



Health added-value food

- The Swedish retail market

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Health added-value food

- The Swedish retail market

Mat med hälsomervärden

- Perspektiv från svensk dagligvaruhandel

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Abstract

Diet and lifestyle are closely interrelated and believed to have a significant influence on four major public diseases - cardiovascular disease, cancer, hypertension and obesity, but also affects functional deficiencies like gluten- and lactose intolerance. Health added-value foods are thought to reduce health-related risks or delay the onset of these major diseases. Therefore, interest among scientists, researchers and the public in general has been growing remarkably over the last decade regarding these special foods.

The Swedish market seems to be a good target for health added-values food. However, as there are many risks and cost factors involved for companies to enter the market or invest in R&D, it is important to take a step back and analyze the current market situation. Therefore, this projected looks at four products related to health added-value foods which are thought to representative for this kind of food category; pasta, bread, milk and yogurts.

The empirical data was collected from The Nielsen Company following the keyhole guidelines. Data relating to gluten- and lactose-free and –reduced products within the same segment were retrieved, which resulted in surprising findings. Opposite expectations, the demand for health added-value foods has declined between 2007 and 2008. According to these findings whole-grain/high fibre products saw a rather big decline in purchases, as well as low-fat milk and yogurts. On the other hand, products designed to improve functional intolerances have seen a disproportionate increase in demand, which could be an interesting niche market for companies to consider. Portfolio Theory was used to show the market growth based on the current market shares of these product classes. Placing the products within the Boston Consulting Group (BCG) matrix demonstrated that given the low market shares and limited market potential, gluten- and lactose-free and –reduced products are question marks for the companies, which could be turned into more profitable and stable products; however this is associated with costs and risks. Yogurts with added-values are considered star products at this time, with a relative high market share a continuous market growth; besides not being a health added-value food by scientific evidence yet. The products following the keyhole guideline were found in the cash cow section, with low or negative market growth, but very high market shares.

Thus, further research is needed to investigate the underlying reasons and strategies for companies to seek full market potential.

Sammanfattning

Måttidsvanor och livsstil anses ha en avgörande roll för folksjukdomar som hjärtkärlsjukdomar, cancer, högt blodtryck, övervikt och för livsmedelsrelaterade överkänsligheter mot gluten och laktos. Livsmedel med hälsomervärden kan minska riskerna för symtom på sjukdomsdebut och eskalering av sjukdomstillstånd. Intresset för dessa hälsobefrämjande produkter har ökat bland forskare och konsumenter i allmänhet under de senaste decennierna.

Den svenska marknaden anses vara lämplig för just livsmedel med hälsomervärden, givet en hög allmän hälsomedvetenhet, en relativt hög betalningsförmåga och ett samhällsansvar för sjukvård. För livsmedelsföretag och dagligvaruhandel innebär dock investeringar i livsmedel med hälsomervärden risker och kostnader som är kopplade till forskning och utveckling samt marknadsföring. Detta projekt är fokuserat på fyra produkter; mjölk, yoghurt, pasta och bröd.

Empiriska data insamlades genom försäljningsstatistik från företaget Nielsen. Dessa data sattes i relation till reglerna för den konsumentvägledande nyckelhålmärkningen. Data som visar gluten och laktosfria livsmedel särredovisas med oväntade resultat, nämligen att försäljningen av just dessa livsmedel har minskat. I analysen används portföljteori (Boston matrisen) för att illustrera nuvarande marknadsandelar i respektive studerad livsmedelsgrupp. Fiberrika livsmedel och lågfett mjölk- och yoghurtprodukter visade också en minskning i försäljningsuppgifterna. Livsmedel som är utvecklade för konsumenter med överkänslighet, däremot, ökar i försäljning, vilket antyder att dessa marknader skulle betraktas som ett ”frågetecken” i matrisen. Den fortsatta utvecklingstrenden är svår att utläsa. Yoghurt med mervärden ses som ”stjärnor” – givet en hög marknadsandel och förutspådd fortsatt ökning i försäljningen. Livsmedel som är nyckelhålmärkta återfanns i ”kassako” hörnet av matrisen – med förutspådd liten eller negativ tillväxt men med höga marknadsandelar; de är med andra ord väl etablerade produkter.

Fortsatta studier av marknadspotential relaterat till hälsomervärden skulle kunna ge en fingervisning om investeringsmöjligheter för svensk livsmedelsindustri för att nå en högre marknadspotential.

Abbreviations

BCG - Boston Consulting Group

BMI - Body Mass Index

CAO - Consumer Agency & Ombudsman

EC - European Commission

EFSA- European Food Safety Authority

EU - European Union

FHI - Statens Folkhälsoinstitut/The Swedish National Institute of Public Health

GDP - Gross Domestic Product

NDDIC - National Digestive Disease Information Clearing House

SBU – Strategic Business Unit

SCB - Statistiska Centralbyran/Statistics Sweden

WHO – World Health Organization

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1 Introduction

“The lifestyle we choose affects our health” declares the Swedish Livsmedelsverket (www, SLV, 2007, 1). During the 1990s the interest in functional foods (also called nutraceuticals, pharmaceuticals, pharma food, designer foods, etc.) has grown greatly among scientists and consumers (Childs, 1997). This growth can be traced back to the increased interest in nutritional value and the aim to balance a healthy diet in order to reduce health-related risks. “You are what you eat”, claims nutritionist and TV presenter Dr. Gillen McKeith in her popular TV show and bestseller with the same name (www, Channel 4, 1). Her success is based on working with functional food in the combination with the right lifestyle in order to improve “weight, detoxification, digestion, blood sugar, etc” (www, Channel 4, 2). Diet, as part of our lifestyle, is believed to have a significant influence on four major diseases – “cardiovascular (heart and artery) diseases, cancer, hypertension and obesity” (Goldberg, 2004, p.6), which is confirmed by The World Health Organization (WHO). According to the WHO a significant 90 % of type 2 diabetes, 80 % of cardiovascular disease and 30 % of all cancers could be prevented by a healthy diet, adequate amounts of physical activity and by people not smoking (Anonymous, A., 2005).

Unlike in Europe, the functional food category is only formally recognized by the Japanese food regulatory body, but it is a commonly used term for foods which are developed and positioned primarily for their potential health benefit (Childs, 1998, p.196). Japan, as the leader in the functional food area, has identified 12 ingredients which are linked to health improving attributes. Those are “dietary fibre, oligosaccharides, lactic acid bacteria, glycosides, alcohols, cholines, minerals, polyunsaturated fatty acids, isoprenoids and vitamins, sugar alcohols, amino acids incl. peptides and proteins and others (e.g. antioxidants)” (Goldberg, 2004, p.7). Heasman and Mellentin (2001) argue that it is not always clear whether functional food are aimed at improving health of individuals, which are suffering specific illnesses, or if they are designed to improve the health of the population and society at large. However, the common perceptions about food with added-value is that it is expected it to be better than conventional products, by having ingredients added. However, added-value can also result from the elimination or modification of components by technological or biotechnological means (Walter, 2000).

1.1 Problem background

Food businesses in general are subjected to a highly competitive environment, especially facing a mature and stagnated market, with rather low-tech, measured in terms of R&D expenditure (Mark-Herbert, 2002, p.9). However, when it comes to food with added-value, high R&D investments through innovation are required, which are generally associated with costs and risks (*ibid.*, p. 11). Further, the food industry is regarded as relatively positional in their activities, which means they are market searchers rather than market developers (Nyström, 1990, p. 20). Market searcher or seekers focus on current markets and consumer’s needs for quick return on investment, whereas market developers or leaders focus on future markets, because “this strategy eventually pursues prior market occupation in the future” (Lee *et al.*, n.d., p.1). The world market for

functional foods and beverages is highly dynamic, in many ways it may even be characterized as an experimental environment (Bech-Larssen and Scholderer, 2007, p. 231). Additionally, the market is heavily restricted by European regulations and European Food Safety Authorities (EFSA), which makes it difficult to market foods with added health values.

Sweden follows one of the most restricted health claim legislation in the European Union (EU) (*ibid.*, p.232), which complicates marketing strategies for companies, as they might not be able to make health claims related to a product. Being able to communicate these health claims to the consumer seems crucial to the success or failure of a functional food product (*ibid.*, p. 232). Since the market consists of potential buyers (consumers) and sellers (companies) (Kotler and Armstrong, 2006, p. 7), consumer awareness and acceptance is an important aspect for the food industry to consider (Ares *et al.*, 2009, p. 50). A study conducted by ACNielsen in 2005 showed that “lacks of awareness, availability or even credibility are real barriers to the purchase of functional food products and the health benefits they promote” (Anonymous, B., 2005, p. 2). This implies that businesses face the challenge of educating consumers within the legal framework about health benefits in order to be able to charge a higher margin on their products. All of these issues mentioned above can create strategic and operational problems for the food industry. But more specifically, given all risks and costs involved in promoting and creating such products, it seems even more important to take a step back and look at the current market situation. However, as important as market studies are, the task itself is not easy. Analyzing a market situation and identifying trends can be challenging, as it should involve a holistic approach in order to incorporate all stakeholders, as well as external and internal factors. But the information obtained can be crucial for companies’ making decision regarding product innovation, market entry, etc.

1.2 Aim

Do we need functional foods at all? This is a central question currently discussed among nutritionist, manufactures, researchers, retailers, consumers, regulating bodies, etc on an international level (Mark-Herbert, 2002; Walter, 2000). This question can be approached from different perspectives, as there are a number of existing definitions and perceptions. Health added-value food can be part of a lifestyle choice, but also be obligatory for people that have to compensate for functional deficiencies. The retail market is essentially, where supply meets demand, or in other words where companies (through retailers) meet consumers. Using sales information for 2007 and 2008, this project aims at investigating the current Swedish retail market on selected added-value food categories related to the digestive tract. Further, it intends at reaching conclusions how this might affect a corporate strategy in the future.

More specifically, it aims at answering the following question:

- How has the private, Swedish retail market recently responded to both; added-value foods as part of a lifestyle choice and obligation?
- How could this affect corporate strategies in the future?

1.3 Approach

“Research is a systematic process of collecting, analyzing and interpreting information in order to increase our understanding of the phenomenon about which we are interested or concerned” (Leedy and Ormrod, 2005, p. 2). The approach used in this research project can be summarized as inductive and qualitative. The project will be based on primary and secondary research and includes books, journals, articles and web pages. The main reasons for the secondary data are the accuracy of data sources, costs, and the limited time frame. Primary data in respect of market trends are timely and costly to obtain at a representative sample. Therefore, the data for the empirical section was obtained from the global “Scan Tracking”-System of The Nielsen Company, the world’s leading market research organization. Health and country specific statistical data for Sweden was obtained from the Statistics Sweden (Statistiska Centralbyran, SCB), The National Board of Welfare (Socialstyrelsen) and The Swedish National Institute of Public Health (Statens Folkhälsoinstitut, FHI) statistics from 2007-2009 were retrieved. From an analytical perspective, portfolio theory (Chapter 3) was used to show and interpret the growth-share relationship for the specific product categories at a specific point of time.

1.4 Outline

To give the reader guidance, an overview of the structure of this research paper is summarized below (Figure 1).

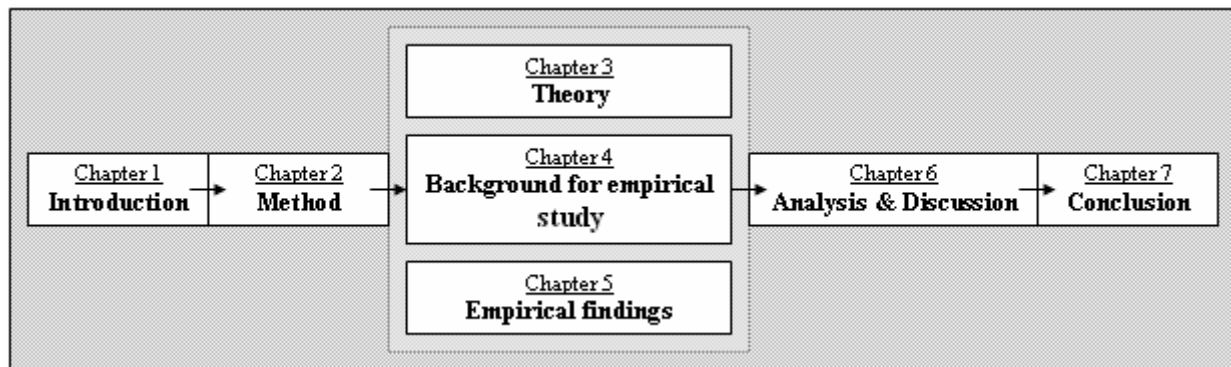


Figure 1 Project outline.

Chapter 1 will provide the reader with an introduction to the problem and aim of the study, including important definitions and limitations. Chapter 2 will explain carefully the research methods used, in respect to collection of empirical data, analysis, literature review and selection criteria for product groups and country. In Chapter 3 Portfolio Theory will be discussed, which is to be used to support the findings graphically and to later on enable a discussion from a corporate perspective. Chapter 4 aims at giving background information on literature published in certain areas, as well as general knowledge on the Swedish market and consumer’s perception of added-value food. The empirical findings are presented in Chapter 5, which are analyzed and discussed in Chapter 6. Chapter 7 will conclude the project’s findings and end with some general conclusions.

1.5 Definition of terms

“Market”

Market is generally defined as “the set of actual and potential buyers of a product or service” (Kotler and Armstrong, 2006, p.7). From an economic perspective, it can also be defined as ‘place’, where suppliers and buyers meet, either physically or through intermediaries (e.g. retailers), in order to exchange goods and services (Begg *et al.*, 2003, p.14). This market responds to the concept of supply and demand, where price is a key factor (*ibid.*, p.14). This project assumes the latter definition, as it aims to identify the potential implications for companies resulting from the changes in demand.

For the empirical data, this project will focus on the Swedish grocery trade, also known as retail market, further limited by The Nielsen Company’s approach. The data presented reflects the total private Swedish Grocery Trade market, which includes more than 700 shops across Sweden. Data from The Nielsen Company was chosen as their data represents 94.3 % of the private grocery trade market, which is the highest rate available compared to competitors. Statistical errors are estimated at +/- 4 %. On average, this assumes a minimum of 90 % coverage throughout the product classes that are being traced in this project. Therefore, the empirical data does not just look at the whole population as potential buyers, but reflects the penetrated market, as this project is considering sales data, not consumers’ attitudes. From there, given the high sampling value it can be generalized to the whole Swedish grocery trade market.

The Swedish grocery retail market is lead by four major retailers; ICA, Coop, Axfood (Willys, Hemköp, etc.) and the Bergendahls Group (Vi-markets, City Gross). However, discount shops like Lidl and Netto have gained market shares over the last years. Each of the major retailers has different store formats with different segments and pricing strategies. The Swedish grocery trade market will be referred to just as ‘retail market’ throughout the rest of the project, unless stated otherwise.

“Functional claims”

According to the European Food Safety Authority (EFSA) “functional claims” under Article 13 of the EC Regulation on nutrition and health claims refer to:

- “The role of a nutrient/substance in growth, development and the functions of the body;
- Psychological and behavioural functions;
- Slimming and weight control or reduction of hunger, increase of satiety or the reduction of available energy from the diet” (www, EFSA, 2006, 1).

“Added-value food”

According to Walter (2000, p.2) functional or health added-value food lie somewhere between food and medicines, but it can only be food with one or more target functions in the body but satisfying all standards of assessing food risk where claims must be based on clearly defined scientific evidence. Functional Food can also be defined as “foods similar in appearance to conventional foods that are consumed as a part of a

normal diet and have demonstrated physiological benefits and/or reduce the risk of chronic diseases beyond basic nutritional functions” (Niba, 2002, p. 65). Doyon and Labrecque (2008) summarized 26 definitions regarding functional foods and found that four main aspects seem to be redundant: nature of the food, health benefits, function and consumption patterns (*ibid.*, p. 1147). The definition they suggest is as follows:

“A functional food is, or appears similar to, a conventional food. It is part of a standard diet and is consumed on a regular basis, in normal quantities. It has proven health benefits that reduce the risk of specific chronic diseases or beneficially affect target functions beyond its basic nutritional functions”

According to this definition, gluten- and lactose free products qualify as food with added health values. Value can be defined as “the cognitive representation of important, abstract life goals that consumers are trying to achieve” (Peter *et al.*, 1999). According to the Swedish Centre for Terminology, the correct expression in Swedish is “added-value food”, which is normal food, but with an extra beneficial effect on health (www, KI, 2008, 1). Products on the Swedish added-value food market include yogurt drinks, table margarines, pasta, bread and cornflakes (www, KI, 2008, 1).

1.6 Delimitations

Given the complex and sensitive characteristics of studying markets and added-value foods, this project includes many important limitations. First of all, there are many perspectives that can be investigated. This project focuses on the corporate perspective, analyzing the private market movements for added-value food in respect of health attributes. It does not take into account business-to-business trade data, nor does it investigate benefits and challenges that individuals, consumer or society at large face. The second research aim is limited to give rather an overview of potential corporate strategies, highlighting management and marketing strategies, as exploring all corporate strategies would expand the size of this project. However, it could be an interesting starting point for further research suggested in the end of this study.

Secondly, this project does not differentiate between private labels and brands or manufacturers. It will not investigate distribution channels or package size, due to time constraints. It will only analyse the market in terms of changes in volume, value and price between 2007 and 2008. The data range is limited by a two year period due to the general data storage procedures of The Nielsen Company. Consequently, one has to be careful not to over generalize beyond what is presented. Given this short time period, it is merely a determination of the current market situations than real trends. Another important limitation is that the data presented focuses only on the Swedish market and is therefore influence by consumer’s culture and preferences, environment, product availability and market infrastructure. No studies could be found on lactose intolerant consumer’s attitudes towards products that help manage the disease or non-affected people willing to buy gluten and lactose- free and reduced products by choice.

Thirdly, one major constraint for the specifically chosen product classes is the availability of data. Foods with added health value, as discussed later in more detail in the method section, have many definitions, categories and levels. This project will rely on existing definitions and not attempt to define or classify functional food or added-value food further, since the research field is constantly changing. This study will focus on different key product classes which are associated with added health values. Additionally, it has to be noticed that within the time and size constraint, this project will refrain from discussing diseases in depth or complex chemical processes, as this requires background knowledge and technicalities in order to be logical and correct. However, for the purpose of the project some characteristics need to be mentioned in order to give the reader a better overview of the situation.

Further, my rather basic level of Swedish creates another constraint, as it does not permit me to take Swedish written literature into account. As a result, this project is primarily based on material published in English.

Finally, from an epistemological perspective, this project is written from a subjective point of view, where knowledge is obtained through experience and can be interpreted differently by each individual. We are all subject to cultural and social influences, which affect our perception and understanding of things, the world and truth on the whole. Epistemology becomes important when we conduct interviews or write academic papers, since everything we know is influenced by our environment (universe) and experiences. Leedy and Ormrod (2005, p. 133) argue that “in qualitative research there is not necessarily a single, ultimate Truth to be discovered”. So, it has to be kept in mind that the outcome might differ for each individual and approach used.

After introducing the problem within its context as well as definitions and arising limitations, the following Chapter 2 will now outline the methods used in this project.

2 Method

Robson (2002, p. 377) states that “enquiry in the real world is very much the *art of the possible*”. “It is a matter of making choices and being aware of the research conduct” (Mark-Herbert, 2002, p. 37). This chapter will outline the different methods used when deciding on literature, data, theory, product categories and geographical limitations.

2.1 Literature study

Literature on health added-value foods is an extensive field, as there are many different aspects involved, as well as definitions. The literature discussed in this paper has been accessed mainly from LIBRIS, the national database of Swedish libraries. It was started out with a general search for publications by using three main databases Jstor, Sciencedirect and Emerald. The key words, among others, were “added-value”, “food”, “Sweden”, “functional”, “gluten”, “lactose-free”, etc. After topic-related articles were obtained, a practical screening was used to select the ones being relevant for this project. In order to investigate certain aspects further a more specialized search for articles was conducted, following a more strategic approach using specific and combinational search terms. The intention of this study was to use literature as topically as possible, where the internet provided this thesis with some additional information about the issue and international organizations.

2.2 Choice of method

The choices of methods are primarily guided by the idea of a holistic approach in order to fulfill the research aim. This section will outline the selection of methods for the empirical data collection, data analysis and the theoretical framework.

2.2.1 Empirical data collection

“The central, totally indispensable, part of a real world enquiry is the collection of data (Robson, 2002, p. 385). The empirical data was obtained from the market leader in market research, The Nielsen Company. When collecting the empirical data from The Nielsen Company the same structure for the different product categories were followed. In order to retrieve comparable data, official guidelines were used. In this case, the keyhole guidelines were the most suitable, as they allowed for a bigger sample. The data obtained by The Nielsen Company is quantitative, on an aggregated level and reflects actual sales data, not purchase intentions or behaviour. One advantage of using archive data for the empirical study is the large, timely and representative sample being obtained, which lies beyond individual research efforts (*ibid.*, p. 360). However, a disadvantage could be that the data in the archive was not collected specifically for the purpose of the study and therefore has its limitations. For example, it has to be noticed that the data collected represents products that fulfilled the requirements for obtaining and carrying the label, but might not actually be certified.

2.2.2 Data analysis

Data can be analysed to measure, make comparison, examine relationships, forecast, explore, control, explain, etc. (Walliman, 2005, p. 301). The approach of the data analysis chosen is exploratory, as it looks at what the data wants to tell and therefore allows for more flexibility and creativity (Robson, 2002, p. 399). Despite that empirical data is on an aggregate level, for the data analysis a qualitative approach has been chosen, in order to explore different aspects from a more holistic and contextual point of view. This allows including secondary data regarding consumer's perceptions in this project which will be discussed in the background for the empirical study. Even though that qualitative analysis has been criticised being 'soft' and 'unstructured', quantitative analysis is thought to be sometimes too static, as it disregards of social and environmental aspects (Walliman, 2005), which are necessary to consider within this study. Therefore, this project intends to balance the static approach of the quantitative data collection with a qualitative analysis in order to bridge the gap between the both.

2.2.3 Identification of a theoretical framework

"Every theory serves, in part, as a research directive" (Shields and Tajalli, 2006, p. 315). Therefore, in order to frame and illustrate the problem theoretically and graphically the growth-share matrix from the Boston Consulting Group (BCG) has been chosen among portfolio theories. The BCG growth-share matrix deals with finding out what the consumer wants. Based on this information corporate entities can decide what to produce in order to maximize profits and manage investments. Identifying consumer's wants and needs is arguably one of the most important parts of marketing (Kotler and Armstrong, 2006; Solomon, 2006). This matrix has been chosen as it is based on economies of scales (www, Mind Tools, 2009, 1), which is part of many strategic business planning. Further, "portfolio analysis continues to be a potent strategy development tool that can both help managers cut through the clutter and also guide decisions on how to allocate scarce resources to different parts of the enterprise" (Allio, 2006, p.6), despite its practical flaws. According to Kotler and Armstrong (2006, p. 41), it is difficult, time-consuming, costly to implement with little advice for future planning. Additionally, it has to be acknowledged that this model is theoretical, simplistic and not holistic enough. However, it is useful for this study, as it is not used for strategic planning, but merely to demonstrate a snapshot of the market situation at this particular time. Further, it aims at providing the reader with a full display of the data discussed in this project. Even though the sales data used in this project is aggregated and does not reflect a single business unit, this matrix is useful in visualizing how the market on the whole looks like for these specific products and draw some general conclusions on potential, corporate strategies in the future.

2.3 Choice of country

"In the contest between what is theoretically desirable and practically possible must be won by the possible" (Robson, 2002, p. 378). Due to time constraints and data access, this study only focuses on the Swedish market. This choice is further based on the geographic proximity. Sweden offers also a large variety of reliable, publicly available data, which facilitates research. One disadvantage of representing only one, rather

small European country, in terms of population, is that the usefulness of this study across borders is limited, especially since internal and external factors of the country have a considerable impact on the retail environment.

2.4 Choice of products

The choice of food category was initially based on food classes that are associated with added health values like milk, yogurts, margarines, bread, cereals, fermented drinks, etc. The second selection of the products was based on the availability and complexity of data provided by The Nielsen Company, as they trace different attributes for different products. Therefore, for this limited retail market study two whole-grain/high fibre and two dairy products were selected. Pasta and bread are assumed to be the most studied cereal products regarding healthy effects when consumed (Vassallo *et al.* 2009, p. 452). Globally milk and dairy products contribute to approximately 5 % of total energy intake (Gill and Rowland, 2003, p. 19) and are understood to form the major part of functional food (Saxelin *et al.*, 2003, p. 1). As a result, this project will focus on pasta, bread, milk and yogurts. Again, there are implications arising from this choice. Even though the four product categories and the data itself are thought to be representative, it can be risky to draw conclusions beyond what is presented in this study.

To summarize it can be said, that this project focuses on the Swedish retail market only, by looking at specific product categories related to the health added-value food category. It evolves around a primarily holistic approach, where the analysis is being qualitative and from a corporate perspective. The following Chapter 3 will introduce the analytical framework used to show graphically the growth-share relationship between the selected products, as well as describe in more detail the keyhole guidelines.

3 Theoretical Framework Defined

This chapter will outline Portfolio Theory, the main theoretical framework used in this study. Portfolio Theory is a major part of strategic business planning, where management can evaluate the products and businesses that encompass the company (Kotler and Armstrong, 2006, p. 39). Further, it will present the keyhole label as a health promoting label in Sweden.

3.1 Portfolio theory

Portfolio theory is primarily a financial tool that is used to manage investments and risks. The Boston Consulting growth-share matrix evaluates a company’s strategic business unit (SBU) in relation of their market growth rate and relative market share (Kotler and Armstrong, 2006, p. 40). This growth-share matrix and related charts are very valuable tools for analyzing strategic positions and options (Henderson, 1973, p. 3), beyond a merely financial analysis, for example in the marketing field.

3.1.1 The BCG Matrix

The matrix is divided into four parts, placing products depending on their market growth rate and relative market share (Figure 2). It is commonly accepted that over time all growth slows down. The areas are known as “star”, “question mark”, “cash cow” and “dog”, where each product within an area has their own life-cycle.

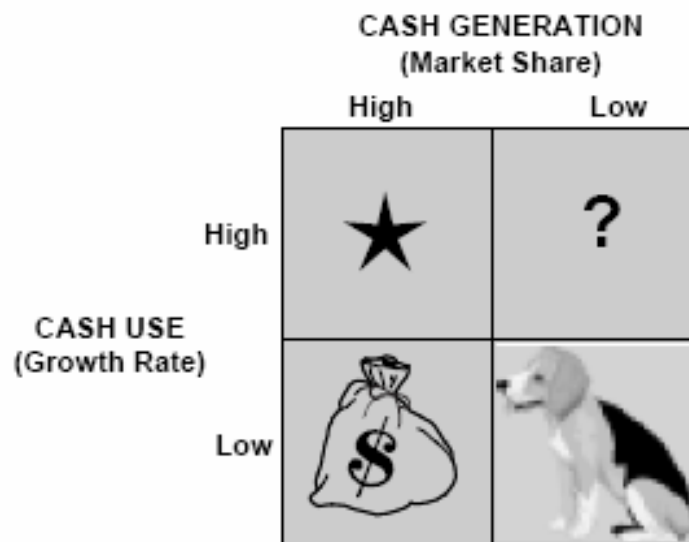


Figure 2 BCG Growth-Share Matrix, (Henderson, 1973, p. 1).

Cash cows (\$) are slow growth but high-share businesses or products (Kotler and Armstrong, 2006, p. 40). Cash cows pay the dividend, pay the interest on debt and cover the corporate overhead (Henderson, 1973, p. 1) and are therefore valuable and desirable.

The *star* area in the upper left corner represents products that grow rapidly and therefore use large amounts of cash, but also generate a lot of cash. Stars eventually become cash cows if they hold their market share; otherwise they become dogs (Henderson, 1973, p.1).

In the *question mark* (?) field are SBU that are identified by high market growth but a relative low market share. They are real cash traps and the real gambles (Henderson, 1973, p.1). They require a lot of cash to hold their share and market growth, let alone to increase it (Kotler and Armstrong, 2006, p. 40), but do not generate enough cash because of the low market shares. Kotler and Armstrong (2006) argue that management has to consider well which question mark to turn into a star or to phase it out. Normally, most of the business opportunities start out as stars.

Dogs are characterized by a low growth and market share and are therefore worthless or in other words “cash-traps” (Henderson, 1973, p. 1).

3.1.2 Corporate Strategies

According to BCG (Anonymous, 1970, p.1) only a diversified company with a balanced portfolio can use its strengths to truly capitalize on its growth opportunities. A balanced portfolio has:

- Stars with high share and high growth assure the future;
- Cash cows that supply funds for that future growth; and
- Question marks to be converted into stars with the added funds.

From a company’s point of view there are typically four different strategies available to determine what can be done with each product. The following strategies were summarized at the Mind tools webpage (2009):

1. *Build Market Share*: Make further investments (for example, to maintain star status, or turn a question mark not a star)
2. *Hold*: Maintain the status quo (do nothing)
3. *Harvest*: Reduce the investment (enjoy positive cash flow and maximize profits from a star or cash cow)
4. *Divest*: For example, get rid of the dogs, and use the capital to invest in stars and some question marks

As the data of this project is aggregate, the resulting corporate strategies are conditional for the type of data used. For the analysis in Chapter 5, this project will assume a single corporation build on the whole retail market data, to show the relationship of the findings in a single display and to enable a discussion from a corporate perspective. Therefore, it has to be kept in mind that the potential strategies are merely general suggestions which do not reflect a specific company. Nevertheless, this approach is useful to outline some important aspects, which companies could consider for their corporate strategy.

3.2 Health labels – The keyhole label

Labelling suggests “any term, words, particulars, trademarks, brand name, pictorial matter or symbol relating to and placed on any packaging, document, notice, label, board, ring or collar accompanying or referring to a product” (www, Official Journal of the European Union, 2007, 1, p. 5). The main aim of labelling is to inform the consumer about the product’s specific attributes, however so far there is no uniformed food health labelling system for all of Europe (www, Elsevier Food International, 2007, 1).

In Sweden, added-value foods can carry a voluntary label developed and administered by the National Food Administration called the “keyhole” (Figure 3). This label aims at helping consumers to identify products that are the healthier option (www, Nordic Council, 2009, 1), as this could “improve their diet, which can lead to better health now and in the future” (www, SLV, 2007, 1). The keyhole label will be a joint nutrition label between the Nordic countries (Sweden, Norway and Denmark) from May 2009 (www, Nordic Council, 2009, 1) and focuses on four major food ingredients: fat, sugar, salt and fibre content. The conditions are set by the Nordic Nutrition Recommendations and must be fulfilled if a product should be certified. The directive LIVSFS 2005:9 lists all requirements for different food categories, where fat should be generally less than 0.5g/100g and a minimum of 4g/100g of dietary fibre (Appendix 2). One of the Sweden’s National Institute of Public Health action-plan based objectives is to increase the consumption of keyhole labelled products in Sweden on the whole (Anonymous, A., 2005, p. 6).



Figure 3 Keyhole Label (www, SLV, 2007, 1).

Nutrition labels currently on food packages in Europe are often difficult to locate on the package, as well as hard to read (Manelle *et al.*, 2006). It is estimated that “only 37 - 48 % of Scandinavians regularly read declarations on food products” (www, Nordic Council, 2009, 1). This is an advantage of the keyhole system, as it is a simple label, which will not require nutritional expertise and will make healthy food more accessible (www, Nordic Council, 2009, 1). As can be seen from the guidelines, the keyhole label is not very selective and rather flexible. Ares *et al.* (2009, p. 55) recommends using a label in order to achieve an “association in the consumers’ mind between the ingredient and the health effect”.

After outlining the analytical framework and the keyhole label, the next chapter will establish the background for the empirical study by focusing on exiting literature on this topic, as well as defining Sweden and health issues within this context.

4 Background for the empirical study

“Technological development and an increasing global food production in combination with economic growth have had a positive effect on health, but these factors have also contributed to reduced physical activity levels and altered dietary habits” (Anonymous, A., 2005, p. 3). Today, over 40 nutrients are known, which are mainly classifying as “fats, carbohydrates, proteins, vitamins, minerals, alcohol, trace elements,” etc. (Tansey and Worsley, 1999, p. 52). Energy for our body is mainly supplied by carbohydrates, fats and proteins. Unused energy is stored as fat in the body and excess can lead to obesity and increase the risk for heart diseases. In response to health problems in the Western Europe and North America in the late nineteenth century, nutritional science grew seeking to understand what effects nutrients have on our bodies and how to prevent deficiencies (*ibid.*, p. 51; Doyon and Labrecque, 2008). As a result, research and development of added-value foods have been stimulated. “The functional food industry is almost as fragmented and difficult to define as the markets” (Mark-Herbert, 2002, p.58), yet there is a need to attempt to define both. The background for food with added health values and consumer’s perspective are important when evaluating market trends, as well as establishing a guideline used when collecting data and will be studied in the following chapter.

4.1 Health added-value foods

Defining and classifying health added-value foods is a challenging task, as the field is still developing and constantly changing. This chapter will look at existing classifications of health added-value foods in general and provide some background on gluten, lactose and dietary fibre.

4.1.1 Overview

Health added-value foods are also known as functional food, nutraceuticals, pharmafoods, etc., (Anonymous, 2002, p. 18), where the distinction between each is fuzzy. Some foods carry beneficial ingredients by nature and are not further treated by man, like garlic, cranberry, soy, etc. However, most of the health added-value foods values that are known today have been processed and thereby “either had a positive component added or a negative component removed by technological or biotechnical means” (Walter, 2000, p. 2). According to Walter (2000), supplements that are most commonly added are calcium, antioxidants, vitamins, omega-3 fatty acids, folate, fibres but also living micro organism like probiotics. Added-value foods can also include Genetically Modified Organism (GMO) and are commonly referred to as “designer food” (Anonymous, 2002, p. 18).

Therefore, when health added-value foods are categorized, it can be done by looking at the level of technology involved, the product category or the specific health claims made corresponding to the same disease. The distinction becomes more difficult when it is considered that added-value foods are also thought to have different levels of health claims including “improve health in general, delay onset of disease, treat diseases in progress or even cure a disease” (Mark-Herbert, 2004, p. 1). Keeping these issues in mind, in this

project however, in order to facilitate research, the definition proposed by Doyon and Labrecque (2008) will be assumed.

Very little literature has been published in the field of lactose- and gluten-free products related to added-value food development and consumer demand. Most of the research found related to this area focuses on medical and technical aspects. A reason for this might be that these products have not been specifically categorised as functional foods and might still be considered a niche market, with limited demand.

4.1.2 Dietary Fibre, Gluten and Lactose

Cereals provide considerable amounts of many nutrients; “a high starch contents as energy sources, dietary fibre, protein (high in proline and glutamine, but low in lysine) and functional lipids rich in essential fatty acids” (Dewettinck *et al.*, 2008, p. 253). Dietary fibre found in whole grains and legumes mainly consists of “plant wall cell material, notably cellulose, hemicelluloses, pectin, gums, mucilage and lignin” (Niba, 2002, p. 62). “Resistant starch is a dietary carbohydrate that can occur in different forms, which depends on the nature of the starch and the processing techniques applied during production” (Niba, 2002, p. 62). Resistant starches like dietary fibre are both slowly digestible and therefore create different but also similar positive effects on the digestion system (*ibid.*, p. 63). A diet based on resistant starch or less available starch could “protect against diseases such as type 2 diabetes, colorectal cancer and other diet-related chronic diseases” (*ibid.*, p. 63). Niba (2002, p. 66) also suggests that resistance starch could be further developed and explored to increase its value in disease prevention, such as in food with added health value.

Ciacchi (2006) states that as much as 1 % of the gluten-consuming world may be gluten-intolerant. According to the Swedish National Food Administration (Livsmedelsverket, 2009, 3) gluten intolerance or celiac disease is a chronic, autoimmune disease, which is triggered by the proteins in wheat, rye and barley. These proteins cause inflammation during the digestion in the small intestine. To contain the disease the diet should be, at best, strictly gluten-free with starch based or oats products as good alternatives (Anonymous, 2002, p. 20).

Milk, and milk products, are rich in nutritive compounds like saturated fatty acids, proteins, minerals, which can be enriched and or/further modified with e.g. lactic acid bacteria (Saxelin *et al.*, 2003, p. 14). Lactose (milk sugar) intolerance, like gluten, is a functional deficiency in the digestive tract and can increase with age. “Lactose intolerant individuals have reduced levels of an enzyme, lactase, needed to hydrolyze lactose in the small intestine” (www, SLV, 2009, 4). “A person that has lactase deficiency and lactose causes intestinal discomfort and other symptoms” states Saxelin *et al.* (2003, p. 14). “Lactose intolerance affects more than 75 % of the population worldwide, with regional frequencies ranging from nearly 5 % in Northern Europe to more than 90 % in some Asian and African countries” (Bulhões *et al.*, 2007; Pribila *et al.*, 2000). In Sweden, all products must be labelled if containing lactose. Low-fat yogurt with a size of 240 ml contains about 5 g of lactose. Reduced-fat milk with a similar size has 11g lactose (www, NDDIC, 2006, 1). Most

people can drink one glass of milk (10 g lactose) taken with a meal without suffering symptoms (Saxelin *et al.*, 2003, p. 9). According to Gill and Rowland (2003, p. 34) “a number of studies have demonstrated that the intake of yogurt enhances lactose digestion in individuals with low intestinal levels of lactase”. This means that especially yogurts with active cultures can help lactose intolerant people to improve digestion and prevent diseases.

4.2 The Swedish market

Sweden has some country specific characteristics, which can be important to consider when analyzing the retail market. This section will look at the Sweden’s country profile, economy, media coverage and public health aspects in order to enable a holistic analysis.

4.2.1 Country Profile

Sweden, located in northern Europe, is the third largest European country in terms of sq meter but with a rather small population size of 9.2 million in 2009 (www, SCB, 2009, 1). It is considered “one of the world’s most highly developed post-industrial society” (www, BBC, 2009, 1). Sweden has a high life expectancy, which is estimated at 79 years for men and 83 years for women (www, BBC, 2009, 1). Additionally, Sweden is an individualistic, small household country like Germany with only 2.1 people on average per household (Anonymous, 2006).

4.2.2 Economy

In the end of 2008, the GDP per capita was estimated at 342,500 SEK, with results in a national GDP of 804,793 million SEK (www, SCB, 2009, 1). According to The Economist (Anonymous, 2006), in 2007, Sweden was ranked 10th country with highest GDP per head. Further, Sweden was the fourth country ranked with the innovation index, given their high level of adoption of new technologies and the interaction between business and the scientific sector, which also include numbers of patents granted and higher education enrolment rates (*ibid.*, 2006). In 2003 Sweden had the second highest spending on R&D (*ibid.*, 2006).

4.2.3 Media channels and coverage

According to The Economist (*ibid.*, 2006), in 2006 Sweden had 97.1 % coverage of colour TVs across the country and 71.5 % of fixed telephones lines. In terms of computer and mobile phones per 100 people, Sweden is ranked third highest countries worldwide with 76.1 computers and mobile phones with 108.5 subscribers per 100 people. When it comes to printmedia, Sweden produces 492 copies per 1000 people, which leaves it at place 3 after Iceland and Norway (*ibid.*, 2006). This shows that Sweden has a high coverage in digital as well as print media, which is an advantage when it comes to marketing products and exchange of information.

4.2.4 Public Health aspects

“Good public health is an important goal, both for individual citizens and for society at large” (Alfredsson, 2006). In 2006, an estimated 9.4 % of the GDP was spent on health, which leaves Sweden on place 17 on an international ranking (Anonymous, 2006). The Swedish National Institute of Public Health (FHI) releases reports, tracing developments in health issues in Sweden. The most common and/or fatal top four public diseases are cardiovascular diseases, cancer, overweight and diabetes.

In Sweden, cardiovascular diseases, like myocardial infarction, stroke, angina pectoris, are the largest public health problems (Alfredsson, 2006). Cardiovascular disease is the most common cause of death, responsible for close to half of all deaths (*ibid.*). “Over 200 risk factors for cardiovascular disease have been discussed in the scientific literature. Apart from high age and male sex, smoking, high blood pressure and high serum cholesterol are the best-known and best-established risk factors for coronary diseases including myocardial infarction. Diabetes, overweight and obesity, poor social network and difficult social circumstances, e.g. poor (individual) economy and increased psychosocial stress also increase the risk of cardiovascular disease” (Rosén, 2006, p. 51).

“Cancer is a significant global, public health problem, which accounts for an estimated 25 % of deaths in countries with a westernised lifestyle” (Gill and Rowland, 2003, p. 19). In Sweden, cancer affects mainly people over 65 years old, and is the second largest cause for death after cardiovascular diseases (Barlow, 2006, p. 78). Besides food, smoking as part of lifestyle choice amounts to 25 % of all cancer diagnosed and is the world’s most common cancer (*ibid.*, p. 78). “Colon cancer has strong connections with lifestyle factors, where obesity, low physical activity and high consumption of red meat are considered to increase the risk of colon cancer” states Barlow (2006, p. 85). According to Barlow (2006, p. 84), colon cancer can be estimated at 7 % of all newly diagnosed cancers with an increasing tendency.

Gill and Rowland (2003, p. 30) found in their research that pro- and pre-biotics, if can be proven to affect the metabolic activity of the microflora in the colon is thought to help preventing colorectal cancer. However diet and gut microflora are complex and so far researches have not concluded on scientific evidence (*ibid.*, p. 30).

The Swedish National Institute of Public Health states that “over half of the men and just over one-third of the women between 16 and 74 years in Sweden are overweight or obese” with an increasing tendency (Boström and Eliasson, 2006). In 2002, the Swedish Council of Technology Assessment in Health Care (SBU) estimated medical costs related to obesity and thereof resulting diseases at “about 2 % of total expenditure for medical care in Sweden, which amounts to approximately 3,000 million SEK” (Boström and Eliasson, 2006; Anonymous, A., 2005). However, indirect costs, like sick leave and early retirement, are estimated several times higher than this figure (Anonymous, A., 2005, p. 5). Overweight and obesity can be defined using the Body Mass Index calculation (BMI) (Appendix 2). Abdominal obesity, moreover, increases the risk of hypertension, cardiovascular disease, stroke and type 2 diabetes (Boström and Eliasson,

2006), but also back and joint problems and premature death. The sharp increase in the proportion of overweight people is a major public health problem that will probably increase in the future (Rosén *et al.*, 2006).

There are generally two types of diabetes, where the main issue lies in the disfunction of the blood to transport sugar outside of the cells, as insulin is missing. As a result, the sugar levels in the blood rises which causes symptoms like tiredness, thirst, kidney damage among others (Eliasson and Boström, 2006). More than 300 000 Swedish citizens have diabetes (*ibid.*). Diabetes type 1 is associate with “and affluent lifestyle with increased energy intake in childhood” (*ibid.*). Diabetes 2, is classified by the resistance to insulin, which can be managed initially by diet and later by medication (*ibid.*). Further, Eliasson and Boström (2006) argue that in order to live with or prevent types of diabetes, 1 and 2, a focus on energy intake is needed (*ibid.*).

Lactose and Gluten intolerances might not be as fatal or common, yet these diseases also can benefit from functional foods. However, as it seems so far this issue has not received a lot attention from researchers or health institutions, as there is very limited information is publicly available. Ms Åkeson from the FHI states that they do not collect data either on gluten or lactose intolerance and functional foods (Pers.com., 2009, 2). Further, according to Mr Lindeskog from the Department of Drug safety in Sweden (Läkemedelsverket), no data or information on intolerance towards lactose or gluten in medicines is available (Pers.com., 2009, 1). However, there are increasing public requests on the subject of lactose, as complaints regarding reactions even with the minimal levels of lactose in medicines have been received (Pers.com., 2009, 1). The only study conducted in Sweden regarding lactose intolerance found that among 230 four-year old children studied, only two children were lactose intolerant, however, an additional 24 % showed other food intolerances and allergies (Garemo *et al.*, 2007, p. 136).

Even though the population in Sweden generally enjoys good health (Rosén *et al.*, 2006) especially compared to other countries, the major public diseases seem to be partly life-style related. Still, the public health problems ask for practical and responsible solutions from the food manufacturing and catering sector, governmental guidance, but it is also a private matter and should be taken seriously by the individuals on a societal level (Anonymous, A., 2006). This implies challenges but also opportunities as some of these risk factors can be balanced by a healthy or adjusted diet in order to prevent and delay the onset of diseases. Walter (2000, p. 1) states that added-value food intake “should promote good health at a later age and thus help to lower the risk of chronic diseases such as cancer, heart diseases, osteoporosis, neurological disorders (e.g. Alzheimer and Parkinson disease), thereby improving quality of life”. Rosén (2006, p. 52) argues that “people, who manage to change their risk factors, have good prospects of reducing the risks substantially”.

4.3 Consumer's perspective

As according to Kotler and Armstrong (2006, p. 7) the market is characterised by buyers and sellers, this section will look at literature published on the potential buyers profile for added-value food. Studying and understanding consumer perception of added-value foods is crucial for a companies' success by developing products that have a good consumer acceptance (Ares *et al.*, 2009, p. 50).

4.3.1 Awareness and Acceptability

According to Heasman and Mellentin (2001, p. xvi) functional food science is being promoted and commercialized to health responsive consumers around the globe. However, "consumers seem to evaluate functional foods first and foremost as foods" (Bech-Larssen and Scholderer, 2007, p. 233). Research demonstrated that food plays an important role in disease prevention or slowing down the progress of a disease (Frewer *et al.*, 2003; Walter, 2000; Niba, 2002; Mark-Herbert, 2004) and as a response, all the major household-name food companies are developing and marketing added-value foods and ingredients as key drivers in their global business strategies (Heasman and Mellentin, 2001). According to Goldberg (2004, p. 4) more than 100 companies are actively producing products that could be classified as added-value foods, where 70 % of all added-value food products are drinks and 30 % is solid food (Goldberg, 2004, p.4). This shows that the availability of products has increased and is sold under trusted brands. These might be reasons for consumers who increasingly recognize the benefits that arise from a healthy diet; even if the public does not particularly know what the active ingredients are (Walter, 2000, p. 3).

When it comes to raising awareness, age (high) and gender (female) seems to be important factors within the consumer segment to consider (Siegrist *et al.*, 2008; Bech-Larssen and Scholderer, 2007, p. 232; Ares *et al.*, 2009, p. 55). However, Wadołowska *et al.* (2009) argue that age might be an indicator for higher awareness but not for acceptability, as older people seem to be more reluctant to change their lifestyles. The reason behind women's higher awareness of health issues is the heightened responsibility for well-being they are assumed to feel towards the other family members, besides being the main purchaser of foods for household products (Bech-Larssen and Scholderer, 2007, p.232).

Rainey (2006) points out, that corporations depend on customer acceptance of their products and services. He claims that "acceptance leads to trust and trust is what turns marketing into successful market positions" (*ibid.*, p. 304). One important part of acceptance and trust with functional food is that the health claims that are made are credible and valid, besides being a reputable company. Rainey (2006, p. 302) provides five guidelines on how to check that claims are valid. For example, following directives, obtaining governmental certifications, secure independent certifications to help creating a better image, substantiate all claims for example through LCA and educate the business environment about the benefits of a product. These guidelines are very important for corporations, especially in the functional food sector, as the company's reputation is at stake, which can have disturbing implications (*ibid.*).

Frewer *et al.* (2003) concludes that there are many barriers affecting consumers' acceptance of functional foods, like information confusion, problematic dietary change process, financial resources, pricing strategies, etc. Additionally, functional claims may provide added-value to consumers but cannot outweigh the sensory properties of food, like taste (Bech-Larssen and Scholderer, 2007, p. 233). Dewettinck *et al.* (2008, p. 253) agrees that this is true especially for consumer's quality perception of bread, but also yogurts are highly affected by sensory attributes (Ares *et al.*, 2008, p. 642). Wadołowska *et al.* (2009) suggests that greater awareness of high health risks to the elderly can be used by manufacturers and retailers and become an element of functional food advertising. Also targeted functional food for consumers with already medically recognized health-related conditions can be an interesting niche market to consider within the functional food area. For example, among the Swedish population celiac disease "seems to be well accepted by adult patients and that gluten-free diet is not a burden and food limitations does not affect social life" (Ciacci, 2006, p. 181). Further, Ciacci (2006, p. 181) argues that the high acceptance by Swedish consumer might lie in the socio-economic environment and food culture, with a diet not exclusively based on pasta, pizza and bread. Therefore, in Sweden gluten products can be easily substituted. So far no studies have been concluded on lactose intolerant consumer's attitudes towards products that help manage the disease or non-affected people willing to buy gluten and lactose-free and reduced products by choice. This might seem reasonable, as it could be expected that non-affected consumers would not find these products desirable. But as mentioned before, a gluten-free diet might very well be an alternative to a high fibre diet, with the advantage reducing the risk of symptoms, even if undiagnosed.

4.3.2 Attitudes

Consumer choices for functional foods depend on how consumers perceive and understand the nutrition- and health-related claims (van Trijp and van der Lans, 2007). According to ACNielsen, the main reason in Europe for not purchasing foods that have special health benefits added are that for example cholesterol reducing oil and margarines are too expensive, where 16 % of the respondents agreed (Anonymous, B., 2005). Consumers expect healthy food to be more expensive, but they are not prepared to pay the price premium because essentially they do not clearly understand the benefits (*ibid.*, 2005). In Europe, 42 % of the consumers responded that they do not believe that functional food like cholesterol reducing margarines offer additional health benefits (*ibid.*, 2005).

Consumers have repeatedly questioned the trustworthiness of the benefits of functional foods (van Trijp and van der Lans, 2007; Landström *et al.*, 2009). According to a recent study by Landström *et al.* (2009) functional foods are not perceived as a need for a healthy lifestyle, as it can be achieved without foods with added-value. It seems that education and awareness are two major aspects, when it comes to promoting acceptability and influencing consumer's purchasing behaviour. Bech-Larssen and Scholderer (2007) argue that consumers need background knowledge in order to evaluate the relevance of a specific claim for their personal health. However, as Van Trijp and Van der Lans (2007) point out, consumers are quite open to a wide range of health claim formulations and that this could be exploited for the promotion of public health.

But it has to be kept in mind that especially in Sweden health claims have to be strictly in line with the regulatory framework, even if “consumers perceptions are not consistent across benefits and ingredients” (van Trijp and van der Lans, 2007; Landström *et al.*, 2009). Perceptions about health claims and benefits can differ across countries (van Trijp and van der Lans, 2007), which can have implications on the effectiveness of a global communication strategy. Siegrist *et al.* (2008) suggest that consumers are more inclined to buy functional foods with physiological health claims compared with psychological health claims. Furthermore, they state that health claims were evaluated most positively when attached to a product with a positive health image, for example yogurt opposite chocolate (*ibid.*, 2008). Further, Bech-Larsen and Scholderer (2007) argue that it is much easier to gain consumer acceptance for a added-value foods that is enriched with compounds that are well-known for their health benefits (such as calcium, vitamin C, or omega-3 PUFAs) than it is for compounds that are practically unknown to the general public (such as selenium or xylitol).

This chapter was looking mainly at existing literature on added-value food, country specific information as well as consumer awareness and perception regarding health added-value food. It is important to establish this background in order to be able to analyze the collected data within its context but also to be able to identify changes and strategies. Chapter 5 will now present the empirical findings for each product category as well as show the data applied to the BCG matrix.

5 Empirical Findings

In Europe and the USA, the market for functional food has experienced growth rates of between 15 % and 20 % over the last four years (Frewer *et al.*, 2003). As the stated 15 % to 20 % are calculated over a four-year period, this would represent an increase of an average of 3.75 % to 5 % per year. According to Doyon and Labrecque (2008, p. 1134), “the market for functional food is expanding by 7 % to 10 % per year”. Therefore, according to this data, an upward trend could be expected.

However, market potential seems to be limited by competing definitions of functional foods (*ibid.*, 2008). Generally, given the great variety of definitions for added-value foods applied in research and praxis, it is difficult to define and compare data across countries. Therefore, companies face challenges and risks arising from this inconsistency. In this project the keyhole guidelines were used when collecting data for the product groups of milk, yogurt, pasta and bread. In addition, gluten- and lactose-free and reduced numbers were retrieved to compare the information. The data in this chapter is obtained with the courtesy from The Nielsen Company.

5.1 Product categories

The following section will present the empirical findings of the selected and studied health added-value food products; milk, yogurt, pasta and bread.

5.1.1 Milk

Milk in total has seen a slightly negative trend in sales volume between 2007 and 2008 (Table 1). Yet, low-fat milk, has experienced a surprisingly almost 10 % reduction in volume. This might be due to the 9 % price increase during 2007-2008. In terms of value, total milk consumption has increased by almost 8 %; however keyhole criteria milk such as milk containing less than 0.5 fat has decreased marginally during 2008 (Anonymous, 2009).

Table 1 Milk sales statistics

| Milk | Changes in % 2007-2008 | | |
|---------------------------------|------------------------|---------------|-------------|
| | Volume | Value | Price (SEK) |
| Low fat milk (keyhole criteria) | - 9.28 | - 0.80 | + 9.34 |
| Lactose free | + 28.4 | + 33.91 | + 4.29 |
| Lactose reduced | + 4.36 | + 12.39 | + 7.70 |
| TOTAL Milk | - 2.12 | + 7.59 | + 9.92 |

Source: Anonymous, 2009

Interestingly, if looked at lactose reduced and free milk, a big change in terms of volume and value can be noticed. Prices for these special products have increased less than of low-fat milk or total milk on average, but demand has increased significantly, especially for lactose free milk in volume, but also value.

5.1.2 Yogurts

In Sweden there exist around 60 yogurt products containing probiotics cultures (Anonymous, 2009). This category also includes drink yogurts. In 2007, the average yogurt with added-value was twice as expensive (36 SEK) as the average normal yogurt (17 SEK), per litre (Anonymous, 2009). In terms of keyhole products there exist around 200 products, that could carry a certification. Approximate 50 products exist for lactose-reduced and -free yogurts, which is a quite significant number compared to yogurts containing cultures.

Between 2007 and 2008 yogurts and drinks with cultures have seen a positive sales trend (Table 2). The total yogurt market has grown by 4.88 %, whereas yogurts with cultures have grown by 15.31 % in volume and 24.25 % in value. Therefore, probiotics yogurts have increased their market share of the total yogurt segment by 0.31 %, from 3.09 % to 3.40 %.

Table 2 Yogurt sales statistics

| Yogurts | Changes in % 2007-2008 | | |
|------------------------------------|------------------------|---------|-------------|
| | Volume | Value | Price (SEK) |
| Yogurts with probiotics cultures | + 15.31 | + 24.25 | + 7.75 |
| Yogurts following keyhole criteria | - 4.61 | + 1.79 | + 6.71 |
| Lactose free Yogurt | + 98.93 | + 73.76 | - 27.60 |
| Lactose reduced Yogurt | + 384.28 | + 391.9 | + 0.12 |
| TOTAL YOGURT | + 4.88 | + 11.83 | + 6.62 |

Source: Anonymous, 2009

Yogurts following the keyhole label and therefore their fat content is below 0.5g/100g without sweeteners, have seen a decline in volume of almost 5 % and just a slight increase in value by 1.79 %, due to the increase in price by almost 7 % (Table 2).

Lactose-free products are as expensive as yogurts with cultures. Lactose-free yogurts have grown in terms of volume by 98.93 % and 73 % in respect of value. Lactose-reduced yogurts grew by an impressive 384 % in volume, and 392 % in value between 2007 and 2008. It has to be noticed that these products are considered a market niche, with only 0.9 % of the total yogurt market for lactose free yogurts and 0.1 % of the reduced lactose yogurt market. As of today, these categories seem to be highly demanded and could be a niche market opportunity, at least in Sweden.

5.1.3 Pasta

Whole grain and/or high fibre pasta has experienced a negative trend in terms of volume and value, whereas the total market as been stable in respect of volume and increase in value by the increase in price (Table 3). This shows that demand for whole-grain products is declining. Gluten free products; however seem to have a positive notion in this market.

Table 3 Pasta sales statistics

| Pasta | Changes in % 2007-2008 | | |
|------------------------|-------------------------------|---------------|--------------------|
| | Volume | Value | Price (SEK) |
| Whole grain/high fibre | - 21.67 | - 6.45 | + 19.42 |
| Gluten free | + 0.25 | + 20.1 | + 19.80 |
| Total | + 0.3 | + 20.05 | + 19.69 |

Source: Anonymous, 2009

There have been around 130 whole-grain and/or high fibre pasta products and 40 gluten free pasta products available on the shelves of Swedish supermarkets (Anonymous, 2009). The steep increase in price has been similar for all products, which helped balancing changes in value, but might have slowed down volume-growth.

5.1.4 Bread (Soft)

Bread shows the strongest, negative trend among the products classes discussed in this project. For whole-grain/high fibre soft breads value and volume has decreased by around 20 %, where even the total market has declined slightly in terms of volume (Table 4). Again, gluten free products seem to be in high demand at the moment, as an increase in volume and value of around 10 % can be noticed.

Table 4 Bread sales statistics

| Bread | Changes in % 2007-2008 | | |
|------------------------|-------------------------------|---------------|--------------------|
| | Volume | Value | Price (SEK) |
| Whole grain/high fibre | -23.12 | -17.24 | + 7.64 |
| Gluten free | + 8.98 | + 13.08 | + 3.76 |
| Total | -2.62 | +5.39 | + 8.23 |

Source: Anonymous, 2009

There are approximate 150 whole grain and/or high fibre products and 60 gluten free bread sorts to be found in the Swedish retail markets (Anonymous, 2009). The increase in price for bread has been rather low compared to pasta product and are more in line with the dairy category.

5.2 Boston Consulting Group matrix – Illustration of results

The illustration below (Figure 4) shows the matrix adopted with the empirical data from The Nielsen Company. It shows the changes in volume in % only for 2007-2008 related to the market share each product has in the total category. Market shares in % for each product class can be found in the Appendix 3. For this project a fictional company is assumed that produces all of the products discussed above.

BCG Matrix

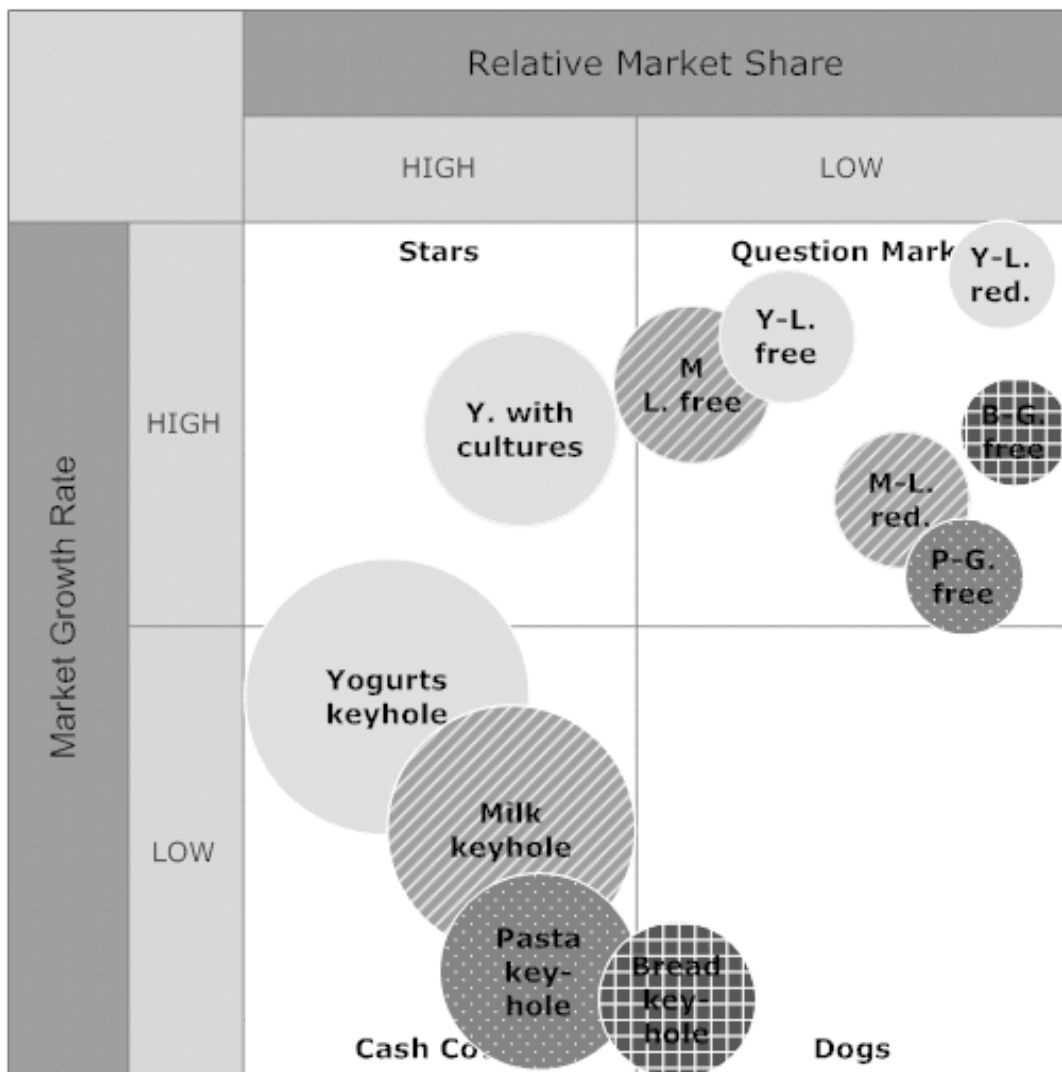


Figure 4 BCG Matrix adopted with volume-growth and share data (Anonymous, 2009).

As can be seen in the Figure 5 below, the patterns and greyscales represent the different categories. This way it is easier to identify the same product categories in the matrix.





-  Yogurt: light grey with no pattern
-  Milk: slightly darker with strips
-  Pasta: spots on a medium-grey background
-  Bread: dark grey with a square pattern

Figure 5 Legend for BCG Matrix.

The size of the bubbles expresses the relative market share (based on volume) that each product has within the total category of the private, retail market in Sweden for 2007 and 2008. For example, yogurts according to keyhole guidelines are 44 % of the total yogurt segment, therefore this has a big bubble, but also the biggest compared to the other products. The position is conditional on the market growth that each product had during 2007 and 2008.

In this chapter the empirical findings for bread, pasta, milk and yogurt were presented. The BCG matrix showed graphically the relationship between the product categories at a specific point of time. In the following chapter, the findings presented here will be analyzed and interpreted using a primarily corporate perspective.

6 Analysis and discussion

By using the findings from the previous chapter, this chapter aims at answering the question on *how the Swedish retail market has recently responded to both; added-value foods as part of a lifestyle choice and obligation?* It will do this by analyzing the market situation for added-value foods in Sweden linked to previous findings. It will then look at the result of the matrix to raise the discussion on *how this could affect corporate strategies in the future* within this study.

6.1 Market situation for added-value foods

This section will analyze the market situation for health added-value foods in Sweden and establish if there is a continuous need and demand for such products.

6.1.1 Economics and health

Doyon and Labrecque (2008) argue that the development of health added-value foods appears to be a long-term trend with important market potential, as we “as individuals need sufficient, safe, nutritious food for a healthy lifestyle” (Tansey and Worsley, 1999, p. 49). Yet, this long-term trend seems to currently face some challenges in the Swedish market. Our eating behaviour is influenced by many external and internal influences like culture, financial situation, knowledge, availability, etc. As outlined in the background for the empirical study, Sweden as a country and market is a good target for foods with added health values. Especially, from a financial perspective Sweden, as Sweden’s level of economic development is high, where people have social status, the awareness of health related food choices, as well as the financial power.

The Swedish National Institute for Public Health states that around 90 % of the Swedish population consumes less than the recommended amount of fibre, 80 % eat too much fat, 96 % have too much saturated fat and half of the population eat too much sugar (Anonymous, A., 2005). Further, lifestyle related diseases such as cancer, cardiovascular diseases, overweight and diabetes are key public health problems. Given this health situation and consumption pattern in Sweden, there is a need to find solutions to contain those lifestyle related health disease at a private and public level. Keyhole guided products can target those diseases with the reduction of the key ingredients (fat, salt, sugar and fibre content) that are assumed to promote these diseases. In Sweden, as well as other countries, lifestyle related diseases like obesity are a major health risk factor and source of rising health costs (*ibid.*, 2005). Therefore, it can be established, that theoretically and practically there is a need and market for those health added-value products, even if the current market response is not that obvious.

6.1.2 Gluten and lactose-free/-reduced products

According to Bulhões *et al.* (2007) around 5 % of the Northern European countries have lactose intolerance and only 1 % of the world has been identified as gluten-intolerant (Ciacci, 2006). These numbers are rather low compared to the high increase in demand of 28 % for lactose free milk, 4 % for lactose reduced milk, 98

% for lactose free yogurt and 384 % (!) for lactose reduced yogurt. For gluten-free products demand is not quite that high, with less than 1% increase for pasta products, but 9 % for gluten-free bread. Yet, this evidence suggests that there is a consumer demand, irrespective if these consumers are actually intolerant. Since there is no major health difference in eating a high dietary fibre diet or use gluten-free resistance starch products with potentially added fibre contents, research suggests that there is a huge market potential for companies. This potential arises from the complexity of diagnosing gluten or lactose intolerance, and therefore if there are no major drawbacks, these products can be consumed on a precautionary measure or make it easier for families that do have individuals suffering from food intolerances. However, this is conditional on the issue that these products can be proven to improve the overall wellbeing of society at large and be marketed in that way.

Further, lactose reduced products seem to be a phenomena, since it does not exactly match the needs of a lactose intolerant person, yet there is a high demand and quite a significant number of products available. Swedish consumers seem to accept their gluten intolerance better than many other countries, due to their culture and environment. Thus, the question arises; do gluten and lactose-free products attract non-intolerant people as well? Little research has been done in the area of consumer perception of gluten and lactose free or reduced products, as it probably has been assumed that it will only attract consumers with the corresponding health issues. Since gluten and lactose intolerance is hard to detect, it can be assumed that if one household member is affected, the whole family might decide to primarily consume gluten- and lactose-free products based on genetics, but also for convenience (small-household size) and prevention of symptoms. However, it has to be noticed that it remains unclear, what the scope of the potential total market for lactose- and gluten-free products is. Nevertheless, so far the market has demanded and supplied an increase in gluten- and lactose-free and reduced products.

6.1.3 Yogurts with cultures

Yogurts with added health values, is the only food category discussed here, that has increased above the average category itself. One reason for this might be the general positive health association that consumers have towards yogurts, discussed by Siegrist *et al.* (2008). Even that there is quite a number of products in this category available, it has to be noticed that probiotics yogurts are scientifically not functional food. However, research studies are in progress, which would enable companies to make specific health claims about their products and therefore be able to cover expenditure of R&D for product innovation. Yogurts with added health values have experienced a healthy growth in both terms, volume and value, which suggests that consumer already believe and trust in cultures as health added-value. Therefore, it can be said that there is an established market, even if regulations and proper marketing strategies are lacking.

6.1.4 Keyhole products

Keyhole guided products, besides the established need and support from governmental institutions have seen a decline in demand. Bread in particular has seen the biggest decline in volume and value, which give

reasons for concerns given their positive attributes for a well-balanced diet. According to Dewettinck *et al.*, (2008, p. 253) the market for bread has been declining globally since 1999; however, as awareness of a healthy lifestyle is increasing, breads containing whole grain or other functional ingredients are assumed to become more important in the food manufacturing industry and on the market. But this expectation can not be confirmed at this time.

The total category for pasta seems stable, where price increase balance changes in value. But here as well, whole-grain products have been declining by 1/5 in volume. Milk and low fat yogurts have seen a decline in purchases as well. Since it has been emphasised that sensory attributes are very important from the consumers' point of view, the decline in low-fat products might be a reason for changes in consumers' preferences. As Ares *et al.* (2008, p. 642) stated and what has been found in previous studies, "flavour and texture were mentioned as the main reason for not consuming low-fat and low-calorie yogurts, suggesting that consumers might not be willing to compromise taste to health". From the consumer's side, demand in keyhole guided products has decreased at the moment, which might have many reasons.

6.1.5 Price

There can be a general upwards trend in prices for all products be noticed, starting from as little as 0.12 % up to 19.8 %. Lactose free yogurts are the only product in these categories that have seen a price reduction by 27.6 % between 2007 and 2008. Gluten-free products are considerably more expensive than regular products, found a survey by The Finnish Consumer Agency (www, CAO, 2004, 1). This can be confirmed with this study, where gluten-free bread and pasta is nearly three times as expensive as normal products. Whole-grain bread is on average only 15 % more expensive than normal bread. Whole-grain pasta costs an average of 10 % more than normal pasta. As it seems, consumers are willing to pay these high prices to enhance their lifestyle. Price is sometimes associated positively with quality (Hill and Lynchehaun, 2002). However, it can not be confirmed that the increase in demand is directly correlated with an increase in price. Therefore, companies should include price elasticity in further research projects towards these products to examine potential substitute products.

6.2 BCG-matrix analysis

According to the BCG matrix lactose- and gluten-free, as well as reduced products, are classified as a question marks. Those products seem to have a huge market potential but also carry substantial risks for companies. Since market shares are low, income generation from these products are rather-low, as it does not rely on economies of scale. Since added-value foods require rather high R&D investments, this might be an important barrier for companies, wishing to enter the market.

Yogurts with added cultures, positioned as stars, have gained in volume and have a considerable market share, which makes them important products in the portfolio, as with the profits of these products, question marks can be financed in order to turn them into stars. These products ensure the company's rather high

income generation with a substantial market share that seems promising. In this case marketing and functional claims can play a major role in the successful positioning of these products, as probiotic yogurts are not yet being scientifically recognized as added-value foods and therefore are subject to regulatory constraints.

For the keyhole products like high-fibre pasta and bread and low-fat milk and yogurt the market appears surprisingly declining. All keyhole products discussed here are to be placed in the cash cow segment, as they have seen mostly negative market growth, but have high shares and are therefore important products. However, their huge market share and increase in price can balance this negative trend over a certain period. But, in order to ensure profitability, companies should adjust their strategies and revive the lifecycle of these products. Companies, government and/or health-related institution should invest into further research to investigate the underlying reasons for this decline, as this trend could have negative effects on the life-style related diseases in Sweden.

6.3 Potential corporate strategies

After a time where the relation between diet and health was negatively correlated, marketing is using now positive ingredients with added-values to create new markets (Heasman and Mellentin, 2001, p. xvi). According to Tansey and Worsley (1999), doctors, drug and food companies, as well as health promoters, agree about the need to prevent these partly life-style related diseases discussed in this project. Dewettinck *et al.* (2008, p. 253) proposes that public authorities' have the responsibility to monitor public health, and to provide consumers with scientifically valid, objective and easy to understand information about a well-balanced food diet, where the communication of private companies aims to increase the publicity of their brands. The Swedish FHI (Anonymous, A., 2005, p. 10) claims that "the food sector through its supply management, pricing, and marketing strategies represents both part of the problem and part of the solution for better dietary habits". With these contextual changes, a need for new market value driven strategies arises (Mark-Herbert, 2002), where companies are asked to take their part. The most suitable future strategy for companies to adapt, however, will depend on "a thorough analysis of the company competencies, willingness to take risks and the fit with the overall business strategies" (*ibid.*, p. 131).

From a management perspective, a company with a similar product profile could invest in almost any of the products in order to *build market shares*. Since market shares are low for gluten- and lactose free products there might be a huge market potential there, however further research is recommended. For the keyhole products, positioned as cash cows, investment would be necessary in terms of educating the consumers about the benefits related to the major lifestyle diseases, which could these products back into star-like positions. On the other hand, companies could *hold* cash cows and try to maintain there market share and therefore have focus on other products in the functional food field, like yogurts with cultures. This product segment seems promising, as many researchers are working on proving health benefits scientifically, which is expected to enhance the product position even further, as further marketing strategies can be exhausted.

Therefore, yogurts with cultures could be *harvested* for now and later potentially increase market shares. None of the products discussed here are ready to be *divested* yet, longer trends and forecast would be needed.

Communication and education seems the key to successful marketing and changing consumer preferences. “Marketing strategies are ways to develop and find customer segments” (Mark-Herbert, 2002, p. 122). As it seems, and literature suggests, there is a need for re-started advertisement to educate consumer about certain health benefits found in food. Since, consumer preferences and awareness for added-value food change across countries a localized marketing strategy with in-depth market knowledge is preferred. Given the high coverage of digital and print media (Anonymous, 2006), almost any marketing strategy can be pursued depending on which consumer segment is intended to be reached. For functional foods, it seems to be older and female people that are the typical consumer (Siegrist *et al.*, 2008; Bech-Larsson and Scholderer, 2007, Ares *et al.*, 2009). Mark-Herbert (2002) states that health issues have become a commonly and regularly discussed topic in the Swedish media. Therefore, newspapers and TV advertisements during the day, between cooking channels seem to be a good option to consider.

One advantage for marketing of gluten- and lactose-free products opposite other added-value foods is the rather straight-forward advertisement strategy for companies. For consumers to understand it does not need have to claim extra values, but only aspects, that by nature will have an effect on the consumer’s wellbeing, if affected. Therefore, functional health claims are within regulations as simply by the statement e.g. ‘gluten free’ affected people know what to expect and as part of preventing and reducing the effects of a chronic disease. Whereas, when it comes to foods with added health value, these are rather consumed as precautionary measures or just to improve well-being, therefore health claims need to be communicate more precisely, which conflicts with existing regulations.

Further, research, education programs and labels are being developed to inform the consumer about healthier food options in order to “that reduce risk of disease, enhance function and contribute to restore health, all of this with a minimal level of intensity” (Doyon and Labrecque, 2008, p. 1142) but also to create new markets for companies and reduce governmental spending. Labelling in theory is thought to create product differentiation, which in most cases is a desired outcome. According to Ares *et al.* (2009, p. 55), from a corporate perspective obtaining this certification could improve product image and potentially sales, as interested consumer can identify healthier products easier through the label, at least across the Scandinavian countries. The joint labelling scheme will also facilitate the free movement of goods, as keyhole criteria will automatically meet the national limits set by other countries, making life considerably easier for food companies, retailers and consumers (www, Nordic Council, 2009, 1). This label could consequently create an added-value and competitive advantage, however, it has to be noticed that this project will not outline the compliance costs. Given the current market situation in Sweden, a company has to evaluate the compliance cost versus the potential gain; however, it seems that the downward trends are independent of the label’s success. In general it can be said that, in order to improve trust among consumers, which is a key issue, as

proposed by Rainey (2006), 'walking the talk' and food safety are two important concerns that food-producing companies should be kept in mind for any strategy pursued.

This chapter has dealt with the analysis and discussing of health added-value food products by studying the circumstances of Sweden's economic and health situation. It examined the different product classes by the use of the BCG growth-share matrix, as well as aimed at explaining underlying assumption for the changes in consumption patterns of Swedish consumers. From a corporate perspective it highlighted management and marketing strategies arising from the current market situation. The last chapter will now conclude the findings of this project.

7 Conclusions

Every day for a couple of times, we make a rather conscious selection about what we eat and buy. This is where foods with added health values promise to be a better choice compared to the conventional product. However, research suggested that until now health added-value foods have been about choosing, where this choice has created confusion by the consumer (Van Trijp and Van der Lans, 2007; Bech-Larsson and Scholderer, 2007). This seems to be partly due to competing definitions and lack of trust. The market for food with added health value, which is targeting a specific audience suffering a medical condition and needs to adapt, seems to be much more willing to look for alternatives to ensure well-being at this point.

This project looked at different developments of added-value foods related to the digestive tract. On one hand, keyhole guidelines were followed in order to identify products that are conventional added-value foods, as they promise a healthier lifestyle. On the other hand, this project looked within the same categories at developments in the area of added-value foods that might be necessary for consumers, in order to ensure well-being. Needless to say, that the results are conditional on the data and analytical framework used, and therefore one has to be careful not to over-generalize.

To conclude it can be said, that the market situation portrayed here, is different from previous market trends and expectations. A reason for this seems to be the highly dynamic environment these products compete in. The demand for keyhole products have generally seen a decline in the Swedish market, which raises serious concerns, as there is clearly a stated and perceived need for those products from many parties in order to reduce health problems and costs in the long-run. Yet, at this point, it seems that consumers are shifting away from keyhole guided added-value products. It is not clear from this study, what they consumers buy instead. It is important to understand the underlying reasons for the change in consumer's preferences, if it is one. Reasons for this might be lack of knowledge or trust, however further research is needed. Nevertheless, the keyhole label itself could be very beneficial for companies to adopt, especially given that it is easily communicated to the consumers, transferable between Nordic countries, as well as being part of the national action-plan. From what has been discussed here, a clear trend towards food intolerance targeting products can be noticed and might be an interesting area for food business to investigate further, especially in the area of consumer's attitude towards these products.

This project provided some interesting insights in the current, Swedish market for foods with health added-values, however further research would be needed in order to be able to decide on strategic decisions. Companies are facing the challenges of searching the right market with the right products, but should be keeping in mind that they also partly have a social obligation. Another two areas which would be interesting and important to explore, are how companies and health related organisations perceive the findings provided here and what would be their strategy. The other field is to determine specifically, the opportunities and challenges for marketing these products in terms of upcoming European regulations.

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- 2) Nina Åkeson
Public Health Planning Officer, Nutrition (FHI)
Personal message, 2009-06-01

Appendix 1: Keyhole certification criteria

| Foodstuff | Conditions |
|---|--|
| Skimmed <i>milk</i> and other low-fat milk [“minimjök” and “lättmjök”] and the equivalent fermented products | - maximum fat content 0.5 g/100 g |
| <i>Soft bread</i> and bread mixes to which only water and yeast is to be added (for bread mixes, the conditions relate to the prepared product) | - maximum fat content 7 g/100 g - total mono- and disaccharides maximum 10 g/100 g - maximum sodium content 600 mg/100 g - dietary fibre minimum 4.5 g/1000 kJ (1.9 g/100 kcal) |
| <i>Pasta</i> | - dietary fibre minimum 4 g/1000 kJ (1.7 g/100 kcal) |
| Flavoured fermented milk products without sweeteners (<i>Yogurts</i>) | - maximum fat content 0.5 g/100 g - total mono- and disaccharides maximum 9 g/100 g |

Source: Keyhole criteria, adopted from LIVSFS 2005:9 (www, SLV, 2005, 2)

Appendix 2: Body Mass Index (BMI) Calculation

| BMI – Body Mass Index | |
|--|---------------------------|
| BMI = weight (kg) divided by height (m) squared. | |
| A person who weighs 70 kilos and is 170 cms tall has a BMI of 24.2 kg/m ² (70 kg/1.7 m × 1.7). | |
| The WHO defines bodyweight and various degrees of overweight on the basis of the following BMI values ² : | |
| BMI | BMI |
| Underweight < 18.4 | Obesity, grade I 30–34.9 |
| Normal weight 18.5–24.9 | Obesity, grade II 35–39.9 |
| Overweight 25–29.9 | Obesity, grade III ≥40 |

Source: FHI (Boström and Eliasson, 2006, p. 70)

Appendix 3: Empirical Data Summary

| | | Changes in % 2007-2008 | | | |
|----------------|------------------------------------|------------------------|--------|-------|--------------|
| | | Volume | Value | Price | Market share |
| Milk | Low fat milk (keyhole criteria) | -9.28 | -0.8 | 9.34 | 22.75 |
| | Lactose free | 28.4 | 33.91 | 4.29 | 2.69 |
| | Lactose reduced | 4.36 | 12.39 | 7.7 | 0.77 |
| | TOTAL Milk | -2.12 | 7.59 | 9.92 | 100.00 |
| Yogurts | Yogurts with added value | 15.31 | 24.25 | 7.75 | 3.40 |
| | Yogurts following keyhole criteria | -4.61 | 1.79 | 6.71 | 44.00 |
| | Lactose free yogurt | 98.93 | 73.76 | -27.6 | 0.90 |
| | Lactose reduced yogurt | 384.28 | 391.9 | 0.12 | 0.10 |
| | TOTAL Yogurt | 4.88 | 11.83 | 6.62 | 100.00 |
| Pasta | Whole grain/high fibre | -21.67 | -6.45 | 19.42 | 21.00 |
| | Gluten free | 0.25 | 20.1 | 19.8 | 0.47 |
| | TOTAL Pasta | 0.3 | 20.05 | 19.69 | 100.00 |
| Bread | Whole grain/high fibre | -23.12 | -17.24 | 7.64 | 12.89 |
| | Gluten free | 8.98 | 13.08 | 3.76 | 0.06 |
| | TOTAL Bread | -2.62 | 5.39 | 8.23 | 100.00 |

Source: Empirical data summary (Anonymous, 2009)

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