TALLINN UNIVERSITY OF TECHNOLOGY

Tallinn School of Economics and Business Administration

Department of Accounting

Chair of Management Accounting

Mark Gofaizen

COMPARATIVE FINANCIAL STATEMENT ANALYSIS OF MAJOR ESTONIAN SUPERMARKET CHAINS 2010–2014

Master Thesis

Supervisor: lecturer Paavo Siimann

Tallinn 2016

I declare I have written the master's thesis independently.
All works and major viewpoints of the other authors, data from other sources of literature and elsewhere used for writing this paper have been referenced.

Mark Gofaizen ……

(signature, date)

Student's code: 141821TVTM

Student's e-mail address: markgofaizen@gmail.com

Supervisor lecturer Paavo Siimann:

The thesis conforms to the requirements set for the master's thesis

……

(signature, date)

Chairman of defence committee:

Permitted to defence

……

(Title, name, signature, date)

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ABSTRACT

Supermarket industry in Estonia constitutes approximately 43% of total retail trade and plays significant role in gross domestic product (GDP) growth.

At the same time, growth of shopping gross leasable area (GLA) in Estonia plays a significant role in supermarket saturation because increase in GLA leads to strong competition and disperses demand between all retail players.

The purpose of this Master Thesis is to determine differences and similarities between seven main supermarket chains in the Estonian market (during 2010–2014) and to propose recommendations that would improve their efficiency in conditions of strong competition.

The empirical part of this Master Thesis was conducted by benchmarking (comparative financial statement analysis), sales growth, labor force usage efficiency, efficiency of assets usage, ROCE and efficiency matricies.

In general, it was found, that supermarket chains that expanded the most and followed "quantitative politics" or horizontal way of development (investing in expansion), such as Maxima, OG Elektra, Selver and ETK had lower growth rates of sales than initially expected.

At the same time, Prisma, which was following "qualitative politics" or vertical way of development (by keeping the same quantity of stores, but focusing more on improvement, investments in service quality, assortment range, improving condition of equipment and machinery and etc.) was more efficient in conditions of Estonian market.

Results of this Master Thesis can be used as recommendations for managerial decisions of owners and managers of these companies.

Keywords: supermarket chains, financial statement analysis, matrix analysis.

INRODUCTION

Nowadays, shopping centers make life easier and become very important for economic growth, because domestic consumption plays an important role in gross domestic product (GDP) increase.

There has been significant increase in net sales of major Estonian supermarket chains. According to the annual reports of main supermarket chains in Estonia (for 2009–2014), sales grew by 33.5%. Thus, in 2009 total sales of seven major retailers in Estonia were € 1,330 billion and in 2014 sales were € 1,777 billion.

It should be noted that shopping gross leasable area (GLA) plays a significant role in retail sector because if there is an increase of leasable area for retail trade, the demand of the population is dispersed among all retailers. Accordingly, sales and profits in the same sector of individual stores and store chains decreases.

Gross leasable area is the total floor area intended for tenant placement, including any mezzanines, basements or upper floors for commercial purposes. Tenants pay rent for leasable area, and consequently this area generates income for property owners. Mostly, GLA reflecting in square metres, except USA, Canada and UK, where value expressed in square foot.

According to "Cushman & Wakefield" report in 2014, average gross shopping leasable area (GLA) in European Union was 250 square meters per 1,000 people.

Some examples of GLA for developed economies in the European Union include Germany with 180, France with 370 and Sweden with 410 square meters per 1,000 people. At the same time, in Estonia there were 460 square meters of retail space available per 1,000 people. (Cushman & Wakefield Research Publication, 2014, 18)

Based on 2013 data collected by DTZ, a privately owned commercial real estate firm, it can be seen that in 2011 in Tallinn, total shopping Centre floor-space per capita was 1,066, while in Paris that value was equal to 192, in Berlin 402 and in Stockholm 869. (DTZ. European Retail Guide, 2013)

It should be emphasized, that "Cushman & Wakefield Research Publication" observes occupation of gross shopping leasable area in Countries and "DTZ. European Retail Guide" observes occupation of gross shopping leasable area in cities and towns.

In 2014 Estonia was on the third place by the number of square meters of retail space per 1,000 people among all countries in Europe after Norway and Luxembourg. Tallinn was on the first place by the same indicator among other largest cities in Europe.

It is important to note that in 2015, minimum wage in Luxemburg was € 1,900, minimum wage in Norway was € 2,650, while minimum wage in Estonia's was € 390 per year. (European Commission, 2015)

Thus, comparatively, Estonia today is one of the leaders in the number of retail spaces per capita in Europe, but purchasing power in Estonia is 35% below EU average. (Eurostat, 2015)

On the basis of an objective economic law that demand determines supply, it is possible to hypothesize that the trend of sales and profits growth of major Estonian retailers could soon start to decline.

Actuality of this Thesis is supported by constant growth of domestic trade in Estonia, a sharp increase in the number of retail stores by different companies and supermarket chains, as well as the active promotion of the Estonian market to foreign companies and consequently increased competition in retail sector.

Increasing competition between commercial enterprises requires optimization of business processes to improve efficiency, maximize profits and reduce costs.

Purpose of this research is to detect differences and similarities between the seven main supermarket chains in Estonia using annual reports and to propose recommendations that can improve the efficiency of the retailers, promote competitiveness, and strengthen their position on the market.

Object of the research is the seven biggest supermarket chains on the Estonian market. The study of the annual reports of these companies (per time period of five years) will provide the dynamics and understanding of trends and prospects of sales growth or sales decline against the background of increasing competition on the Estonian market.

There will be four research questions:

1) Which main players of retail industry in Estonia use their assets and labor force more efficiently?

2) Which major retail chains in Estonia are more profitable and grow faster?
3) What are the drivers of success in retail trade in Estonia and why do some companies perform worse than others?
4) Which supermarket chains are the most efficient? (based on Merestes's overall performance efficiency indicator)

Methodology of this study will be benchmarking (comparative financial statement analysis). Areas of analysis will cover growth, labor force usage efficiency, efficiency of assets usage, profitability based on annual reports and other economic indicators over time period of five years (2010–2014). Approaches will include vertical, horizontal, trend, ratio, component and matrix analysis.

Scientific novelty of the research is to justify and clarify the theoretical and methodical positions and develop a set of practical measures to improve the functioning of main supermarket chains in Estonia.

Practical value of this Thesis are the conclusions and recommendations for improving the functioning of major supermarket chains in Estonia. The practical significance of the study is that it provides a possibility to use the proposed theoretical and methodological developments (on the basis of comparative financial analysis) to improve the management of major supermarket chains in Estonia.

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1. RETAIL MARKET ANALYSIS IN ESTONIA

1.1. Estonian supermarket industry

In context of this research, as author suggests, analysis of retail market in Estonia will be represented by discussing its major components that include: supermarkets, hypermarkets, discount stores and other types of enterprises which are involved in retail trade.

According to the data on Estonian Statistics website, Estonian retail industry is divided into the following activities in retail sales.

Retail trade and repair of motor vehicles and motorcycles:

- Sale of motor vehicles, their parts and accessories
- Maintenance and repair of motor vehicles

Retail trade, except of motor vehicles and motorcycles:

- Maintenance and repair of motor vehicles
- Retail sale in non-specialized stores with food, beverages or tobacco predominating
- Other retail sale in non-specialized stores
- Retail sale of food, beverages and tobacco in specialized stores
- Retail sale of automotive fuel
- Retail sale of household goods and appliances, hardware and building materials
- Retail sale of textiles, clothing, footwear and leather goods
- Retail sale of pharmaceutical and medical goods, cosmetics
- Retail sale in other specialized stores
- Retail sale via mail order houses or via Internet
- Retail sale of second-hand goods in stores, retail sale via stalls and markets, direct sale. (Estonian Statistics, 2016)

At this stage, in this research, it seems appropriate to introduce the concept of "supermarket industry", which includes a list of all specialized and non-specialized stores for

food, beverages and tobacco retail trade. The types of stores within this industry include supermarkets, hypermarkets, discount stores, department stores, minimarkets, kiosks, and other retail chains and retail stores. The "supermarket industry" is a part of the country's retail industry and plays a significant role in the GDP increase.

On the basis of the given data by the company "ETK—Eesti Tarbijateühistute Keskühistu" in its annual report for the year 2014, sales in Estonia's retail industry excluding motor vehicles and motorcycles increased by 47.5% from 2006 to 2014 and amounted to € 4.874 billion in 2014. In comparison, retail sales in Estonia were € 3.305 billion in 2006.

Supermarket industry sales in non-specialized and specialized stores that offered food, beverages and tobacco products during the same time period increased by 58.8% and amounted to € 2.295 billion in 2014. In comparison, supermarket sales in Estonia were € 1.447 billion in 2006. (ETK Annual Report, 2014, 7)

In table 1.1 below, supermarket industry sales represent as sum of all sales in specialized and non-specialized stores that offered food, beverages and tobacco in Estonia.

Table 1.1. Retail sales by economic activity in Estonia (million euros)

Year	2010	2011	2012	2013	2014	2015
Retail Economic activities Total	3712.3	4140.9	4622.9	4908.3	5225.0	5558.7
Retail sales, except of motor vehicles and motorcycles	3531.9	3907.3	4335.4	4594.3	4872.8	5187.6
Supermarket industry sales	1735.5	1887.0	2047.6	2172.7	2296.5	2367.0
Supermarket industry sales (Growth trend%)	-	8.7%	8.5%	6.1%	5.7%	3.0%
Retail sales in supermarket Industry relative to total retail industry	47%	46%	44%	44%	44%	43%

Source: Compiled by the author's calculations and prepared by the author on the basis of data provided by Estonian Statistics website (retail sales by economic activity 2010–2015)

According to table 1.1, it should be concluded that supermarket industry plays a significant role in the whole retail sector because it amounts to 40%–50% of the Estonian retail industry sales.

As it can be seen, growth rate of supermarket industry sales gradually decreases from year to year. This may indicate a decrease in consumer activity or market saturation.

This thesis will identify the reasons for supermarket industry sales growth rate decline by analyzing the financial statements of the main supermarket chains in Estonia.

1.1.1. Evolution of the supermarket industry in Estonia

The development of supermarkets in Estonia began in the beginning of 1990s. Before that, during the Soviet era, coming up with new stores was very simple. Stores in all cities around the Soviet Union were named with simple names based on their specialization. Example store names included: “Bread”, “Milk”, “Meat” and “Fish”. Department stores and supermarkets opened in large cities. Thus, citizens could precisely determine what products and goods were offered in the stores. In the transitional period people had to stand in line for a long time to buy basic consumer goods and food. Coupons gained popularity during that time, but not all the food products and goods could be bought by using them.

According to the article "20 years ago, what was the standards of living?" by Estonian journalist Mikk Salu, an average salary could buy 41 kilogram of butter or 73 kilograms of cheese in 1991. Today, an one average salary can buy 119 kilos of butter or 115 kilograms of cheese. (Salu, 2011)

Estonian state enterprise Tallinn House of Trade “Tallinna Kaubamaja” was launched in 1960s. Tartu state enterprise “Tartu Kaubamaja” was launched in 1966. In 1973 Tallinn House of Trade was expanded by adding building “B”. Today, this retail space is owned by “Tallinna Kaubamaja”, the company. (Kaubamaja History, 2016)

These state enterprises can be considered the first department stores in Estonia, which appeared in the Soviet period. All newer department stores and bigger shopping centers launched in the beginning of 1990s or after that.

According to the Postimees publication, the first supermarket store Konsum owned by ETK opened in Tallinn in 1992. This store was closed in 2000, but ETK now owns 81 Konsum stores in Estonia. (Postimees, 2014)

The first Stockmann in Estonia opened in 1993. Today, Stockmann department store is located in the center of Tallinn with a total shopping area of 12,200 square meters. Over time, the Stockmann department store was enlarged from two floors to five. Covered parking was built adjacent to the store. (Stockmann, 2010)

Tallinna Kaubamaja also owns the Selver stores. Selver started on Punane Street in Tallinn in a hangar. In 1995, management of the company decided to open a modern supermarket, the first Selver store in Estonia. Now it is one of the smallest supermarkets owned by Selver AS, a subsidiary of Tallinna Kaubamaja Group AS, with 1700 square meters.

Rocca al Mare Shopping Centre opened doors in 1998. At the time, this was the largest shopping mall in Estonia with 87,000 square meters of retail space. In 2005 Rocca al Mare Shopping Centre was acquired by "Citycon Oyj", a Finish real estate development firm that specializes in development and maintenance of shopping centers. (Rocca Al Mare, 2016)

The first Säästumarket store was built on Kadaka Street. This store opened on March 2, 1999. Today, the store is closed.

First Rimi supermarket owned by "Rimi Eesti Food AS" opened in the Magistral shopping center on October 26th, 2000. In 2012, the store has been updated and expanded. It became 400 square meters larger.

The first "Prisma" supermarket opened in 2000 in Sikupilli Mall with an area of 8,000 square meters, but now it grew to a hypermarket status with an extra 700 square meters.

Maxima Eesti OÜ supermarket chain opened its first store in Pärnu on the Riga highway in the fall of 2001. It was a 650 square meter store called "T-Market". This little store in Pärnu closed in 2009 because a new Maxima XXX hypermarket opened a few meters away from it a year ago. Maxima Eesti OÜ developed rapidly since 2004. (Postimees, 2014)

Over the past 10–15 years, the rate of growth of the supermarket chains and the number of stores in Estonia increased significantly compared to the first decade after Estonia gained independence.

Based on the data collected by non-profit voluntary organization "Trade association of retailers" in 2014, there were1,700 food stores in Estonia. This included 34 hypermarkets, 252 supermarkets, and around 1,000 medium and small food stores. On average, retail sales volumes increased by 80% from 2005 to 2015. In 2005, total retail sales amounted to €2.5 billion, and in 2014 around €4.5 billion. (Estonian Trade Association of Retailers, 2015)

Based on data collected by the company DTZ, which is a privately owned commercial real estate services firm, sales growth in Estonia was 5% in 2013. At the same time, shopping center floor space per 1,000 population in Tallinn was 1,066. This indicator was greater than indicators of shopping center floor space per capita in all major cities of the European Union.

In 2013, DTZ introduced their report for "Current shopping center floor space per 1,000 population and retail sales growth (2012–2016) in major European cities" (Figure 1.1).

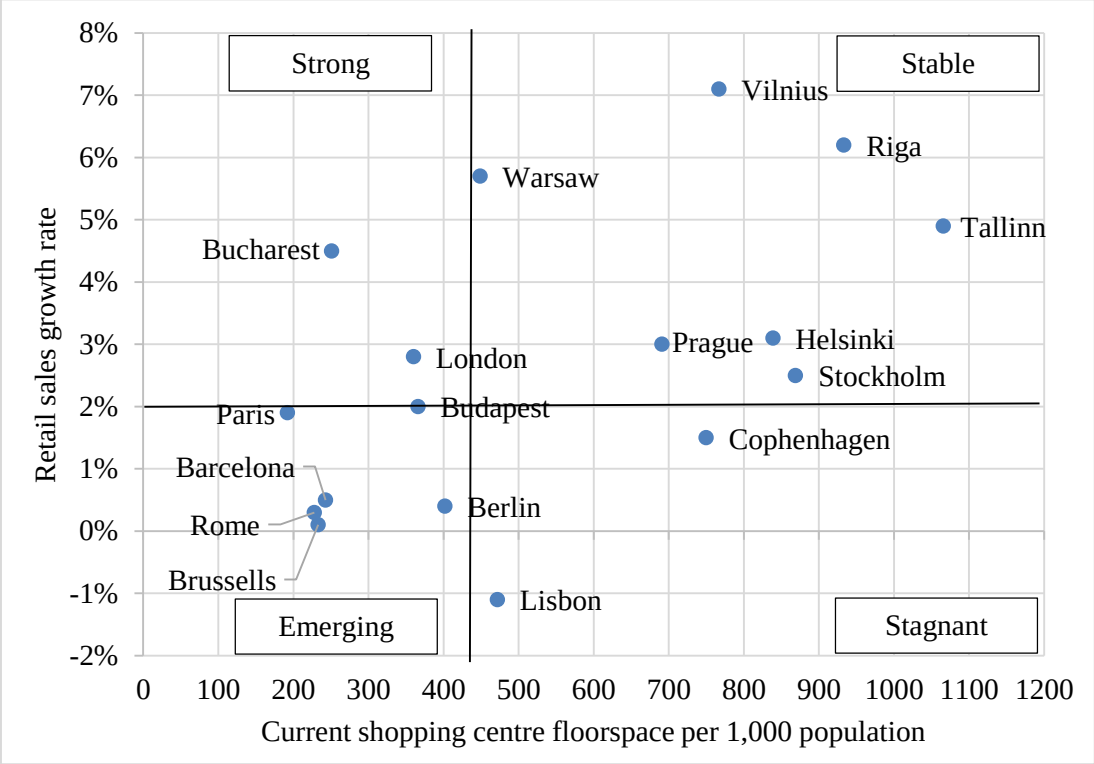

Figure 1.1. Current shopping centre floorspace per 1,000 population and retail sales growth (2012–2016) in major European cities

Source: Compiled by author (DTZ, 2013, 9)

Figure 1.1 indicates development of European cities in terms of shopping center growth and floorspace area. It demonstrates how dynamic some countries' economies have become. Plotted together this allows to identifying cities that offer good future growth prospects for both existing schemes and new developments.

On figure 1.1, Tallinn is situated in the "stable category" and occupies the right position in relation to other European cities.

According to DTZ, stable category means strong retail sales growth over the forecast period although cities are displaying signs of market saturation. This could potentially limit future development. At the same time, stagnant category reflects cities with high concentration of shopping centres, but low retail sales growth. DTZ considers future growth prospects of cities in these category will be hampered by stalling economies. Emerging category reflects cities

which in long term perspective will have weak retail sales growth and low level of shopping centres provision. Stable category displays cities with high potential future retail sales growth, which will provide opportunity for future development. (DTZ, 2013, 9)

CEO of Citycon (Rocca al Mare, Kristiine and Magistral Malls) Marcel Kokkeel stated that Estonian market has been oversaturated with shopping centers and supermarkets for a long time. He also noted, that local authorities should ensure balance of supply and demand in the Estonian market. (Kokkeel, 2015)

Estonian journalist Toomas Hõbemägi with "Baltic business news" wrote that Estonia already has one of the highest retail space per capita figure in Europe, but retailers continue to open more stores. At the same, purchasing power of Estonians is much lower than Germans which means that there is simply too much retail space in Estonia. Most large grocery chains plan to open more stores. ETK has 256 grocery stores in Estonia and plans to open another Maksimarket supermarket in Pärnu. It also plans to open one Konsum store in Tallinn this year. Prisma with revenue of €177 million opened the largest supermarket in Southern Estonia in 2012. (Hõbemägi, 2013)

In spite of these circumstances, the Estonian market of Malls, department stores and supermarkets continues to expand up to today.

In 2017 Pro Kapital Grupp AS plans to open shopping mall T1 in Tallinn on Peterburi Street. The building area will be 130,000 square meters. It will provide 200 commercial areas for rent. (Pro Kapital, 2016).

Also in 2017 AS Trigon Capital is planning to open the Tallinn Gate shopping center. The estimated retail area will be 100,000 square meters. This shopping center will provide area to tenants that run stores in one of the following categories: furniture, hypermarket, fashion, sports and other retail, and leisure businesses. (GateTallinn, 2016)

In 2016 Porto Franco OÜ plans to open the Porto Franco shopping center. This shopping center will be located next to the Tallinn port and the old town on Ahtri Street. The total area will be approximately 160,000 square meters. 40,000 square meters will be leased. This shopping complex will include the largest hypermarket in the center of the city with 6,600 square meters. (Porto Franco, 2016)

Maxima supermarket chain also continues extensive development. Information portal “Äripäev” published a statement by Vaidotas Pacesa, CEO of Maxima Eesti. Vaidotas Pacesa said that Maxima is planning to open up to 20 stores in Estonia over the next three years. He

thinks that the current and future stores give the company an opportunity to become the retail market leader in Estonia by 2016. (Äripäev, 2014)

In addition to these companies, there are many other examples of companies and enterprises that are planning to open department stores, supermarkets and hypermarkets in Estonia in the coming years.

According to figure 1.2, annual retail sales growth rate of the supermarket Industry is reducing in year by year (per time period 2004–2015).

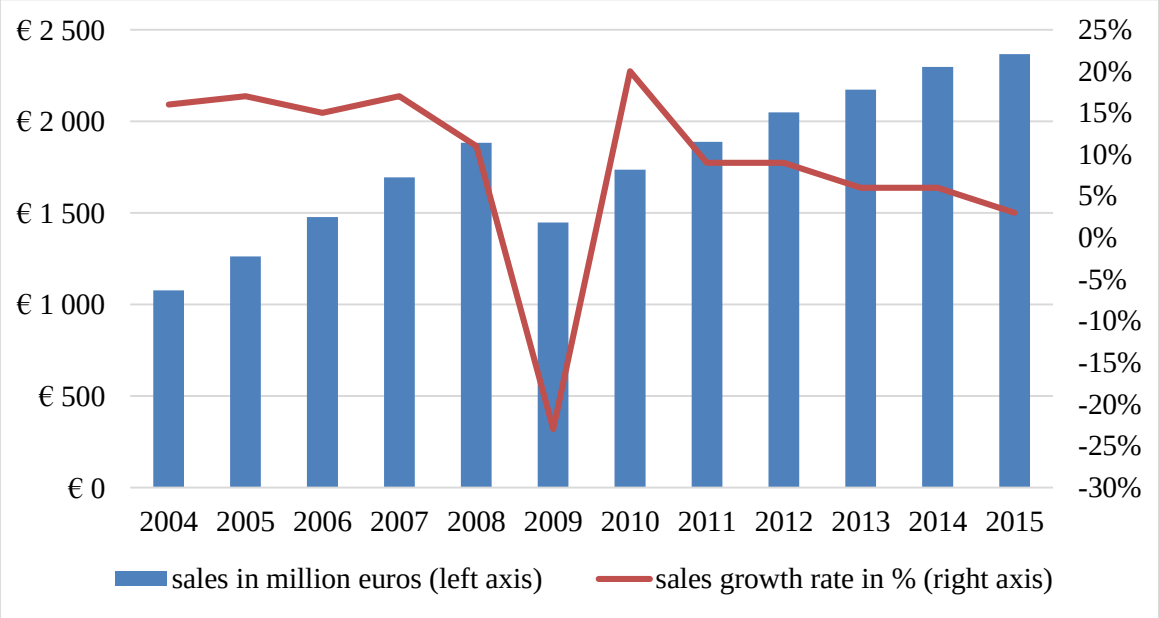

Figure 1.2. Sales of supermarket Industry (million euros)

Source: Compiled by the author's calculations and prepared by the author on the basis of data provided by Estonian Statistics website (retail sales by economic activity 2004–2015)

Thus, it can be concluded that supermarket demand in Estonia will reach its maximum in the near future. In context of annual growth in the number of supermarkets, department stores and other retail chains, it can lead to instability in the balance of supply and demand in Estonian supermarket industry.

1.1.2. Modern retail formats in conditions of Estonian market economy

The variety of stationary objects of retail trade, which is represented in the sphere of commodity circulation is the result of consumer demand and consumer preferences. Different types of retailers and retail outlets can be classified according to the size of retail space, range of goods offered for sale and offered types of customer service.

In accordance to conventional division, retailers are divided into types based on their store formats. A store format is a set of characteristics inherent in a particular store. The most important descriptors of store format method include the sale of goods in the store, customer service approach, the level of prices, sales area, range of goods and socially oriented market basket of trading object. (Vakhitovna, 2015, 1)

Today, modern supermarkets, hypermarkets and other formats of specialized and non-specialized stores for food, beverages and tobacco retail trade are usually a part of a mall, a shopping center or a department store. Major Estonian supermarket chains place their stores in malls, shopping centers and department stores, but they also construct their own buildings and offer leasable areas for small tenants inside their stores. Thus, construction concept of major Estonian supermarket chains is often very similar to the concept of shopping centers and malls, but still different from them. They can differentiate by size of total retail area, ratio of food to non-food goods, and range of additional services.

According to the publication of International Council of shopping centers (ICSC), it is not always possible to precisely identify every type of shopping center. Hybrid center types can combine elements from two or more basic classifications, or a center's concept may be sufficiently unusual.

Mostly, major retail companies in Estonia that specialize in food and beverages own shopping centers which can be identified by ICSC publication as “Neighborhood Centers”, but in Estonia, these companies position their “Neighborhood Centers” as hypermarkets and supermarkets.

Neighborhood centers are designed to provide convenience shopping for the day-to-day needs for consumers in the immediate neighborhood. According to ICSC's SCORE publication, roughly half of these centers specialize around being a supermarket or hypermarket, while about a third have a drugstore anchor. These anchors are supported by stores offering pharmaceuticals and health-related products, sundries, snacks and personal services. A neighborhood center is

usually configured as a straight-line strip with no enclosed walkway or mall area, although a canopy may connect the storefronts. (ICSC, 1999)

A hypermarket is very large store with sizes ranging from 4,000 to 20,000 square meters. The result is a very large retail facility which carries an enormous range of products under one roof, including full lines of groceries and general merchandise. Localized in prime locations of settlements, hypermarkets attract a large number of buyers.

According to the International Comparison Program (ICP), hypermarkets have a universal range of goods exceeding the range of the supermarket by 3–10 times, especially for non-food items, usually numbering 40–50 thousand positions. The range can be increased by the addition of non-standard product groups. Non-food products at grocery hypermarkets sometimes account for 35–50% of the total assortment. For hypermarkets, ample parking is essential. (ICP, 2011)

A supermarket is a department store with a shopping area from 600 square meters to 3000 square meters. This type of store sells a universal range of food products and a narrow range of non-food items, including private labels, especially self-service method. The range of the supermarket is generally 8–10 thousand positions. The share of food product groups prevails over non-food products at about 80%. (Vakhitovna, 2015)

Discount stores are stores that offer their products at prices below market value. (ICP, 2011). In Estonia, discount stores are 600–1,000 square meters, but some of them are slightly smaller.

According to the book "Retailing in 21st century", edited by German professor Dr. Kraft and PhD Mantrala, discount stores can be characterized by efficient background systems and a limited range of assortment offered to the customer. This strategy is effective because allows these stores to have a high speed of goods turnover. Discount stores mostly concentrate on their own brands. This makes their shops more attractive to the customers based on price. The concept of discount stores initially appeared in Germany and became widespread across Europe after that. (Krafft, Mantrala, 2006, 291)

A convenience store can be identified as a store that offers limited high-convenience items that are most common: food items, toiletries, drinks and etc.

According to the journalist M. Payne publication, the biggest difference in services between a grocery and convenience store is that the latter usually sells gasoline. Convenience stores also offer money order and wire services; however, many grocery stores are now also

providing these services along with dry cleaning/laundry, photo processing, banking, floral, and pharmaceutical services. (Payne, 2015)

Nevertheless, in Estonia convenience stores can be found at the Gas stations, such as Statoil with retail area of around 100 square meters. Some companies that run supermarket chains also position some of their chain stores as "convenience". An example would be "MAXIMA X" with retail area of about 1,500 square meters. (Maxima, 2014)

It should be noted, that there are many other formats of retail trade. Each format has its own pricing policy, focus on certain shopping basket, as well as its own niche in the market. Within this research, the author intends to cover the seven supermarket chains that mostly fall within one of the following common retail formats:

- Hypermarket
- Supermarket
- Discount Store
- Convenience Store

As it can be seen in table 1.2, in Estonia in 2014 the supermarket store format was the most common store format for all companies except Prisma and ABC Supermarkets. Prisma focused on hypermarket store format. ABC supermarkets focused on convenience store format.

Table 1.2. Number of stores Estonian major retail players by format in 2014.

Company Name	Hypermarket	Supermarket	Discount	Convenience
ETK	9	81	-	154
Maxima	1	17	-	54
Selver	7	37	-	-
Rimi	13	22	49	-
Prisma	9	-	-	-
OG Elektra	-	50	-	-
ABC Supermarkets	-	-	-	21

Source: Table compiled by the author and prepared on the basis of data provided in the annual reports and official websites of Estonian major supermarket players.

At the same time the biggest share of convenience stores was operated by ETK. ETK tried to reduce that store format from year to year in favor to hypermarket and supermarket store format. It should also be noted that only Rimi is focusing on discount stores format.

In general, it could be concluded that Estonian formats of retail market can be characterized by the following trends:

1) The share of supermarkets and hypermarkets is increasing through the reduction of the share of stores with a small trading area.
2) Major players of the Estonian supermarket industry are creating logistics centers to optimize delivery and simplification of work with manufacturers.

For example, according to web portal "Business News", in February of 2016 Maxima opened a logistic center in Harju County. This modern facility with an area of 45,000 square meters consists of 3 warehouses and 130 platforms for acceptance of the cargo. It will process 200 trucks per day. (Business News, 2016)

3) Development of mixed store formats that combine features of economical, supermarket, and discounter, with a focus on creating a single format retail chain as a whole.

1.2. Overview of seven major players of Estonian supermarket industry

This review will focus on the largest seven super market chains that operate in Estonia. They include:

- OG ELEKTRA AS (Grossi chain of stores)
- COOP EESTI KESKÜHISTU (Konsum, Maksimarket and A ja O chains of stores)
- RIMI EESTI FOOD AS (Rimi and Säästumarket chain of stores)
- SELVER AS (Selver chain of Stores)
- PRISMA PEREMARKET AS (Prisma chain of stores)
- ABC SUPERMARKETS AS (Comarket chain of stores)
- MAXIMA EESTI OÜ (Maxima chain of stores)

As it can be seen from figure 1.3, the 5 largest retail supermarket chains consume 82% of the supermarket industry market segment and “Others” piece of pie chart which includes mostly Grossi and Comarket stores consumes the rest.

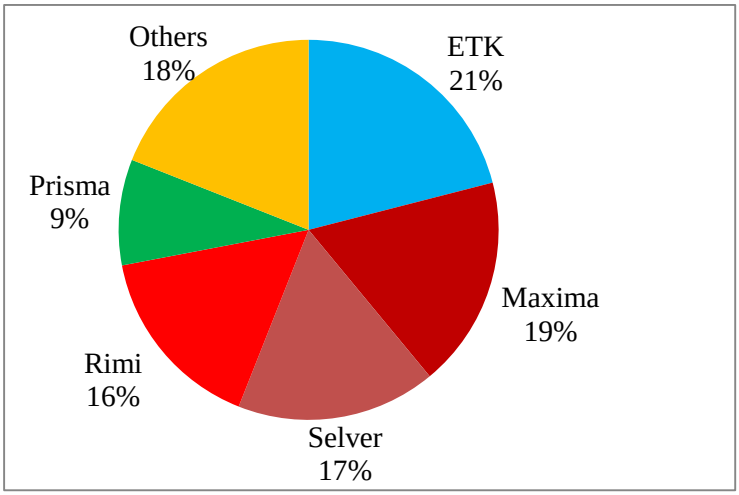

Figure 1.3. Estonian major shareholders in supermarket industry

Source: Estonian trade association of retailers, 2015

From the author point of view, financial analysis of these seven supermarket chains will provide sufficient information about dynamics and understanding of trends and prospects of competition in the Estonian market.

ETK Grupp (The retail organization of Estonian consumer associations) was founded in 1917. Currently, the CEO of Coop Eesti Keskuhistu is Jaanus Vihandi. The company owns 264 stores in all regions of Estonia. Average number of employees in 2014 was 816 people. (ETK, 2014)

According to the Baltic Course website publication, Coop Estonia consists of a central association and 19 regional consumer associations which in turn have close to 83,000 customer-owners. It owns 9 “Maksimarket” stores (hypermarkets), 81 “Konsum” stores (supermarkets), 154 “A ja O” Grocery convenience stores and 20 Building Centers. (Baltic Course, 2015)

As we can see from the Figure 1, ETK Grupp is a retail market leader in Estonia and it accounts for more than 20% of the market.

MAXIMA EESTI OÜ started operating activity in Estonia in 2001. Today, Maxima is the second largest supermarket chain in Estonia. The Executive Director of Maxima in Estonia is Vygintas Šapokas. Initially, Maxima expanded from Lithuanian market to Estonia, Latvia, Poland and Bulgaria.

According to Maxima’s history overview, from 1998 Maxima called its stores according to their sizes: Minima, Media and Maxima, but in 2005 it changed its concept. Maxima started naming all of its stores with a single universal name "Maxima" and defined the store size by

the number of "X" characters after the name. MAXIMA X was a small store close to home, MAXIMA XX was a medium-sized store and MAXIMA XXX was a large store. The word MAXIMA became a synonym for a store in the everyday language of Lithuanians. (Maxima, 2016)

Based on the data collected from the Maxima annual report 2014, Maxima EESTI OÜ in Estonia operated 72 stores that included 1 hypermarket XXX, 17 supermarkets XX, and 54 convenience stores X. At the end of 2014, Maxima employed 3696 people. (Maxima, 2014)

SELVER AS was founded by AS Tallinna Kaubamaja in 1995. The first store opened on Punane Street. In the end of the 1990s Selver AS transformed into chain of supermarkets. In 2009 Selver opened 6 supermarkets in Latvia, but due to the financial crisis it was forced to close its stores. Selver operates with two store formats, hypermarkets and supermarkets. Currently main board members of Selver are Kristi Lomp and Helen Tulve. (Selver, 2016)

In 2014 Selver AS operated 44 stores in Estonia. These stores included 7 hypermarkets and 37 supermarkets. At the end of the year, the average number of employees amounted to 2237 people. (Selver AS, 2014)

RIMI EESTI FOOD AS board member is Karl Anders Torell. Rimi Baltic became a subsidiary in 2004 in a 50-50 joint venture between Swedish Company "ICA" and Finish Company "Kesko". Today Rimi Baltic owns Rimi Food Eesti AS in Estonia, Rimi Latvia and Rimi Lietuva in Latvia and Lithuania. Combined, Rimi Baltic operates 254 stores in the Baltic States. In Estonia, Rimi Eesti Food AS has 84 stores that include 13 Rimi hypermarkets, 22 Rimi supermarkets, and 49 Säästumarkets or discount stores. The average number of employees amounted to 2070 people for 2014. (Rimi, 2014)

PRISMA PEREMARKET AS was established in Estonia in 1999. It is 100% owned by Finish Company "SOK Liiketoiminta Oy". Currently, the main members of the board are Marko Juhani Lievonen, Janne Tapio Lihavainen and Teemu Taneli Kilpiä. Main activity of the Company is retail trade. Prisma's main differentiating factor from all the other supermarket chains in Estonia is that Prisma only leases areas for retail trade in other major Shopping centers in Estonia, but does not build its own.

According to the Prisma Annual Report for 2014, the company operates 9 hypermarkets in Estonia. 6 of them are located in Tallinn. Average size of these hypermarkets varies between 9,000–13,000 square meters. The average number of employees in Prisma's chain of hypermarkets in 2014 amounted to 1,016 people. (Prisma, 2014)

OG ELEKTRA AS began operations in 1992 with two stores. The main owner and shareholder is the founder of the company, Oleg Gross. Today, the company has its own central warehouses, 50 food and grocery stores “Grossi” and 3 stores with industrial goods. The stores are located in Tallinn (19 stores), Rakvere (12 stores), east and west Viru County (7 stores), Harju (3 stores), Järva, Rapla, Tartu, Pärnu, Jõgeva Counties in Estonia. In 2014, the average number of employees was 798. (OG Elektra, 2014)

OG Elektra positions itself as stores of first necessity. Principles of the company's business can be summarized as follows: to offer the best price on the market with good quality and homemade food. (OG Elektra AS, 2016)

ABC SUPERMARKETS AS have the smallest market share in Estonia compared to the 6 retail chains listed above. Company ABC supermarkets AS started their activity at the beginning of the year 2002 with the purchase of 10 stores that operated under the "SPAR" brand name. At the end of the year 2003, they conducted a rebranding with new brand name Comarket which is still used today. Main board members are Jüri Vips and Andrus Põld. By the end of 2014. the number of convenience stores was 21. According to the ABC Supermarkets Annual Report 2014, the average number of employees was 430 people. (ABC Supermarkets, 2014)

Today, according to the official website data, Comarket operates 19 stores in Estonia. 12 of them are located in Tallinn, 3 in Tartu and 4 in Pärnu. (Comarket, 2016)

Table 1.3 reflects store quantity increase during the period chosen for the study.

Table 1.3. Increase of store quantity (2010–2014)

Company Name	2010	2014	Increase%
Maxima	54	72	25%
OG Elektra	38	50	24%
Selver	35	43	19%
Prisma	8	9	11%
ETK	247	264	7%
ABC Supermarkets	20	21	5%
Rimi	81	84	4%

Source: Table compiled by the author and prepared on the basis of data provided in the annual reports of seven Estonian major supermarket players (2010–2014).

According to table 1.3, it can be concluded that Maxima, Selver and OG Elektra expanded the most. ABC Supermarkets and Rimi had the lowest growth rate in number of stores during 2010–2014.

1.3. Overview of recent studies

Today, we can see that small format grocery stores are being gradually replaced by hyper- and supermarket stores. As we can see from the previous chapters, in Estonia these rapid changes began to occur in the beginning of 2000-ths. In other countries, with UK being a good example, these changes began in 1980s.

John Connor in his research "Evolving Research on Price Competition in the Grocery Retailing Industry" calls these changes the "supermarket Revolution". He suggests, that large supermarket chains attract huge amount of customers through wide range of items and low prices. Large retail chains can keep low prices due to the purchase of goods in large quantities. At the same time, smaller shops' superior selection and service levels stand ready to draw away high income food shoppers. (Connor, 1999, 1)

Ellickson Paul in his research "The Evolution of the supermarket industry" revealed that supermarket evolution in USA occurred after second world war and was called the "Post War Boom (1950–1970)". According to the research of Tedlow in 1990, Ellickson shows that the number of food stores decreased during 1935-1982 with the number of stores dropping from 400,000 to 162,000. At the same time, the number of supermarkets increased from 386 up to 26,640 during the same timeframe. Share of overall grocery sales accounted for by supermarket firms expanded from 3.2% to 74.5% roughly comparable to what it is today. (Ellickson, 2015, 8)

However, some of researches proved that supermarket and hypermarket formats are not yet sustainable and in some countries can start losing their market share in the future because small and specialized stores are closer to the customer.

Research of Ahtler and Blut in the book "Retailing in 21st century" edited by Dr. Kraft and PhD Mantrala shows evolution of global retail formats between 1999 and 2004. They analyzed 8 countries: USA, Russia, Canada, Germany, UK, Italy, France and Japan. They found that on average, market share of convenience stores increased by 3%, discount stores market share increased by 2%, hypermarkets increased by 2% and share of supermarkets decreased by

5%. Ahtler and Glut anticipate that in the future, discount stores will gain market share from supermarkets. Convenience stores will turn into profitable format, especially in less service oriented countries like Germany. (Krafft, Mantrala, 2006, 305)

In USA, changes of the supermarket store format started to occur in the beginning of 1980s. According to Ellickson research in the ending of 1970s, saturation met recession and supermarket industry turned to new formats to increase profits. Companies opened the first club stores and limited assortment supermarkets. The first Aldi discount store opened in 1976. (Ellickson, 2015, 13)

Reynolds J. and Cuthbertson R. from the Oxford University conducted research of the European retail economy in their scientific paper "Retail and wholesale: Key sectors for the European economy". They found that convenience stores in Europe are the fastest growing format in the retail sector especially in Central and Eastern Europe. Convenience and Forecourt stores achieved 7.8% growth per year in sales in 2007–2012. Chain retailers are developing innovative small store formats in Europe and are experiencing stronger sales from these stores than from larger format stores. (Reynolds, Cuthbertson, 2014, 57)

According to the Center of International Economic Observations “Chatham House” report “The Changing Retailing Environment”, changes in the balance between the different retail channels will occur. Hyper- and supermarkets may become less dominant in the higher-income countries as convenience becomes relatively more important and hard discounters out-compete them on price.

Customers spend more money when their incomes increase, but the amount they spend in each area tends to fall as portion of their incomes. This is especially evident in consumption of food, beverages and tobacco. It means that malls and high street stores in wealthier regions of both developed and developing countries of the world will change their format to reflect this. Demand will be shifted and stores will provide more floor space to restaurants, beauty, health and financial services, instead of just food and beverages. (Chatam House, 2011, 14)

A well-known fact is that any commercial enterprise exists to generate profits and receive benefits. Therefore, reducing costs and increasing profitability is one of the main tools for doing business and enhancing competitiveness of the enterprise.

Connor contemplates that competition in supermarket industry occurs on three levels. On horizontal level, competition occurs due to emergence and expansion of new supermarkets and retail chains where final price and product range have a value. On the vertical level, it

occurs by negotiations with suppliers that reduce the cost of the goods which in turn results in higher profit. On the geographic level, competition occurs when retail companies make cross-country investments and mergers.

Connor reveals that mergers accelerated in the US since 1980s. In Europe, this phenomenon was observed especially in the end of 1990s. As an example, he states that Europe's largest grocery chains from German, UK, France, Belgium and other countries expanded their international investments in large stores format not only in the EU, but also in Asia and America. An absence of international investments in discount stores by Wal-Mart and other discount retailers was also observed (Connor, 1999, 7)

Martinuzzi and Kudlak in their paper "CSR Activities and Impacts of the Retail Sector" consider that large retail chains achieve cost leadership more easily and increase their competitiveness due to economies of scale. Strong bargaining power allows them to secure low procurement prices for acquired goods. Companies that focus on this strategy minimize their investments into store design, internal conception of appearance, and they limit the range of their assortment. Companies such as Aldi, Lidl, and Walmart implemented such strategies. (Martinuzzi, Kudlak, 2011, 7)

In Estonia, some retail chains develop extensively horizontally to capture more market share, especially within large store formats. However, such extensive development, sooner or later may lead to market saturation.

For example, Langston and Clarke in their research "Retail saturation, retail location, and retail competition: an analysis of British grocery retailing" believe that the most prevalent idea is that the pace of retail expansion is outstripping the rate of population growth, such that profitability must inevitably decline to the point where saturation occurs. (Langston, Clarke, 1997, 4)

Steve Wood and Dave McCarthy in their scientific paper "The UK Food Retail and Market Saturation" cite as an example quote by Tesco CEO that was publicized in international business newspaper, Financial Times in 2012: "I am not calling the end of Hypermarket. All I'm saying is that in the future, the likelihood is that stores that open will be largely food…Do we need to continue to build large hypermarkets in the UK when the internet is taking much of the growth in clothing and electronics? You can reach your own conclusions." (Wood, McCarthy, 2013, 5).

According to the EU Commission research "Six perspectives on retail innovation", Innovation through reduction of customer's efforts based on the idea that retail chains should make shopping experience of the customer easier and more comfortable. Authors of this research reveal main types of efforts that are faced by today's consumers that are visiting Superstores:

- Information Overload. Customer have to undertake a large volume of decisions during purchase of the simplest items.
- Large number of products and services. Customers have to choose between different options of products and services which they do not understand sufficiently well.
- Communications difficulties. (European Commission, 2014, 6)

Wood and McCarthy conclude that demand in the UK outstrips consumption growth. They also identified a development of a new store format, the convenience store. This store format offers a narrower range of products to consumers. It helps the customer in faster decision making, saving time and cutting travel costs to hyper- or supermarkets which are often located in distant areas of the city. (Wood, McCarthy, 2013, 16)

Authors of paper "Development of shopping centers in central and southeastern Europe" Delic and Knezevic conducted analysis of contemporary trends in supermarket industry in Europe. They analyzed Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, and Ukraine.

They revealed that considering the development of modern technology trends, online shopping centers that would retain the business concept of the classic shopping center are increasingly evident. Offline shopping centers attract their customers mostly by the mere presence of popular retailers and entertainment options. Also, they concluded that online shopping centers are the next step of the retail industry and that investment activity in classic shopping centers will continue to exist, but at a much smaller scale. (Delic, Knezevic, 2014, 13)

It can be assumed, that modern trends of supermarket industry in Estonia and overly extensive growth of shopping centers, hypermarkets and supermarkets formats in the struggle for market share can lead to negative consequences. Thus, the number of large shopping and entertainment malls should be regulated at the legislative level.

For example, Kalinov S. in his academic publication "Current trends of the retail chains in Russia and abroad" explains that large share of supermarkets in Russia's retail segment has an impact on the whole retail industry in the country and becomes less cost-effective.

He also gives an examples from western Europe where various laws and regulations are in place for allowing to carry out activities of large and small shopping centers.

For example, some countries adhere to a strict limit of the number of stores and warehouse terminals where shopping area is between 750 and 2,500 square meters. The restrictions on the construction of large shopping centers in Germany has a limit of 2,500 square meters. In France and the UK, shopping facilities can only be counted as a discount store if they do not exceed 700 square meters. Also, some European countries have regulatory regimes that may not allow new operators to enter the market or they might regulate the types of price advertising that is allowed. (Kalinov, 2012, 5).

M. Hernant in his PhD Dissertation "Profitability Performance of Supermarkets" analyzed 168 supermarket chains around the world. He concluded that supermarkets achieve profitability performance due to combination of factors. External factors include low prices, high service level, promotion and large variety of goods.

Internal factors include the spread between operating expenses and sales prices. Secondly, labor costs could be decreased due to increase of labor productivity in the supermarket chain. In other words, some of expenses go down with scale of operation over the range from small to large supermarkets.

Hernant concluded, that there are two main routes that supermarket chains can use to achieve profitability. First route is a combination of high gross margin and moderate operating expenses in relation to sales. Second route is to moderate gross margin while maintaining low operating expenses and high productivity. Hernant revealed during comparative analysis of 168 supermarket chains that low gross margin is more common in markets with wide-spread competition. Supermarkets that are located in the markets with low competition level are mostly more passive. These supermarkets conduct shorter open hours and offer less add-on services. (Hernant, 2009, 253)

Based on recent studies, it seems necessary to make following recommendation:

- The rapidly growing market of shopping centers, hypermarkets and supermarkets in Estonia should be regulated by the local authorities in order to avoid saturation because retail space is increasing year-by-year while the population is declining.

According to Estonian Statistics, population growth trend for the last 15 years (2000–2015) is negative. Population in Estonia decreased by around 40,000 people during that timeframe. (Estonian Statistics, 2016)

- Estonian supermarket industry should pay more attention to the development of convenience store format as well as discount store format which is represented on the Estonian market only by Rimi as Säästumarkets stores.
- Customer efforts in large format stores should be reduced through clearer presentation of item- and goods' specifics and through reduction of purchase-time decisions.

Thus, during analysis of recent studies mostly in UK and US, it can be seen that small format grocery stores are gradually being replaced by hyper- and supermarket store format. The same is happening in Estonia today. Also, it can be seen that supermarket and hypermarket store formats are not very sustainable and discount stores can gain market share from hyper markets and supermarkets. Also, it can be seen that supermarket industry in Estonia develops mostly in a horizontal way. Sooner or later, it can lead to market saturation.

M. Hernant studies shows, that supermarkets in retail markets with low competition are more passive with shorter open hours and less add-on services. In comparison to western Europe, Estonian retail market offers a policy of long open hours with large amount of additional services due to high competition.

Thus, it can be concluded, that for purposes of increasing efficiency of the food retail chains in Estonia, more attention should be paid to reduction of information overload and reduction of large volume of decisions that are currently accepted by the customers. At the same time, to avoid oversaturation, government institutions should introduce different laws and regulations that would allow to carry out activities as a large or small shopping center in Estonia. This would address the problem of limiting the number of new stores.

In general, there were a few financial studies because financial decisions undertaken by owners and managers of the companies are directly dependent on managerial decisions like selection of store concept, pricing policy, or selecting the market niche. Thus, the author considers that in conditions of strong market competition as in Estonia, managerial decisions plays more significant role in enterprise efficiency and performance.

2. FINANCIAL STATEMENT ANALYSIS

2.1. Comparison of accounting methods and their impact to financial analysis

During comparative analysis of accounting methods in Balance sheets of seven major players of supermarket industry in Estonia per time period 2010–2014, author hasn't found any strong distinction.

Financial statements have been prepared in accordance with accounting principles accepted in Estonia (GAAP) or IFRS standards adopted by the EU. Some of the main principles, listed in financial statements of all analyzed companies:

1. Amortization of intangible assets is calculated by straight line method on the basis of the expected useful life.
2. Intangible assets are recorded at cost, which includes purchase price and directly attributable costs to it (shipping costs, customs duties and etc.).
3. Fixed assets are stated at cost, which includes the purchase price (including customs duties and other), less accumulated depreciation.
4. Cost of inventories determined by using the weighted average cost method. This method using by all players, except Prisma supermarket chain, which uses FIFO (first in, first out) method.

Should be noted, that the use of FIFO method (as in case with Prisma) leads to an increase in balance profit.

As author considers, FIFO method is better option of inventories valuation for value of current assets in balance sheet, especially in conditions of prices increment. Valuation of inventories in balance sheet, in this case, based on the assumption that inventories are eliminated in exactly same sequence as they were received into the organization. Consequently,

the balance of stocks at the end of the period must be evaluated on the basis of the most recent history of the purchase price.

All companies are using straight line depreciation method of tangible and intangible assets in their balance sheet during time period 2010–2014. Main difference consists in different periods of useful life (table 2.1).

As can be seen, OG Elektra uses the highest rate of useful life of tangible and intangible assets.

Thus, OG Elektra has more useful life of tangible and intangible assets under the same conditions in comparison to other companies. Due to this factor OG Elektra has better position in balance sheet because tangible assets depreciating slower.

Also should be noted, that lower price limit when any material subject is considered to be a tangible asset of the company, in case with OG Elektra begins from € 150. At the same time Selver has €1.278, Rimi– €1.000, ETK– €319 and ABC supermarkets– €350. Unfortunately, there are no data of Prisma and Maxima lower limit in balance sheet.

Thus, it also gives opportunity for the company to increase the total cost of tangible assets in balance sheet.

Table 2.1. The useful life of tangible and intangible assets (in years)

Company name	Buildings	Furnishings, refrigeration	Office furniture, appliances and other equipment	Intangible assets
Prisma	–	7	5	5
Rimi	8–10	3–8	3–8	3–5
Selver	10–33	3–7	3–7	3–7
ABC Supermarkets	50	5–7	5–7	3–5
ETK	5–33	3–10	3–10	5
Maxima	20	3–8	3–8	3
OG Elektra	50	33	33	33

Source: Table compiled by the author and prepared on the basis of data provided in the annual reports of seven Estonian major supermarket players (2010–2014).

It could be concluded, that in general, accounting methods in balance sheets of seven major supermarket chains in Estonia do not have strong distinctions and are compiled with accounting principles accepted in Estonia (GAAP) or IFRS standards adopted by the EU.

But some methods, like FIFO method, as in case with Prisma, useful life of tangible and intangible assets and lower price limit of tangible assets, as in case with OG Elektra and ABC Supermarkets, could significantly impact on the data quality in financial statement of the company.

2.2. Comparative analysis of structures of financial statements

2.2.1. Statement of financial position

Vertical analysis of the balance sheet of seven major players in supermarket industry shows that Total current assets per time period 2010–2014 amounted most part of Total assets, except Companies OG Elektra and Maxima. These companies, mostly prevailed by non-current assets per the same time period. (Figure 2.1.)

For ETK, Prisma and ABC Supermarkets, the largest ratio from current assets amounted receivables and prepayments. Selver and Rimi had approximately equal ratio between inventories and receivables. As author suggests, high ratio of receivables in relation to the Total assets was mostly caused by loans granted for related parties and trade receivables for goods supply. Related parties, mostly represented as parent companies.

It should be noted that, large sizes of accounts receivable may cause the company's financial risks. It can reduce sales volume and as a result, slow the movement of assets circulating and increase the duration of the financial cycle of the enterprise.

For Maxima and OG Elektra most part of the current assets was concentrated on the Inventories. Non-current assets amounted the largest part among companies OG Elektra and Maxima. It was caused by high proportion of tangible assets.

As author suggests, large proportion of tangible assets in balance sheet was mostly caused by expanding and investments in new stores and equipment. According to the annual reports, OG Elektra and Maxima had most significant increase in stores quantity in comparison to other major Estonian supermarket chains over the period 2010–2014 (see table 1.3).

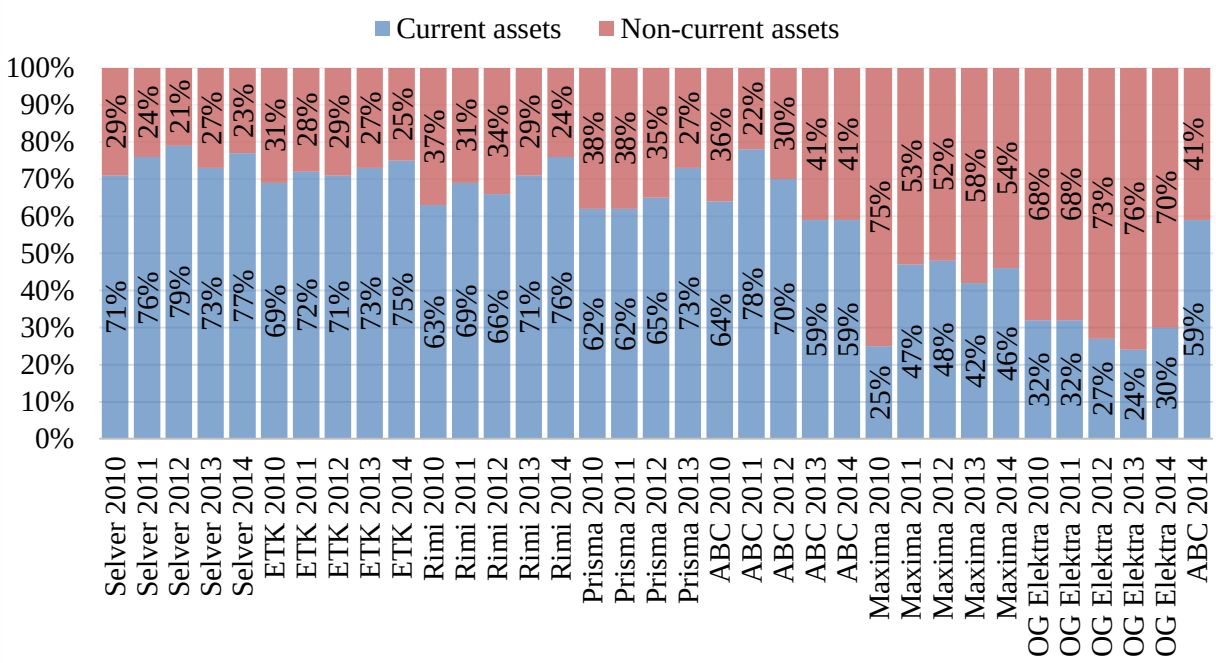

Figure 2.1. Structure of assets of seven major players in Estonian supermarket industry 2010–2014 (%)

Source: Figure compiled by the author (appendix 1)

However, positive dynamics of tangible assets growth can be observed only in Prisma and OG Elektra balance sheet per time period 2010–2014. As author suggests, in case of Prisma supermarket chain positive trend displayed mostly due to large investments into equipment, because Prisma not building and does not have its own stores and acts as tenant. According to the annual reports (2010–2014), Prisma invested mostly into the IT-systems and equipment. For the last couple of years, they concentrated their investments on self-service cashboxes.

As it can be seen from the annual reports, amount of depreciation expenses is directly dependent on the initial cost of equipment and machinery and in less extent from initial cost of building and land. Machinery and equipment depreciate faster than building.

According to the annual reports, OG Elektra despite on the number of stores increase, had the lowest share of machinery and equipment to Total tangible assets per time period 2010–2014 (see table 2.2.). Respectively, OG Elektra has the lowest depreciation expenses in comparison to other retail companies.

Table 2.2. Share of machinery and equipment to non-current tangible assets (%)

Company Name	2010	2011	2012	2013	2014
Prisma	96%	98%	97%	96%	92%
Rimi	75%	75%	72%	68%	70%
Selver	35%	35%	48%	45%	44%
ABC Supermarkets	42%	38%	45%	38%	41%
ETK	17%	16%	17%	17%	13%
Maxima	10%	18%	22%	23%	22%
OG Elektra	6%	6%	6%	5%	5%

Source: Table compiled by the author and prepared on the basis of data provided in appendix 1 and appendix 3.

Thus, it can be concluded that the reasons for the positive growth of OG Elektra tangible assets, firstly, is in the lack of sufficient equipment and machinery in relation to other players on the Estonian supermarket industry. Secondly, OG Elektra has more useful life of tangible and intangible assets under the same conditions in comparison to other companies. Due to this factors, OG Elektra has better position in balance sheet because tangible assets depreciating slower.

As author considers, OG Elektra likely acts from the savings policy conception. Prisma does not have their own buildings and rents premises from tenants. Due to the lack of its buildings and large investment in equipment also has a positive growth in tangible assets.

It should be also noted that Rimi, Selver, Maxima and ABC Supermarkets are building their own stores and at the same time renting premises out. But in the case of Rimi, the advantage is clearly in favor of rented area. Company ETK, mostly builds its own stores. But with respect to OG Elektra, Company ETK has a clear advantage in the amount of equipment and machinery. Since 2014 ETK had 264 stores and 13% of the equipment, while the OG Elektra had 50 stores and just 5% of the equipment in relation to Total tangible assets.

Structures of liabilities and equity in balance sheets among seven major players in Estonian supermarket industry represented in different proportions.

Prisma and Maxima had approximately equal proportion between current liabilities and equity and mostly absence of non-current liabilities. Selver and Rimi also don’t have non-

current liabilities, but their quantity of current liabilities in proportion to equity much higher, especially in case of Rimi. (Figure 2.2.)

According to annual reports, trade payables constitutes the main proportion to current liabilities within all seven companies. In respect to the International Accounting Standard 37 of European Commission, trade payables are liabilities to pay for goods or services that have been received or supplied and have been invoiced or formally agreed with the supplier. (European Commission, 2009, 3)

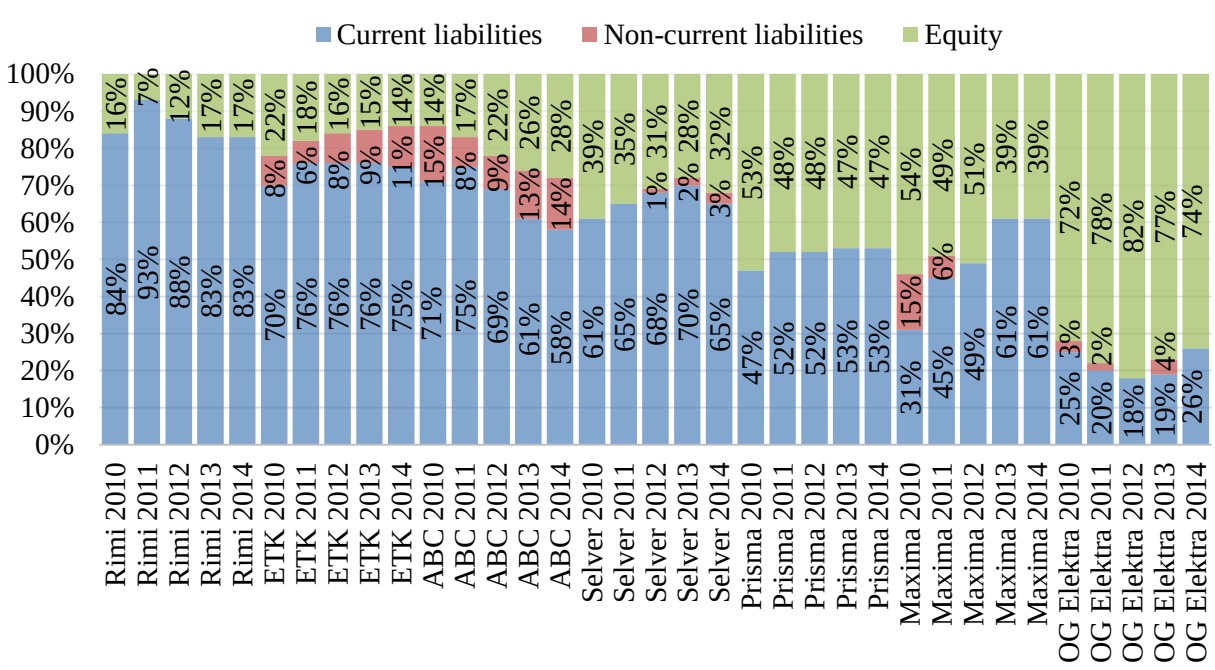

Figure 2.2. Structure of liabilities and equity of seven major players in Estonian supermarket industry 2010–2014 (%)

Source: Figure compiled by the author (appendix 1)

It should be assumed, that the more the value of current liabilities, the more business dependent on the lenders and the higher the risk of insolvency due to scenario if sales decrease and profit will be reduced. Absence of non-current liabilities in the structure of balance sheet evidenced by a lack of investment into development of the enterprise.

Also should be noted, that OG Elektra had the highest proportion of retained earnings to total liabilities and equity in comparison to other companies (Figure 2.3.).

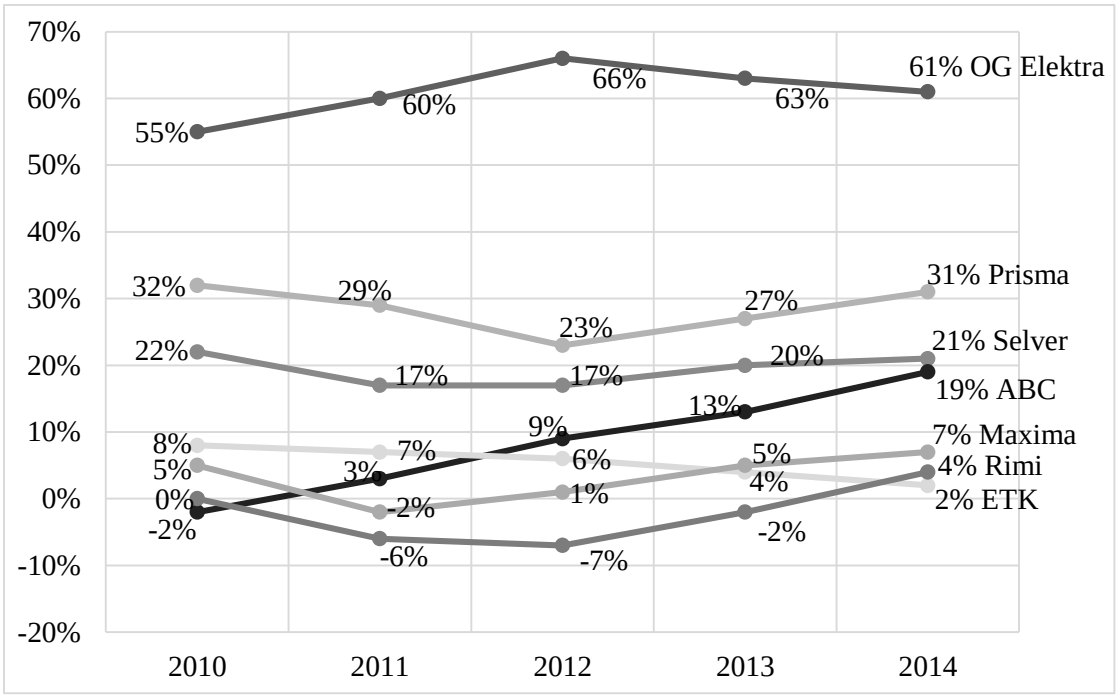

Figure 2.3. Share of retained earnings to Total liabilities and equity of seven major players in Estonian supermarket industry 2010–2014 (%)

Source: Figure compiled by the author (appendix 1)

It could be noted that Maxima, Prisma, Rimi and Selver, in the case of non-current liabilities lack may attract investment from parent companies. For other players of Estonian supermarket industry, non-current liabilities are more important and their absence or reduction may indicate of decrease in development trends. But with a high proportion of equity to total liabilities, as in the case of OG Elektra, additional investments from third-parties for development are not required and the Company has sufficient funds for their independent development.

Thus, can be explained availability and higher proportion for ETK and ABC Supermarkets in non-current liabilities in comparison to other Companies.

Consequently, according to the figure 2.1 and figure 2.2, in Maxima case, attention should be paid to the proportion between liabilities and equity in balance sheet. In the beginning of the period (2010), it was equal, but at the end of the period (2014), liabilities amounted 61% in comparison to 39% of equity. Also should be noted, that non-current assets in 2010 was 75%, but in 2014 there was a decline up to 54% of total assets proportion. As author suggests, decrease in equity and in non-current assets interrelated. The more the company has non-current assets, the greater the financial resources required to support them, and the greater should be

the proportion of equity. Also should be noted significant increase in inventories share to total assets proportion in comparison to other companies (from 10% up 24%) per time period 2010–2014, which is evidenced of overstocking and expansion of activities. In general company has become less financially stable with respect to prior periods.

Selver. In general, the trend in the reduction is not observed in Selver case. Selver has increase in Equity share to total liabilities per time period 2010–2014. In the beginning equity was 29% and in the end of the period equity amounted to 32% by reducing in total liabilities. Non-current assets also decreased in proportion to Total assets, as in the case with Maxima. But decrease in non-current assets was not so significant (from 38% to 23%) due to share of financial investments increase (0%–7%) in proportion to total assets.

ETK and Rimi. As author considers, these two companies had similar structure and tendencies. Firstly, should be paid attention to changes in equity and liabilities share per time period 2010–2014.

ETK liabilities share in balance sheet in the beginning of the period amounted to 77% and in the end of the period it was 86%. Rimi liabilities in 2010 was 80% and in 2014 amounted 83% with changes in 2011 up to 93%. Thus, these two companies had high shares of liabilities and negative tendencies of equity decrease in balance sheet. Most likely, that occurred due to high proportion of trade payables to total liabilities. Also should be noticed high proportion of current receivables and prepayments in relation to total assets. ETK receivables and prepayments increased during time period 2010–2014 from 39% up to 40% and in case with Rimi, receivables and prepayments increased from 16% up to 35%. Also, both companies had low level of cash and bank. How author considers, such high proportion of accounts receivable and low level of cash indicates about possible problems with payment. In general, financial position of these companies on the market is unstable and continuing compounded by share of equity decrease to total liabilities increase.

ABC Supermarkets also had a high share of total liabilities compared to equity as in the case with Rimi and ETK. But share of equity increased per time period 2010–2014. In 2010 equity was 14% and in 2014 it amounted 29%, mainly due to non-current borrowings decrease (from 23% to 14%) and retained earnings increase (from -2% to 19%) per time period 2010–2014. Significant share of the current assets to total assets proportion amounted receivables and prepayments, as in the case with Rimi and ETK. In 2010 share of receivables was 31% and in 2014 amounted to 42% to total assets. Also, attention should be paid to the changes in

inventories share to total assets. In comparison to other companies, only Rimi and ABC Supermarkets had a decrease in inventories share during 2010–2014. In 2010 ABC Supermarkets had 21% of inventories and in 2014, share of inventories amounted to 16% of total assets. In Rimi case inventories share also decreased from 38% to 33%. In general, ABC Supermarkets improved their economic sustainability, as can be seen from the balance sheet.

Prisma. The largest part of the total assets amounted cash, inventories and tangible assets in balance sheet per time period 2010–2014. Should be noted, that share of cash in balance sheet in case of Prisma was highest in comparison to other players. Per time period 2010–2013 share of cash varied between 27% and 26% in balance sheet, but in 2014 occurred changes and share of cash decreased to 2% of total assets. Current receivables and prepayments become prevailed in total assets with 43% of share in 2014. Also should be paid attention to the shares of liabilities and equity in balance sheet. In the beginning of the period (in 2010), equity amounted to 53% due to high share of retained earnings (32%) and share premium (20%). In 2014 proportion was changed in favor to liabilities, which amounted to 53% due to changes in trade payables and prepayments (from 40% to 53%). Share premium per time period 2010–2014 decreased from 20% to 0%. Retained earnings had not reduced significantly (from 32% to 31%). Thus, 43% of equity in balance sheet saved due to net profit increase. In 2014 net profit amounted to 14%.

OG Elektra. Should be paid attention to the high share of tangible assets in total assets of balance sheet. In 2010 tangible assets was 68% and in 2014 amounted to 69% of total assets.

As author considers, OG Elektra positive trend of tangible assets share accompanied by the lack of sufficient equipment, machinery and more useful life of tangible and intangible assets in comparison to other players of Estonian supermarket industry. Due to this factor depreciation doesn't deducted with so fast tempo. Equity share in relation to liabilities share also was increased per time period 2010–2014 due to high retained earnings and stable profit. In 2010 Equity was 68% with respect to total liabilities and in 2014 equity amounted to 74% from which was 61% of retained earnings and 10% of profit.

Thus, according to the vertical analysis of balance sheet, possible to do next conclusions:

- OG Elektra was most sustainable on the market in 2010 and they improved more their financial position in 2014.
- ETK and Rimi are less sustainable companies on the market and their equity continues to decline due to liabilities increase.

- Maxima and Selver continuing their development and invest in new buildings. In case of Prisma investments occurred mostly into equipment to improve their attractiveness. Their financial position of Maxima, Selver and Prisma also quite stable. Equity varies from 30% to 50%.
- Financial position of ABC Supermarkets also was improved due time period 2010–2014, but not sufficient. Their share of liabilities still too high in relation to equity.

2.2.2. Income statement

Vertical comparative income statement analysis among seven supermarket chains in Estonia shows, that the biggest share from the sales amounted materials and consumables. This indicator varied between 76% up to 95% among seven players per time period 2010–2014.

Such high share of materials and consumables to sales is optimal for retail business. Also should be noted, that Selver had the highest mark-up in comparison to other supermarket chains. Their share of materials and consumables varied from 76% up to 79% from total proportion of sales (2010–2014), which amounted in average 77% per five years, while Prisma had 81%, ABC Supermarkets– 82%, OG Elektra– 87%, Maxima– 89%, Rimi– 90% and the lowest mark-up had ETK. Their average share of materials and consumables from total proportion of sales amounted to 94% during 2010–2014.

As author considers, the reason why Selver had the highest mark-up consists in higher pricing policy in comparison to other supermarket chains.

Second highest share from total proportion of sales amounted other operating expenses.

Prisma, ABC Supermarkets, Selver and Rimi had highest other operating expenses in comparison to other supermarket chains. In Prisma case share of operating expenses to total proportion of sales varied from 12.2% to 10.1%, in ABC Supermarkets case from 9.9% up to 10.8%, In Selver case from 11.1% up to 11.2% and Rimi had 6.5% to 6.8% per time period 2010–2014. Share variety of other expenses in rest supermarket chains was 2–3 times less in comparison.

According to the annual reports the highest share expense among other operating expenses in proportion to the total sales amounted lease payments (see table 2.3).

According to table 2.3, could be concluded that Prisma, Selver, Rimi and ABC Supermarkets renting premises to a greater extent in comparison to other supermarket chains.

Table 2.3. Lease payments share to total sales proportion (%)

Company name	2010	2011	2012	2013	2014
Prisma	5.8%	5.8%	5.5%	5.4%	5.2%
Rimi	4.6%	4.5%	4.8%	5.0%	4.9%
Selver	4.4%	4.4%	4.4%	4.8%	4.9%
ABC Supermarkets	3.3%	3.2%	3.5%	3.6%	3.9%
OG Elektra	2.2%	2.3%	2.3%	2.4%	2.2%
ETK	0.7%	0.8%	1.0%	1.2%	1.3%
Maxima	0.2%	0.3%	0.5%	0.5%	0.5%

Source: Table compiled by the author and prepared on the basis of data provided in appendix 1 and appendix 3.

Also should be noted, that Maxima other operating expenses varied from 2.2% up to 2.9% per time period 2010–2014, but in 2011 share of other operating expenses to total proportion of sales amounted to 5.7%. As it seems from the Maxima annual report, this occurred due to the sale of the premises. Maxima in 2011, sold 26 their own objects and start renting premises in that buildings. Thus, occurred impairment of tangible and intangible assets, from which losses amounted to €11.5 million from other operation expenses. Author considers, that increase in lease payments share to total proportion of sales in 2012 (from 0.3% up to 0.5%) in Maxima case occurred due to the same reasons.

Also, large share of the sales amounted staff costs in annual reports among seven supermarket chains. The lowest share of staff costs could be observed in ETK case, where this indicator varied between 3.6% and 4.2% per time period 2010–2014. The highest share of staff costs was observed in OG Elektra case (between 7.2% and 9.3%), Maxima case (between 7.5% and 8.3%) and ABC Supermarkets case (between 8.8% and 8.5%). Author considers, that from one point of view, it is caused by the quantity of employees in relation to the store quantity, as in case with Maxima. According to the annual reports per 2014, ETK was operating with 264 stores and 816 employees, Maxima had 3696 employees and 72 stores. From another point of

view, as in case with OG Elektra and ABC supermarkets, high share of staff costs to total proportion of sales caused by low level of sales in comparison to other chains.

As author suggests, ETK mostly operates with small store format, as "A ja O" convenience grocery stores. In 2014 the number of stores "A ja O" amounted to 154. Mostly, this format of stores does not require large number of personnel. In case with supermarket format of stores, ETK operates with 81 "Konsum" store, where could be observed insufficient quantity of service personnel. Thus, could be concluded that ETK conducted saving policy due to insufficient number of employees in comparison to other supermarket chains.

But at the same time, should be noted, that in comparison to other supermarket chains, ETK had in average the highest expenses on the salaries while Maxima and OG Elektra lowest. (Table 2.4.)

Table 2.4. Average monthly wage (euros)

Company Name	2010	2011	2012	2013	2014
ETK	974	1015	1075	1119	1215
Prisma	934	877	951	946	1045
Rimi	910	916	945	959	994
ABC Supermarkets	767	779	841	891	972
Selver	918	794	787	849	884
OG Elektra	622	709	781	855	905
Maxima	624	616	646	719	753

Source: Table compiled by the author and prepared on the basis of data provided in appendix 1 and 2 and calculated with formula provided in appendix 3.

Also should be mentioned, that only Selver had corporate income tax per time period 2010–2013. As author considers, this was due to the opening of 6 stores in Latvia in 2009, where profits are taxed. In 2013 Selver closed all supermarkets in Latvia and thus, annual report shows that in 2014, income tax amounted to 0% in comparison to the previous periods.

OG Elektra and ABC Supermarkets had highest share of other operating income to total sales proportion. OG Elektra other operating income amounted in average to 5.1% from total sales. As it can be seen from the annual reports, OG Elektra had stable profit from the sale of tangible assets, which varied between €2.7 million and €4.9 million due time period 2010–2014.

ABC Supermarkets other operating income also amounted in average to 5.1% from total sales per the same time period. Largest share of other operating income amounted marketing revenues, which varied from €1.6 up to €2.4 million.

Generally, according to the table 2.5, OG Elektra and Selver had the highest average operating margin per time period 2010–2014 while Rimi and ETK had the lowest in comparison to other supermarket chains.

Table 2.5. Operating margin (%)

Company Name	2014	2013	2012	2011	2010
OG Elektra	5.0%	6.2%	5.6%	6.1%	6.1%
Selver	3.8%	5.1%	4.1%	2.0%	2.1%
ABC Supermarkets	2.2%	3.1%	2.8%	3.1%	2.0%
Prisma	-0.4%	-0.4%	1.5%	0.9%	3.2%
Maxima	2.6%	-2.8%	1.0%	0.9%	0.9%
Rimi	-1.0%	-0.2%	0.8%	0.8%	0.0%
ETK	0.3%	-0.2%	-0.6%	-0.3%	0.7%

Source: Table compiled by the author on the basis of data provided in appendix 2 and calculated with formula provided in appendix 3

Thus, could be seen that highest operating margin of OG Elektra consists in lowest depreciation expenses due to more useful life period of tangible assets. Secondly, OG Elektra has one of the highest operating profit in face of profit from the sale of tangible assets.

Stable operating margin of Selver from year to year caused by highest pricing policy among other supermarket chains and consequently, they have highest mark-up between sales and cost of goods sold. Should be also mentioned, that Selver has highest profit among other supermarket chains from rental premises. Which varied between €3.3 and €4.3 million per time period 2010–2014 and was reflected in income statement as other operating income.

ABC Supermarkets, as Selver, had one of the highest mark-up between sales and cost of goods sold. Also should be noted, that they have marketing revenues, which help them to increase their profit margin.

Prisma had the highest other operating expenses share to total sales. This is caused by large utility and lease payments (see table 2.3). Also they have highest depreciation expenses due to largest share of equipment and machinery to total tangible assets in comparison to other chains. Their profit margin increased only due to the sales growth (2012–2014).

Maxima had basically positive operating margin during 2010–2014, but in 2011, as it could be seen from table 2.5, they had loss. That occurred due to the impairment of tangible assets, when Maxima sold 26 objects. Mostly, as author suggests profitability of Maxima consists in the lowest staff costs (see table 2.4), lowest lease payments (see table 2.3) and the highest level of sales among other supermarket chains.

Rimi had one of the lowest operating margin during 2010–2014. As author considers, that was caused due to annually increment of lease payments and staff costs. At the same time, in 2014 sales remained approximately at the same level, as in 2014. Rimi had the most minor changes in sales increase in comparison to other supermarket chains.

ETK had the lowest operating margin among other supermarket chains. Most likely, that was due to the lowest mark-up. In 2012 their share of materials and consumables amounted to 95.4% from total sales proportion and as it can be seen from table 2.5, their profit margin was the lowest in 2012. Their net loss amounted to €1.5 million in 2012. As author considers, ETK conduct policy of low prices in "A ja O" convenience format of stores which located mostly in rural areas with low purchasing power.

Thus, could be concluded:

- Highest operating margin of OG Elektra consists in lowest depreciation expenses.
- Stable operating margin of Selver caused by highest pricing policy among other supermarket chains.
- Prisma had high operating margin due to significant sales growth.
- Operating margin of Maxima consists in the lowest staff costs and lease payments.
- At the same time, low operating margin of Rimi was caused by annually growth of lease payments and staff costs, while sales did not increase significantly.
- Lowest operating margin of ETK was caused by policy of low prices.

2.2.3. Cash flow statement

During analysis of cash flow statement, author decided to divide companies in two separate figures (2.4 and 2.5) for greater clarity and more effective analysis. Maxima, Selver, Rimi and Prisma (figure 2.4) have higher capitalization and consequently, their cash flows had

higher order, than OG Elektra, ABC Supermarkets and ETK (figure 2.5) due time period 2010–2014.

As it can be seen from the figure 2.4, Maxima had highest cash flow from investing activities in comparison to Selver, Rimi and Prisma. In 2011 they sold 26 objects, what is reflected in cash flow statement as cash received from sales of tangible assets in amount of €33.4 million. Thus, Maxima remained in significant plus from investment activities in 2011 in comparison to other periods, where company only paid for the acquisition of tangible assets in face of building of new stores. Generally, could be concluded, that Maxima invests in construction and expansion more than other Estonian supermarket chains.

At the same time, Maxima had highest cash flow from financing activities, especially in 2013, in comparison to other chains. As it can be seen from the annual report 2013, Maxima paid dividends to shareholders in amount of €20 million, what caused decrease in total generated net cash per year. Lowest indicator of net cash generated per year was in 2012 and 2010 (see figure 2.4). It was caused by given loans of investing activities in amount of €14.3 million in 2012 and €18.4 million in 2010.

Maxima cash flow from operating activities, mostly were remained on the same level during 2011–2014 and varied between €13.3 and €10.3 million. But in 2010 operating activities amounted to €17.7 million. It was caused by highest operational profit in comparison to other periods, which amounted to €6.3 million in 2010.

In case of Selver, firstly should be paid attention on the cash flow from operating activities, especially in 2011, when operating activities amounted to €26.2 million. As it can be seen from the annual report, it was caused by highest operating profit, which amounted to €16.2 million in comparison to other periods. Generally, Selver had one of the highest indicator of profit among other supermarket chains. This mostly explains, why they have positive generated net cash from all activities due time period 2010–2014. Should be also noted, that Selver had negative generated net cash from all activities only in 2013. As author suggests, that happened due to the lowest profit in that year, which amounted to €6.9 million and also it was caused by high investments into tangible assets, which amounted to €8 million in 2013. As it can be seen from annual report Selver opened 4 new stores during 2013 (Läänemere Selver, Tartu Aardla Selver, Peetri Selver and Viljandi Selver). That explaining why cash flow from investment activities in 2013 was lowest and amounted to -€12.7 million.

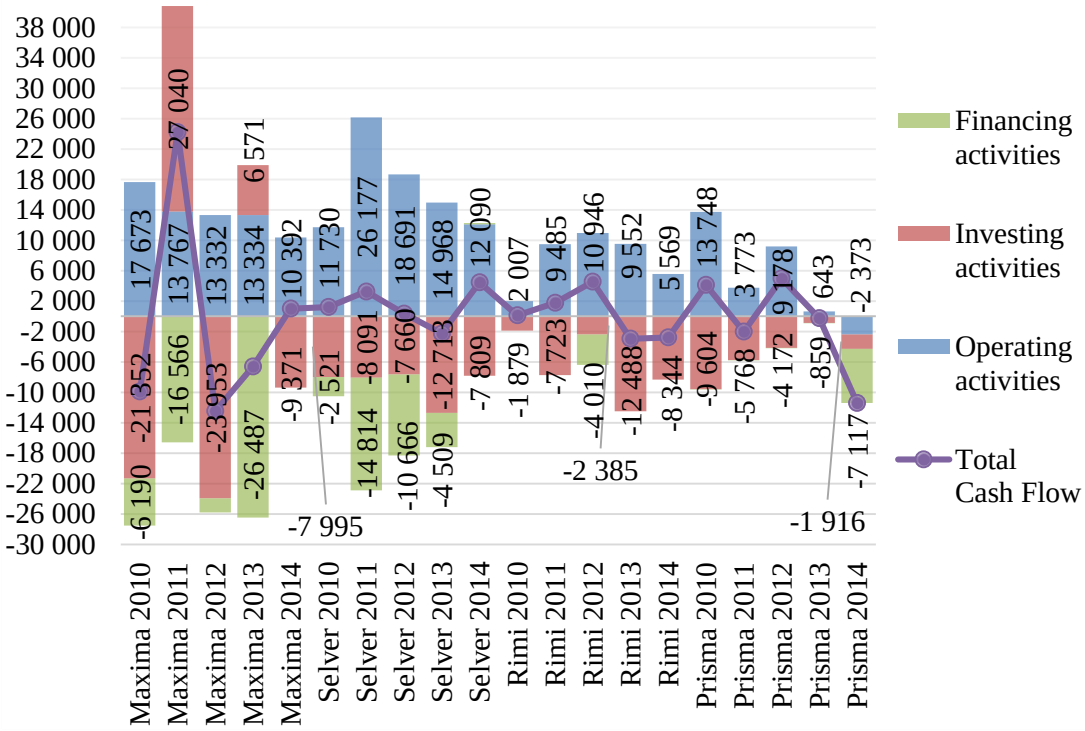

Figure 2.4. Maxima, Selver, Rimi and Prisma cash flow statement structure 2010–2014 (thousands euros)

Source: Figure compiled by the author (appendix 4)

Cash flow from financing activities was lowest in 2011 and amounted to -€14.8 million. This was due to the payment of dividends, which amounted to €11.4 million in 2011. In 2012 dividend payments to shareholders amounted to €10.5 million from financing activities. Also should be noted, that only Selver paid dividends to shareholders annually in comparison to other supermarket chains, what is evidenced about good profitability of the company.

In 2013 and 2014 Rimi had lowest cash flow from all activities. As it can be seen from the Figure 2.4, it was caused by lowest investing activities in 2013 which amounted to -€12.5 million and by one of the lowest operating activities in 2014 in comparison to other periods, except 2010. As it can be seen from the cash flow statement, lowest investing activity in 2013 was caused by volume of given loans in amount of €15.9 million to the ICA Baltic AB (parent company). At the same year Rimi had lowest repayment of loans granted from ICA Baltic AB in comparison to other periods, therefore high volume of given loan and small loan repayment caused lowest investing activity. In 2014 lowest cash flow from all activities occurred due to low operating profit, which amounted to 52 thousand per financial year and due to change in trade receivables on -€1.3 million and change in inventories on -€1.1 million. According to

annual report, Rimi had highest goods receivables from suppliers in face of ICA Baltic AB and highest inventory write-off due to expiry date in 2014 in comparison to other periods. In 2010, the lowest operating activity was caused by operating loss, which amounted to -€3.3 million and highest trade payables in comparison to other periods, which amounted to €4.1 million. Also should be noted during 2010–2014, lack of cash flow from financing activities, except 2012. Rimi had outflow from financial activity in 2012 to the parent company, which amounted to €4 million.

Totally, could be mentioned, that Rimi has low cash flow from all activities due to reduction of net profit level and due to high given loans to parent company.

Prisma had highest cash flow from operating activity in 2010 in comparison to other periods. It was caused by the change in trade and other receivables. As it can be seen from annual report Prisma received €11.3 million by paragraph "accounts receivable" from parent company (Finnish Company SOK). In 2014 Prisma had lowest cash flow from operating activity. At that time, that occurred due to decrease in accounts receivable on €10.4 million, which they transferred to the parent company. Also in 2014, Prisma had lowest cash flow in investing activities due to paid interest. Thus, paid interest and paid accounts payable to the parent company resulted the lowest difference in cash flow from financing activities and consequently in all operating activities in 2014.

Also should be paid attention to the decrease in cash flow from investing activities from year to year. As it can be seen from the cash flow statement, decrease occurred due to reduction of investments into tangible assets. If in 2010 Prisma invested in purchase of tangible assets €8.4 million, in 2014 they invested only €1.9 million. As it can be seen from the table 1.3, Prisma only opened 1 new store during 2010–2014, which is on order lower, than investments of Maxima, Selver, Rimi and OG Elektra into opening new stores.

According to the figure 2.5, ETK had highest cash flow from operating activities during period, except year 2011 and 2014 in comparison to ABC Supermarkets and OG Elektra. As it can be seen from the cash flow statement, in 2011 and 2014 ETK had highest trade payables, which in 2011, amounted to €4.7 million and in 2014, €8.5 million.

Generally, positive operating activity of ETK consists in received money by trade payables. Operating profit of the company mostly was negative due time period 2010–2014.

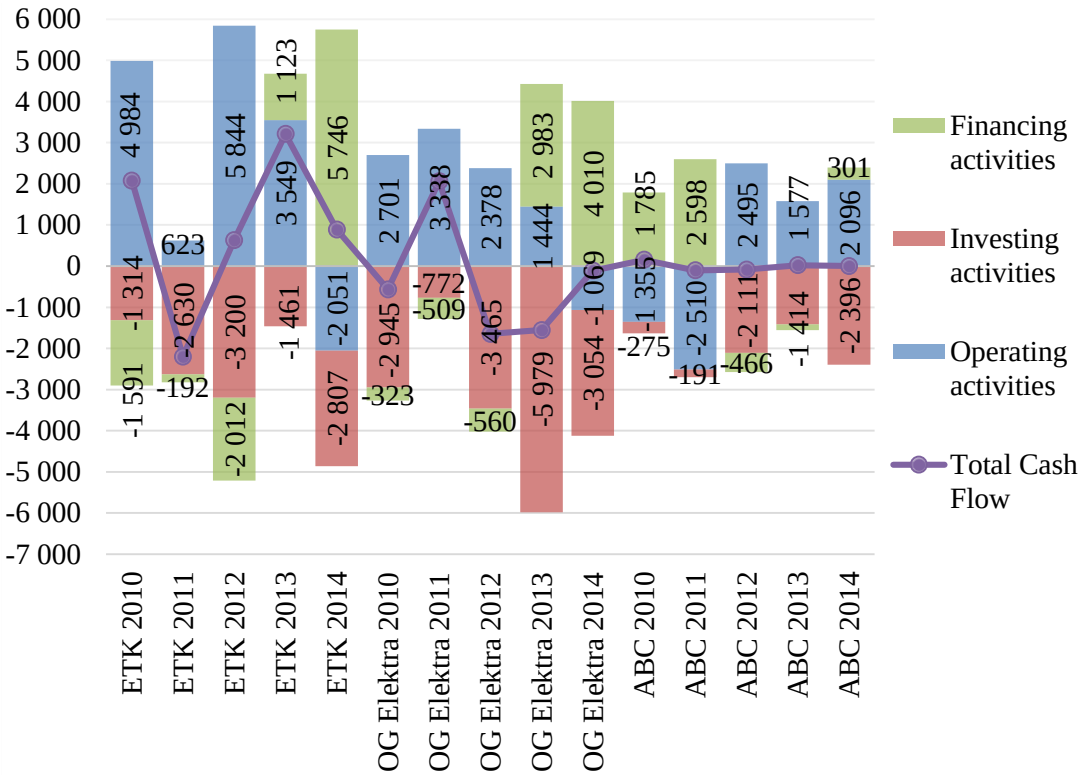

Figure 2.5. OG Elektra, ETK and ABC Supermarkets cash flow statement structure 2010–2014 (thousands euros)

Source: Figure compiled by the author (appendix 4)

Also should be noted, that ETK had lowest cash flow from financing activities in 2010 and 2012. In 2010, that occurred due to financial lease payments to the SEB Bank which amounted to €1.4 million and in 2012 it was caused by repayment of borrowings, which amounted to €2.2 million. According to the annual report ETK had the highest total mortgage in comparison to other chains, which amounts to €10.2 million.

ETK cash flow from investing activities consists of tangible assets purchase and given loans.

OG Elektra mostly have negative cash flow from total activities. As it can be seen from the figure 2.5, it is caused by lowest investing activities in comparison to the ABC Supermarkets and ETK.

According to the cash flow statement, OG Elektra spend money on purchase of tangible assets. Highest investments into tangible assets occurred in 2013 and amounted to €8.4 million. As it can be seen from the table 1.3, OG Elektra opened 12 new stores during time period 2010–2014.

OG Elektra high cash flow from financing activities, especially per time period 2013–2014, caused by received borrowings. In 2013 sum of received borrowings amounted to €3.7 million and in 2014 it was €7.9 million.

Cash flow from operating activities, basically located in positive range. Mostly it was caused by stable operating profit, but in 2014 cash flow from operating activities was located in negative range and amounted to -€1.1 million. It is happened due to highest changes in inventories in comparison to other periods, which amounted to -€5.6 million. As it can be seen from the annual report 2014, OG Elektra was increased their inventory due to expansion in €5.6 million, what caused changes in operating activities.

According to the figure 2.5 and 2.4, ABC Supermarkets total cash flow from all activities had established average value during time period 2010–2014, in comparison to other supermarket chains.

Average value in 2010 and 2011 was established due to received borrowings on amount of €2.6 million and €3.3 million by financing activities from one side and change in trade and other receivables on amount of -€2.8 million and -€4.1 million in operating activities from another side.

Average value in 2012–2014 was established due to higher operating profit and higher depreciation charges in operating activities from one side. From another side due to higher investments into tangible assets, in comparison to year 2011 and year 2010.

In general, could be concluded:

- Maxima has a positive state of affairs on the basis of cash flow generated from all activities. Negative cash flows caused by investments into tangible assets and expansion.
- Selver also has a positive state of affairs, as evidenced by annual dividend payout and investments into tangible assets and expansion, but in less extent than Maxima.
- Rimi and ETK are in approximately similar conditions. This companies have lowest operating profit in comparison to other companies due to low total net cash flow from all activities. Also should be noted that decrease in total net cash flow in case with Rimi caused by given loans to parent company. ETK decrease in total net cash flow, mostly caused by mortgage payables to the Bank.

- Prisma had mostly negative cash flows due to accounts payable to the parent company. In total, Prisma reduces their investment activity in year to year and didn't pay dividends per time period 2010–2014, what is indicating about poor results.
- OG Elektra mostly had negative cash flows due to investments into tangible assets, inventory increase and expansion.
- As author considers, ABC Supermarkets average value of total cash flows from all activities can be set as a limit of new loans issuance, as it shows the size of funds by which the client has the ability to repay debt.

2.3. Growth analysis

Growth analysis According to the horizontal and trend analysis of Maxima balance sheet, it could be seen by 8% decrease in total assets during time period 2010–2014 in comparison to other supermarket chains. As it was noted earlier, in 2011 decrease was caused by selling of tangible assets in face of 26 objects. Decrease of tangible assets totally amounted to €34.8 million per year 2011.

At the same time, during time period 2010–2014, the amount of total liabilities increased by 12% due to short-term trade payables and prepayments, which increased by 81% in 2014 in comparison to year 2010. Also should be noted, decrease of total equity by 23% in 2014 in relation to 2010, mainly due to decrease of share capital on 35% in balance sheet (from €56.7 million up to €36.7 million). Decrease of share capital was caused by dividends payment in amount of €20 million in 2013, as it can be seen from cash flow statement analysis.

Horizontal analysis of Maxima income statement, at the same time, reflects sales growth of 56% in 2014 compared to 2010. As it can be seen from the table 2.6, Maxima had highest sales growth rate among other supermarket chains 2011–2013, except Prisma sales growth.

Also should be noticed fast growth of staff costs in 2014 by 74% in comparison to the year 2010, which occurred due to quantity of employees increase from 2,563 up 3,696 people and minimum wage growth from 278 euros in 2010 up to 355 euros in 2014.

As author considers, high growth rate of sales caused by three factors. Firstly, due to rapid expansion and increase in the number of stores (see table 1.3). Secondly, due to more conveniently located stores and more efficient use of retail space. Thirdly, due to one of the

lowest mark-up between sales and cost of goods sold, in comparison to other chains, what evidenced about low prices policy.

Table 2.6. Sales growth (million euros)

Indicator	2010	2011	2012	2013	2014
Inflation in food sector in Estonia %	*3.2%*	*9.5%*	*3.9%*	*4.2%*	*0.0%*
Sales of supermarket industry in Estonia (thousands euros)	1,736	1,887	2,048	2,173	2,297
Industry sales growth %	-	*8.7%*	*8.5%*	*6.1%*	*5.7%*
Maxima sales (thousands euros)	257	291	336	381	401
Sales growth %	-	*13.1%*	*15.5%*	*13.2%*	*5.3%*
Selver sales (thousands euros)	310	319	331	343	367
Sales growth %	-	*2.9%*	*3.7%*	*3.7%*	*7.2%*
Rimi Sales (thousands euros)	342	352	359	361	363
Sales growth %	-	*2.9%*	*2.1%*	*0.5%*	*0.6%*
Prisma sales (thousands euros)	118	147	177	194	208
Sales growth %	-	*24.4%*	*20.3%*	*9.4%*	*6.9%*
ETK sales (thousands euros)	209	224	249	265	285
Sales growth %	-	*7.4%*	*11.0%*	*6.4%*	*7.7%*
OG Elektra sales (thousands euros)	67	69	75	82	93
Sales growth %	-	*3.0%*	*8.9%*	*9.3%*	*13.8%*
ABC Supermarkets sales (thousands euros)	40	43	48	50	59
Sales growth %	-	*6.1%*	*12.4%*	*5.4%*	*16.7%*

Source: Table compiled by the author on the basis of data provided by Estonian Statistics website (retail sales by economic activity 1995–2015) and appendix 2.

In general, Maxima decrease in total assets, decrease in total equity and increase in total liabilities evidenced about unfavorable tendency. But at the same time, as author suggests, increase in total liabilities of trade accounts payable caused by increased debt to suppliers, because sales of the company increased and also increased required range of inventories due to company's expansion and construction of new stores.

According to the Selver growth efficiency analysis 2010–2014, could be seen next tendencies:

1) Increase in total assets by 33%, what is caused mostly by current receivables and inventories growth due to expansion, as in case with Maxima.

2) Increase in total liabilities by 47% in 2014 in comparison to year 2010, what is mostly caused by trade payables growth by 39% (from €38.2 up to €53.2 million).

Growth of trade payables also occurred due to expansion as in case with Maxima. Most likely, this occurred due to the presence of agreements to increase the delay timing as a result of maintaining and increasing the volume of purchases due to sales growth.

3) Increase in total equity by 10%, which amounted to €26.9 million in 2014 in comparison to year 2010, when total equity was €24.4 million.

Total equity growth was caused by retained earnings growth, which in turn had increased due to highest stable net profit year to year, in comparison to other supermarket chains. Retained earnings increased from €14 up to €17.6 million during time period 2010–2014, what amounted to 25% of growth.

4) Increase in sales (see table 2.6).

As author considers, total sales growth occurred due to store quantity increase by 19% (see table 1.3) and due to the significant expansion of goods range. As it can be seen from the Selver annual reports, company begun promote conception "Selver Gurmee". This is conception of expanding high-value goods, which on a practice should give higher mark-up than regular food and beverages.

As it was mentioned in income statement Selver in comparison to other chains had highest profit due to highest mark-up among other supermarket chains. Growth of materials and consumables, staff costs and other operating expenses in income statement can be attributed due to factor of expansion and annual wages growth.

Rimi growth in total assets amounted to 13% per time period 2010–2014. Growth occurred only due to current receivables and prepayments increase by 138% in 2014 in relation to year 2010. In nominal value, Rimi had €8.9 million in 2010 of accounts receivable and in 2014 accounts receivable amounted to €21.3 million. High accounts receivables caused by receivables in goods supply from ICA Baltic AB (parent company) and annual issuance of short-term loans to other companies within the same group, as it can be seen from the cash flow statement.

According to the cash flow statement, issuance of short term loans during the five year period (2010–2014) amounted to €56 million, but they received back only €45 million with paid interest in amount of €846 thousands.

As author considers, increasing receivables may lead to the financial difficulties, since the company will feel the lack of financial resources for the purchase of goods, salary payment and etc.

Also should be noticed increase of total liabilities in Rimi financial statements by 12%. Distinction between year 2010 and year 2014 amounted to €5.3 million in nominal value. Rimi and Maxima had the lowest growth in total liabilities in comparison to other supermarket chains, but share of Rimi liabilities is too high in comparison to other chains (see Figure 2.2). As it can be seen from the balance sheet, total liabilities consist mainly from trade payables by goods and supplies.

Increase in total equity (by 21%) occurred only due to increase in net profit per time period 2012–2014. In 2010 and 2011 Rimi suffered loss.

As it can be seen, Rimi had lowest growth in sales in comparison to other supermarket chains. Also should noticed that growth in sales was lower than food inflation rate in Estonia (see table 2.6). As author considers, Rimi had lowest growth rate of sales increase due to next factors:

1) Store format.

In general, total increase in the number of stores has an impact on sales. Thus, comparison of store growth also should be conducted by format. As it can be seen from table 2.7, Rimi had significant growth of supermarket format stores and decrease in convenience and discount stores.

As author considers, in comparison to Maxima, Rimi mostly had increase in supermarket format of stores due to renovation of small format stores (discounters and convenience) to large format.

But at the same time, Maxima originally built more stores in the large format in specially allocated places, which providing customers with higher purchasing power parity.

Thus, Maxima has increased the number of large stores, while maintaining a small format and not lost in the growth rate of sales. At the same time, Rimi reduced the number of small discount stores due to increase of large stores in areas where people are used to buy products at lower prices.

2) Many people are accustomed to using convenience stores.

According to the section 1.3, large segment of people prefer to use convenience stores, which are offering a narrower range of products to consumers, helping in faster decision making and saving time.

Table 2.7. Growth by store format (quantity of stores)

Store Type	2010	2011	2012	2013	2014
Maxima XXX (hypermarket)	1	1	1	1	1
Maxima XX (supermarket)	6	9	13	14	17
Maxima X (convenience)	47	54	56	56	54
Rimi hypermarket	10	11	13	13	13
Rimi supermarket	12	13	16	18	22
Mini-Rimi and Säästumarket (convenience, discounter)	59	59	54	52	49

Source: Table compiled by the author on the basis of data provided in Rimi and Maxima annual reports 2010–2014.

Total assets of Prisma increased by 33% in 2014 in comparison to year 2010. As it can be seen from balance sheet, growth occurred mostly due to increase in inventories and accounts receivable. Inventories increased from €9.3 up to €14.3 million and growth amounted to 53%. Accounts receivable increased from €3 million up to €19.9 million. According to subsection 2.2.3, significant changes in accounts receivable occurred in 2014, when company issued a short-term loan to the parent company (SOK) in amount of €17.5 million.

Total liabilities of Prisma increased during time period 2012–2014 by 50% due to increase in accounts payable to the parent company. Equity of the company increased by 17% per the same time period due to retained earnings and profit growth. In 2010 total equity was €18.7 million and in 2014 amounted to €22 million.

As it can be seen, Prisma had most significant sales growth in comparison to other supermarket chains (see table 2.6). Sales growth amounted to 75% per five years and in nominal value, sales increased by €89.1 million in 2014 in comparison to year 2010.

As it can be seen from annual reports, Prisma sales growth was not caused by significant growth in number of stores, as in case with Maxima and Selver. Thus, it could be assumed, that sales growth occurred due to next factors:

1) The overwhelming number of stores located in large shopping centers in comparison to other supermarket chains, which mostly operates in their own buildings or renting premises mainly in smaller size buildings.

Prisma stores located in shopping centers of large sizes which offering for a customer wide range of goods and mere presence of popular retailers, such as: Rocca al mare, Kristiine Center, Sikupilli Center and etc.

According to the section 1.3, Delic and Knezevic in their paper suggests, that on the current moment offline shopping centers attract their customers mostly by the mere presence of popular retailers and entertainment options.

Thus, Prisma locates their stores in places with higher purchasing power parity and where customers purposefully go shopping.

Table 2.8. Growth rate of equipment and machinery (thousands euros)

Indicator	2010	2011	2012	2013	2014
Maxima (thousands euros)	9391	10744	14278	14412	13902
Growth Rate (%)	-	*14,4%*	*32,9%*	*0,9%*	*-3,5%*
Rimi (thousands euros)	14832	13695	13871	11435	10128
Growth Rate (%)	-	*-7,7%*	*1,3%*	*-17,6%*	*-11,4%*
Prisma (thousands euros)	11823	13213	14057	11686	10311
Growth Rate (%)	-	*11,8%*	*6,4%*	*-16,9%*	*-11,8%*
Selver (thousands euros)	5516	5276	4712	6421	5863
Growth Rate (%)	-	*-4,4%*	*-10,7%*	*36,3%*	*-8,7%*
ABC Supermarkets (thousands euros)	1359	1092	2032	2548	2995
Growth Rate (%)	-	*-19,6%*	*86,1%*	*25,4%*	*17,5%*
ETK (thousands euros)	1921	1888	2010	2077	1727
Growth Rate (%)	-	*-1,7%*	*6,5%*	*3,3%*	*-16,9%*
OG Elektra (thousands euros)	1247	1411	1532	1631	1995
Growth Rate (%)	-	*13,2%*	*8,6%*	*6,5%*	*22,3%*

Source: Table compiled by the author and prepared on the basis of data provided in the annual reports of seven Estonian major supermarket players (2010–2014)

2) Equipment and IT service

As it can be seen from table 2.8, Prisma had one of the highest nominal cost of equipment during time period 2010–2014 after Maxima and Rimi despite the fact that they operated with 8–9 stores, while Selver was operating with 35–44, Rimi with 81–84 stores and Maxima with 54–72 during time period 2010–2014.

Also, it could be seen that OG Elektra had the lowest nominal cost of equipment and machinery, despite the fact that they were operating with 38–50 stores. At the same time OG Elektra had highest growth rate of machinery and equipment (due to 33 years of useful life) during time period 2010–2014.

According to the European Commission research "Six perspectives on retail innovation" in section 1.3, innovation should occur through reduction of customers' efforts, based on the idea that retail chains should make shopping experience of the customer easier and more comfortable.

Author considers, that Prisma invests in innovation, reduction of customer's efforts and customer loyalty program more than other supermarket chains, what attracts customers in more extent.

According to the ETK growth analysis (2010–2014), can be seen next changes:

1) Total assets increased by 45% in 2014 in comparison to year 2010. Mainly it was caused by increase in current receivables and inventories. Current receivables increased in nominal value on €7.3 million. Particularly, strong increase in current receivables occurred in 2014, which amounted to €6.3 million. Strong increase in inventories (by 29% in comparison to 2013) and tangible assets (by 10% in comparison to 2013). As it can be seen from ETK annual report on year 2014, company opened 6 new Konsum supermarkets, which caused rapid increase in total assets.

2) Total liabilities of the company increased by 60% in 2014 in comparison to year 2010. In 2014 growth amounted to 25% in comparison to year 2013, what was one of significant of growth indicators during 2010–2014.

As it can be seen from annual reports, company takes large number of long-term loans and mortgage from bank due to the expansion activities.

3) Total equity of the company decreased by 8% in 2014 in comparison to year 2010. But in 2013 decrease in total equity amounted to 25% from year 2010. In general, such decrease was caused by retained earnings reduction, which consequently decreased due to net loss of the company due time period 2011–2013.

4) According to the income statement growth analysis, company sales increased by 37% in 2014 compared with 2010. But at the same time, used materials and consumables increased by 43%. Also significantly increased staff costs (by 57%) due to expansion and salary growth.

Thus, could be concluded, that ETK growth of expenses ahead the growth of sales, what leads company to the loss.

OG Elektra had most significant growth in total assets in comparison to other companies. Total assets increased by 87% in 2014 compared to 2010. Mainly, total assets increased due to growth in inventories by €8.2 million due to factor of expansion and due to tangible assets increase by €17.9 million. As it can be seen from table 2.9, only OG Elektra and ABC Supermarkets had significant increase in tangible assets in comparison to other supermarket chains. As it was mentioned earlier, such changes occurred due to more useful life of tangible assets (see table 2.1) and due to less quantity of equipment and machinery to total tangible assets (see table 2.3), which depreciating faster than buildings.

Table 2.9. Tangible assets growth (thousands euros)

Indicator	2010	2011	2012	2013	2014
OG Elektra (thousands euros)	20,424	22,285	26,778	34,427	38,373
Growth rate (%)	-	*9%*	*20%*	*29%*	*11%*
Prisma (thousands euros)	12,309	13,549	14,519	12,198	11,173
Growth rate (%)	-	*10%*	*7%*	*-16%*	*-8%*
Selver (thousands euros)	15,759	15,074	9,872	14,250	13,396
Growth rate (%)	-	*-4%*	*-35%*	*44%*	*-6%*
ETK (thousands euros)	11,439	11,595	12,037	12,181	13,384
Growth rate (%)	-	*1%*	*4%*	*1%*	*10%*
Maxima (thousands euros)	95,359	60,586	65,793	61,877	63,655
Growth rate (%)	-	*-36%*	*9%*	*-6%*	*3%*
Rimi (thousands euros)	19,906	18,180	19,340	16,740	14,530
Growth rate (%)	-	*-9%*	*6%*	*-13%*	*-13%*
ABC Supermarkets (thousands euros)	3,231	2,866	4,496	6,672	7,260
Growth rate (%)	-	*-11%*	*57%*	*48%*	*9%*

Source: Table compiled by the author and prepared according to appendix 1

Total liabilities of OG Elektra increased by 72% in 2014 compared to 2010. But during time period 2010–2012 occurred decrease in total liabilities by 21% in comparison to 2010. As it can be seen form cash flow statement analysis, increase in total liabilities during 2013–2014 occurred due to received borrowings. Total equity increased by 89% in 2014 compared to 2010. Mostly increase occurred due to stable net profit and consequently growth of retained earnings, which increased in two times. As it can be seen, total equity growth rate was higher than liabilities growth rate, what is indicating about good state of affairs.

OG Elektra sales increased by 39% in 2014 compared to 2010. At the same time, materials and consumables growth amounted to 36%, consequently mark-up also increased. In general, OG Elektra has positive financial growth, except factor, that equipment and buildings depreciate faster in practice than on the balance sheet.

As author considers OG Elektra following strategy which was described by Martinuzzi and Kudlak in their paper "CSR Activities and Impacts of the Retail Sector" in section 1.3., that large retail chains can achieve more easily cost leadership. Those Companies which focusing on this strategy, minimizing their investments into store design, internal conception of appearance and they limit range of their assortment. Companies such as Aldi, Lidl, and Walmart implemented such strategies.

ABC Supermarkets total assets growth amounted to 71% in 2014 compared with 2010. Mostly, total assets increased due to current receivables growth, especially in 2011, when current receivables increased by 118% in comparison to 2010. Also total assets growth was caused by increase in tangible assets by 125% in 2014 compared to 2014 due to the same reasons as in case with OG Elektra. Tangible assets grew on €4 million (see table 2.9).

Total liabilities growth amounted to 42% per time period 2010–2014. Total liabilities increased due to borrowings increase by 14% and trade payables increase by 53% per the same time period.

Total equity growth of ABC Supermarkets was most significant among other supermarket chains and increased by 253% in 2014 compared to 2010. As it can be seen from annual reports, total equity increased occurred due growth in retained earnings and net profit, as in case with OG Elektra.

According to the income statement, sales increased by 47% during time period time period 2010–2014. At the same time, materials and consumables increased by 45% and staff costs increased by 42%. Thus, sales growth ahead expenses growth, what is indicating about favorable position.

It could be concluded, that drivers of success of each supermarket chain caused mostly by its own niche on the market.

- Maxima: due to highest growth of sales which caused by rapid investments expansion and attraction of customers due low pricing policy.
- Prisma: due to highest growth of sales and which caused by good location of their stores and high investments into equipment, service and innovation.

- At the same time profitability of the Selver caused by high mark-up on the goods.
- Profitability of OG Elektra and ABC Supermarkets caused by low depreciation of tangible assets. Also should be mentioned that growth of OG Elektra caused by minimizing their investments into store design, internal conception of appearance and etc.

As it can be seen from table 2.6, the growth of the Estonian supermarket industry by 77% dependent of seven studied enterprises growth. Consequently, it can be concluded that the activities of the seven companies took the largest share in the industry, from what can be draw conclusions for the entire industry.

Active investments in new stores and expansion of all participants of the industry leads to the growth rate decrease which declining from year to year. According to figure 1.1, growth rate of industry per time period 2004–2008 varied between 16%–11%, in years 2010–2014 growth rate decreased and varied between 8.7%–5.7% with an average food inflation 4.2%. As author considers, the growth rate will continue to decline.

As it can be seen from growth analysis some of the industry participants, especially Rimi already suffered from strong competition due outflow and dispersion of potential customers.

2.4. Efficiency of resource usage

2.4.1. Assets efficiency analysis

Assets turnover reflected in table 2.10, characterizes the efficiency of the available resources, regardless of the sources of their attraction. This factor indicates how many times per year performed the complete cycle of production and circulation, which bringing the corresponding effect in the form of profit.

Calculations shows (Table 2.10), that OG Elektra assets turnover indicator tends to decrease from year to year. Situation with Selver supermarket chain is also ambiguous and can be seen stable fall of indicator to 4.4 in 2014. Consequently, the dynamics of the value of assets turnover index decreased, which is regarded as a negative trend.

Also could be observed unstable situation with ETK and Rimi. Growth of assets turnover is observed in both companies in 2012 and the consequent decrease during the

remainder of the study period. Maxima assets turnover ratio tended to increase from 2010 to 2013, but subsequently dropped to 3.4 in 2014, which reflected as negative outcome. Such decreasing trend may indicate about misallocation of assets usage, but rather that the economic activity is not sufficiently developed for a given amount of investment in the assets of the company.

As it can be seen from table 2.10, ABC Supermarkets assets turnover ratio was fluctuated during the entire study period. However, in 2014 there was a significant increase in assets turnover ratio, what allows to suppose improvement of the situation.

Table 2.10. Assets turnover (times)

Company Name	2010	2011	2012	2013	2014
Rimi	6.3	6.0	6.3	6.1	5.9
Selver	4.9	4.7	4.6	4.7	4.4
ETK	4.3	4.2	4.8	4.7	4.1
Prisma	3.4	3.9	4.1	4.1	4.5
Maxima	2.0	2.6	2.7	3.5	3.4
ABC Supermarkets	3.2	2.6	2.7	2.5	2.7
OG Elektra	2.2	2.1	2.0	1.8	1.7

Source: Table compiled by the author and prepared on the basis of appendix 1, 2 and 3

Prisma after a slight drop in 2013 to 4.1 from 4.1 in the previous year, there was a sharp increase in assets turnover, which can be viewed as a positive trend in the enterprise. Such growth rate in the dynamics shows increase in sales volume and effective approach to the use of company assets.

Ratio of non-current assets turnover characterizes efficiency of non-current assets usage. To draw conclusions, it is necessary to analyze the change in the value of return on non-current assets in the dynamics of each investigated company.

According to the table 2.11, ETK, Selver and Rimi had the highest non-current assets turnover during 2010–2014. Prisma had one of the fastest growth of non-current assets turnover trend due to highest sales growth.

At the same time, ABC Supermarkets had unstable situation in comparison to the mentioned above companies. ABC Supermarkets non-current assets turnover increases with 12.4 times in 2010 to 14.9 times in 2011, after dropping to 7.6 in 2013, but increased to 8.1 times in 2014.

Table 2.11. Non-current assets turnover (times)

Company Name	2010	2011	2012	2013	2014
Selver	19.7	21.1	33.5	24.1	27.4
Rimi	17.2	19.3	18.6	21.6	25.0
ETK	18.3	19.4	20.7	21.8	21.3
Prisma	9.6	10.9	12.2	15.9	18.6
ABC Supermarkets	12.4	14.9	10.6	7.6	8.1
Maxima	2.7	4.8	5.1	6.2	6.3
OG Elektra	3.3	3.1	2.8	2.4	2.4

Source: Table compiled by the author and prepared on the basis of appendix 1, 2 and 3

OG Elektra had annual fall of non-current assets turnover with 3.3 in 2010 to 2.4 in 2014. Maxima return on non-current assets was growing by small tempo during time period 2010–2014. As it can be seen from table 2.11, OG Elektra and Maxima enterprises had lowest non-current assets turnover, what is evidenced about lack of sales and a high level of capital investments.

As it can be seen from table 2.12, highest inventory rate turnover had in average ABC Supermarkets and Rimi during observed period, but in case of ABC Supermarkets turnover rate tends to decrease in year to year and in case with Rimi vice versa.

Table 2.12. Inventory turnover (times)

Company Name	2010	2011	2012	2013	2014
ABC Supermarkets	20.4	20.3	19.9	17.4	16.9
Rimi	16.3	17.1	19.3	18.7	17.8
ETK	20.6	18.1	17.6	17.3	14.5
Maxima	19.1	15.8	14.7	14.6	14.6
Selver	17.1	17.4	16.3	15.5	14.1
Prisma	12.7	13.6	13.9	14.8	14.5
OG Elektra	10.3	11.4	11.8	9.2	6.4

Source: Table compiled by the author and prepared on the basis of appendix 1, 2 and 3

As author considers, highest inventory turnover rate in case with ABC Supermarkets caused by the lowest inventory value in comparison to other supermarket chains.

OG Elektra had the lowest inventory turnover rate which decreased by 37% (or by 3.9 times) during investigated period. As it can be seen from balance sheet, OG Elektra increased their inventory value by 124% in 2014 compared to 2010.

As author considers, reduction of inventory turnover rate may reflect the accumulation of excess inventory, inefficient storage management or accumulation of illiquid products.

As author suggests, mostly this indicator decreased among those supermarket chains, which were expanding. Thus, during expansion they ramped up their inventory value.

According to table 2.13, can be seen that OG Elektra had lowest and Rimi had highest working capital turnover during investigated period.

Table 2.13. Working capital turnover (times)

Company name	2010	2011	2012	2013	2014
Rimi	38.9	82.8	50.9	35.3	34.1
ETK	19.7	22.1	28.6	33.2	29.3
Selver	12.7	13.3	14.7	16.7	13.7
ABC Supermarkets	22.9	15.1	12.2	9.6	9.5
Prisma	6.3	8.2	8.6	8.7	9.4
Maxima	4.1	5.3	5.8	9.0	8.8
OG Elektra	3.1	2.7	2.5	2.4	2.3

Source: Table compiled by the author and prepared on the basis of appendix 1, 2 and 3

As author considers, that indicator strongly depends on structure of liabilities and equity in balance sheet (see figure 2.2). Thus, such companies who had low share of equity in balance sheet during investigated period (as Rimi and ETK) had highest working capital turnover and vice versa.

As author considers, this indicators (in table 2.13) should be studied only in case if compare it to share of equity in figure 2.2.

From table 2.13, could be clearly seen that ETK and Selver had increase in their capital turnover, but at the same time these companies had decrease of equity share in balance sheet during investigated period. As it can be seen, OG Elektra had decrease of working capital turnover by 26%, but at the same time equity share decreased only by 2% (from 74% down to 72%), what is evidenced about worsening of the financial sustainability.

Also can be seen that Prisma improved their capital turnover ratio. Their share of equity decreased by 12.7% in balance sheet (figure 2.2) and at the same time, their capital turnover ratio increased by 49% per time period 2010–2014.

Same situation could be observed in Maxima's case, where share of equity decreased by 38%, but increase in capital turnover amounted to 114% (4.1 times in 2010 and 8.8 times in 2014). This was contributed to an increase of these companies' financial stability.

Thus, Maxima and Prisma showed positive growth dynamics by capital turnover and OG Elektra negative. Other companies had approximately same position with little fluctuations during studied period.

According to Appendix 5, author calculated cash conversion cycle (CCC) of each company. CCC indicator is measured in days and was calculated as follows:

CCC = DIO + DSO - DPO, where DIO is days inventory outstanding; DPO is days payable outstanding; DSO is days sales outstanding.

According to the calculations, OG Elektra had longest cash conversion cycle, which reaches 29 days in 2014. As it can be seen from balance sheet OG Elektra had significant increase in CCC, especially in 2014 due to increase in inventories by 63% and consequently increase in DIO in 2014 compared to 2013 (from 39 days in 2013 up to 53 days in 2014). ABC Supermarkets had also one of the longest CCC during studied time, which reaches 23 days in 2014. As it can be seen from calculations, ABC Supermarkets had one of the highest DSO duration in comparison to other companies.

Prisma, Selver and ETK had short cash conversion cycle, which evidenced about quick money return invested in current assets.

But at the same time, it is difficult to mention, that short conversion cycle at such supermarket chains, as Rimi and especially Maxima (which have the highest negative values for the entire study period) is a positive trend. In some companies CCC caries negative or optimal values (what is preferable) due to long payable period (DPO). For example, in ABC Supermarkets, Rimi, Maxima and Selver case, DPO varied between 56–70 days in 2014 while normal period is around 30 days.

It could be explained by sector specifics (Customers immediately pay for products and thereby increasing speed of cash conversion cycle). Eventually, it can negatively impact on company reputation with suppliers.

Thus, by the author opinion most preferable cash conversion cycle had ETK, Prisma and Selver. But in case with Prisma CCC tends to become longer (what is not positive tendency) during investigated time, especially in 2014 due to increase in receivables.

ABC Supermarkets (during 2010–2013) and OG Elektra (during 2013–2014) had a non-preferable cash conversion cycle.

As author considers, Maxima and Rimi had shortest CCC, what is positive trend, but long payable period can spoil company reputation with suppliers.

For better understanding of companies' assets usage efficiency, author compiled table 2.14, which reflects trends of increment or decrement of assets efficiency usage during time period 2010–2014.

Table 2.14. Trends of increment or decrement of assets and capital usage during time period 2010–2014 (qualitative)

Company Name	Assets turnover	Non-current assets turnover	Inventory turnover	Usage of working capital	CCC
Prisma	↑	↑	↑	↑	↓
Maxima	↑	↑	↓	↑	↑
Selver	↓	↑	↓	↑	↑
ETK	↓	↑	↓	↑	↑
Rimi	↓	↑	↓	↓	↓
ABC Supermarkets	↓	↓	↓	↓	↓
OG Elektra	↓	↓	↓	↓	↓

Source: Compiled by the author on the basis of tables 2.10– 2.14 and appendix 5.

Thus, can be concluded:

- Prisma and Maxima by most part of indicators of assets efficiency usage surpass its competitors. But in case with Prisma negative trend of cash conversion cycle increment not affected so negatively on relations with suppliers, as in case with Maxima or Rimi.
- ABC Supermarkets, OG Elektra and Rimi had the reverse situation. These companies by all indicators have worsening of assets efficiency usage. Rimi had decrease in usage of working capital due to lowest owners' capital share on the balance sheet.
- At the same time Selver and ETK had negative trend in assets turnover and inventory turnover. As it can be seen from balance sheet, such negative trend was caused by significantly inventory growth.

2.4.2. Labor force efficiency analysis

ETK, ABC Supermarkets, Rimi and OG Elektra had stable tendency of monthly avarege salary growth (see table 2.4). Prisma had decline of average wage in 2011, subsequent increase in 2012, decrease in 2013 and significant increase in 2014. Selver and Maxima had decrease of average salary trend only in 2011 which followed by a steady growth in a rest of period. In quantitative terms, the highest average monthly salary had ETK in 2014, which amounted to €1,215.

As it can be seen from table 2.15, in absolute comparison Prisma and ABC Supermarkets had highest labor productivity during entire studied period (2010–2014). ABC Supermarkets labor productivity indices in average amounted to 1.07 and Prisma labor productivity amounted to 1.06, while other supermarket chains average index of labor productivity was fluctuating from 1.01–1.03 during the same time period.

At the same time, highest average salary per employee index had ABC Supermarkets (1.06), ETK (1.06) and OG Elektra (1.10), what is not favorable trend.

Selver and ETK had highest average capital per employee index (which amounted to in Selver's case– 1.43 and in ETK's case 1.24) what is not preferable, while Prisma and ABC Supermarkets had the lowest (Prisma– 1.03, ABC Supermarkets– 0.97).

Comparing indices of labor productivity to capital and salary per employee could be seen next tendencies:

OG Elektra capital per employee index was higher than labor productivity index during all observed period (see table 2.15). Selver, Maxima and ETK capital per employee index was higher than labor productivity index in 2014, in the remaining years of the study period it was below.

Rimi capital per employee index lower than the index of labor productivity in 2011 and in later ivestigated time interval it was above.

It should be noted, that if capital per employee index higher than labor productivity index it is a negative trend and it is may to indicate inefficient use of resources and wrong of capital investment strategy.

Prisma had reverse situation. During investigation of the whole period capital per employee index was lower than labor productivity index. ABC Supermarkets had unstable

situation and as it can be seen from table 2.15, capital per employee index was exceeding the index of labor productivity in 2011 and 2013, but in 2012 and 2014 the situation was reversed.

Table 2.15. Net sales, salary and capital per employee (indices)

Company name	Index	2011/2010	2012/2011	2013/2012	2014/2013
OG Elektra	Labor productivity	1.11	1.04	0.95	1.02
	Salary per employee	1.14 *	1.10 *	1.10 *	1.06 *
	Capital per employee	1.25 *	1.09 *	1.10 *	1.12 *
Prisma	Labor productivity	0.99	1.10	1.02	1.12
	Salary per employee	0.94	1.09	0.99	1.10
	Capital per employee	0.77	1.05	1.01	1.03
Selver	Labor productivity	0.97	1.02	1.07	0.99
	Salary per employee	0.87	0.99	1.08 *	1.04 *
	Capital per employee	0.91	0.94	1.03	1.24 *
ETK	Labor productivity	1.06	0.98	0.98	1.07
	Salary per employee	1.04	1.06 *	1.04 *	1.09 *
	Capital per employee	0.98	0.74	0.95	1.43 *
Maxima	Labor productivity	0.92	1.02	1.14	1.01
	Salary per employee	0.99 *	1.05 *	1.11	1.05 *
	Capital per employee	0.58	0.91	0.66	1.04 *
Rimi	Labor productivity	1.03	0.99	1.03	1.00
	Salary per employee	1.01	1.03 *	1.02 *	1.04 *
	Capital per employee	0.48	1.61 *	1.49 *	1.03 *
ABC Supermarkets	Labor productivity	1.12	1.04	1.03	1.09
	Salary per employee	1.02	1.08 *	1.06 *	1.09
	Capital per employee	1.60 *	0.98	1.08 *	0.97

*— when capital per employee or salary per employee indices higher than labor productivity index (not preferable trend).

Source: Table compiled by the author and prepared on the basis of appendix 1, 2 and 3

It can be concluded, that Prisma, Selver and ABC Supermarkets, on the basis of this indicator had favorable trends in the use of their funds (especially Prisma, which improved this indicator from year to year). Consequently, these companies were conducting more effective investment policy.

For more efficient analysis of labor resources usage, it is necessary also to compare the rate of growth in labor productivity with an average monthly salary per employee of the company.

As it can be seen from table 2.15, Prisma during time period 2010–2014 index of labor productivity was higher than index salary per employee, which is a favorable trend for the enterprise.

At the same time, ABC Supermarkets had positive tendency since 2012, when labor productivity index was exeeding salary per employee index. In the case of these two supermarket chains, it can be concluded that they was using their human resources more effectively and they were keeping a healthy balance between wages and performance of each employee. For Prisma, particulary that means conduction of successful personnel policy and taking into account high level of wages.

OG Elektra productivity index lower than salary per employee index during all investigated period.

Selver productivity index was exeeding salary per employee index in 2011 and 2012, but during period 2013–2014 salary per employee index was higher, what is negative trend (it should be noted that the difference between the rates in 2013 amounted to 1.08 -1.07 = 0.01, and in 2014 already 1.04 - 0.99 = 0.5, what is indicating of deterioration of the situation)

ETK Supermarket chain had similar situation, when productivity index was exeeding salary per employee index only in 2011.

Maxima and Rimi had also productivity issues during all investigated period, except year 2013 when productivity index was higher than salary per employee index.

Thus could be concluded that ETK, Rimi and Maxima during investigated period 2010–2014 productivity index was lower than salary per employee index, what is evidenced about unstable situation and wages are too high compared with sales. At the same time all mentioned above companies capital per employee index was exceeding labor productivity index, what is a negative trend and it is may to indicate about inefficient use of resources and wrong capital investment strategy.

As author considers, salary per employee index in Maxima and Rimi case exceeds labor productivity index due to largest amount of employees in comparison to other companies (see Appendix 1). At the same time, ETK salary per employee index was exceeding labor productivity index due largest salaries in comparison to other companies (see table 2.4).

Selver, ABC Supermarkets and especially Prisma had most stable value of all indicators in comparison to the all above mentioned enterprises.

2.5. Analysis of Profitability

For more effective analysis of profitability, author choosed indicator return on capital employed (ROCE) instead of return on equity (ROE). As author considers, analysis of capital employed turnover will provide more comprehensive results in case of analysis of supermarket sector, because share of equity and share of liabilities is too varied in balance sheets of the companies (see figure 2.2).

According to the factor analysis of profitability, ROCE is complex indicator and its value depends on the following three ratios (financial leverage or "a", assets turnover or "b", return on sales or "c"). Changes of ROCE reflects general trend (growth or reduction) of business efficiency. According to the analysis of main ratios , it is possible to determine what had greatest influence on the observed changes of ROCE.

In absolute comparison Selver had highest ROCE indicator in average during time period (2010–2014). At the same time, ETK and Maxima had reverse situation.

Calculations (Appendix 6) shows, that all investigated companies, except ETK and Prisma, had a decrease in return on capital employed during time period 2010–2014. To understand the reason for these changes, it is necessary to analyze the dynamics of the components which was affected on the return on equity.

Ratio „financial leverage" is used to characterize the financial activities of the enterprise.

According to the calculations, it is possible to conclude, that the greater the relative volume of the attracted borrowings, the greater the amount of the interest paid on them and the higher the level of financial leverage. Consequently, it is possible to determine, in how many times the company's net sales exceeds operating profit. The company, which has a high level of financial leverage is considered as financially dependent. The optimum value of financial leverage varied around two, consequently the relation between borrowed funds and own resources should be equal one to one.

According to the calculations (Appendix 6), it can be seen the level of financial leverage mostly optimal in Maxima (varied between 1.53 in 2010 to 2.57 in 2014), OG Elektra (slightly fluctuates around 1.33) and Prisma (the maximum value of 2.11 was reached in 2014).

Thus, can be concluded OG Elektra mostly financed by own funds and therefore located in the low level of financial risk.

In case of ABC Supermarkets, can be seen a steady decline in this ratio with 4.03 in 2011 down to 2.41 in 2014, what is indicating about reduction of potential financial risks and optimization in the capital structure.

In companies such as Rimi (which in 2014 amounted to 5.8 and in 2012 reached its maximum boundary during study period and amounted to 10.27), ETK (annual growth of indicator from 3.24 in 2010 to 3.83 in 2014) and Selver (growth rate from 2.92 in 2010 to 3.03 in 2014) there is too high leverage, which may be subject to high risk.

Consequently, with an increase in financial leverage for these companies is increasing the danger to remain without income, in case of even a slight shortfall in the projected sales volume (with a probability of negative values of ROCE). Also, it can be concluded that aforementioned companies due to the high level of financial leverage are more susceptible to increased interest rates.

Ratio „assets turnover“ used to quantify the effectiveness of assets management.

Also should be mentioned, that during evaluation of the assets management, it is necessary to take into account the fact that the assets turnover also depends on the structure of the capital: the bigger share of fixed capital, the lower the turnover ratio (as the fixed capital turns slowly, consequently the duration of the aggregate capital turnover is higher).

As it can be seen from calculations, Prisma assets turnover tends to rise, which occurs annually by small steps (thus, the rate increased from 3.53 in 2010 to 4.41 in 2014). The tendency of growth is also was observed in Maxima supermarket chain, but at a higher rate (during the analyzed period assets turnover rose from 2.02 in 2010 to 3.55 in 2014). The increase in this indicator is a positive trend and indicates about more efficient use of company assets.

Rimi had a fairly high value of the assets turnover indicator, which remains approximately at the same level during the entire time period (5.88 in 2010 and 5.99 in 2014).

ETK had approximately same position as Rimi and assets turnover was unchanged (in 2010 and 2014 indicator amounted to 4.50, but in the middle of the period there was a unsignificant growth and decline).

OG Elektra and Selver had stable downward of trend (OG Elektra assets turnover ratio falls from 2.36 in 2010 to 1.86 in 2014. Selver had decrease from 5.04 in 2010 to 4.67 in 2014).

Also it can be seen, that ABC Supermarkets had decrease in assets turnover in 2011 down to 2.92 (in 2010 it was 3.48) and then it was fluctuated with minor deviations. The decline of this ratio indicates about the presence of challenges in assets management.

Thus, it is clear from the statements that sales dont have tendency to decrease, but calculations shows, that Selver and OG Elektra have a steady decline in assets turnover.

As author considers, reduction of assets turnover was caused by the fact of expansion and tangible assets growth.

Ratio „return on sales“ gives oportunity to evaluate the effectiveness of the primary activities of production by focusing on the optimal management of production costs, sales volumes and selling prices.

As author considers, factors which affecting on the change in return on sales ratio are divided into two groups:

1. Internal -control of product quality, cost structure, organization, accounting and etc. This factor in section 1.3, characterized as „Vertical“ way of development by Connor in his research “Evolving Research on Price Competition in the Grocery Retailing Industry”

2. External - the rate of inflation, changes in the level of competition, changes in legislation. This factor in section 1.3, characterized as „Horizontal“ way of development.

The calculations shows, that ABC Supermarkets, Maxima, OG Elektra and Selver return on sales approximately remain unchanged, but value of this ratio is not high, what is not preferable. Rimi had decrease of return on sales since 2013. As it can be seen, Rimi cost reduction profitability caused by the fact, that cost growth rate outstrips sales growth. Thus, reduction of return on sales is not favorable trend. The reasons may be factors such as inflationary growth, lowering prices increasing costs and etc. At the same time, the reasons for such a sharp decline may be an increase in concurrency struggle, affecting the pricing policy, as well as inefficient cost control.

At the same time ETK had tendency by increase in return on sales by small steps, what is positive trend and can be explained by increase in earnings before taxes (EBT). In Prisma

case also observed growth in return on sales ratio. In each case, the changes can be caused by changes in EBT.

As author considers, increase in return on sales can be caused by a rise of prices for the products, changes in assortment and due to changes in the cost structure. This trend is favorable in that case, when reduction rate of expenses dont outpace reduction of sales rate .

By using method of chain substitutions can be analyzed which ratio (financial leverage or “a”, assets turnover or “b”, return on sales or “c”) had biggest influence on the change in return on capital employed (ROCE).

To do this, it should be calculated system of conditional parameters T' and T'', as well as actual value T1. By subtracting received serial differences it is possible to find due to which components was occurred changes in ROCE. After that, should be calculated overall change of employed capital profitability (T∆). Thus, could be calculated which factors influenced on change in ROCE to the greatest extent (Appendix 6).

Thus, could be revealed next changes:

ABC Supermarkets. Significant influence on changes in return on capital employed in 2011 and 2014 was played by changes in return on sales and in 2012 and 2013 by changes in financial leverage.

Prisma positive changes in ROCE was caused by return on sales during entire studied period.

OG Elektra changes in ROCE was caused by return on sales in 2011–2012, by assets turnover in 2013 and by changes in financial leverage in 2014.

Rimi return of capital employed was significantly influenced by the following factors: in 2011–2012 and 2014 by return on sales and in 2013 by financial leverage.

In 2011–2012 and 2014 Maxima changes in ROCE was caused by changes in return on sales and in 2013 by assets turnover.

ETK and Selver had similiar situation during entire investigated period. The largest impact on ROE played return on sales.

Generally, could be concluded that significant positive changes in ROCE trend had only Prisma (during all entire period) and ETK (only in 2014 compared to 2013).

At the same time, Rimi and Selver had significant worsening of profitability. Other supermarket chains value of ROCE was fluctuated in one range during time period 2010–2014.

2.6. Matrix Analysis

According to the methodology provided in book „Theory of Economic Analysis“ 1987 can be seen organized matrix model represented by Estonian researcher Uno Mereste for overall assessment of company economic efficiency. Matrix model consists of quantitative indicators (ratios).

Subsequently, in 1987 by Alver and Järve was offered an sequence of indicators in matrix model. According to this order, resources of the company converted into results through expenses. Alver and Järve are intended use of the principle of intensive development in which performance indicators are arranged in matrix in descending order, based on the growth rate. (Alver, Järve, 1989)

Consequently, author of this reserach selected five indicators to include them into efficiency matrix for analysis of each selected supermarket chain (see table 2.16).

Table 2.16. The analyzed matrix model

Quant-itative indicator	Operating profit (P)	Net sales (S)	COGS (C)	Machienery (M)	Number of employees (E)
P	11 1.0				
S	**12 P/S Profit Margin**	22 1.0			
C	13 P/C Profit to COGS	**23 S/C Net sales to COGS**	33 1.0		
M	14 P/M Profit to Machienery	24 S/M Net sales to Machienery	**34 C/M COGS to Machinery**	44 1.0	
E	**15 P/E Profit per Employee**	25 S/E Net sales per Employee	35 C/E COGS per employee	**45 M/E Machinery per employee**	55 1.0

Source: Compiled by the author, Mereste (1987, 245)

According to table 2.16, Resource indicators will consists of:

- Number of employees, which reflected in matrix as „E“ indicator
- Machienery and equipment + other equipment reflected in matrix as „M“

Expenses indicator will consist of:

- Goods, materials and services (COGS) reflected in matrix as „C“ indicator

Result indicators will consists of:

- Net sales reflected in matrix as „S“ indicator
- Operating profit reflected in matrix as „P“ indicator

Indicator located in the cell 15 (profit per employee) is the main investigated indicator. Chages of profit per employee indicator depends on changes in indicators located in 12, 23, 34, 45 cells (which when multiplied by each other give a result of cell 15). Also will be conducted factor analysis to measure the quantitative impact of changes in the above mentioned factors.

Author of this research selected all mentioned above indicators due to supermarket sector specifics.

Such resources indicators was selected, that initially company hire employees and then purchase equipment and machinery for further activities. Equipment, machienery and other equipment reflected in matrix model by initial cost (not depreciated), what is caused by significant difference between useful life of tangible assets among supermarkets chains.

At the same time, such expenses indicators, as goods, materials and consumables (COGS) was selected due to highest share of them to sales in income statement. And as author suggests, if they will be reflected in matrix they will represent real picture of companies expenses management.

As performance indicators (results) was selected operating profit and net sales. Operating profit was choosed instead of net profit due to specifics of Estonian market, because income tax expenses does not included into operating profit calculation. Operating profit is not taxable in Estonia, but in Latvia it is taxable. For example, Selver was operating on Latvian market around 3 years of entire studied period, thus, selected operating profit indicator will provide more comparable data between supermarket chains.

According to calculations provided in appendix 7 and figure 2.6, could be made next conlusions:

Maxima compound annual growth rate (CAGR) of operating profit per employee amounted to -19% (during 2010–2014), what is not favorable trend. As it can be seen, main decrease in operating profit per employee (P/E) occured in 2011, when operating profit per employee component decreased from €2.6 thousands in 2010 down to -€2.53 thousands in 2011. As it can be seen from matrix, such rapid decrease was caused by three factors. Firstly, by

decrease in sales on COGS (S/C) component from €1.14 thousand down to €1.11 thousand due to rapid increase in materials and consumables costs. Secondly, due to increase of employees number by 23%. Thirdly, by decrease in profit margin (P/S) from 2.6% down to -2.8% due to the impairment of tangible assets, when Maxima sold 26 objects and consequently increase in other operating expenses.

Generally, after year 2011 Maxima had positive growth (by small pace) of operating profit per employee.

During time period 2010–2014, Selver compound annual growth rate of P/E component also was negative and amounted to -11%. As it can be seen from matrix analysis (Appendix 7), major changes of CAGR occured in 2013, when profit per employee decreased from €6.38 thousand down to €3.33 thousand. Such decline in P/E component (figure 2.6) was caused by changes in machinery and equipment on employee (M/E) changes and by changes in S/C component. As it can be seen, M/E component increased from €16.15 thousand up to €19.26 thousand.

As author suggests, such change occured due to expansion and opening 5 new stores in 2013, where was needed additional machinery and equipment. According to appendix 1, machinery and equipment increased by 16% in 2013 and amounted to €39.7 million compared to 2012, when it was €34.2 million. At the same time, negative changes in P/E component was caused by changes in sales on COGS component in 2013. As it can be seen, S/C component decreased from €1.3 in 2012 thousand down to €1.26 thousand in 2013. Such changes occured in Maxima case. As author considers, this change in S/C component in both cases was caused by prices decrease due to increasing of competition.

Rimi and ABC Supermarkets had similar situation. As it can be seen from matrix analysis, both companies have positive rate of operating profit per employee component during time period 2010–2013, but in 2014 was rapid decline (figure 2.6). In case with Rimi, profit per employee component dropped from €1.45 in 2013 to €0.03 thousand in 2014. In case with ABC Supermarkets this decline occured from €3.92 thousand in 2013 down to €2.78 thousand in 2014. In both cases, such changes was caused by change in profit margin component. In ABC Supermarkets case P/S changed from 3.0% to 2.0% and in case with Rimi from 0.8% to 0.0%.

But at the same time, chages in profit margin in these companies was caused by different reasons. Rimi had lowest growth rate of sales in comparison to other supermarkets chains (see

table 2.6) and ABC Supermarkets had operating profit decrease due to other operating expenses increment.

Should be also mentioned, that ABC Supermarkets had decrease in P/E component due to increase of M/E component. As it can be seen, machinery and equipment per employee amounted to €17.65 thousand in 2014 compared to 2013, when it was €15.24 thousand. As it can be seen, ABC Supermarkets had increase in machinery and equipment by 23.9% in 2014 compared to 2013.

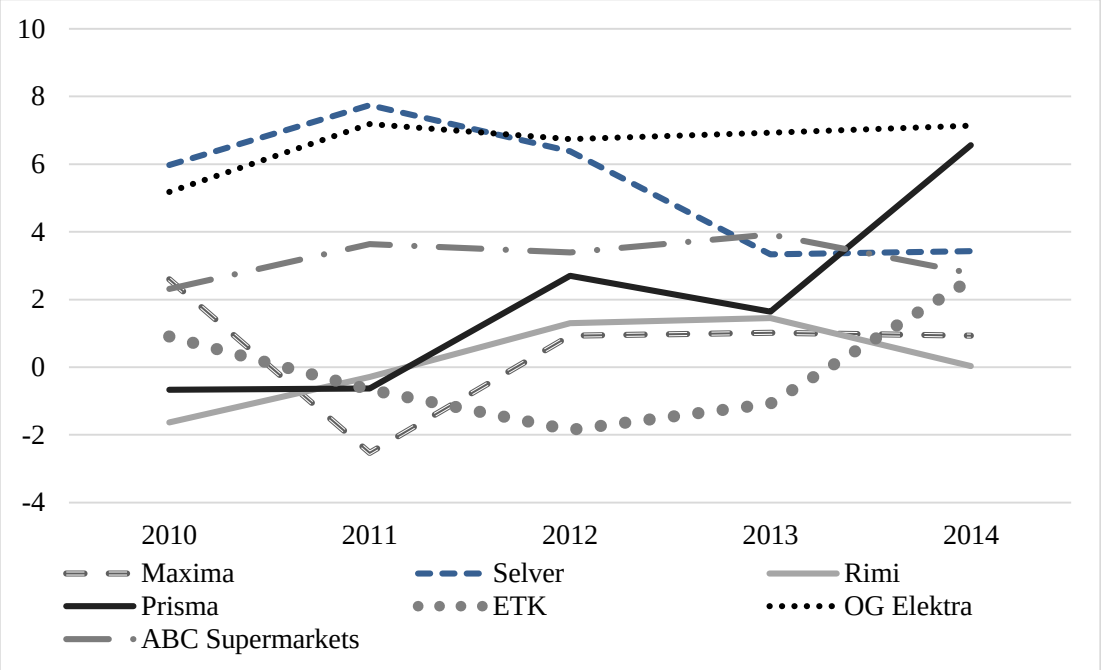

Figure 2.6. Operating profit per employee (thousands euros)

Source: Compiled by the author (appendices 7 and 8)

Prisma and OG Elektra had also similar situations. Generally, OG Elektra had 7% of compound annual growth rate during time period 2010–2014 and consequently, stable increase of operating profit on employee components.

Same situation can be observed in Prisma case, but in years 2010–2011 their P/S component was negative and after 2011 started rapidly increase from €2.7 thousand up to €6.56 thousand in 2014. As it can be seen from matrix analysis P/E component was rapidly increased only due to increase in operating profit per employee component. As it can be seen, P/S component jumped from 0.9% in 2013 up to 3.2% in 2014, what is favorable. As it was mentioned in previous sections, Prisma had one of the highest growth rates of sales in

comparison to other supermarket chains, which occured not by expansion activities, as in case with other supermarket chains. As it was mentioned before, Prisma had one of the most efficient assets and labor force management policies and due to correct placement of their stores.

At the same time OG Elektra growth of P/E component was caused by growth in profit margin component (as in case with Prisma), which in turn was positive due to reduction of COGS. As it can be seen, second positive trend which affected on P/E component increment in OG Elektra case, is stable (by small pace) growth of S/C component.

As it can be seen it increased up to €1.17 thousand in 2014 from 2010, when it amounted to €1.14 thousand. As it was mentioned before, OG Elektra positive growth caused by cost saving policy, when company trying to decrease their expenses as much as possible.

ETK P/E component was strongly negative during time period 2011–2013 (figure 2.6). As it can be seen from appendix 7, their P/E component was fluctuating from -€0.66 thousand in 2011 down to -€1.08 thousand in 2013. Such negative value of component P/E was mostly caused by decrement in sales on cost of goods sold component from €1.12 down to €1.05 thousand, what is evidenced about high materials and consumables expenses in comparison to sales volumes. As it was mentioned in previous sections, such low values of component S/C was casused by the lowest mark-up on goods (in comparison to other chains), especially in rural format of stores "A ja O" (which is majority in comparison to other format of stores). In 2014, ETK had positive P/E component, which increased from -€1.08 thousand in 2013 up to €2.58 thousand.

As it can be seen, it was caused by profit margin increase from -0.3% up to 0.7%. As author considers, that occured due to expansion by ETK "Konsum" store format and reduction of "A ja O" stores format. AS it was mentioned previously, ETK opened six new "Konsum" stores in 2014.

According to factor analysis of P/E component (appendix 8) and table 2.17, could be seen that changes in profit on employee component was caused mostly, by the same factors, as in case with matrix analysis (appendix 7).

As it can be seen from table 2.17, the biggest impact on operating profit on employee component (mostly, among all investigated companies) was exerted by operating profit on sales component.Basically, this is understandable, beacause performace of the companies directly depends from the sales values and profit.

Table 2.17. The greatest impact on component P/E by other components of factor analysis (%)

Company name	2011/2010	2012/2011	2013/2012	2014/2013
OG Elektra	72%– P/S	168%– P/S	265%– P/S	158%– M/E
Prisma	223%– M/E	102%– P/S	105%– P/S	96%– P/S
Selver	110%– P/S	113%– P/S	114%– P/S	(-226%)– M/E
ETK	103%– P/S	101%– P/S	96%– P/S	102%– P/S
Maxima	96%– P/S	102%– P/S	295%– M/E	108%– P/S
Rimi	103%– P/S	100%– P/S	73%– P/S	100%– P/S
ABC Supermarkets	80%– P/S	(-503%)– M/E	98%– M/E	131%– P/S

Source: Compiled by author (appendix 8)

In some separately taken cases, impact was caused also by machinery on employee (M/E) component. As it can be seen from factor analysis (table 2.17) such changes occured in case with ABC Supermarkets (2012–2013), Maxima (2013) and Selver (2014).

According to the factor analysis and matrix analysis of operating profit on employee, could be made next conlusions:

The largest supermarket chains as Selver (in 2013–2014), Maxima (in 2011), Rimi (in 2014) and ETK (in 2011–2014) had decrease in S/C component, what is not preferable trend. Author considers, such decline was caused mostly due to competitive struggle and consequently, decrease in mark-up between COGS and selling prices of products.

Such supermarkets chains as Maxima (in 2011), Selver (in 2013), ABC Supermarkets (2012 and 2014), ETK (in 2014 and 2011), OG Elektra (2013) had changes in M/E component, what is evidenced about changes in number of employees and initial cost of machinery and equipment. As it was mentioned earlier, this changes caused by expansion activities of this supermarket chains and consequently equipment value and employee number growth.

2.7. Ranking of supermarket chains based on overall performance efficiency indicator (OPEI)

According to Uno Mereste studies (1984, 156), ranking of enterprises by overall performance efficiency indicator (OPEI) can be conducted by using arithmetic mean from the indices of efficiency matrix variable composition

$$I_E = \frac{2 \times \sum I}{n^2 - n} \quad (1)$$

where

I – indices of efficiency matrix variable composition
n – number of matrix initial quantitative indicators

At the same time, Root in his PhD thesis in 1983 offering ranking of enterprises by OPEI by using geometric mean from indices of efficiency matrix variable composition

$$I_E = \sqrt[\frac{n^2-n}{2}]{\prod I} \quad (2)$$

According to Alver (2015, 12), "OPEI can be used to compare enterprises based on the relative economic efficiency of their business activities. At the same time, OPEI can be used by ranking enterprises based on relative chages (dynamics) in the economic efficiency of their business activities".

Author suggested to take Selver as basic enterprise for OPEI comparison with other supermarket chains due to one of the highest operating profit and stable financial position during time period 2010–2014.

As it can be seen from table 2.18, Selver on Maxima (in 2011), Selver on Rimi (2010–2011) and Selver on ETK (2011–2013) overall performance efficiency indicator can not be comparable and not reflected due to operating loss of these companies.

But with respect to other time periods, which can be comparable, it can be seen that Selver efficiency higher than Maxima, Rimi, ETK and mostly than ABC Supermarkets efficiency by arithmetic mean.

But at the same time, OG Elektra more efficient than Selver during time period 2012–2014 and Prisma more efficient than Selver by 17% in 2014. Thus, by arithmetic mean in 2014 Prisma is most efficient supermarket chain in comparison to other.

According to appendix 10, by geometric mean Selver more efficient than Maxima (in 2010 and 2012–2014 time period) by 84%, more efficient than Rimi (2012–2014 time period) by 565%, more efficient than Prisma (2012–2014 time period) by 32%, more efficient than ETK (in 2010 and 2014) by 139% and more efficient than ABC Supermarkets (2010–2014 time

period) by 24%. But at the same time, Selver was less efficient than OG Elektra during time period 2010–2014 by 4%.

Table 2.18. OPEI of Selver by arithmetic mean in comparison to other supermarket chains 2010– 2014 (%)

Company	2010	2011	2012	2013	2014
Selver/Maxima	40%	-	165%	67%	81%
Selver/Rimi	-	-	193%	61%	6113%
Selver/Prisma	-	-	82%	52%	-17%
Selver/ ETK	353%	-	-	-	25%
Selver/ OG Elektra	8%	2%	-2%	-13%	-15%
Selver/ ABC Supermarkets	50%	36%	33%	-2%	13%

Source: Compiled by author (Appendix 10)

Thus, could be concluded that by arithmetic mean in 2014 most efficient was Prisma and by geometric mean most efficient was OG Elektra. But at the same time should be noted, that Prisma had highest efficiency growth trend in comparison to other supermarket chains.

CONCLUSIONS

The purpose of this Master Thesis was to use annual reports to detect differences and similarities between seven main supermarket chains that operate in Estonia and to propose recommendations that could improve retail efficiency, competitiveness, and growth prospects.

The object of this Master Thesis was the seven biggest supermarket chains that operated in Estonia based on the analysis of their annual reports for 2010–2014.

According to **vertical analysis** and **growth analysis** of balance sheets, income statements and cash flow statements, the following conclusions can be made:

1) OG Elektra had the most sustainable financial position on the market due to highest capitalization. This advantage was caused by lowest depreciation expenses due to more useful life period and lowest price limit of tangible assets in comparison to other supermarket chains. Growth was created by minimizing investments into store design, internal conception of appearance and a strict cost saving policy.
2) Prisma also had high market capitalization. Their profit margin increased due to a higher sales increase per store compared to other supermarket chains. Prisma has not opened many new stores compared to other supermarket chains. Their success was mostly caused by the good store location and high investments into equipment, service and innovation that attracts customers.
3) Selver's stable operating margin from year to year is achieved using the highest pricing policy among other supermarket chains and consequently, the highest mark-up between sales and cost of goods sold. Only Selver pays dividents to shareholders annualy wich is favorable trend.
4) Maxima's success consists of the lowest staff costs, lowest lease payments, lowest pricing policy, and the highest level of sales among the supermarket chains. Maxima had one of the highest growth rate in sales that was fueled by the most rapid expansion compared to other retail chains.

5) Rimi had the most unsustainable position on the market due to lowest level of owners equity of around 15% which is not a favorable trend. At the same time, Rimi had one of the lowest operating margins due to annual increases in lease payments and staff cost. At the same time, it had the most minor changes in sales growth in comparison to other supermarket chains. Rimi's sales growth was lower than food price inflation.
6) ETK had a significant capitalization decline and an unsustainable position on the market due to lowest operating margin among other supermarket chains. In turn, lowest operating margin was caused by a low mark-up due to a policy of low prices in "A ja O" convenience format stores that were located mostly in rural areas with low purchasing power.
7) Financial position of ABC Supermarkets improved during 2010–2014, but not sufficiently. Their share of liabilities was still too high in relation to equity in 2014. Same as OG Elektra, ABC Supermarkets had low depreciation expenses due to more useful life period and lowest price limit of tangible assets.

Responding to the first question "Which main players of the retail industry in Estonia use their **assets and labor force** more efficiently?"

Prisma's and Maxima's assets efficiency usage indicators surpass their competitors. It is caused by a significant increase in sales volumes and effective approach to asset management.

ABC Supermarkets, OG Elektra and Rimi had the reverse situation. These companies by all indicators had worsening assets efficiency usage. That is an evidence of a poor policy for asset management.

Labor productivity of Prisma, Selver and ABC Supermarkets was more successful compared to other chains. This was especially true for Prisma which improved this indicator from year to year. Consequently, these companies were conducting a more effective investment policy.

At the same time, ETK, Rimi and Maxima productivity index was lower than salary per employee index and capital per employee index which shows that wages are too high compared to sales. These companies are conducting a poor capital investment strategy. In Maxima and Rimi such negative consequences caused by largest amount of employees in comparison to other companies and in ETK case, due to larger salaries in comparison to other companies.

Responding on the second question "Which major retail chains in Estonia are more **profitable and growing faster**?"

Only Prisma showed significant changes in profitability due to profit margin and sales growth. At the same time, OG Elektra and Maxima had profitability indicators fluctuating around the same values.

It should be mentioned that Selver, Rimi and ABC Supermarkets return on capital employed decreased significantly.

It can be concluded that ROCE (profitability indicator) in majority of the companies during time period 2011–2013 strongly depends on total sales. Thus, growth rate ranges of all mentioned above companies, except Prisma, are located below expectations. This indicates gradual market saturation.

Responding to the third question "What are the **drivers of success** in retail trade in Estonia?"

- At OG Elektra, the driver of success is the cost saving policy.
- Selver's driver of success is in the highest pricing policy and consequently in the highest mark-up.
- In Prisma's case, success is caused by highest sales volume growth which is due to good location of their stores and one of the widest assortments of items compared to other supermarket chains.
- Maxima's success is caused by the highest investment in expansion and a lowest pricing policy that attracts customers.

Responding to the last question "Which supermarket chains are **the most efficient**?" (based on OPEI)

By arithmetic mean in 2014, Prisma was the most efficient. By geometric mean, OG Elektra was the most efficient. At the same time, it should be noted that Prisma had the highest efficiency growth trend compared to other supermarket chains.

On the basis of conducted analysis and findings, the author recommends the following approaches that could improve retail efficiency, competitiveness, and growth prospects:

- OG Elektra and ABC Supermarkets should pay attention to useful life of tangible assets. OG Elektra could become less marketable due to most depreciated equipment among other supermarket chains. As it can be seen, OG Elektra has the strongest financial position on the market due to the highest owners' equity

share. It also has sufficient capital to improve the condition of their equipment. At the same time, OG Elektra and ABC Supermarkets should pay attention to their assets and capital usage. OG Elektra had the worst assets turnover and labor productivity compared to other supermarket chains, which served as evidence of poor asset management and too high of a salary and capital per employee. ABC Supermarkets also had a decline in all indicators of assets usage which is not a preferable trend.

- Maxima should pay attention to labor force productivity. Maxima has too many employees, which is causing a high salary per employee in comparison to labor productivity. Thus, Maxima should reduce the quantity of employees and try to focus on better labor productivity. At the same time, Maxima should pay attention to days payable outstanding in cash conversion cycle. They have the highest level of DPO among other supermarket chains which can affect in perspective on relations with suppliers.
- Selver should pay attention to the worsening tendencies from year to year in labor productivity and inventory turnover which evidences inefficient storage management or accumulation of illiquid products. Also, during expansion activity, expected sales growth rate is lower than actual growth rate.
- Rimi and ETK should pay attention to the significant receivables growth rate and its higher share in the balance sheet compared to other companies. At the same time, these companies had lowest share of owners' equity on the balance sheet which makes their financial position strongly unsustainable. Such low owners' equity share and high receivables may lead to lack of cashflow. At the same time, Rimi and ETK had one of worst labor force productivity results. In Rimi's case, it is caused by the same factors as with Maxima. They have too many employees. In case of ETK, poor labor force productivity is caused by higher salaries than other supermarket chains. At the same time, ETK should also pay attention to the reduction rate of inventory turnover as should Selver, evidenced by non-efficient storage management. ETK should also pay attention to the highest expenses due to low mark-up between COGS and sales prices. Low mark-up is caused by high share of convenience stores "A ja O" located in

rural areas with lower purchasing power. ETK should close unprofitable "A ja O" stores or refurbish them into a more profitable store format.

- Prisma's performance indicators show that their store concept idea and niche on the Estonian market brings the company the most significant sales growth rate and profit. Consequently, Prisma chose the right direction for its activities. It should expand further in accordance with its current approach.

Regarding the entire supermarket sector in Estonia, unique attention should be paid to the gradual market saturation, which is evidenced by significant sales growth rate reduction and a very high shopping center floorspace per 1,000 population in Estonia compared to other cities in Europe.

Today, Estonia offers very cheap real estate and low real estate taxes compared to other countries due to low population density. Flat land makes it cheaper to build and maintain many stores. In large countries, companies start active marketing to atract people to their smaller store area and they get the sales using a diffirentiating factor. In Estonia, store differentiation is limited by lack of public's purchasing power for specialized items so convenience and store proximity become more important.

In general, it should be concluded, that those supermarket chains that were significantly expanded during investigated time period (2010–2014) and followed **"quantitative politics"** or horizontal way of development, such as Maxima, OG Elektra, Selver and ETK had lower growth rates of sales than initially expected. This is evidenced by the following factors:

- There was growth in days of inventory outstanding (DIO) among these companies.
- These companies had lower return on sales. Decrease of mark-up resulted from increased competition and affected the pricing policy.
- Assets turnover declined among these companies. Such downward trend is evidence of irrational assets usage, or rather, that activity of these companies does not scale well with aggressive investment into expansion.

Thus, **"qualitative politics"** or vertical way of development following Prisma's example of keeping a lower quantity of stores while investing in service quality, assortment range, and equipment is more efficient in the current conditions of Estonian market.

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APPENDICES

Appendix 1. Balance sheets

Maxima Eesti OÜ Balance sheet 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
ASSETS					
Current Assets					
Cash and bank	7,245	31,485	19,011	12,429	13,450
Current receivables and prepayments	10,612	3,213	18,651	6,749	12,292
Inventories	13,448	18,429	22,863	26,002	27,538
Assets held for sale					
Total current assets	31,305	53,127	60,525	45,180	53,280
Non-current assets					
Non-current receivables and prepayments	0	0	0	1,410	0
Investments in subsidiary	0	0	0	0	100
Tangible assets	95,359	60,586	65,793	61,877	63,655
Intangible assets	76	41	77	53	37
Total non-current assets	95,435	60,627	65,870	63,340	63,792
TOTAL ASSETS	126,740	113,754	126,395	108,520	117,072
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings	5,565	1,707	6,462	0	0
Trade payables and prepayments	39,467	50,863	61,662	66,328	71,356
Total current liabilities	45,032	52,570	68,124	66,328	71,356
Non-current liabilities					
Borrowings	18,654	6,454	0	0	0
Total non-current liabilities	18,654	6,454	0	0	0
TOTAL LIABILITIES	63,686	59,024	68,124	66,328	71,356
EQUITY					
Share capital	56,674	56,674	56,674	36,674	36,674
Share premium					
Mandatory reserve capital	44	361	361	538	734
Retained earnings (loss)	6,336	-2,305	1,236	4,980	8,308
Profit (loss)					
TOTAL EQUITY	63,054	54,730	58,271	42,192	45,716
TOTAL LIABILITIES AND EQUITY	126,740	113,754	126,395	108,520	117,072

Source: Maxima annual reports 2010–2014

Appendix 1 continuation

Selver AS Balance sheet 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
ASSETS					
Current Assets					
Cash and bank	5,446	8,718	9,083	6,829	11,297
Current receivables and prepayments	21,106	24,423	27,164	24,737	27,414
Inventories	18,084	18,364	20,307	22,175	26,065
Total current assets	44,636	51,505	56,554	53,741	64,776
Non-current assets					
Financial Investments	1,556	0	4,711	5,186	5,787
Non-current receivables and prepayments	1,235	877	519	161	42
Tangible assets	15,759	15,074	9,872	14,250	13,396
Intangible assets	0	0	0	0	44
Total non-current assets	18,550	15,951	15,102	19,597	19,269
TOTAL ASSETS	63,186	67,456	71,656	73,338	84,045
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings	357	125	0	675	1,654
Trade payables and prepayments	38,320	43,397	48,713	50,365	53,246
Total current liabilities	38,677	43,522	48,713	51,040	54,900
Non-current liabilities					
Borrowings	125	0	0	1,377	2,005
Trade payables and prepayments	0	0	468	348	214
Total non-current liabilities	125	0	468	1,725	2,219
TOTAL LIABILITIES	38,802	43,522	49,181	52,765	57,119
EQUITY					
Share capital	1,406	1,406	1,406	1,406	1,406
Mandatory reserve capital	141	141	141	141	141
Retained earnings (loss)	14,073	11,433	11,848	14,366	17,651
Profit (loss)	8,764	10,954	9,080	4,660	7,728
TOTAL EQUITY	24,384	23,934	22,475	20,573	26,926
TOTAL LIABILITIES AND EQUITY	63,186	67,456	71,656	73,338	84,045

Source: Selver annual reports 2010–2014

Appendix 1 continuation

Eesti Tarbijateühistute Keskühistu Balance sheet 2010–2014 (thousands euros).

ASSETS	2010	2011	2012	2013	2014
Current Assets					
Cash and bank	2,673	535	1,166	4,377	5,265
Current receivables and prepayments	20,668	25,540	21,809	21,645	28,000
Inventories	10,158	12,365	14,195	15,284	19,640
Total current assets	33,499	38,440	37,170	41,306	52,905
Non-current assets					
Financial Investments	41	41	41	41	41
Non-current receivables and prepayments	954	657	578	980	2,690
Investments in subsidiary	80	55	50	45	41
Tangible assets	11,439	11,595	12,037	12,181	13,384
Intangible assets	2,565	2,929	2,516	1,928	1,430
Total non-current assets	15,079	15,277	15,222	15,175	17,586
TOTAL ASSETS	48,578	53,717	52,392	56,481	70,491
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings	6,063	7,378	4,614	4,475	8,180
Trade payables and prepayments	28,051	33,210	34,848	38,680	44,859
Provisions	14	14	204	0	0
Total current liabilities	34,128	40,602	39,666	43,155	53,039
Non-current liabilities					
Borrowings	3,870	2,975	4,013	5,343	7,720
Total non-current liabilities	3,870	2,975	4,013	5,343	7,720
TOTAL LIABILITIES	37,998	43,577	43,679	48,498	60,759
EQUITY					
Share capital	6	6	6	61	61
Mandatory reserve capital	4	4	4	4	4
Other Reserves	6,578	6,578	6,578	6,578	6,578
Retained earnings (loss)	3,724	3,992	3,334	1,977	1,135
Profit (loss)	267	-657	-1,357	-842	1,530
Minority Intrest	0	217	146	206	425
TOTAL EQUITY	10,579	10,140	8,711	7,984	9,733
TOTAL LIABILITIES AND EQUITY	48,577	53,717	52,390	56,482	70,492

Source: ETK annual reports 2010–2014

Appendix 1 continuation

Prisma Peremarket AS Balance sheet 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
ASSETS					
Current Assets					
Cash and bank	9,490	7,463	12,442	12,191	785
Current receivables and prepayments	3,041	5,015	2,697	9,491	19,909
Inventories	9,341	10,818	12,800	13,094	14,321
Total current assets	21,872	23,296	27,939	34,776	35,015
Non-current assets					
Tangible assets	12,309	13,549	14,519	12,198	11,173
Intangible assets	916	448	507	486	394
Total non-current assets	13,225	13,997	15,026	12,684	11,567
TOTAL ASSETS	35,097	37,293	42,965	47,460	46,582
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings					
Trade payables and prepayments	16,329	19,244	22,259	25,017	24,541
Total current liabilities	16,329	19,244	22,259	25,017	24,541
Non-current liabilities					
Trade payables and prepayments	0	0	3	0	17
Total non-current liabilities	0	0	3	0	17
TOTAL LIABILITIES	16,329	19,244	22,262	25,017	24,558
EQUITY					
Share capital	735	735	735	735	735
Share premium	7,084	7,084	7,084	7,084	0
Mandatory reserve capital	168	168	168	168	168
Retained earnings (loss)	11,120	10,636	10,062	12,716	14,456
Profit (loss)	-339	-574	2,654	1,740	6,665
TOTAL EQUITY	18,768	18,049	20,703	22,443	22,024
TOTAL LIABILITIES AND EQUITY	35,097	37,293	42,965	47,460	46,582

Source: Prisma annual reports 2010–2014

Appendix 1 continuation

Rimi Eesti Food AS Balance sheet 2010–2014 (thousands euros).

ASSETS	2010	2011	2012	2013	2014
Current Assets					
Cash and bank	4,368	6,130	10,681	7,745	4,970
Current receivables and prepayments	8,963	13,616	8,457	15,265	21,361
Inventories	20,905	20,558	18,632	19,356	20,434
Total current assets	34,236	40,304	37,770	42,366	46,765
Non-current assets					
Financial Investments					
Non-current receivables and prepayments	63	28	24	24	24
Investments in property					
Tangible assets	19,906	18,180	19,340	16,740	14,530
Intangible assets	270	92	351	391	331
Total non-current assets	20,239	18,300	19,715	17,155	14,885
TOTAL ASSETS	54,475	58,604	57,485	59,521	61,650
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings					
Trade payables and prepayments	45,679	54,359	50,426	49,291	50,988
Total current liabilities	45,679	54,359	50,426	49,291	50,988
Non-current liabilities					
Borrowings					
Trade payables and prepayments					
Total non-current liabilities	0	0	0	0	0
TOTAL LIABILITIES	45,679	54,359	50,426	49,291	50,988
EQUITY					
Share capital	5,510	1,500	1,500	1,500	1,500
Share premium	6,334	6,334	6,334	6,334	6,334
Mandatory reserve capital	200	200	200	200	200
Retained earnings (loss)	46	-3,248	-3,789	-975	2,196
Profit (loss)	-3,294	-541	2,814	3,171	432
TOTAL EQUITY	8,796	4,245	7,059	10,230	10,662
TOTAL LIABILITIES AND EQUITY	54,475	58,604	57,485	59,521	61,650

Source: Rimi annual reports 2010–2014

Appendix 1 continuation

OG Elektra AS Balance sheet 2010–2014 (thousands euros).

ASSETS	2010	2011	2012	2013	2014
Current Assets					
Cash and bank	1,943	3,999	2,352	800	686
Current receivables and prepayments	1,065	624	1,095	1,072	1,568
Inventories	6,479	6,034	6,346	8,895	14,501
Total current assets	9,487	10,657	9,793	10,767	16,755
Non-current assets					
Financial Investments					
Non-current receivables and prepayments					
Investments in property	65	156	153	150	147
Tangible assets	20,424	22,285	26,778	34,427	38,373
Intangible assets	21	25	25	25	29
Total non-current assets	20,510	22,466	26,956	34,602	38,549
TOTAL ASSETS	29,997	33,123	36,749	45,369	55,304
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings	971	860	700	2,236	7,630
Trade payables and prepayments	6,567	5,890	5,853	6,534	6,787
Total current liabilities	7,538	6,750	6,553	8,770	14,417
Non-current liabilities					
Borrowings	968	569	169	1,615	231
Trade payables and prepayments					
Total non-current liabilities	968	569	169	1,615	231
TOTAL LIABILITIES	8,506	7,319	6,722	10,385	14,648
EQUITY					
Share capital	1,272	1,274	1,274	1,274	1,274
Share premium					
Mandatory reserve capital	234	234	234	234	234
Retained earnings (loss)	16,623	19,983	24,298	28,522	33,476
Profit (loss)	3,361	4,315	4,223	4,954	5,673
TOTAL EQUITY	21,490	25,806	30,029	34,984	40,657
TOTAL LIABILITIES AND EQUITY	29,996	33,125	36,751	45,369	55,305

Source: OG Elektra annual reports 2010–2014

Appendix 1 continuation

ABC Supermarkets AS Balance sheet 2010–2014 (thousands euros).

ASSETS	2010	2011	2012	2013	2014
Current Assets					
Cash and bank	322	220	138	159	159
Current receivables and prepayments	3,967	8,659	8,078	8,756	9,085
Inventories	1,965	2,095	2,397	2,892	3,485
Assets held for sale	1,859	1,859	1,859	0	0
Total current assets	8,114	12,833	12,472	11,807	12,730
Non-current assets					
Financial Investments	53	3	0	0	0
Non-current receivables and prepayments	503	54	113	830	731
Investments in property	265	268	268	268	268
Tangible assets	3,231	2,866	4,496	6,672	7,260
Intangible assets	465	517	577	602	606
Total non-current assets	4,517	3,708	5,453	8,372	8,865
TOTAL ASSETS	12,632	16,541	17,925	20,179	21,595
LIABILITIES AND EQUITY					
Current liabilities					
Borrowings	3,458	6,590	5,754	4,629	3,931
Trade payables and prepayments	5,561	5,799	6,552	7,627	8,519
Total current liabilities	9,019	12,389	12,306	12,256	12,450
Non-current liabilities					
Borrowings	1,843	1,309	1,679	2,663	2,931
Trade payables and prepayments	14	16	16	15	20
Total non-current liabilities	1,857	1,324	1,695	2,678	2,951
TOTAL LIABILITIES	10,876	13,713	14,001	14,934	15,401
EQUITY					
Share capital	984	984	984	984	984
Share premium	166	166	166	166	166
Mandatory reserve capital	38	76	98	98	98
Retained earnings (loss)	-191	531	1,580	2,676	3,996
Profit (loss)	760	1,072	1,097	1,320	949
TOTAL EQUITY	1,756	2,828	3,925	5,245	6,194
TOTAL LIABILITIES AND EQUITY	12,632	16,541	17,926	20,179	21,595

Source: ABC Supermarkets annual reports 2010–2014

Appendix 1 continuation

Depriciated machienery and equipment in entire investigated companies (thousands euros)

Company Name	2010	2011	2012	2013	2014
OG Elektra	1,247	1,411	1,532	1,631	1,995
Prisma	11,823	13,213	14,057	11,686	10,311
Selver	5,516	5,276	4,712	6,421	5,863
ETK	1,921	1,888	2,010	2,077	1,727
Maxima	9,391	10,744	14,278	14,412	13,902
Rimi	14,832	13,695	13,871	11,435	10,128
ABC Supermarkets	1,359	1,092	2,032	2,548	2,995

Source: all seven companies annual reports 2010–2014

Machienery, equipment and other equipment (initial value) in entire investigated companies (thousands euros)

Company name	2010	2011	2012	2013	2014
OG Elektra	4,941	5,336	6,079	6,451	7,529
Prisma	22,126	23,955	27,198	27,076	27,896
Selver	32,245	33,336	34,298	39,797	40,316
ETK	8,640	7,237	6,835	7,821	8,300
Maxima	17,569	18,455	22,443	28,794	32,227
Rimi	45,452	46,902	49,345	48,707	48,740
ABC Supermarkets	3,638	3,554	5,177	6,126	7,589

Source: all seven companies annual reports 2010–2014

Lease payments for premises in entire investigated companies (thousands euros)

Company name	2010	2011	2012	2013	2014
OG Elektra	1,493	1,583	1,751	1,986	2,086
Prisma	6,861	8,521	9,694	10,513	10,694
Selver	13,571	13,996	14,617	16,284	17,856
ETK	1,529	1,727	2,427	3,312	3,597
Maxima	587	854	1,566	1,877	2,081
Rimi	15,563	15,945	17,122	17,926	17,920
ABC Supermarkets	1,322	1,348	1,672	1,816	2,294

Source: all seven companies annual reports 2010–2014

Appendix 1 continuation

Number of emplyees in entire investigated companies (thousands euros)

Company Name	2010	2011	2012	2013	2014
OG Elektra	644	598	625	717	798
Prisma	724	906	988	1,062	1,016
Selver	1,975	2,096	2,124	2,066	2,237
ETK	650	660	750	811	816
Maxima	2,563	3,164	3,575	3,534	3,696
Rimi	2,027	2,032	2,102	2,051	2,070
ABC Supermarkets	383	364	392	402	430

Source: all seven companies annual reports 2010–2014

Appendix 2. Income statements

Maxima income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	257,431	291,238	336,272	380,552	400,849
Other operating income	5,291	7,478	8,978	7,094	7,992
Materials, consumables used and services	-226,449	-261,446	-301,265	-336,810	-355,445
Other operating expenses	-5,560	-16,700	-8,555	-11,744	-11,576
Staff costs	-19,200	-23,400	-27,700	-30,500	-33400
Depreciation, amortisation and impairment losses	-4,838	-5,184	-4,408	-4,977	-5,000
Operating profit	6,675	-8,014	3,322	3,615	3,420
Other financial income and expences	-339	-310	219	306	104
Profit before tax	6336	-8,324	3,541	3,921	3,524
Corporate income tax					
NET PROFIT FOR THE FINANCIAL YEAR	6,336	-8,324	3,541	3,921	3,524

Source: Maxima annual reports 2010–2014

Selver income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	309,656	318,703	330,549	342,748	367,486
Other operating income	295	313	485	770	568
Manufacture assets					
Materials, consumables used and services	-236,099	-242,782	-254,511	-271,045	-291,801
Other operating expenses	-34,449	-35,220	-37,339	-40,589	-41,132
Staff costs	-21,748	-19,969	-20,065	-21,037	-23,736
Depreciation, amortisation and impairment losses	-5,422	-4,709	-5,396	-3,685	-3,332
Other expenses	-437	-113	-170	-274	-382
Operating profit	11,796	16,223	13,553	6,888	7671
Intress					
Other financial income and expences	-2,582	-2,238	-1,672	-723	57
Profit before tax	9,214	13,985	11,881	6,165	7,728
Corporate income tax	-450	-3,031	-2,801	-1,505	0
NET PROFIT FOR THE FINANCIAL YEAR	8,764	10,954	9,080	4,660	7,728

Source: Selver annual reports 2010–2014

Appendix 2 continuation

Rimi income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	341,683	351,591	359,115	360,941	363,118
Other operating income	0	5	11	5	1
Materials, consumables used and services	-293,881	-300,372	-301,398	-301,053	-306,017
Other operating expenses	-22,588	-23,679	-25,230	-25,905	-26,308
Staff costs	-22,143	-22,334	-23,828	-23,612	-24,697
Depreciation, amortisation and impairment losses	-6,369	-5,806	-5,936	-7,409	-6,045
Other expenses	-16	0	0	0	0
Operating profit	-3,314	-595	2,734	2,967	52
Intress					
Other financial income and expences	20	54	80	204	380
Profit before tax	-3,294	-541	2,814	3,171	432
Corporate income tax					
NET PROFIT FOR THE FINANCIAL YEAR	-3,294	-541	2,814	3,171	432

Source: Rimi annual reports 2010–2014

Prisma income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	118,473	147,415	177,357	194,115	207,596
Other operating income	1,633	2,019	3,262	3,439	4,022
Materials, consumables used and services	-95,918	-119,881	-143,675	-158,384	-167,668
Other operating expenses	-14,300,	-17,456,	-19,833,	-22,133,	-21,468
Staff costs	-8,118	-9,530	-11,279	-12,053	-12,739
Depreciation, amortisation and impairment losses	-2,207	-3,134	-3,158	-3,216	-3,066
Other expenses	-47	-2	-8	-22	-12
Operating profit	-484	-569	2,666	1,746	6,665
Intress					
Other financial income and expences	145	-5	-12	-6	0
Profit before tax	-339	-574	2,654	1,740	6,665
Corporate income tax					
NET PROFIT FOR THE FINANCIAL YEAR	-339	-574	2,654	1,740	6,665

Source: Prisma annual reports 2010–2014

Appendix 2 continuation

Rimi income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	208,802	224,315	249,064	265,064	285,420
Other operating income	165	263	427	268	401
Materials, consumables used and services	-187,196	-213,703	-237,699	-251,097	-267,481
Other operating expenses	-11,060	-700	-1,440	-1,737	-1,871
Staff costs	-7,600	-8,037	-9,678	-10,887	-11,898
Depreciation, amortisation and impairment losses	-2,490	-2,528	-2,031	-2,440	-2,310
Other expenses	-31	-43	-30	-50	-157
Operating profit	590	-433	-1,387	-879	2,104
Other financial income and expences	-324	-332	-179	-195	-355
Profit before tax	266	-765	-1,566	-1,074	1,749
NET PROFIT FOR THE FINANCIAL YEAR	266	-765	-1,566	-1,074	1,749
Parent company shareholders / shareholder's share of the profit (loss)	266	-657	-1,357	-842	1,530
Minority interest profit (loss)	1	-107	-210	-33	219

Source: Rimi annual reports 2010–2014

OG Elektra income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	67,020	69,000	75,134	82,092	93,403
Other operating income	2,747	3,693	3,644	5,057	4,931
Manufacture assets	321	337	371	587	716
Materials, consumables used and services	-58,656	-59,893	-65,167	-71,018	-79,990
Other operating expenses	-2,950	-3,325	-3,452	-3,793	-3,952
Staff costs	-4,803	-5,088	-5,854	-7,359	-8,665
Depreciation, amortisation and impairment losses	-344	-426	-466	-597	-740
Other expenses	-2	-5	0	0	-2
Operating profit	3,333	4,293	4,210	4,969	5,701
Intress	0	0	0	-16	-30
Other financial income and expences	27	23	14	1	2
Profit before tax	3,360	4,316	4,224	4,954	5,673
Corporate income tax					
NET PROFIT FOR THE FINANCIAL YEAR	3,360	4,316	4,224	4,954	5,673

Source: OG Elektra annual reports 2010–2014

Appendix 2 continuation

ABC Supermarkets income statement 2010–2014 (thousands euros).

	2010	2011	2012	2013	2014
Revenue (Sales)	40,150	42,580	47,856	50,427	58,832
Other operating income	2,094	1,988	2,346	2,862	2,916
Manufacture assets					
Materials, consumables used and services	-32,918	-34,779	-39,077	-40,875	-47,731
Other operating expenses	-3,979	-4,262	-4,888	-5,363	-6,328
Staff costs	-3,523	-3,404	-3,957	-4,300	-5,016
Depreciation, amortisation and impairment losses	-860	-776	-913	-1,159	-1,467
Other expenses	-79	-21	-39	-17	-11
Operating profit	885	1,326	1,328	1,575	1,195
Intress					
Other financial income and expences	-125	-254	-231	-255	-246
Profit before tax	760	1,072	1,097	1,320	949
Corporate income tax					
NET PROFIT FOR THE FINANCIAL YEAR	760	1,072	1,097	1,320	949

Source: ABC Supermarkets annual reports 2010–2014

Appendix 3. Formulas

Name	Formulas
Operating margin	(Operating profit/ net sales)×100%
Salary per employee or average wage	Annual staff costs / 12 / Average number of employees
Sales per employee or labour productivity	Sales / Average number of employees
Capital per employee	(Equity + Non-current liabilities+ loans or intrest) / Average number of employees
Assets turnover (times)	Sales / average assets
Inventory turnover (times)	COGS / inventory
Non-current assets turnover (times)	Sales / non-current assets
Working capital turnover (times)	Sales / working capital
DIO (days inventory outstanding)	((Beginning inventory + ending inventory)/ 2) / (goods, raw material and services / 365)
DSO (days sales outstanding)	((Beginning accounts receivable + ending accounts receivable) / 2) / (Sales / 365)
DPO (days payable outstanding)	((Beginning accounts payable + ending accounts payable) / 2) / (material costs / 365)
CCC (cash conversion cycle)	DIO + DSO - DPO
Lease payments share to sales	(Lease payments / sales) ×100%
Share of machinery and equipment to tangible assets	(Share of machienery and equipment / Tangible assets) × 100%

Source: Estonian statistics, 2016

Appendix 4. Cash flow statement

Maxima cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	6,336	-8,324	3,541	3,921	1,524
Adjustments					
Depreciation and Amortization	5,046	11,68	4,511	6,881	5,061
Profit (loss) on sale of fixed assets	-21	5,163	0	-91	-11
Financial costs	567	568	173	30	0
Interest income	-275	-277	-398	-337	-105
Exchange differences	39	6	5	-1	-1
Total adjustments	5,025	16,843	7,832	10,403	8,469
Change in trade and other receivables	-29	-1,334	-885	152	-743
Changes in inventories	-721	-4,934	-4,427	-3,012	-1,536
Change in trade and other payables	6,66	10,965	10,734	5,198	4,192
Interest received	-24	-40	100	598	10
Interest paid	96	294	-21	-4	0
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	17,673	13,767	13,332	13,334	10,392
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-2,914	-15,001	-9,703	-5,342	-6,92
Received from sales of tangible and intangible assets	0	33,352	5	1,558	1,219
Investment in subsidiary	0	0	0	0	-100
Loans given	-18,439	0	-14,255	-3,9	-3,57
Repayment of loans granted	0	8,689	0	14,255	0
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-21,352	27,04	-23,953	6,571	-9,371
CASH FLOW FROM FINANCING ACTIVITIES					
Received borrowings	0	18	0	0	0
Repayments of borrowings	-5,556	-34,022	-1,688	-6,454	0
Interest paid	-585	-545	-164	-33	0
Dividend paid	-49	0	0	-20	0
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	-6,19	-16,566	-1,852	-26,487	0
Total cash flows	-9,869	24,24	-12,474	-6,582	1,021
Cash and cash equivalents at the beginning of the period	17,115	7,245	31,485	19,011	12,429
Change in cash and cash equivalents (Left)	7,245	31,485	19,011	12,429	13,45
NET CASH GENERATED DURING THE YEAR	-9,869	24,241	-12,473	-6,582	1,021

Source: Maxima annual reports 2010–2014

Appendix 4 continuation

Selver cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	11,796	16,223	13,553	6,888	7,671
Adjustments					
Depreciation and Amortization	5,422	4,709	5,396	3,685	3,332
Profit (loss) on sale of fixed assets					
Total adjustments	6,088	4,792	5,413	3,686	3,332
Change in trade and other receivables	-2,685	239	-1,103	6,235	2,229
Changes in inventories	-906	-280	-2180	-1,868	-3,889
Change in trade and other payables	-2,563	5,203	5,809	1,532	2,747
Interest paid	0	0	-2,801	-1,505	0
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	11,730	26,177	18,691	14,968	12,090
CASH FLOW FROM INVESTING ACTIVITIES	0	0	0	0	0
Paid for the acquisition of tangible and intangible assets	-915	-4,136	-4,410	-8,070	-2,523
Received from sales of tangible and intangible assets	64	28	16	5	1
Acquisition of subsidiaries	0	0	-3	0	0
Loans given	-7,474	-4,184	-3,598	-5,810	-7,209
Interest received	330	201	335	262	547
Dividends received	0	0	0	900	1,375
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-7,995	-8,091	-7,660	-12,713	-7,809
CASH FLOW FROM FINANCING ACTIVITIES	0	0	0	0	0
Received borrowings	0	0	0	2,053	2,923
Repayments of borrowings	0	0	0	0	-1,316
Finance lease principal repayments	-333	-357	-125	0	0
Interest paid	-46	-22	-2	0	-45
Dividend paid	-1,692	-11,404	-10,539	-6,562	-1,375
Corporate income tax paid	-450	-3,031	0	0	0
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	-2,521	-14,814	-10,666	-4,509	187
Total cash flows	1,214	3,272	365	-2,254	4,468
Cash and cash equivalents at the beginning of the period	5,446	4,232	8,718	9,083	6,829
Change in cash and cash equivalents	3,272	1,214	365	-2,254	4,468
Change in cash and cash equivalents (Left)	8,718	5,446	9,083	6,829	11,297
NET CASH GENERATED DURING THE YEAR	1,214	3,272	365	-2,254	4,468

Source: Selver annual reports 2010–2014

Appendix 4 continuation

Rimi cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	-3,314	-595	2,734	2,967	52
Adjustments					
Depreciation and Amortization	6,369	5,806	5,936	7,409	6,045
Profit (loss) on sale of fixed assets	24	-19	-7	-9	-1
Total adjustments	6,393	5,787	5,929	7,4	6,044
Change in trade and other receivables	2,493	-58	193	692	-1,316
Changes in inventories	507	347	1,926	-724	-1,078
Change in trade and other payables	-4,072	4,004	164	-783	1,867
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	2,007	9,485	10,946	9,552	5,569
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-3,207	-3,25	-7,453	-5,206	-4,303
Received from sales of tangible and intangible assets	7	32	18	16	359
Loans given	-6,917	-19,043	-9,076	-15,995	-4,97
Repayment of loans granted	8,218	14,374	14,049	8,502	0
Interest received	20	164	77	195	390
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-1,879	-7,723	-2,385	-12,488	-8,344
CASH FLOW FROM FINANCING ACTIVITIES					
Other outflows from financing activities	0	0	-4,01	0	0
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	0	0	-4,01	0	0
Total cash flows	128	1,762	4,551	-2,936	-2,775
Cash and cash equivalents at the beginning of the period	4,24	4,368	6,130	10,681	7,745
Change in cash and cash equivalents	128	1,762	4,551	-2,936	-2,775
Change in cash and cash equivalents (Left)	4,368	6,13	10,861	7,745	4,97
NET CASH GENERATED DURING THE YEAR	128	1,762	4,551	-2,936	-2,775

Source: Rimi annual reports 2010–2014

Appendix 4 continuation

Prisma cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	-484	-569	2,666	1,746	6,665
Adjustments					
Depreciation and Amortization	2,207	3,134	3,158	3,216	3,066
Profit (loss) on sale of fixed assets	0	0	0	13	0
Total adjustments	2,207	3,134	3,158	3,229	3,066
Change in trade and other receivables	11,13	-256	2,318	-6,974	-10,418
Changes in inventories	-2,173	-1,623	-1,982	-294	-1,227
Change in trade and other payables	3,068	3,087	3,018	2,756	-49
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	13,748	3,773	9,178	643	-2,373
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-8,478	-4,077	-4,186	-888	-1,949
Interest received	235	25	14	29	33
Other payments from investment activities	-1,361	-3,077	0	0	0
Other proceeds from investing activities	0	1,361	0	0	0
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-9,604	-5,768	-4,172	-859	-1,916
CASH FLOW FROM FINANCING ACTIVITIES					
Interest paid	0	-5	-1	0	-7,084
Other outflows from financing activities	-18	-27	-26	-35	-33
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	-18	-32	-27	-35	-7,117
Total cash flows	4,126	-2,027	4,979	-251	-11,406
Cash and cash equivalents at the beginning of the period	5,364	9,49	7,463	12,442	12,191
Change in cash and cash equivalents	4,126	-2,027	4,979	-251	-11,406
Change in cash and cash equivalents (Left)	9,49	7,463	12,442	12,191	785
NET CASH GENERATED DURING THE YEAR	4,126	-2,027	4,979	-251	-11,406

Source: Prisma annual reports 2010–2014

Appendix 4 continuation

ETK cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	591	-202	-1,387	-680	2103
Adjustments					
Depreciation and Amortization	2,490	2,527	2,031	2,24	2,31
Profit (loss) on sale of fixed assets	-13	124	38	3	117
Other adjustments	0	0	-22	102	153
Total adjustments	2,477	2,651	2,047	2,346	2,581
Change in trade and other receivables	-3,108	-4,718	5,187	-642	-8,518
Changes in inventories	-195	-2,208	-1,830	-1,089	-4,356
Change in trade and other payables	5,220	5,100	1,827	3,613	6,138
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	4,984	0,623	5,844	3,549	-2,051
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-441	-2,417	-2,088	-1,805	-3,237
Received from sales of tangible and intangible assets	145	140	224	10	109
Proceeds from sale of investment property	0	0	34	0	0
Acquisition of subsidiaries	0	-576	0	0	0
Loans given	-1,081	0	-1,646	-4,225	-5,953
Repayment of loans granted	0	189	248	4,526	6,250
Interest received	64	33	27	33	24
Other proceeds from investing activities	0	2	1	0	0
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-1,314	-2,630	-3,200	-1,461	-2,807
CASH FLOW FROM FINANCING ACTIVITIES	0	0	0	0	0
Received borrowings	0	405	1,935	7,179	6,911
Repayments of borrowings	-47	-471	-2,238	-5,617	-407
Change in bank overdraft	669	1,371	-839	0	0
Finance lease principal repayments	-1,402	-1,133	-803	-372	-422
Interest paid	-388	-364	-207	-214	-337
Paid for own shares or parts repurchase	-1	0	139	147	0
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	-1,591	-192	-2,012	1,123	5,746
Total cash flows	2,079	-2,199	631	3,212	888
Cash and cash equivalents at the beginning of the period	593	2,673	535	1,166	4,377
Change in cash and cash equivalents	2,079	-2,199	631	3,212	888
Change in cash and cash equivalents (Left)	2,673	474	1,166	4,377	5,265
NET CASH GENERATED DURING THE YEAR	2,079	-2,199	632	3,211	888

Source: ETK annual reports 2010–2014

Appendix 4 continuation

OG Elektra cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	3,333	4,293	4,209	4,969	5,700
Adjustments					
Depreciation and Amortization	344	430	466	597	740
Profit (loss) on sale of fixed assets	-771	-1,568	-1,489	-2,304	-1,593
Other adjustments	0	0	0	-1	0
Total adjustments	-427	-1,138	-1,023	-1,709	-853
Change in trade and other receivables	-499	441	-460	66	-533
Changes in inventories	82	444	-312	-2,548	-5,606
Change in trade and other payables	240	-678	-37	681	253
Interest paid	-29	-25	0	-16	-30
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	2,701	3,338	2,378	1,444	-1,069
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-3,727	-2,326	-5,115	-8,379	-4,736
Received from sales of tangible and intangible assets	820	1,627	1,647	2,442	1,643
Paid for investment in real estate	-65	-95	0	0	0
Acquisition of subsidiaries	0	-608	0	0	0
Loans given	0	0	-12	-145	0
Repayment of loans granted	0	0	0	102	37
Interest received	27	23	14	1	2
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-2,945	-772	-3,465	-5,979	-3,054
CASH FLOW FROM FINANCING ACTIVITIES					
Received borrowings	230	460	100	3,753	7,891
Repayments of borrowings	-553	-971	-660	-770	-3,882
Paid for own shares or parts repurchase	0	1,758	0	0	0
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	-323	-509	-560	2,983	4,010
Total cash flows	-567	2,056	-1,647	-1,552	-114
Cash and cash equivalents at the beginning of the period	2,510	1,943	3,999	2,352	800
Change in cash and cash equivalents	-567	2,056	-1,647	-1,552	-114
Change in cash and cash equivalents (Left)	1,943	3,999	2,352	800	686
NET CASH GENERATED DURING THE YEAR	-567	2,057	-1,647	-1,552	-113

Source: OG Elektra annual reports 2010–2014

Appendix 4 continuation

ABC Supermarkets cash flow statements 2010–2014 (thousands euros)

Activity	2010	2011	2012	2013	2014
CASH FLOW FROM OPERATING ACTIVITIES					
Operating profit (loss)	885	1,326	1,328	1,574	1,195
Adjustments					
Depreciation and Amortization	860	776	913	1,158	1,467
Profit (loss) on sale of fixed assets	0	0	10	-425	0
Other adjustments	0	-3	0	0	0
Total adjustments	860	773	924	734	1,467
Change in trade and other receivables	-2,797	-4,151	627	-532	-225
Changes in inventories	183	-130	-301	-496	-593
Change in trade and other payables	-333	223	509	822	804
Interest paid	-152	-550	-591	-527	-553
TOTAL CASH FLOW FROM OPERATING ACTIVITIES	-1,354	-2,509	2,494	1,576	2,096
CASH FLOW FROM INVESTING ACTIVITIES					
Paid for the acquisition of tangible and intangible assets	-326	-457	-2,488	-1,839	-1,974
Received from sales of tangible and intangible assets	0	0	10	1,017	8
Acquisition of subsidiaries	0	-3	3	0	0
Loans given	3	0	0	-833	-997
Repayment of loans granted	0	0	0	0	253
Interest received	48	268	366	241	314
TOTAL CASH FLOW FROM INVESTING ACTIVITIES	-275	-191	-2,110	-1,414	-2,396
CASH FLOW FROM FINANCING ACTIVITIES					
Received borrowings	2,601	3,380	332	1,623	462
Repayments of borrowings	-331	-301	-1,293	-2,015	-607
Finance lease principal repayments	-486	-481	-1,299	-1,006	-1,089
Other proceeds from financing activities	0	0	1,794	1,256	1,535
TOTAL CASH FLOW FROM FINANCING ACTIVITIES	1,784	2,598	-466	-141	301
Total cash flows	155	-103	-82	21	1
Cash and cash equivalents at the beginning of the period	167	322	220	138	159
Change in cash and cash equivalents	155	-103	-82	21	1
Change in cash and cash equivalents (Left)	322	220	138	159	159
NET CASH GENERATED DURING THE YEAR	155	-103	-82	21	1

Appendix 5. Cash conversion cycle

Days inventory outstanding (days)

Company Name	2011	2012	2013	2014
OG Elektra	38	35	39	53
Prisma	31	30	30	30
Selver	27	28	29	30
ETK	19	20	21	24
Maxima	22	25	26	27
Rimi	25	24	23	24
ABC Supermarkets	21	21	24	24

Calculated according to data provided in appendix 1, 2 and formula provided in appendix 3

Days sales outstanding (days)

Company Name	2011	2012	2013	2014
OG Elektra	4	4	5	5
Prisma	10	8	11	26
Selver	26	28	28	26
ETK	38	35	30	32
Maxima	9	12	12	9
Rimi	12	11	12	18
ABC Supermarkets	54	64	61	55

Calculated according to data provided in appendix 1, 2 and formula provided in appendix 3

Days payable outstanding (days)

Company Name	2011	2012	2013	2014
OG Elektra	36	31	30	29
Prisma	46	46	49	50
Selver	53	58	59	58
ETK	52	52	53	55
Maxima	60	66	66	70
Rimi	56	59	56	56
ABC Supermarkets	52	51	57	57

Calculated according to data provided in appendix 1, 2 and formula provided in appendix 3

Appendix 5 continuation

Cash conversion cycle (days)

Company Name	2011	2012	2013	2014
OG Elektra	7	8	14	29
Prisma	-5	-8	-8	6
Selver	1	-1	-3	-2
ETK	5	3	-2	1
Maxima	-29	-29	-27	-33
Rimi	-19	-24	-21	-14
ABC Supermarkets	24	34	27	23

Calculated according to data provided in appendix 1, 2 and formula provided in appendix 3

Appendix 6. Analysis of profitability

By using method of chain substitutions can be analyzed which ratio (financial leverage or “a”, assets turnover or “b”, return on sales or “c”) had biggest influence on the change in return on capital employed (ROCE).

To do this, it should be calculated system of conditional parameters T' and T'', as well as actual value T1. By subtracting received serial differences it is possible to find due to which components was occurred changes in ROCE. After that, should be calculated overall change of employed capital profitability (T∆). Thus, could be calculated which factors influenced on change in ROCE to the greatest extent.

Factor analysis of return on capital employed (formula)

Return on capital empoyed	=	Financial leverage	×	Assets turnover	×	Return on sales
(Earnings before taxes + intrest)/ (average equity + borrowings)	=	Average assets / (average equity + borrowings)	×	Net sales / average assets	×	(Earnings before taxes + intrest)/ net sales
T	=	a	×	b	×	c

Source: Estonian statistics, 2016

Appendix 6 continuation

Maxima ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	7.6%	-12.7%	6.3%	7.8%	8.0%
a	1.53	1.84	2.13	2.34	2.57
b	2.02	2.42	2.80	3.24	3.55
c	2.5%	-2.9%	1.1%	1.0%	0.9%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	9.1%	-14.7%	6.9%	8.6%
2)	a1×b1 ×c0= T''				
	T''=	11.0%	-17.0%	8.0%	9.4%
3)	a1× b1 ×c1= T1				
	T1=	-12.7%	6.3%	7.8%	8.0%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	1.5%	-2.0%	0.6%	0.8%
2)	∆Tb=T''-T'	1.8%	-2.3%	1.1%	0.8%
3)	∆Tc=T1-T''	-23.7%	23.3%	-0.2%	-1.4%
	T∆=	-20.3%	19.0%	1.5%	0.2%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	-8%	-10%	41%	360%
2)	(∆T(b)/∆T) ×100%	-9%	-12%	70%	392%
3)	(∆T(c)/∆T) ×100%	117%	122%	-11%	-652%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

Selver ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	43.9%	57.9%	50.2%	26.5%	29.8%
a	2.93	2.70	2.94	3.12	3.03
b	5.04	4.88	4.75	4.73	4.67
c	3.0%	4.4%	3.6%	1.8%	2.1%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	40.6%	62.9%	53.3%	25.8%
2)	a1× b1 ×c0= T''				
	T''=	39.3%	61.3%	53.0%	25.5%
3)	a1× b1 ×c1= T1				
	T1=	57.9%	50.2%	26.5%	29.8%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	-3.4%	5.0%	3.1%	-0.7%
2)	∆Tb=T''-T'	-1.3%	-1.6%	-0.3%	-0.3%
3)	∆Tc=T1-T''	18.6%	-11.1%	-26.5%	4.3%
	T∆=	13.9%	-7.7%	-23.7%	3.2%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	-24%	-65%	-13%	-23%
2)	(∆T(b)/∆T) ×100%	-9%	21%	1%	-10%
3)	(∆T(c)/∆T) ×100%	134%	144%	112%	133%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

Rimi ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	-31.6%	-8.3%	49.8%	36.7%	4.1%
a	5.57	8.67	10.27	6.77	5.80
b	5.88	6.22	6.19	6.17	5.99
c	-1.0%	-0.2%	0.8%	0.9%	0.1%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	-49.1%	-9.8%	32.8%	31.4%
2)	a1× b1×c0= T''				
	T''=	-52.0%	-9.8%	32.7%	30.5%
3)	a1× b1 ×c1= T1				
	T1=	-8.3%	49.8%	36.7%	4.1%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	-17.6%	-1.5%	-17.0%	-5.2%
2)	∆Tb=T''-T'	-2.9%	0.0%	-0.1%	-0.9%
3)	∆Tc=T1-T''	43.7%	59.6%	4.0%	-26.4%
	T∆=	23.3%	58.1%	-13.1%	-32.5%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	-76%	-3%	130%	16%
2)	(∆T(b)/∆T) ×100%	-12%	0%	1%	3%
3)	(∆T(c)/∆T) ×100%	188%	103%	-30%	81%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

Prisma ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	-1.8%	-3.1%	13.7%	8.1%	30.0%
a	1.77	1.97	2.07	2.10	2.11
b	3.53	4.07	4.42	4.29	4.41
c	-0.3%	-0.4%	1.5%	0.9%	3.2%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	-2.0%	-3.3%	13.9%	8.1%
2)	a1× b1 ×c0= T''				
	T''=	-2.3%	-3.6%	13.5%	8.4%
3)	a1× b1 ×c1= T1				
	T1=	-3.1%	13.7%	8.1%	30.0%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	-0.2%	-0.2%	0.2%	0.1%
2)	∆Tb=T''-T'	-0.3%	-0.3%	-0.4%	0.2%
3)	∆Tc=T1-T''	-0.8%	17.3%	-5.4%	21.6%
	T∆=	-1.3%	16.8%	-5.6%	21.9%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	15%	-1%	-3%	0%
2)	(∆T(b)/∆T) ×100%	23%	-2%	7%	1%
3)	(∆T(c)/∆T) ×100%	62%	103%	96%	99%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

ETK ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	1.9%	-5.7%	-11.7%	-7.8%	10.5%
a	3.24	3.84	3.95	3.98	3.83
b	4.50	4.39	4.69	4.87	4.50
c	0.1%	-0.3%	-0.6%	-0.4%	0.6%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	2.2%	-5.9%	-11.7%	-7.6%
2)	a1× b1×c0= T"				
	T"=	2.1%	-6.3%	-12.2%	-7.0%
3)	a1× b1 ×c1= T1				
	T1=	-5.7%	-11.7%	-7.8%	10.5%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	0.3%	-0.2%	-0.1%	0.3%
2)	∆Tb=T"-T'	-0.1%	-0.4%	-0.4%	0.6%
3)	∆Tc=T1-T"	-7.9%	-5.3%	4.3%	17.5%
	T∆=	-7.6%	-5.9%	3.8%	18.4%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	-4%	3%	-2%	2%
2)	(∆T(b)/∆T) ×100%	1%	7%	-11%	3%
3)	(∆T(c)/∆T) ×100%	104%	90%	114%	95%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

OG Elektra ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	16.2%	17.8%	15.0%	14.5%	14.8%
a	1.36	1.30	1.24	1.20	1.32
b	2.36	2.19	2.15	2.00	1.86
c	5.0%	6.3%	5.6%	6.0%	6.0%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	15.4%	17.0%	14.5%	15.9%
2)	a1× b1 ×c0= T''				
	T''=	14.3%	16.7%	13.5%	14.8%
3)	a1× b1 ×c1= T1				
	T1=	17.8%	15.0%	14.5%	14.8%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	-0.7%	-0.8%	-0.5%	1.4%
2)	∆Tb=T''-T'	-1.2%	-0.3%	-1.0%	-1.1%
3)	∆Tc=T1-T''	3.5%	-1.7%	0.9%	0.1%
	T∆=	1.6%	-2.8%	-0.6%	0.4%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T) ×100%	-44%	29%	86%	401%
2)	(∆T(b)/∆T) ×100%	-71%	10%	180%	-320%
3)	(∆T(c)/∆T) ×100%	215%	61%	-167%	18%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 6 continuation

ABC Supermarkets ROCE analysis during time period 2010–2014 (thousands euros)

	2010	2011	2012	2013	2014
T	23.5%	29.6%	21.6%	18.2%	10.9%
a	3.56	4.03	3.40	2.62	2.41
b	3.48	2.92	2.78	2.65	2.82
c	1.9%	2.5%	2.3%	2.6%	1.6%

	Formula	2011/2010	2012/2011	2013/2012	2014/2013
1)	a1× b0 ×c0= T'				
	T'=	26.6%	25.0%	16.7%	16.7%
2)	a1× b1 ×c0= T''				
	T''=	22.3%	23.8%	15.9%	17.8%
3)	a1× b1 ×c1= T1				
	T1=	29.6%	21.6%	18.2%	10.9%

	∆	2011/2010	2012/2011	2013/2012	2014/2013
1)	∆Ta=T'-To	3.1%	-4.7%	-4.9%	-1.5%
2)	∆Tb=T''-T'	-4.3%	-1.2%	-0.8%	1.1%
3)	∆Tc=T1-T''	7.3%	-2.1%	2.3%	-6.8%
	T∆=	6.1%	-8.0%	-3.5%	-7.2%

	%	2011/2010	2012/2011	2013/2012	2014/2013
1)	(∆T(a)/∆T)×100%	51%	58%	143%	21%
2)	(∆T(b)/∆T)×100%	-70%	15%	23%	-15%
3)	(∆T(c)/∆T)×100%	120%	27%	-66%	94%
		100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 7. Matrix analysis

Maxima Matrix analysis during time period 2010–2014 (thousands euros)

Year/Component	P	S	C	M	E
P	1				
S	P/S				
2014	1%				
2013	1%				
2012	1%				
2011	-3%				
2010	3%				
2014/2013	0.90	1			
2013/2012	0.96				
2012/2011	-0.36				
2011/2010	-1.06				
CAGR 2014/2010	0.80				
CAGR 2013/2010	0.78				
CAGR 2012/2010	0.72				
GR 2011/2010	-				
C	P/C	S/C			
2014	1%	1.13			
2013	1%	1.13			
2012	1%	1.12			
2011	-3%	1.11			
2010	3%	1.14			
2014/2013	0.90	1.00	1		
2013/2012	0.97	1.01			
2012/2011	-0.36	1.00			
2011/2010	-1.04	0.98			
CAGR 2014/2010	0.80	1.00			
CAGR 2013/2010	0.78	1.00			
CAGR 2012/2010	0.72	0.99			
GR 2011/2010	-	0.99			
M	P/M	S/M	C/M		
2014	11%	12.44	11.03		
2013	13%	13.22	11.70		
2012	15%	14.98	13.42		
2011	-43%	15.78	14.17		
2010	38%	14.65	12.89		
2014/2013	0.85	0.94	0.94	1	
2013/2012	0.85	0.88	0.87		
2012/2011	-0.34	0.95	0.95		
2011/2010	-1.14	1.08	1.10		
CAGR 2014/2010	0.77	0.97	0.97		
CAGR 2013/2010	0.76	0.97	0.98		
CAGR 2012/2010	0.73	1.01	1.01		
GR 2011/2010	-	1.04	1.05		

Appendix 7 continuation

Maxima Matrix analysis (cont.)

E	P/E	S/E	C/E	M/E	
2014	0.93	108.45	96.17	8.72	
2013	1.02	107.68	95.31	8.15	
2012	0.93	94.06	84.27	6.28	
2011	-2.53	92.05	82.63	5.83	
2010	2.60	100.44	88.35	6.85	
2014/2013	0.90	1.01	1.01	1.07	1
2013/2012	1.10	1.14	1.13	1.30	
2012/2011	-0.37	1.02	1.02	1.08	
2011/2010	-0.97	0.92	0.94	0.85	
CAGR 2014/2010	0.81	1.02	1.02	1.05	
CAGR 2013/2010	0.79	1.02	1.02	1.04	
CAGR 2012/2010	0.71	0.98	0.98	0.97	
GR 2011/2010	-	0.96	0.97	0.92	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Selver Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	2%				
2013	2%				
2012	4%				
2011	5%				
2010	4%				
2014/2013	1.04	1			
2013/2012	0.49				
2012/2011	0.81				
2011/2010	1.34				
CAGR 2014/2010	0.89				
CAGR 2013/2010	0.85				
CAGR 2012/2010	1.02				
GR 2011/2010	1.16				

Appendix 7 continuation

Selver Matrix analysis (cont.)

C	P/C	S/C			
2014	3%	1.26			
2013	3%	1.26			
2012	5%	1.30			
2011	7%	1.31			
2010	5%	1.31			
2014/2013	1.03	1.00	1		
2013/2012	0.48	0.97			
2012/2011	0.80	0.99			
2011/2010	1.34	1.00			
CAGR 2014/2010	0.88	0.99			
CAGR 2013/2010	0.84	0.99			
CAGR 2012/2010	1.02	1.00			
GR 2011/2010	1.16	1.00			
M	P/M	S/M	C/M		
2014	19%	9.12	7.24		
2013	17%	8.61	6.81		
2012	40%	9.64	7.42		
2011	49%	9.56	7.28		
2010	37%	9.60	7.32		
2014/2013	1.10	1.06	1.06	1	
2013/2012	0.44	0.89	0.92		
2012/2011	0.81	1.01	1.02		
2011/2010	1.33	1.00	0.99		
CAGR 2014/2010	0.88	0.99	1.00		
CAGR 2013/2010	0.83	0.97	0.98		
CAGR 2012/2010	1.03	1.00	1.00		
GR 2011/2010	1.15	1.00	1.00		
E	P/E	S/E	C/E	M/E	
2014	3.43	164.28	130.44	18.02	
2013	3.33	165.90	131.19	19.26	
2012	6.38	155.63	119.83	16.15	
2011	7.74	152.05	115.83	15.90	
2010	5.97	156.79	119.54	16.33	
2014/2013	1.03	0.99	0.99	0.94	1
2013/2012	0.52	1.07	1.09	1.19	
2012/2011	0.82	1.02	1.03	1.02	
2011/2010	1.30	0.97	0.97	0.97	
CAGR 2014/2010	0.89	1.01	1.02	1.02	
CAGR 2013/2010	0.86	1.01	1.02	1.04	
CAGR 2012/2010	1.02	1.00	1.00	1.00	
GR 2011/2010	1.14	0.98	0.98	0.99	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Appendix 7 continuation

Rimi Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	0%				
2013	1%				
2012	1%				
2011	0%				
2010	-1%				
2014/2013	0.02	1			
2013/2012	1.08				
2012/2011	-4.50				
2011/2010	0.17				
CAGR 2014/2010	-0.43				
CAGR 2013/2010	-				
CAGR 2012/2010	-0.92				
GR 2011/2010	0.42				
C	P/C	S/C			
2014	0%	1.19			
2013	1%	1.20			
2012	1%	1.19			
2011	0%	1.17			
2010	-1%	1.16			
2014/2013	0.02	0.99	1		
2013/2012	1.09	1.01			
2012/2011	-4.58	1.02			
2011/2010	0.18	1.01			
CAGR 2014/2010	-0.43	1.00			
CAGR 2013/2010	-	1.01			
CAGR 2012/2010	-0.93	1.01			
GR 2011/2010	0.42	1.00			
M	P/M	S/M	C/M		
2014	0%	7.45	6.28		
2013	6%	7.41	6.18		
2012	6%	7.28	6.11		
2011	-1%	7.50	6.40		
2010	-7%	7.52	6.47		
2014/2013	0.02	1.01	1.02	1	
2013/2012	1.10	1.02	1.01		
2012/2011	-4.37	0.97	0.95		
2011/2010	0.17	1.00	0.99		
CAGR 2014/2010	-0.43	1.00	0.99		
CAGR 2013/2010	-	1.00	0.99		
CAGR 2012/2010	-0.91	0.99	0.98		
GR 2011/2010	0.42	1.00	1.00		

Appendix 7 continuation

Rimi Matrix analysis (cont.)

E	P/E	S/E	C/E	M/E	
2014	0.03	175.42	147.83	23.55	
2013	1.45	175.98	146.78	23.75	
2012	1.30	170.84	143.39	23.48	
2011	-0.29	173.03	147.82	23.08	
2010	-1.63	168.57	144.98	22.42	
2014/2013	0.02	1.00	1.01	0.99	1
2013/2012	1.11	1.03	1.02	1.01	
2012/2011	-4.44	0.99	0.97	1.02	
2011/2010	0.18	1.03	1.02	1.03	
CAGR 2014/2010	-0.43	1.01	1.00	1.01	
CAGR 2013/2010	-	1.01	1.00	1.01	
CAGR 2012/2010	-0.93	1.00	1.00	1.02	
GR 2011/2010	0.42	1.01	1.01	1.01	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Prisma Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	3%				
2013	1%				
2012	2%				
2011	0%				
2010	0%				
2014/2013	3.57	1			
2013/2012	0.60				
2012/2011	-3.89				
2011/2010	0.94				
CAGR 2014/2010	-1.51				
CAGR 2013/2010	-				
CAGR 2012/2010	-1.54				
GR 2011/2010	0.97				

Appendix 7 continuation

Prisma Matrix analysis (cont.)

C	P/C	S/C			
2014	4%	1.24			
2013	1%	1.23			
2012	2%	1.23			
2011	0%	1.23			
2010	-1%	1.24			
2014/2013	3.61	1.01	1		
2013/2012	0.59	0.99			
2012/2011	-3.91	1.00			
2011/2010	0.94	1.00			
CAGR 2014/2010	-1.51	1.00			
CAGR 2013/2010	-	1.00			
CAGR 2012/2010	-1.54	1.00			
GR 2011/2010	0.97	1.00			
M	P/M	S/M	C/M		
2014	24%	7.44	6.01		
2013	6%	7.17	5.85		
2012	10%	6.52	5.28		
2011	-2%	6.15	5.00		
2010	-2%	5.35	4.34		
2014/2013	3.71	1.04	1.03	1	
2013/2012	0.66	1.10	1.11		
2012/2011	-4.13	1.06	1.06		
2011/2010	1.09	1.15	1.15		
CAGR 2014/2010	-1.61	1.07	1.07		
CAGR 2013/2010	-	1.08	1.08		
CAGR 2012/2010	-1.65	1.07	1.07		
GR 2011/2010	1.04	1.07	1.07		
E	P/E	S/E	C/E	M/E	
2014	6.56	204.33	165.03	27.46	
2013	1.64	182.78	149.14	25.50	
2012	2.70	179.51	145.42	27.53	
2011	-0.63	162.71	132.32	26.44	
2010	-0.67	163.64	132.48	30.56	
2014/2013	3.99	1.12	1.11	1.08	1
2013/2012	0.61	1.02	1.03	0.93	
2012/2011	-4.30	1.10	1.10	1.04	
2011/2010	0.94	0.99	1.00	0.87	
CAGR 2014/2010	-1.58	1.05	1.04	0.98	
CAGR 2013/2010	-	1.03	1.03	0.96	
CAGR 2012/2010	-1.59	1.03	1.03	0.97	
GR 2011/2010	0.97	1.00	1.00	0.93	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Appendix 7 continuation

ETK Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	1%				
2013	0%				
2012	-1%				
2011	0%				
2010	0%				
2014/2013	-2.22	1			
2013/2012	0.60				
2012/2011	2.88				
2011/2010	-0.68				
CAGR 2014/2010	1.21				
CAGR 2013/2010	-				
CAGR 2012/2010	-1.25				
GR 2011/2010	-				
C	P/C	S/C			
2014	1%	1.07			
2013	0%	1.06			
2012	-1%	1.05			
2011	0%	1.05			
2010	0%	1.12			
2014/2013	-2.25	1.01	1		
2013/2012	0.60	1.01			
2012/2011	2.88	1.00			
2011/2010	-0.64	0.94			
CAGR 2014/2010	1.20	0.99			
CAGR 2013/2010	-	0.99			
CAGR 2012/2010	-1.23	0.98			
GR 2011/2010	-	0.97			
M	P/M	S/M	C/M		
2014	25%	34.39	32.23		
2013	-11%	33.89	32.11		
2012	-20%	36.44	34.78		
2011	-6%	31.00	29.53		
2010	7%	24.17	21.67		
2014/2013	-2.26	1.01	1.00	1	
2013/2012	0.55	0.93	0.92		
2012/2011	3.39	1.18	1.18		
2011/2010	-0.88	1.28	1.36		
CAGR 2014/2010	1.30	1.07	1.08		
CAGR 2013/2010	-	1.09	1.10		
CAGR 2012/2010	-1.44	1.15	1.17		
GR 2011/2010	-	1.13	1.17		

Appendix 7 continuation

ETK Matrix analysis (cont.)

E	P/E	S/E	C/E	M/E	
2014	2.58	349.78	327.80	10.17	
2013	-1.08	326.84	309.61	9.64	
2012	-1.85	332.09	316.93	9.11	
2011	-0.66	339.87	323.79	10.97	
2010	0.91	321.23	287.99	13.29	
2014/2013	-2.38	1.07	1.06	1.05	1
2013/2012	0.59	0.98	0.98	1.06	
2012/2011	2.82	0.98	0.98	0.83	
2011/2010	-0.72	1.06	1.12	0.82	
CAGR 2014/2010	1.23	1.02	1.03	0.95	
CAGR 2013/2010	-	1.00	1.02	0.92	
CAGR 2012/2010	-1.27	1.01	1.03	0.88	
GR 2011/2010	-	1.03	1.06	0.91	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

OG Elektra Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	6%				
2013	6%				
2012	6%				
2011	6%				
2010	5%				
2014/2013	1.01	1			
2013/2012	1.08				
2012/2011	0.90				
2011/2010	1.25				
CAGR 2014/2010	1.04				
CAGR 2013/2010	1.05				
CAGR 2012/2010	1.04				
GR 2011/2010	1.12				

Appendix 7 continuation

OG Elektra Matrix analysis (cont.)

C	P/C	S/C			
2014	7%	1.17			
2013	7%	1.16			
2012	6%	1.15			
2011	7%	1.15			
2010	6%	1.14			
2014/2013	1.02	1.01	1		
2013/2012	1.08	1.00			
2012/2011	0.90	1.00			
2011/2010	1.26	1.01			
CAGR 2014/2010	1.05	1.00			
CAGR 2013/2010	1.05	1.00			
CAGR 2012/2010	1.04	1.00			
GR 2011/2010	1.12	1.00			
M	P/M	S/M	C/M		
2014	76%	12.41	10.62		
2013	77%	12.73	11.01		
2012	69%	12.36	10.72		
2011	80%	12.93	11.22		
2010	67%	13.56	11.87		
2014/2013	0.98	0.97	0.97	1	
2013/2012	1.11	1.03	1.03		
2012/2011	0.86	0.96	0.96		
2011/2010	1.19	0.95	0.95		
CAGR 2014/2010	1.02	0.98	0.98		
CAGR 2013/2010	1.03	0.98	0.98		
CAGR 2012/2010	1.01	0.97	0.97		
GR 2011/2010	1.09	0.98	0.97		
E	P/E	S/E	C/E	M/E	
2014	7.14	117.05	100.24	9.43	
2013	6.93	114.49	99.05	9.00	
2012	6.74	120.21	104.27	9.73	
2011	7.18	115.38	100.16	8.92	
2010	5.18	104.07	91.08	7.67	
2014/2013	1.03	1.02	1.01	1.05	1
2013/2012	1.03	0.95	0.95	0.93	
2012/2011	0.94	1.04	1.04	1.09	
2011/2010	1.39	1.11	1.10	1.16	
CAGR 2014/2010	1.07	1.02	1.02	1.04	
CAGR 2013/2010	1.08	1.02	1.02	1.04	
CAGR 2012/2010	1.09	1.05	1.05	1.08	
GR 2011/2010	1.18	1.05	1.05	1.08	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Appendix 7 continuation

ABC Supermarkets Matrix analysis during time period 2010–2014 (thousands euros)

	P	S	C	M	E
P	1				
S	P/S				
2014	2%				
2013	3%				
2012	3%				
2011	3%				
2010	2%				
2014/2013	0.65	1			
2013/2012	1.13				
2012/2011	0.89				
2011/2010	1.41				
CAGR 2014/2010	0.98				
CAGR 2013/2010	1.09				
CAGR 2012/2010	1.08				
GR 2011/2010	1.19				
C	P/C	S/C			
2014	3%	1.23			
2013	4%	1.23			
2012	3%	1.22			
2011	4%	1.22			
2010	3%	1.22			
2014/2013	0.65	1.00	1		
2013/2012	1.13	1.01			
2012/2011	0.89	1.00			
2011/2010	1.42	1.00			
CAGR 2014/2010	0.99	1.00			
CAGR 2013/2010	1.09	1.00			
CAGR 2012/2010	1.08	1.00			
GR 2011/2010	1.19	1.00			
M	P/M	S/M	C/M		
2014	16%	7.75	6.29		
2013	26%	8.23	6.67		
2012	26%	9.24	7.55		
2011	37%	11.98	9.79		
2010	24%	11.04	9.05		
2014/2013	0.61	0.94	0.94	1	
2013/2012	1.00	0.89	0.88		
2012/2011	0.69	0.77	0.77		
2011/2010	1.53	1.09	1.08		
CAGR 2014/2010	0.92	0.93	0.93		
CAGR 2013/2010	1.01	0.93	0.93		
CAGR 2012/2010	1.02	0.94	0.94		
GR 2011/2010	1.24	1.04	1.04		

Appendix 7 continuation

ABC Supermarkets Matrix analysis (cont.)

E	P/E	S/E	C/E	M/E	
2014	2.78	136.82	111.00	17.65	
2013	3.92	125.44	101.68	15.24	
2012	3.39	122.08	99.69	13.21	
2011	3.64	116.98	95.55	9.76	
2010	2.31	104.83	85.95	9.50	
2014/2013	0.71	1.09	1.09	1.16	1
2013/2012	1.16	1.03	1.02	1.15	
2012/2011	0.93	1.04	1.04	1.35	
2011/2010	1.58	1.12	1.11	1.03	
CAGR 2014/2010	1.04	1.05	1.05	1.13	
CAGR 2013/2010	1.14	1.05	1.04	1.13	
CAGR 2012/2010	1.14	1.05	1.05	1.12	
GR 2011/2010	1.26	1.06	1.05	1.01	

Source: Compiled by author (appendices 1 and 2 and calculated with formulas provided in table 2.16)

Appendix 8. Factor analysis of the matrix coefficient P/E

Operating profit per employee factor analysis formula:

Formula :	P/E=	(M/E)×	(C/M)×	(S/C)×	(P/S)
Where:	Operating profit on employee	Machinery on employee	COGS on machinery	Net sales on COGS	Operating profit on net sales
Where:	T=	a×	b×	c×	d

Index of component "a" (Ta/T0)=	(a1×b0×c0×d0×) / (a0×b0×c0×d0)
Index of component "b" (Tb/Ta)=	(a1×b1×c0×d0) / (a1×b0×c0×d0)
Index of component "c" (Tc/Tb)=	(a1×b1×c1×d0) / (a1×b1×c0×d0)
Index of component "d" (T1/Tc)=	(a1×b1×c1×d1) / (a1×b1×c1×d0)

The absolute impact of component "a":	$\Delta T(a)= Ta - T0 = (a1 - a0) \times b0 \times c0 \times d0$
The absolute impact of component "b":	$\Delta T(b)= Tb - Ta = a1 \times (b1 - b0) \times c0 \times d0$
The absolute impact of component "c":	$\Delta T(a)= Tc - Tb = a1 \times b1 \times (c1 - c0) \times d0$
The absolute impact of component "d":	$\Delta T(a)= T1 - Tc = a1 \times b1 \times c1 \times (d1 - d0)$

Appendix 8 continuation

Maxima operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	2.60	-2.53	0.93	1.02	0.93
a	6.85	5.83	6.28	8.15	8.72
b	-12.89	-14.17	-13.42	-11.70	-11.03
c	-1.14	-1.11	-1.12	-1.13	-1.13
d	0.03	-0.03	0.01	0.01	0.01

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	0.85	1.08	1.30	1.07
Index of component "b" (Tb/Ta)=	1.10	0.95	0.87	0.94
Index of component "c" (Tc/Tb)=	0.98	1.00	1.01	1.00
Index of component "d" (T1/Tc)=	-1.06	-0.36	0.96	0.90

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	-0.39	-0.19	0.28	0.07
The absolute impact of component "b"	0.22	0.14	-0.16	-0.06
The absolute impact of component "c"	-0.05	-0.01	0.01	0.00
The absolute impact of component "d"	-4.92	3.52	-0.04	-0.10
ΔT	-5.14	3.46	0.09	-0.10

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	8%	-6%	**295%**	-74%
(ΔT(b)/ΔT)×100%	-4%	4%	-166%	64%
(ΔT(c)/ΔT)×100%	1%	0%	14%	2%
(ΔT(d)/ΔT)×100%	**96%**	**102%**	-44%	**108%**
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

Selver operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	5.97	7.74	6.38	3.33	3.43
a	16.33	15.90	16.15	19.26	18.02
b	-7.32	-7.28	-7.42	-6.81	-7.24
c	-1.31	-1.31	-1.30	-1.26	-1.26
d	0.04	0.05	0.04	0.02	0.02

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	0.97	1.02	1.19	0.94
Index of component "b" (Tb/Ta)=	0.99	1.02	0.92	1.06
Index of component "c" (Tc/Tb)=	1.00	0.99	0.97	1.00
Index of component "d" (T1/Tc)=	1.34	0.81	0.49	1.04

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	-0.15	0.12	1.23	-0.21
The absolute impact of component "b"	-0.03	0.15	-0.63	0.20
The absolute impact of component "c"	0.01	-0.09	-0.18	-0.01
The absolute impact of component "d"	1.95	-1.54	-3.47	0.13
ΔT	1.77	-1.36	-3.05	0.10

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	-9%	-9%	-40%	**-226%**
(ΔT(b)/ΔT)×100%	-2%	-11%	21%	206%
(ΔT(c)/ΔT)×100%	0%	6%	6%	-14%
(ΔT(d)/ΔT)×100%	**110%**	**113%**	**114%**	134%
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

Rimi operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	-1.63	-0.29	1.30	1.45	0.03
a	22.42	23.08	23.48	23.75	23.55
b	-6.47	-6.40	-6.11	-6.18	-6.28
c	-1.16	-1.17	-1.19	-1.20	-1.19
d	-0.01	0.00	0.01	0.01	0.00

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	1.03	1.02	1.01	0.99
Index of component "b" (Tb/Ta)=	0.99	0.95	1.01	1.02
Index of component "c" (Tc/Tb)=	1.01	1.02	1.01	0.99
Index of component "d" (T1/Tc)=	0.17	-4.50	1.08	0.02

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	-0.05	0.00	0.02	-0.01
The absolute impact of component "b"	0.02	0.01	0.02	0.02
The absolute impact of component "c"	-0.01	-0.01	0.01	-0.01
The absolute impact of component "d"	1.39	1.59	0.11	-1.42
ΔT	1.34	1.59	0.15	-1.42

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	-4%	0%	10%	1%
(ΔT(b)/ΔT)×100%	1%	1%	11%	-2%
(ΔT(c)/ΔT)×100%	-1%	0%	6%	1%
(ΔT(d)/ΔT)×100%	**103%**	**100%**	**73%**	**100%**
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

Prisma operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	-0.67	-0.63	2.70	1.64	6.56
a	30.56	26.44	27.53	25.50	27.46
b	-4.34	-5.00	-5.28	-5.85	-6.01
c	-1.24	-1.23	-1.23	-1.23	-1.24
d	0.00	0.00	0.02	0.01	0.03

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	0.87	1.04	0.93	1.08
Index of component "b" (Tb/Ta)=	1.15	1.06	1.11	1.03
Index of component "c" (Tc/Tb)=	1.00	1.00	0.99	1.01
Index of component "d" (T1/Tc)=	0.94	-3.89	0.60	3.57

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	0.09	-0.03	-0.20	0.13
The absolute impact of component "b"	-0.09	-0.04	0.27	0.05
The absolute impact of component "c"	0.00	0.00	-0.02	0.02
The absolute impact of component "d"	0.04	3.39	-1.10	4.72
ΔT	0.04	3.33	-1.05	4.92

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	**223%**	-1%	19%	3%
(ΔT(b)/ΔT)×100%	-221%	-1%	-25%	1%
(ΔT(c)/ΔT)×100%	7%	0%	2%	0%
(ΔT(d)/ΔT)×100%	91%	**102%**	**105%**	**96%**
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

ETK operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	0.91	-0.66	-1.85	-1.08	2.58
a	13.29	10.97	9.11	9.64	10.17
b	-21.67	-29.53	-34.78	-32.11	-32.23
c	-1.12	-1.05	-1.05	-1.06	-1.07
d	0.00	0.00	-0.01	0.00	0.01

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	0.82	0.83	1.06	1.05
Index of component "b" (Tb/Ta)=	1.36	1.18	0.92	1.00
Index of component "c" (Tc/Tb)=	0.94	1.00	1.01	1.01
Index of component "d" (T1/Tc)=	-0.68	2.88	0.60	-2.22

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	-0.16	0.11	-0.11	-0.06
The absolute impact of component "b"	0.27	-0.10	0.15	0.00
The absolute impact of component "c"	-0.06	0.00	-0.01	-0.01
The absolute impact of component "d"	-1.62	-1.21	0.74	3.74
ΔT	-1.56	-1.19	0.77	3.66

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	10%	-9%	-14%	-2%
(ΔT(b)/ΔT)×100%	-17%	8%	20%	0%
(ΔT(c)/ΔT)×100%	4%	0%	-2%	0%
(ΔT(d)/ΔT)×100%	**103%**	**101%**	**96%**	**102%**
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

OG Elektra operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	5.18	7.18	6.74	6.93	7.14
a	7.67	8.92	9.73	9.00	9.43
b	-11.87	-11.22	-10.72	-11.01	-10.62
c	-1.14	-1.15	-1.15	-1.16	-1.17
d	0.05	0.06	0.06	0.06	0.06

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	1.16	1.09	0.93	1.05
Index of component "b" (Tb/Ta)=	0.95	0.96	1.03	0.97
Index of component "c" (Tc/Tb)=	1.01	1.00	1.00	1.01
Index of component "d" (T1/Tc)=	1.25	0.90	1.08	1.01

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	0.84	0.65	-0.50	0.34
The absolute impact of component "b"	-0.33	-0.35	0.17	-0.25
The absolute impact of component "c"	0.05	0.01	0.02	0.07
The absolute impact of component "d"	1.44	-0.74	0.51	0.06
ΔT	2.00	-0.44	0.19	0.21

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	42%	-146%	-260%	**158%**
(ΔT(b)/ΔT)×100%	-16%	79%	86%	-119%
(ΔT(c)/ΔT)×100%	2%	-1%	9%	33%
(ΔT(d)/ΔT)×100%	**72%**	**168%**	**265%**	28%
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 8 continuation

ABC Supermarkets operating profit per employee factor analysis (thousands euros)

Indicator	2010	2011	2012	2013	2014
T	2.31	3.64	3.39	3.92	2.78
a	9.50	9.76	13.21	15.24	17.65
b	-9.05	-9.79	-7.55	-6.67	-6.29
c	-1.22	-1.22	-1.22	-1.23	-1.23
d	0.02	0.03	0.03	0.03	0.02

Index	2010/2011	2011/2012	2012/2013	2013/2014
Index of component "a" (Ta/T0)=	1.03	1.35	1.15	1.16
Index of component "b" (Tb/Ta)=	1.08	0.77	0.88	0.94
Index of component "c" (Tc/Tb)=	1.00	1.00	1.01	1.00
Index of component "d" (T1/Tc)=	1.41	0.89	1.13	0.65

Impact (ΔT)	2010/2011	2011/2012	2012/2013	2013/2014
The absolute impact of component "a"	0.06	1.28	0.52	0.62
The absolute impact of component "b"	0.19	-1.13	-0.45	-0.26
The absolute impact of component "c"	0.01	0.00	0.03	0.00
The absolute impact of component "d"	1.07	-0.41	0.44	-1.49
ΔT	1.33	-0.26	0.53	-1.14

%	2010/2011	2011/2012	2012/2013	2013/2014
(ΔT(a)/ΔT)×100%	5%	**-503%**	**98%**	-54%
(ΔT(b)/ΔT)×100%	15%	441%	-86%	23%
(ΔT(c)/ΔT)×100%	1%	0%	5%	0%
(ΔT(d)/ΔT)×100%	**80%**	162%	82%	**131%**
	100%	100%	100%	100%

Source: Compiled by author (appendices 1 and 2)

Appendix 9. Comparison matrices

Selver/ Maxima comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	2.45				
2013	2.12				
2012	4.15	1			
2011	-1.85				
2010	1.47				
C					
2014	2.73	1.12			
2013	2.37	1.12			
2012	4.83	1.16	1		
2011	-2.18	1.18			
2010	1.69	1.15			
M					
2014	1.79	0.73	0.66		
2013	1.38	0.65	0.58		
2012	2.67	0.64	0.55	1	
2011	-1.12	0.61	0.51		
2010	0.96	0.66	0.57		
E					
2014	3.71	1.51	1.36	2.07	
2013	3.26	1.54	1.38	2.36	
2012	6.87	1.65	1.42	2.57	1
2011	-3.06	1.65	1.40	2.73	
2010	2.29	1.56	1.35	2.38	

Source: Compiled by author (appendix 7)

Appendix 9 continuation

Selver/ Rimi comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	145.77				
2013	2.44				
2012	5.39	1			
2011	-30.08				
2010	-3.93				
C					
2014	154.71	1.06			
2013	2.58	1.05			
2012	5.87	1.09	1		
2011	-33.73	1.12			
2010	-4.43	1.13			
M					
2014	178.34	1.22	1.15		
2013	2.84	1.16	1.10		
2012	7.13	1.32	1.21	1	
2011	-38.36	1.28	1.14		
2010	-5.02	1.28	1.13		
E					
2014	136.51	0.94	0.88	0.77	
2013	2.30	0.94	0.89	0.81	
2012	4.91	0.91	0.84	0.69	1
2011	-26.43	0.88	0.78	0.69	
2010	-3.65	0.93	0.82	0.73	

Source: Compiled by author (appendix 7)

Appendix 9 continuation

Selver/ Prisma comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	0.65				
2013	2.23				
2012	2.73	1			
2011	-13.19				
2010	-9.32				
C					
2014	0.66	1.02			
2013	2.31	1.03			
2012	2.87	1.05	1		
2011	-14.08	1.07			
2010	-9.90	1.06			
M					
2014	0.80	1.22	1.20		
2013	2.68	1.20	1.16		
2012	4.03	1.48	1.40	1	
2011	-20.49	1.55	1.46		
2010	-16.72	1.79	1.69		
E					
2014	0.52	0.80	0.79	0.66	
2013	2.03	0.91	0.88	0.76	
2012	2.36	0.87	0.82	0.59	1
2011	-12.32	0.93	0.88	0.60	
2010	-8.93	0.96	0.90	0.53	

Source: Compiled by author (appendix 7)

Appendix 9 continuation

Selver/ ETK comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	2.83				
2013	-6.06				
2012	-7.36	1			
2011	-26.37				
2010	13.48				
C					
2014	3.34	1.18			
2013	-7.26	1.20			
2012	-9.13	1.24	1		
2011	-32.98	1.25			
2010	15.85	1.18			
M					
2014	0.75	0.27	0.22		
2013	-1.54	0.25	0.21		
2012	-1.95	0.26	0.21	1	
2011	-8.13	0.31	0.25		
2010	5.36	0.40	0.34		
E					
2014	1.33	0.47	0.40	1.77	
2013	-3.08	0.51	0.42	2.00	
2012	-3.45	0.47	0.38	1.77	1
2011	-11.80	0.45	0.36	1.45	
2010	6.58	0.49	0.42	1.23	

Source: Compiled by author (appendix 7)

Appendix 9 continuation

Selver/ OG Elektra comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	0.34				
2013	0.33				
2012	0.73	1			
2011	0.82				
2010	0.77				
C					
2014	0.37	1.08			
2013	0.36	1.09			
2012	0.82	1.13	1		
2011	0.93	1.14			
2010	0.88	1.15			
M					
2014	0.25	0.73	0.68		
2013	0.22	0.68	0.62		
2012	0.57	0.78	0.69	1	
2011	0.60	0.74	0.65		
2010	0.54	0.71	0.62		
E					
2014	0.48	1.40	1.30	1.91	
2013	0.48	1.45	1.32	2.14	
2012	0.95	1.29	1.15	1.66	1
2011	1.08	1.32	1.16	1.78	
2010	1.15	1.51	1.31	2.13	

Source: Compiled by author (appendix 7)

Appendix 9 continuation

Selver/ ABC Supermarkets comparison matricies 2010–2014 (thousands euros)

	P	S	C	M	E
S	1				
2014	1.03				
2013	0.64				
2012	1.48	1			
2011	1.63				
2010	1.73				
C					
2014	1.05	1.02			
2013	0.66	1.03			
2012	1.57	1.06	1		
2011	1.75	1.07			
2010	1.86	1.08			
M					
2014	1.21	1.18	1.15		
2013	0.67	1.05	1.02		
2012	1.54	1.04	0.98	1	
2011	1.30	0.80	0.74		
2010	1.50	0.87	0.81		
E					
2014	1.23	1.20	1.18	1.02	
2013	0.85	1.32	1.29	1.26	
2012	1.88	1.27	1.20	1.22	1
2011	2.12	1.30	1.21	1.63	
2010	2.59	1.50	1.39	1.72	

Source: Compiled by author (appendix 7)

Appendix 10. Arithmetic and geometric mean of OPEI

Ranking of enterprises by OPEI will be conducted by using arithmetic mean and geometric mean (source: according to the data provided in appendix 9 and calculated on the formulas provided in equation 2 and equation 1, section 2.7).

Comparative matrix (**Selver on Maxima** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $1.81 = \frac{2 \times 18.12}{5^2-5}$
- 2013 year: $1.67 = \frac{2 \times 16.76}{5^2-5}$
- 2012 year: $2.65 = \frac{2 \times 26.52}{5^2-5}$
- 2011 year: $-0.01 = \frac{2 \times (-0{,}13)}{5^2-5}$
- 2010 year: $1.40 = \frac{2 \times 14.09}{5^2-5}$

Comparative matrix (Selver on Maxima efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[4]{1.81 \times 1.67 \times 2.65 \times 1.40} = 1.84 = 84\%$

Comparative matrix (**Selver on Rimi** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $62.13 = \frac{2 \times 621.34}{5^2-5}$
- 2013 year: $1.61 = \frac{2 \times 16.14}{5^2-5}$
- 2012 year: $2.93 = \frac{2 \times 29.36}{5^2-5}$
- 2011 year: $-12.27 = \frac{2 \times (-122.72)}{5^2-5}$
- 2010 year: $-1.10 = \frac{2 \times (-11.01)}{5^2-5}$

Comparative matrix (Selver on Rimi efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[3]{62.13 \times 1.61 \times 2.93} = 6.65 = 565\%$

Appendix 10 continuation

Comparative matrix (**Selver on Prisma** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $0.83 = \frac{2 \times 8.33}{5^2-5}$
- 2013 year: $1.52 = \frac{2 \times 15.19}{5^2-5}$
- 2012 year: $1.82 = \frac{2 \times 18.21}{5^2-5}$
- 2011 year: $-5.35 = \frac{2 \times (-53{,}59)}{5^2-5}$
- 2010 year: $-3.79 = \frac{2 \times (-37.94)}{5^2-5}$

Comparative matrix (Selver on Prisma efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[3]{0.83 \times 1.52 \times 1.82} = 1.32 = 32\%$

Comparative matrix (**Selver on ETK** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $1.25 = \frac{2 \times 12.56}{5^2-5}$
- 2013 year: $-1.33 = \frac{2 \times (-13.33)}{5^2-5}$
- 2012 year: $-1.75 = \frac{2 \times (-17.55)}{5^2-5}$
- 2011 year: $-7.52 = \frac{2 \times (-75.22)}{5^2-5}$
- 2010 year: $4.53 = \frac{2 \times 45.31}{5^2-5}$

Comparative matrix (Selver on ETK efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[2]{1.25 \times 4.53} = 2.39 = 139\%$

Comparative matrix (**Selver on OG Elektra** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $0.85 = \frac{2 \times 8.55}{5^2-5}$
- 2013 year: $0.87 = \frac{2 \times 8.70}{5^2-5}$
- 2012 year: $0.97 = \frac{2 \times 9.78}{5^2-5}$
- 2011 year: $1.02 = \frac{2 \times 10.22}{5^2-5}$

- 2010 year: $1.07 = \frac{2 \times 10.76}{5^2 - 5}$

Comparative matrix (Selver on OG Elektra efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[5]{0.85 \times 0.87 \times\ 0.97 \times 1.02 \times 1.07} = 0.96\ = -4\%$

Comparative matrix (**Selver on ABC Supermarkets** efficiency of the matrix elements) arithmetic mean of OPEI was calculated as

- 2014 year: $1.12 = \frac{2 \times 11.26}{5^2 - 5}$
- 2013 year: $0.97 = \frac{2 \times 9.80}{5^2 - 5}$
- 2012 year: $1.32 = \frac{2 \times 13.25}{5^2 - 5}$
- 2011 year: $1.35 = \frac{2 \times 13.57}{5^2 - 5}$
- 2010 year: $1.50 = \frac{2 \times 15.04}{5^2 - 5}$

Comparative matrix (Selver on ABC Supermarkets efficiency of the matrix elements) geometric mean of OPEI was calculated as

- $\sqrt[5]{1.12 \times 0.97 \times\ 1.32 \times 1.35 \times 1.50} = 1.24\ = 24\%$