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Full Length Research Paper

Analysis of coffee export marketing in Rwanda: Application of the Boston consulting group matrix

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Strategic management models are increasingly being used as the lenses through which company problems are analyzed and in the design of effective strategic planning programs in developed countries. However, these models are rarely applied in industry and commerce of developing countries. This study used the Boston consulting group (BCG) matrix to analyze the market for export coffee in Rwanda. Data on coffee exports by destination over a period of 4 years (2005-2008) was used. Results of the study indicated that Rwanda coffee has predominantly been marketed to European destinations that include Sweden, Switzerland, Germany, France, UK and Russia and in general these markets increased by 287% over the last 4 years. However, coffee trade in Rwanda accounts for a small proportion (0.69%) in global export coffee market. If the role of export coffee to the country economic vista is to be consolidated, there is need to understand the social, economic, cultural, institutional and technological factors affecting consuming sub-populations in these countries. Appropriate promotional strategies for these destinations are also discussed.

Key words: BCG matrix, strategic marketing, coffee, Rwanda, Africa.

INTRODUCTION

In most developing countries, coffee production provides an important option for income generation for resource poor households and is thus essential in socio-economic development of these countries. Its significance is under-scored by the fact that there are about 75 coffee-producing countries, mainly in South America, Africa and Asia, employing about 10 million laborers and producing approximately 6 million tons annually on a total area of over 10 million ha (ICARD, 2002). Today, Arabica coffee dominates contemporary coffee trade even though its share fell from about 80% of world production during the 1960s to around 60% by the turn of century, initially because of high growth of Robusta production in Brazil, Vietnam and parts of Africa but more recently because of the emergency of Asia as the world's leading Robusta producing region (Pillai, 1984; Richerzhagen and Virchow, 2002).

In Rwanda, coffee has remained one of the most important crops in the country's agricultural landscape. It is grown by approximately 500,000 smallholder farmers on a total area of 33,000 ha (OCIR-Café, 2005). Despite the important role that the crop plays in the livelihoods of rural farmers, national coffee throughput has been dec-lining since the early 1980s. National production reached a peak of 43,000 tons in the 1986/87 coffee season. Bet-ween 2000 and 2004, national coffee production hovered between 16,000 and 25,000 tons with an average yield of 2 tons/ha (OCIR-Café, 2005). This tonnage is relatively low when compared with main coffee producers in Africa such as Ivory coast and Uganda, which produce an annual average of 3.5 and 2.7 million tons respectively. A plethora of constraints are often cited as militating against the attainment of higher productivity in Rwandan coffee production. These include high production costs, pests and diseases, production and market risks, low inter-national prices and the small landholdings among farmers (MINICOFIN Report, 2003). Other factors affec-ting coffee quality in East and West African countries include poor agronomic practices, lack of access to agri-cultural credits, inadequate research and development

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linkages, processing methods, high cost of farm inputs, low international prices, high transportation costs, pests, diseases and inadequate infrastructure in rural areas (FAO, 2008). Problems related to international coffee marketing include stringent quality standards, costly standards for certification and enforcement sys-tems, bulking difficulties which limit regular supply of economic volumes, increased variability in prices and limited opportunities to manage price risk (ECART, 2007).

In Rwanda, a number of initiatives have been crafted by both public and private sectors. However, these initiatives have largely focused on the technical or productivity constraints affecting coffee farmers at the expense of institutional marketing arrangements for the crop. Rwandese coffee is considered to be of high quality and is sold to conventional markets such as the US, Europe and other parts of the globe. Strides have been made to improve the quality of Rwanda's coffee following the promulgation of the new coffee sector strategy in 1998. However, the country's export coffee remains largely obscured on the global market.

Challenges exist on how to effectively establish the country's coffee on the international market and also to ensure that the marketing system keeps up with changes in the dynamic global market for high quality coffee (Ntahontuye, 2008). Strategic management of the country's niche markets remains largely unexplored. This factor has also contributed to declining export earnings for coffee in the country. Classification and management of the international market for Rwandese coffee is critical from two perspectives. By classifying markets in terms of a given set of parameters, it is possible to identify the lucrative nature of a given market. This will create the basis for an international marketing management program with appropriate objectives, strategies and plans that result in the successful realization of foreign market opportunities (Moutinho, 1991). In this context, properly managed plans for export coffee have a direct bearing on foreign exchange earnings and thus the economic development of the country. Secondly, strategic planning is important in maintaining leverage in foreign markets as well as designing appropriate brand policy for the business (Moutinho, 1991). Two issues in strategic planning are markets and competition. Myriads of strategic management models that include the Boston consulting group matrix (BCG), shell directional policy matrix, general electric/ mckinsey model exist to systematically analyze markets using various parameters such as market size, market growth, level of competition, cyclicality, norms and values of the target market. Choice of the model to use depends to a large extent on the availability of data and the rigor of analysis. This study is concerned with analyzing coffee export marketing using the BCG matrix, an analytical tool that has been widely used in strategic management.

The objectives of this paper are:

i.) To classify Rwandan coffee export markets based on market share and growth.
ii.)To determine the possible strategic marketing decisions related to the Rwanda export coffee market.

Review of literature

An overview of coffee production in Rwanda

In 1990, Rwanda exported 45,000 tons of coffee a year, but that plummeted following the conflict in 1994. In 1995, the country produced 330 million bags of coffee (weighing 60 kg each), which decreased to 194 million bags in 1997. In 1999/2000, production was 18,800 tons while it declined to 14,000 tons in 2003 because of inadequate inputs and inauspicious international prices. Coffee production of 14,600 tons in 2000 compares to a pre-civil war variation between 35,000 and 40,000 tons. Figure 1 depicts the production variations experienced between 1986 and 2004.

Between 1973 and 1994, coffee production was generally above 20,000 ton per year. The relatively high output is explained by coffee policy adopted by the then government which was predicated on the subsidization of inputs including coffee plants. Coffee was also bought at a fixed price to guarantee a minimum income threshold to smallholder farmers. Currently, the main emphasis of government policy is to improve the quality of coffee produced by farmers to ensure that it fetches a premium on the international market. However, little has been done to create an international market niche for local brands of coffee. Rwanda's specialty coffees are sold internationally through fair trade deals. With competition growing from newcomers such as Vietnam, the government has decided to focus on high-grade coffee with the aim of returning to 1990 production levels by 2010.

In terms of marketing, coffee accounts for at least 50% of national export earnings. However, Rwanda's coffee marketing system has not been able to keep up with changes in the global market for high quality coffee. Only 20% of the country's coffee can qualify as specialty coffee today, implying that the bulk of exported product is low-grade and sells at lower prices. These international price variations have trickled down to the household level in the form of low farm returns. As a result, decision makers in the coffee sector have instituted a number of initiatives to better understand factors affecting farmers' production decisions and their attitudes about coffee. Observations have shown that a number of farmers have moved away from coffee or removing more trees, or "decaffeinating" their fields.

Coffee export marketing in Rwanda

Over the years, traditional markets for Rwanda coffee brands (Maraba coffee) include Germany, Belgium, USA,

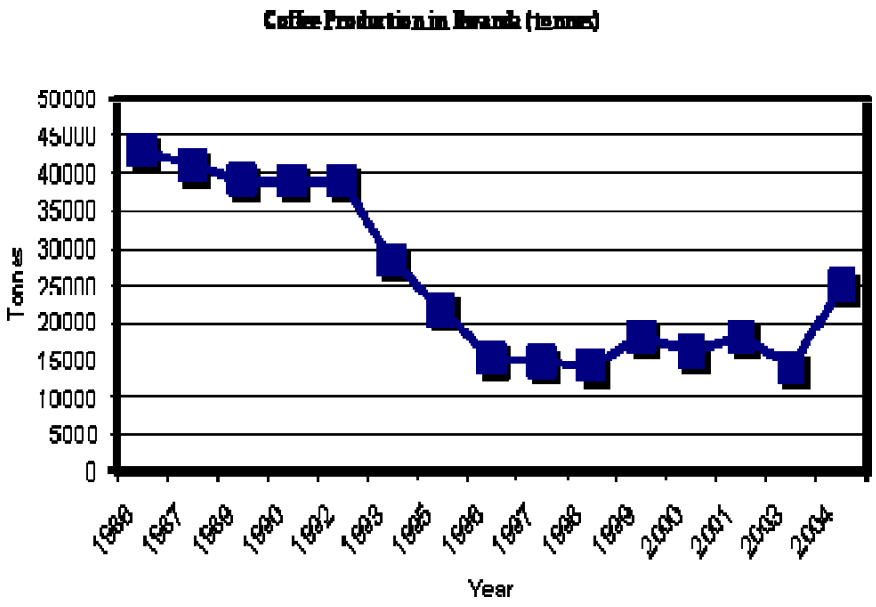

Figure 1. Coffee production in Rwanda (1986 - 2004).

France, great Britain and Switzerland. In terms of marketing, the direct selling method is used and the bulk of the exported product is shipped through Mombassa in Tanzania (east African fine coffee association, 2008) (Figure 2).

Generally, the value of exported coffee has been declining since 1990. Several production and marketing related issues have been suggested to explain these developments. These include political instability experienced in the early 1990s, high costs of inputs, shortage of farming land, poor agronomic practices and inadequate market penetration strategies (Ntahontuye, 2008).

In the early 1980s, coffee exports were handled by two companies namely RWANDEX and ETIRU and the government had a high capital share in those companies. From 1988 until 1991, OCIR Café was authorized to commercialize coffee. With the liberalization of coffee industry, the local market trade as been undertaken by private operators and coffee growers' associations, which bring the parchment coffee to milling factories. Until 1994, the farm gate price was fixed by the government and remained constant for the whole coffee season. There was a stabilization fund designed to avoid the fluctuation of farm gate prices. In 1994, the fund was cancelled; the price is currently based on the international coffee market. OCIR café meets once per week with exporters who are also coffee millers to fix the weekly reference price of parchment coffee. The role of this price is to provide market information to coffee growers who are selling parchment coffee to collectors. The farmers, however, have no role or voice in fixing the reference price. Due to the low level of production, the milling factories operate under capacity and exporters tend to lower the reference price in order to cover their relatively high milling costs. From the factory, coffee samples are sent to the OCIR café warehouse and the agency classifies different qualities from the sample and provides the export certification. As Rwanda is a land-locked country, coffee is transported mostly by road to Mombasa, where coffee reaches international buyers. The liberalization of the industry has stimulated private investment and changes at the firm level. Exporters are now looking for specific niches in the U.S and Europe for specialty coffee, as the bulk market does not offer interesting prospects due to the high world coffee supply.

Current policy for the development of coffee sector

In 1998, the government of Rwanda developed the new coffee sector strategy. This policy focuses on three main areas affecting coffee sector which are production, coffee quality and farmer revenues (OCIR, 1998). To increase production, the current policy takes into account the international coffee price and coffee growers are paid accordingly. The removal of the coffee export tax will facilitate this. This will enable farmers to be paid high prices giving them incentives to increase production if world prices are not low. In addition, coffee extension services will focus on regions suitable for the crop. To improve coffee quality, the policy notes the provision of pulping machines to be used in processing and to offer extension services on how to better process coffee cherries. To increase farmer revenues, the creation of farmers' associations can enable farmers to get bargaining power, leading to a higher share in the coffee export value. Moreover, they may easily obtain technical assistance to produce a high value coffee. Furthermore, they are likely to invest more in coffee when they are able to sell their product at high

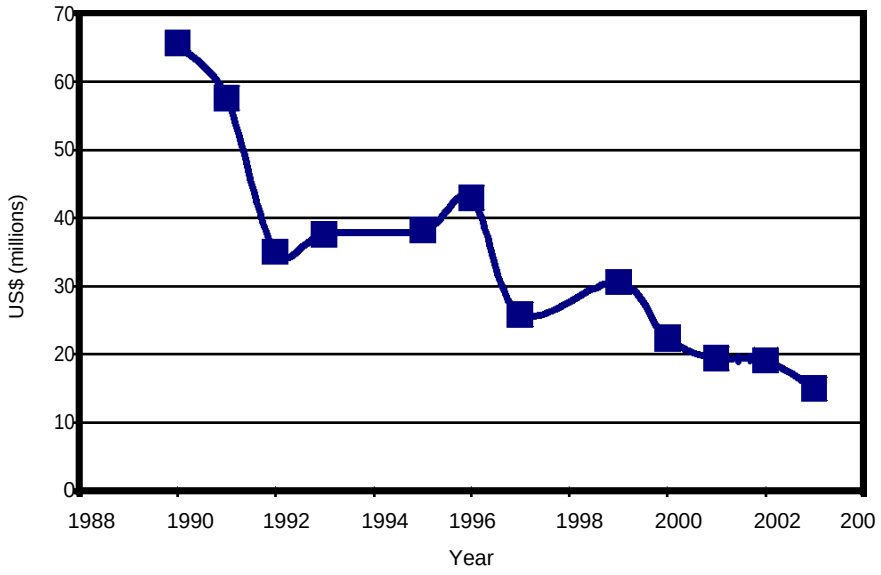

Figure 2. Value of Coffee exports in Rwanda (1988-2003).

prices. The provision of marketing information by OCIR café to coffee stakeholders is another policy instrument to achieve transparency in distributing revenue from coffee sales.

Analytical frame: The Boston consulting group matrix

The BCG matrix was initially developed in the 1970s by the Boston consulting group, an American based consultancy firm. The matrix has been used extensively as a portfolio management tool for businesses and in the identification of priorities in a company's product portfolio optimization and therefore aid effective resource allocation (The executive fast track, 2008). Its uses have also been extrapolated to the analysis of markets and evaluation of product lines or any other cash-generating entities (Wikipedia, 2008). The matrix uses two dimensions namely market growth and market share as a basis for classifying strategic business units or markets. According to the model, market growth indicates the extent of industry attractiveness while market share is used as a proxy variable for competitive advantage (ICMBA, 2007). The horizontal axis of the BCG matrix shows the relative market share while the vertical axis depicts the rate of market growth. Relative market share is calculated by making reference to the largest competitor in the market. On the basis of these two variables, strategic business units or markets are classified into cash cows, stars, dogs and question marks. Cash cows refer to strategic business units that have a high return on assets and thus generate a lot of cash. Such businesses represent a significant source of cash for the firm. The strategic options are include product development and concentric diversification. Stars are characterized by high relative market share and high market growth rate and they also generate a lot of cash. Stars will be cash cows if they maintain their market share but the growth rate declines over time. Strategic options for stars include Integration-forward, backward and horizontal, market penetration, market development, product development and joint ventures. Dogs have low market share and low growth rate and do not generate significant amounts of cash or require lower cash investment. Dogs are usually referred to as cash traps as they use up money in the business and could be considered as candidates for divesture (ICMBA, 2007). Strategic options would include retrenchment (if it is believed that it could be revitalized), liquidation and divestment (if you can find someone to buy) Question marks are growing rapidly and will require a lot of cash investment than they can generate. Question marks have high cash demands and generate low returns, because of their low market share. Strategic options for question marks include market penetration, market development and product development. There are four strategic management decisions that can be made by a company after classification viz. harvest (from cash cows), divest (from dogs and some question marks), maintain and invest (in cash cows) (Kotler, 2003). Despite its usefulness, the BCG matrix has been criticized for a number of reasons that include the fact that the market share and growth rate are not the only parameters for assessing industry attractiveness, no clear definition of what constitutes a market and problems on getting data on market share and growth (The executive fast track, 2007). As a result of these weaknesses, more comprehensive models are now being used by firms particularly in developed countries. Other contemporary marketing models used include McKinsey, the general electric model and shell directional policy model. However, these models are more data intensive and may not be useful in may not be useful in

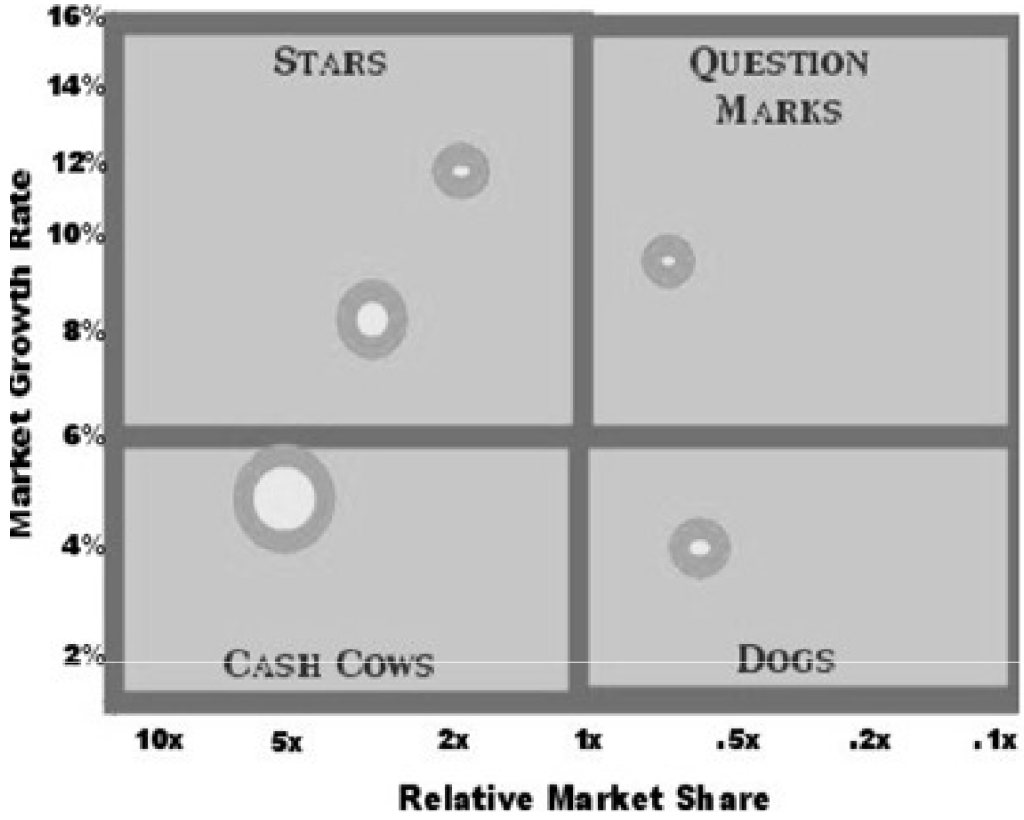

Figure 3. The Boston consulting group matrix.
Source: Wikipedia, (2008).

cases where researchers are limited by available data.

In this paper, the BCG matrix is used to analyze the potential of the different markets to which Rwanda coffee brands are marketed by considering the rate of market growth and relative market share (Figure 3).

RESEARCH METHODOLOGY

Description of study area

Rwanda is largely an agrarian country of based on crop and livestock systems. The country has a total population of 9 million people and 92% of the population resides in rural areas (MINICOFIN Report, 2003). Tea and coffee are the main crops in crop agriculture while cattle, goats and sheep are the main types of livestock found in most parts of the country. Coffee production has mostly been the preserve of smallholder farmers who possess landholdings of less than 1.5 ha per household. The earliest strains of coffee grown during the early 20th century were introduced by German missionaries (MINICOFIN Report, 2003). Collaborative crop breeding efforts by government research institutes such as the Rwanda institute of agricultural science (ISAR) have resulted in the development and release of coffee varieties including Mibilizi, Jackson, Catuai, BM139, Caturra140, Pop330/21 and Harrare. The crop is typically grown farms, with steep slopes and cool temperate climate of around 18 – 25°C. Soil types are predominantly volcanic and highly fertile.

Some of the coffee growing regions include Cyangugu, Kibuye, Gisenyi, Butare and Kigabiro which are depicted in the map (Figure 4).

Research approach

In this study, both quantitative and qualitative data were used to answer the main research questioned posited. Quantitative data in the form of secondary data on coffee exports by destination was used. Qualitative data was largely based on semi-structured interviews with key stakeholders in the coffee sector. Both types of data gave the study the positive and normative dimension (Ayaya, 1997).

Data collection and analysis

The researchers used the Boston consulting group matrix to classify coffee export markets into four cells namely cash cows, stars, dogs and question marks. Data on coffee exports (from 2005 - 2008) disaggregated by destination was used and was obtained from national statistical offices in Kigali and the east African fine coffee association (EAFCA). By identifying which markets could be classified as cash cows, dogs, stars and question marks, the outputs from this research are useful in assisting policy makers on the strategic management issues which can enhance exports of coffee in the country. This study is largely exploratory given the limitations of data faced by the researchers particularly for market segments in the country destinations. Researchers used semi-structured interview schedules to engage key stakeholders in the coffee industry on issues related to the country's trade policy with specific reference to export coffee and to understand the broad issues affecting

Figure 4. Administrative Map of Rwanda showing coffee growing regions.

international marketing of coffee in Rwanda. The following stakeholders were an integral part of the study.

i.) Coffee Farmer organizations.
ii.) East African Fine Coffee Association.
iii.) Ministry of Agriculture/Trade.
iv) Non-governmental organizations responsible for coffee production and marketing.
v.) OCIR Café, Rwanda.

Secondary data was analyzed using microsoft excel program. Two main parameters were of interest to researchers, rate of market growth and relative market share. To calculate the rate of market growth, the following formulae was used,

$$R = \frac{(Y_2 - Y_1)}{Y_1} \cdot 100$$

Where Y_2 is the value of coffee exported in period Y_2 in US$, Y_1 is the value of coffee exported in period Y_1. R represents the rate of market growth between period Y_1 and Y_2 and is expressed as a %.

To calculate relative market share for a given destination, the researchers used the following formulae.

$$M = \frac{V_D}{V_L} \cdot 100$$

Where M is the relative market share, V_D is the value of coffee exported to a given destination at a given time period, V_L is the value of exported coffee by the market leader. The market leader in coffee exportation is Brazil (ICARD, 2002). Between 2004 and 2008, the average value of exported coffee is US$ 271,000,000 per annum. This value was therefore used as the benchmark for calculation of relative market share.

RESULTS AND DISCUSSIONS

Rwanda's share of exports by major trading blocs (2005 - 2008)

Rwanda's exported coffee over the last 4 years has

Table 1. Value of exported coffee by destination (2005 - 2008).

Continent	Country	Total value of exported coffee (US$)
AFRICA	Kenya	65,280
	Morocco	310,960
	Equator	167,623
AMERICA	USA	7,245,381
ASIA	China	204,569
	Israel	362,753
	Japan	234,340.00
CIS	Oman	63,000
	Russia	855,878
EUROPE	Germany	13,469,221
	Belgium	36,111,390
	France	16,668,853
	Holland	2,816,886
	Italy	468,672.00
	Switzerland	27,336,505
	Portugal	24,354.00
	Romania	1,509,002
	Spain	230,032
	Sweden	42,182,932
	UK	10,749,771
	Canada	112,408.32

Source: OCIR Café, 2008.

eminently been the Arabic type. It is exported to various destinations in Africa, Europe, Asia, and America. There are 21 countries to which it is exported and these are depicted in Table 1. Niche markets include Belgium, Switzerland, France, Germany, Sweden and the USA. At the continental level, the European market accounted for 56% of all marketed coffee, followed by Asia at 40.9%, America at 3% and Africa at 0.13%. Various reasons can be proffered to explain this scenario. Firstly, Rwanda has in recent years making strides to improve the quality of export coffee which fetches a reasonable price and therefore attracts international buyers from Europe and America. Secondly, the high demand for the country's export grade coffee is related to high levels of coffee consumption in America and Europe and high preference for specialty coffee by most consumers in the aforementioned regions (Topik, 2007). In the USA, individual consumers drink an average of 3 cups per day while European consumers take two cups per day (Wikipedia, 2008).

Market growth rate

In evaluating the attractiveness of a given market, the BCG matrix considers two variables namely the rate of market growth and relative market share. The rate of market growth is an important variable since it determines opportunities for marketing and it also has a direct bearing on the success of the business. The results of market growth rate over the 4 year period are shown in Table 2.

In terms of market growth rate, Sweden, Netherlands, France, Japan experienced positive rates of market growth. Despite the fact that Germany, Belgium, UK and USA accounted for a significant proportion of exported coffee, the market growth rates were negative over the 4 year period. This can be attributed to decreasing production

Table 2. Rate of market growth of each destination (2005 - 2008).

Destination2005	2006	2007	2008	Average rate market growth (%)
Germany	-11	-100		-37
Belgium	103	-59	-91	-16
Canada	-100			-33
China		-100		-33
France	89	-91	10097	3365
Holland		-97	206	36
Israel	-74	-100		-58
Italy			265	88
Japan			9174	3058
Kenya				0.00
Switzerland	112	-100		4
Portugal	-100			-33
Oman				0.00
Russia	-100			-33
Romania	2	-100		-33
Spain	-100			-33
Sweden	107	250	117	158
Morocco	-100			-33
UK			-89	-30
USA	-31	54	-61	-13

particularly in the 2005/06 up to the 2007/08 coffee season.

Relative market share

Generally, export coffee from Rwanda accounts for a very small proportion in global coffee trade. However, Sweden, Belgium, Switzerland, Germany and France emerged as the key markets for coffee. This observation could be related to the fact that most of the country's export coffee has been marketed to Europe and the US in the last few years (Table 3).

Market classification using the BCG matrix approach

Kotler (2003) notes that there are four strategic management decisions related to the four cells of the BCG matrix which are invest, divest, maintain and improve. Stars usually represent the best growth and profit opportunities for an organization. When rate of market growth and relative market share are considered, France emerges as the star market for export coffee and thus should be maintained. Cash cows are business entities that generate substantial cash for the business. Cash cow markets for Rwanda export coffee are Germany, UK, Russia, Sweden, Switzerland, and Belgium. These markets are attractive on the basis of the two variables of the BCG matrix and should be maintained as they represent significant sources of foreign exchange for Rwanda. The increasing market prospects for Rwanda coffee in Asia, particularly in Japan requires further investment in marketing of the product to ensure that the market is turned into either a star or cash cow. On the other hand, markets in countries such as Kenya, Israel, Morocco and China have not been growing significantly over the last 4 years and also constitute a small proportion of export coffee earnings. Whilst theory suggests, divesting from these markets, there is need to further explore market opportunities for coffee in these countries so as to provide suitable coffee products in dog markets. Furthermore, a broader range of variables such as the political, socio-cultural, technological and regulatory environment unique to each market need to be considered (Moutinho, 1991) (Figure 5).

Conclusions and Recommendations

In this study, the BCG matrix was used to classify coffee markets for Rwanda coffee using two main parameters namely relative market share and rate of market growth. Whilst Rwanda's export coffee is an important source of foreign exchange, it constitutes a small proportion in global coffee trade. A predominantly eurocentric marke-

Table 3. Relative market share.

Destination	Average value of coffee exports	Relative market share
Germany	3367305	1.24
Belgium	9027848	3.33
Canada	28102	0.01
China	51142	0.02
France	4167214	1.54
Holland	704221	0.26
Israel	90688	0.03
Italy	117168	0.04
Japan	58585	0.02
Kenya	16320	0.01
Switzerland	6834126	2.52
Portugal	6088.50	0.00
Oman	15750	0.01
Russia	213970	0.08
Romania	377251	0.14
Spain	57508	0.02
Sweden	10545733	3.89
Morocco	77740	0.03
UK	2687443	0.99
USA	1811345	0.67

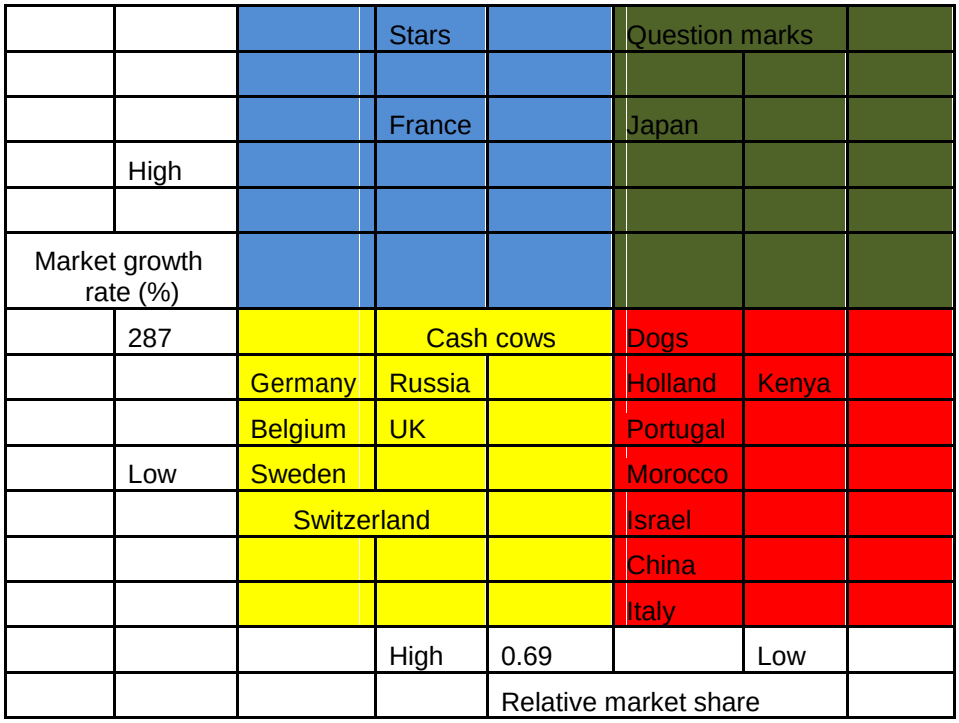

Figure 5. The BCG matrix for export coffee.

ting strategy focusing on Sweden, Switzerland, Germany, Belgium, UK, Russia and France was adopted. In order to capture fully lucrative opportunities that exist in the coffee sub- markets or segments in the aforementioned countries, there is need to understand the social, economic, technological and political factors that affect consuming sub-populations in these countries (Moutinho, 1991). Kotler (2003) argues that concentrated marketing which focuses on existing segments in the broader market is more effective than mass marketing. Promotion of Rwanda coffee can be formalized through participation in trade fairs and exhibitions on coffee organized in Belgium, Switzerland, Sweden, German, England USA and France. There is also need to foster relationships with the international buyers initially from the aforementioned countries by organizing visits in Rwanda to match needs of consumers in these countries with the type and coffee quality expectations (Kotler, 2003). Given the relatively high rate of market growth in Asia, particularly in Japan, there is need to design an international advertising program for this lucrative market. Promotional activities which include personal selling by means of Rwandese nationals resident in these countries, sales promotions, public relations and use of brochures are suggested. In order to broaden the market for the country coffee, there is need to design a regional marketing strategy focusing on the East African Community (EAC). Participation in regional events such as cupping competitions should be consolidated as a way of improving the quality aspects of the country's coffee and to further market it.

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