different capabilities [46,26,24,19,29,47]. For instance, [26] has identified four categories of capabilities: cross-functional, broad-functional, activity-related and specialised capability. In other studies, capabilities are categorised as organisational learning, core competencies, organisational integration, alliance-building, product development as well as informational and technological capabilities [24,36,48]. [49] identify five capabilities which include technology, market linking, marketing, information technology and management-related capabilities.

2.4 Resources, Capabilities and Competitive Advantage

The existing conceptualisations clearly imply the required interactions between resources and capabilities of a firm for achieving competitive advantage [32]. This is understandable since capabilities cannot be a direct source of competitive advantage without resources. On the other hand, by just possessing resources is not sufficient for firms to achieve competitive advantage. Another important implication is the differed level of capabilities amongst firms based on the resources inherited [29].

By putting together the three concepts (resources, capabilities and competitive advantage), it can be inferred that if a firm is able to identify valuable and rare resources and specific capabilities which lead it to reduce cost, exploit new market opportunities and/or neutralise competitive threats [33], this will lead the firm towards attaining competitive advantage.

2.5 Study Design

This study does not attempt to provide an entire list of all possible resources and capabilities that farms might possess to obtain competitive advantage. Rather, it focuses on the specific resources and capabilities that have been identified in prior studies and through expert opinions. As an initial step, expert interviews were conducted with three academic and two

industry experts in order to understand the nature of resources and capabilities related to the minor export crop farms. This resulted in the identification of six sources of competitive advantage.

Since the minor export crops farms are family owned and small-scale in nature, the experts have identified human asset, physical asset, financial asset and reputation as resources which is very much in line with [50] who identified these factors as affecting the competitive advantage of small businesses. In this study, human resources include experience, intelligence and training of employees; whilst physical resources include plant and equipment, geographical location, access to raw materials and the technology used. Financial resources incorporate debt, equity and retained earnings, and reputation refers to the opinion of stakeholders regarding the products, services and processes of the farm.

In addition, the expert interviews also resulted in two important capabilities to be included in this study. They are quality management capability and marketing capability, reflecting [51] who conclude that small-scale businesses could gain competitive advantage by having these capabilities. This is in view that the ability to maintain quality and market the yields has become the most important factor in spice trading [52,16].

The questions for each of the constructs and items (Appendix 1) were developed and then reviewed by a set of academic with relevant expertise in order to ensure comprehensiveness and clarity. The questionnaire was then translated into the Sinhala language in order to overcome the language barrier with the unit of analysis, i.e. farmers. The translated questionnaire was re-tested on three academic staff and three farmers to ensure that it is free of translational errors. A total of 60 items were included in the pilot study, using a five-point Likert scales ranging from strongly disagree to strongly agree.

Since the scope of this study comprises entities with experience in farming minor export crops, particularly cinnamon, clove and pepper, the population of this study consists of farmers who are engaged in the commercial cultivation of these crops in Sri Lanka. This study considers three instead of one crop in order to increase the observed variances as well as to strengthen the generalisability of findings. Further, to ensure

that the respondents represent the population of farmers who may possess different characteristics, including the resources and capabilities they own, the farmers were selected based on the two highest growing districts of the each selected crops. The list of farmers was taken from the Spice Council of Sri Lanka [16] and 30 farm owners (10 from each crop) were randomly selected for this pilot study exercise. The sample size is considered to be reasonable compared to the study of [24] which involved a pilot study on a sample of only 10 small and medium enterprises in examining the relationship between organisational resources, capabilities, systems and competitive advantage.

This study employs Cronbach's alpha to test the reliability of the measures. According to [53], the reliability for each of the constructs is acceptable when the alpha values for each are greater than 0.70. Besides, construct validity is also determined to reflect on how well the results obtained from the use of the measure fit the established theory [54]. Correlation analysis is adopted to test the convergent and discriminant validity. For adequate construct validity, the highest correlation value for the selected element with corresponding rows and columns should be from 0.30 to 0.90. Further, the minimum corrected item total correlation value should be greater than 0.30. The Bartlett's test of Sphericity and the Kaiser-Meyer-Oklin (KMO) measure of sample adequacy are also performed to determine the appropriateness of factor analysis. In this case, the KMO value of 0.60 or above and a significant level of Bartlett's test are required. The study also assessed the reliability of retained items by examining their internal consistency values through computing the average variance extracted (AVE) and construct reliability. Accordingly, the AVE and construct reliability values of above 0.50 and 0.90, respectively, are considered to be acceptable [33].

3. RESULTS

Table 1 presents the profile of the pilot respondents. The majority of them are more than 50 years old with 10 to 20 years of farming experience. In addition, the majority of them also reported use of less than 5 acres of land to cultivate the minor export crops, signifying their small-scale nature.

3.1 Constructs Measurements

There are 7 items which represent the construct of human asset. The mean value for each item

ranges from 2.33 to 3.63. The highest correlation values for items HA2 (educated employees) and HA5 (employees have trust-based relationship) with other items are less than 0.30. These items were dropped from further analysis because they had low variances and were weakly correlated with the overall construct. In addition, the item-total correlations for these items were below the average for other items. In order to confirm the correlation values, exploratory factor analysis (EFA) was conducted on this construct. As expected, items HA2 and HA5 loaded less than 0.50 on the component matrix (0.173 and 0.211, respectively) and the KMO measure of the construct was 0.470 (less than 0.50). The Cronbach's alpha value is 0.837 after dropping the two items. Further, the minimum corrected item total correlation is 0.365, which is more than 0.30.

Seven items are identified for the construct measuring physical asset. The mean value of each item ranges from 2.33 to 3.87. The highest correlation value for items PA4 (adequate replanting equipment) and PA7 (proper irrigation system) with other items are less than 0.30. Similarly, results of the EFA revealed that the component matrix of items PA4 and PA7 were 0.239 and 0.291, respectively, with a KMO measure of 0.462. The Cronbach's alpha values and minimum corrected item total correlation are 0.765 and 0.393, respectively after dropping these items.

In the construct for financial asset, six items were initially proposed. The mean value for each item ranges from 2.43 to 3.50. The highest correlation value for item FA6 (Adequate money for replantation) with other items is less than 0.30. Hence, the item was dropped from the construct. The KMO measure for the six items was 0.433 and item FA6 loaded less than 0.50 (0.072). After dropping the item, the Cronbach's alpha value is 0.768 with 0.383 as the minimum corrected item total correlation.

The reputation construct consist of 5 items. The mean value of each item ranges from 2.30 and 3.80. The highest correlation value for item R4 (suppliers value our farm reputation) with the other items is less than 0.30. The component matrix for item R4 was 0.168 and that the KMO measure was 0.413. The Cronbach's alpha value and minimum corrected item total correlation are 0.849 and 0.847, respectively after dropping this item.

The quality management capability construct consists of 8 items. The mean value of each item ranges from 1.73 to 3.63. The highest correlation values for items QM1 (product safety is an important indicator) and QM4 (practice specific quality standards imposed) with other items are less than 0.30. Hence, these items were dropped from the construct. In addition, the correlation value between QM2 [clear quality goal of our product(s)] and QM6 (maintain good records for quality) are more than 0.90. Apart from having high variances and strong correlation with the overall construct, the item-total correlations for QM2 and QM6 ranged from 0.14 to 2.31 which were well below the average for other items. However, QM6 was dropped because the Cronbach's alpha value after dropping this item is 0.813 compared to 0.804 if QM2 is dropped. Further, the component matrix of items QM1, QM4 and QM6 were 0.064, 0.108, and 0.135, respectively with a KMO measure of 0.433. After dropping the three items, the Cronbach's alpha value is 0.904. The minimum corrected total correlation is 0.704, which is more than 0.30.

There are 8 items proposed for the marketing capability construct. The mean value for each item ranges from 1.93 to 3.63. The highest correlation values for items MC3 (skill to target our markets) and MC5 (analyse market situations) with other items are less than 0.30. Hence, both the items are dropped from the construct. Further, the correlation value between items MC7 (identify and understand market trends) and MC8 (minor competitors' price changes) is more than 0.90. Only MC7 is dropped because the Cronbach's alpha value

after dropping this item is 0.782 compared to 0.774 by dropping MC8. Taking a deeper look, the EFA revealed that the component matrix of items MC3, MC5 and MC7 were 0.164, 0.258 and 0.038, respectively with KMO measure of 0.452. After the three items are dropped, the Cronbach's alpha value is 0.813 with 0.715 as the minimum corrected total correlation.

The competitive advantage construct consists of 19 items. Feedback from the pilot respondents indicate that it is difficult to interpret and respond to items CA5 (offer products that are highly reliable), CA6 (offer products that are very durable), and CA9 (provide dependable delivery). Further, the highest correlation value for CA17 (access financial resources than other farmers) with other items is less than 0.30 and this item is dropped as well. The correlation values between CA2 (able to offer price as low as other farmers), CA3 (able to offer price lower than other farmers), CA11 (deliver product to market quickly), CA12 (time-to-market lower than industry average), CA14 (identify new customers), and CA15 (expand our customer base than other farmers) are more than 0.90. Hence, items CA3, CA12, and CA14 were dropped from the construct because the Cronbach's alpha value after dropping these items are higher than dropping items CA2, CA11, and CA15. This is confirmed by the results of EFA where items CA3, CA5, CA6, CA9, CA12, CA14, and CA17 loaded less than 0.50 and that the KMO measure of the construct was 0.342. After dropping the 7 items, the Cronbach's alpha value is 0.859 and the minimum corrected item total correlation is 0.415.

Table 1. Demographic profile of the pilot respondents

Items		Frequency	Percentage
Crops	Cinnamon	10	33.3
	Pepper	10	33.3
	Cloves	10	33.3
Age of farm owner	31 to 40 years old	2	6.7
	41 to 50 years old	12	40.0
	More than 50 years old	16	53.3
Farming experience of farm owner	5 to 10 years	3	10.0
	11 to 15 years	10	33.3
	16 to 20 years	10	33.3
	More than 20 years	7	23.3
Total area of land cultivation	Less than 5 acres	13	43.3
	5 to 10 acres	12	40.0
	11 to 15 acres	3	10.0
	16 to 20 acres	1	3.3
	More than 20 acres	1	3.3

After dropping the items which do not meet the required standards of correlational values and factor analysis, the study performed another factor analysis on the retained items of all the constructs. Table 2 shows that the KMO measures of all the constructs are greater than 0.50 and that the Bartlett's test of Sphericity show a significance level ($p < 0.001$), indicating the appropriateness of factor analysis. Further, the AVE and construct reliability values are above the cut-off value (0.50 and 0.90). Hence, the results confirmed the validity of the retained items.

4. DISCUSSION

This study has extended our understanding on the extent of applicability of RBV and the integration of resources with farm-specific dynamic capabilities to derive a competitive advantage. This is considered an important contribution since there is a significant lack of published research regarding the source of competitive advantage amongst family-owned businesses [55] which characterised the minor export crop farm owners. More importantly, interviews with experts have resulted in the identification of four resources and two capabilities specific to the minor export crops farm within the agribusiness sector. In addition, the goodness of the measures has been established. Appendix 1 shows the retained items under each construct.

Human and physical resources cannot be isolated from agribusiness [56] due to their strong connection with the sector. As shown in Appendix 1, employees who are experienced, dedicated towards their work and those who require less supervision are valuable assets to the farm owners due to the need to generate high quality yield [47]. These qualities seem to have profound importance due to the pressure to increase productivity along with the increased demand. Further, quality of crops and hence the competitive position of farms can be enhanced through trusted employees. The findings suggest that farms should provide training opportunities to their employees, including mentor-mentee relationships so that critical knowledge and skills can be passed down in a more effective way. Equally important is to foster innovation amongst the employees that their ideas are heard and acted upon.

However, it is interesting to note that the farm owners appear not to emphasise on trust-based

relationships amongst employees. This is not in line with [57,58] who insist that human resources should include trusted labours. This is probably due to the threat of frauds and undesirable practices. There are cases where employees stole fertilisers, raw materials and farm equipment, engaged in furtive contracts with outside dealers to sell yields as well as disturbed the regular operations of farms. Perhaps these incidents created a dilemma amongst farm owners between maintaining the experienced and skilled employees and taking precautionary actions against them. The farm owners realise that experienced employees are scarce, and there is a possibility for them to move to other farms in big groups if conditions at other farms are more favourable. In such a case, systematic strategies by the farm owners are required in order not to widen the gaps between them and their employees, including making them aware of ethical issues and developing an incentive plan based on productivity. Nevertheless, the finding needs to be confirmed with a larger sample size covering the farm workers as well in order for a definite conclusion to be made.

It makes sense to see that skill-based qualifications are emphasised than merely paper qualifications, looking at the nature of work in this sector. Unfortunately, Sri Lanka does not have a well-developed education and training system for cultivation practices and other functions related to the agribusiness sector. The absence of formal training and education make training, mentor-mentee and a relationship based on trust even more critical. Perhaps it is timely for the policy makers to look into strengthening its education and training system to cover this sector in order to meet the export target to be achieved by 2020. In this case, the Spice Council of Sri Lanka has an important influential role to play.

As far as physical resources are concerned, their importance has been reflected in the items under study (Appendix 1). Specifically, the farm owners are aware that possessing suitable raw materials as well as farming and harvesting equipment, favourable geographical location and having fertilisers developed by farms are necessary prerequisites. However, they lack understanding of long-term orientation such as by possessing replantation equipment. They do not view replanting as important because the duration for re-plantation of crops ranged from 12 to 15 years. Hence, they perceive they have ample time for any major change to be made to the

Table 2. KMO measure of the constructs

Construct	Number of items	KMO measure	Bartlett's test of sphericity		AVE	Construct reliability
			p-value	χ^2 (df)		
Human Asset (HA)	5	0.882	0.00	74.75	0.61	0.978
Physical Asset (PA)	5	0.741	0.00	60.24	0.62	0.935
Financial Asset (FA)	5	0.785	0.00	66.90	0.66	0.946
Reputation	4	0.820	0.00	48.11	0.73	0.963
Quality management capability	5	0.793	0.00	86.61	0.62	0.933
Marketing capability	5	0.786	0.00	93.95	0.61	0.979
Competitive advantage	12	0.751	0.00	155.90	0.60	0.930

equipment used. The finding implies that the farm owners need to constantly update themselves on the availability of newer equipment and plan forward for their acquisition if they wish to increase their yields through shorter period of cultivation, yet with sufficient quality standards. Besides the replanting equipment, the farm owners also do not view a proper irrigation system as a valuable resource. This is not difficult to understand as in Sri Lanka, the entire irrigation system for agricultural purpose is controlled by the Irrigation Department. As such, it is seen as an external factor which has little effect on the competitive advantage of farms. Little do they realise that an appropriate geographical location is partly contributed by a proper irrigation system. The findings call for a closer relationship between the farm owners and authorities in ensuring proper functioning of such a system.

Financial constraint has been documented as a major barrier for small-scale businesses [51,59]. This issue is one of growing concern particularly when the farm owners are pressured to increase their yield to meet the high export target set by the Sri Lankan government, yet many export orders could not be fulfilled due to insufficient volume of production [15] due to financial constraints. The items retained under the financial asset construct (Appendix 1) suggest that the minor export crop farmers seem to face financial difficulties with respect to re-plantation expenditures. The same reason may be extended to the inability of the farm owners to acquire re-plantation equipment. This again emphasises the need of having adequate money for farm operations and purchase of capital equipment [46,56]. In this case, the government can step in to assist the farm owners through free- or low-interest loans, subsidies or even sharing of state-of-the-art equipment purchased by the government or through public-private

partnership initiative. In addition, working with banks is necessary to ensure that low interest loan facilities are available particularly for small scale farmers [46].

Besides finance, reputation is argued to be a unique characteristic of family-owned businesses which is regarded as a key factor to determine competitiveness of farms [40,47]. This is not difficult to understand as customers and employees value the image of a farm based on its crops and such, the farm owners see the need to maintain their good reputation. However, taking the cue from Appendix 1, the suppliers seem to emphasise on the affordability of the farm owners to pay for the raw materials they supplied rather than based on reputation, implying that finance can be considered as a subset of reputation. The findings suggest that besides the financial incentives to be made available, the farm owners must constantly generate and maintain positive perception of their stakeholders which include the suppliers as well.

Due to the relative importance of the spices produced from the crops for food and medical supplies, farm owners have the obligations to ensure that the crops produced met certain quality standards, more so when they are pressured to increase production. This explains why quality management capability is seen as a dynamic capability of farms compared to the ordinary capabilities of land preparation, planting, fertilising, weed controlling, harvesting and storing of crops. The results (Appendix 1) suggest that product quality can be established through establishing a clear quality goal, adopting cultivation standards and environmental-friendly approaches, creating awareness amongst employees on product quality and having suppliers who supply high quality raw materials. In addition, the findings

also imply that rather than relying solely on the experiences of farm owners in maintaining quality of their crops, awareness must be provided to them to apply the standards imposed by the Agricultural Department. However, the farm owners are not following the standards imposed because there is no proper awareness on the existing quality standards. There is a dire need to create such awareness, particularly as far as product safety is concerned since the spices are used for the food and medical industries.

The ability to sense market demands contributes to growth [47], explaining the importance of marketing capability to this sector. As shown in Appendix 1, possessing such knowledge allows farm owners to take advantage of their market sensing through their knowledge of customers and competitors as well as skills of developing pricing strategies in light with those of competitors [60]. However, specific skills in targeting and analysing market trends seem to be lacking amongst the farm owners, looking at the little education and training support they had received. Training in this area, including exposing the owners to the market trend analysis by the Spice Council of Sri Lanka are of paramount importance [46].

5. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

This study has achieved its objective through a conceptual-level investigation on the underlying characteristics of resources and firm-specific capabilities [33]. The findings lend support to the argument of Newbert by demonstrating the specific resources (human, physical, financial assets and reputation) and capabilities (quality management and marketing) required by the agribusiness sector to achieve competitive advantage. As a matter of fact, this study zooms in into the specific items representing the important resources, capabilities and competitive advantage of the agribusiness sector in general and the minor export crops sector in particular.

A proper integration between the specific resources and capabilities can help the farmers to achieve competitive advantage through the development of a simplistic specification model and diamond specification model [53]. Specifically, the simplistic specification model can help to indicate particular resources and capabilities that lead to competitive advantage, whilst the diamond specification model can

provide the complementary capability that may affect the competitive advantage of farms. As of now, the retained items represent the important measures that need to be considered by the farm owners. The findings could also be useful to the policy makers and economists as well in developing appropriate strategies to support the farm owners. To researchers, this opens up future avenues for more research to be dedicated to this area.

Since this paper only intends to report on the findings from the pilot study, future analysis should incorporate more in-depth analysis to determine model fitness and to estimate the parameters in this specific context, especially with a larger sample size. Additional constructs may also be incorporated if the R^2 values do not meet with the required standard. Whilst prior studies proposed that the RBV is a fundamental phenomenon of competitive advantage at firm level, there is considerable diversity in how competitiveness is conceptualised such as knowledge-based view, capability-based view and relational view [32]. Notwithstanding the findings that require further confirmation, the study confirms the argument by [61] that competitive advantage could only be defined and measured with respect to the characteristics of a particular industry, such as the minor export crop sector in this case of point. Future studies may propose different assessments of competitive advantage by integrating those views with the competitive environment.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

Appendix 1. Summary of survey items

Variables	Items
Human Asset (HA)	H1 Experienced employees
	H2 Educated employees
	H3 Employees come up with new ideas
	H4 Trusted employees
	H5 Employees have trust-based relationship
	H6 Employees are dedicated towards work
	H7 Employees are capable of carrying out their own work
Physical Asset (PA)	PA1 Acquire suitable raw materials
	PA2 Adequate farming equipment
	PA3 Adequate harvesting equipment
	PA4 Adequate re-planting equipment
	PA5 Favourable geographical location
	PA6 Farm developed fertilizer
	PA7 Proper irrigation system
Financial Asset (FA)	FA1 Adequate money to devote to farm operations
	FA2 Adequate money to buy capital equipment
	FA3 Loans from banks
	FA4 Loans from informal channels
	FA5 Low interest rates for credit capital
	FA6 Adequate money for re-plantation
Reputation (R)	R1 Reputation about product(s)
	R2 Maintain good reputation of product(s)
	R3 Customers value our farm reputation
	R4 Suppliers value our farm reputation
	R5 Employees value the farm reputation
Quality Management Capability (QM)	QM1 Product safety is an important indicator
	QM2 Clear quality goal of our product(s)
	QM3 Comply with the specific cultivating standards imposed
	QM4 Practice specific quality standards imposed
	QM5 Practice environmental friendly operations
	QM6 Maintain good records for quality
	QM7 Employees are well aware about product quality
	QM8 Maintain quality raw material suppliers
Marketing Capability (MC)	MC1 Knowledge of our customers
	MC2 Knowledge of our competitors
	MC3 Skill to target our markets
	MC4 Develop pricing programs
	MC5 Analyse market situations
	MC6 Discover other farmers' strategies
	MC7 Identify and understand market trends
	MC8 Monitor competitors' price changes
Competitive Advantage (CA)	CA1 Offer competitive price
	CA2 Able to offer price as low as other farmers
	CA3 Able to offer price lower than other farmers
	CA4 Able to compete based on our product quality
	CA5 Offer products that are highly reliable
	CA6 Offer products that are very durable
	CA7 We offer high quality products to our customers
	CA8 Deliver customer orders' on time
	CA9 Provide dependable delivery
	CA10 Deliver the kind of product needed by our customers

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- CA11 Deliver product to market quickly
 - CA12 Time-to-market lower than industry average
 - CA13 Product delivery time is lower than other farmers
 - CA14 Identify new customers
 - CA15 Expand our customer base than other farmers
 - CA16 Expand our supplier base than other farmers
 - CA17 Access financial resources than other farmers
 - CA18 Obtain human resources than other farmers
 - CA19 Access capital goods than other farmers
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