
TRENDS FOR THE DEVELOPMENT OF THE COCOA INDUSTRY

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Abstract: Cocoa travels along a global supply chain crossing countries and continents. The complex production process involves numerous parties including, farmers, buyers, shipping organizations, processors, chocolatiers, and distributors. Cocoa beans are primarily used as raw material for chocolate and 90% of the global cocoa beans produced are consumed for chocolate production. On an average, around 4 million metric tons of cocoa beans are produced each year. Global production of cocoa beans during 2018 was 5.16 million metric tons. The international market prices of cocoa are very volatile and changes variably with demand and supply. It is forecasted that during 2020 the crop prices will go down due to expected surplus supplies. However, the low prices will drive the demand in the coming years with expected changes in product pipelines of major confectionery companies.

The chocolate, biscuits & confectionery industry is a major contributor to the European economy. According to Eurostat the production in Europe has increased by 3.4% in 2018, reaching 12,836.975 metric tonnes. Around 60% of the production was exported: the top three destinations outside the European continent were the USA, Russia and Australia. The success of chocolate, biscuits & confectionery industries relies more and more on their exports.

In Bulgaria, 254 companies operated in the sugar, chocolate and candy sector during 2018, up 31 more than in 2017. Their total turnover reaches over BGN 818 million - an increase of nearly 9% on an annual basis. At the same time, there is a growth acceleration - in 2017 it was 6 percent.

The purpose of this article is to analyse the dynamics in the development of the chocolate industry, to identify the main problems and to make forecasts for its future development. The main task is to study the global trends in the development of the chocolate and cocoa products market and the expected changes in technological and organizational attitude for the period 2015-2025. The study supports the main research hypotheses, namely by identifying the global trends for the chocolate and cocoa industry in a highly competitive environment and determining the place of the Bulgarian one in the European economy, Bulgarian enterprises in the sector could increase their competitive potential by reacting with adequate strategic tools. The following methods were used in the implementation of this study: analysis and synthesis; induction and deduction; analogy and comparisons; quantitative methods by statistical processing. Data and information were collected from the NSI, SAPI, Agency for Marketing and Market Research ICAP, Caobisco, EUROSTAT, etc., which were analysed and synthesized.

The results show that the exports of cocoa and chocolate industry in Bulgaria grew by over 17% year-on-year, while in 2017 there was a decline of more than 5%. Changes in consumer attitudes toward healthier products seeking higher-end offers are driving the following trends for the cocoa industry: the replacement of palm oils with non-hydrogenated oils; the replacement of palm oils with a completely different type of fat - sunflower oil, rapeseed oil, vegetable fats in different combinations; reducing white sugar when cooked; replacing sugar with other sweeteners; adding new and innovative ingredients to recipes in order to create a new trend in the field - supplements such as: protein, vitamins, etc.; removal of basic ingredients containing lactose and other allergens /e.g. milk powder / to satisfy this niche from the market- more and more children are allergic to lactose; improving the quality of products and raw materials used. The main tendency is to offer better quality and cleaner products, even niche-oriented ones, such as BIO – and ORGANIC products. As an EU member state, Bulgaria follows global trends and seeks to gain competitive positions in the chocolate and cocoa market with a focus on product innovation, environmental protection and consumer health concerns.

Keywords: cocoa, cocoa beans, chocolate industry, cocoa cream market.

1. INTRODUCTION

There are over 400 biologically active substances in cocoa and chocolate that have an effect on the human body. They have proven antioxidant activity and protect the cells from free radicals generated by ultraviolet radiation, metabolic processes, smoking, polluted environment, etc. The active substances are polyphenols with a high antioxidant effect. In dark chocolate, it has been found that the amount of antioxidants is three times higher than in tea, for example. Beneficial effects cannot be obtained by overdoing it with chocolate. The recommended daily dose for dark species is about 40 g per day.

Chocolate also contains biogenic amines that have a stimulating effect. Consumed in large quantities, especially in young children, leads to hyperactivity. The composition of the chocolate grain also contains substances with a calming effect, which balances it. Theobromine is also an ingredient with a stimulating effect and is also characteristic of teas.

Cocoa is produced in many countries that are typified by low or very low GDP per head - often with poor infrastructure and communications. It is characterised by the predominance of small farmers with an estimated 95% of annual world cocoa production derived from smallholdings in the size range of one to three hectares. The sector is further characterised by price volatility, a declining trend in real prices, concentration of production in a limited number of countries, low productivity and huge crop losses due to pests and diseases. However, with growth in population and rising GDP, global demand for chocolate has continued to grow, with expanding markets for cocoa. Nevertheless, demand in developed markets seems to be slowing and in some cases is flat or even declining.

Over the last 100 years or so, there has been a trend for new cocoa plantings in many cocoa producing areas to be established on primary forest land from which the economic timber species had been previously extracted, with the young cocoa being planted under the thinned forest with temporary shade often provided by food crops. This was a very efficient technique but is not a sustainable process. Only very limited areas of primary forest now remain in areas suited to cocoa cultivation – many of these are acting as formal forest reserves.

The latest Statistical Bulletin of EUROSTAT demonstrates that the chocolate, biscuits & confectionery industry is a major contributor to the European economy. The production in Europe has increased by 2.9% in 2019, reaching 12,848.873 metric tonnes. This shows that the passion to create innovating treats and bring pleasure to consumers remains vivid among these sectors. The high value added, globally acknowledged savoir-faire and creativity of European manufacturers enable them to export their products all over the world. Around 60% of the production was exported: the top three destinations outside the European continent were the USA, Russia and Australia. The high value added, globally acknowledged savoir-faire and creativity of European manufacturers enable them to export their products all over the world. Around 60% of the production was exported: the top three destinations outside the European continent were the USA, Russia and Australia. The success of our industries relies more and more on their exports. This is why CAOBISCO places so much energy in defending export opportunities for its members. **The purpose of this article** is to analyze the dynamics in the development of the chocolate industry, to identify the main problems and to make forecasts for its future development.

The main task is to study the global trends in the development of the chocolate and cocoa products market and the expected changes in technological and organizational attitude for the period 2015-2025.

The subject of this study is the global, European and in particular the Bulgarian chocolate industry, which by 2018 covers a total of 345 enterprises.

The study supports the main research hypotheses, namely by identifying the global trends for the chocolate and cocoa industry in a highly competitive environment and determining the place of the Bulgarian one in the European economy, Bulgarian enterprises in the sector could increase their competitive potential by reacting with adequate strategic tools. The following methods were used in the implementation of this study: analysis and synthesis; induction and deduction; analogy and comparisons; quantitative methods by statistical processing of SPSS (one-dimensional, two-dimensional distributions, χ -squared and correlation coefficient).

Data and information were collected from the NSI, SAPI, Agrostistics, Department of MAF, Agency for Marketing and Market Research ICAP, Caobisco, EUROSTAT, etc., which were analyzed and synthesized. Studies, strategies, conclusions and guidelines from national and regional programs have been used. In the development of the analysis, the results of AMB surveys were used, as well as similar studies and relevant information sources at the object of the analysis. The Study used the latest statistical data from the above-mentioned statistical databases extracted in April – August 2019.

In Bulgaria, in the sugar and chocolate products and sweets sector, 254 companies operated in 2018. This is 31 more than the previous year. Their total turnover reaches over BGN 818 million - an increase of nearly 9% on an annual basis. At the same time, there is a growth acceleration - in 2017 it was 6 percent. Last year also proved to be extremely successful for exports - it grew by over 17% on an annual basis, while the previous year saw a drop of more than 5%. Characteristic of the sugar and chocolate market is that it is operated by large multinational players and strong local companies. At the same time, the top 25 companies hold more than 85% of the market and there are no major leadership positions. Another trend is clearly evident - sugar exports are beginning to take an increasing share in total sales. So for 2018 it is already approaching 40 %, compared to about 22 % the previous year.

2. EXPOSITION

2.1. Analysis of the condition of the world cocoa economy and potential directions of its development

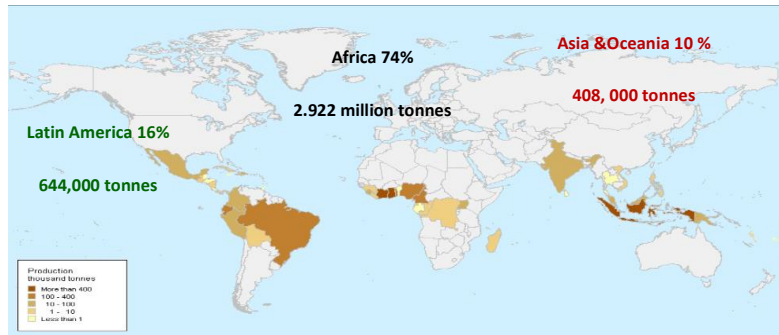
Cocoa travels along a global supply chain crossing countries and continents. The complex production process involves numerous parties including, farmers, buyers, shipping organizations, processors, chocolatiers, and

distributors. Cultivation of cocoa at the farm level is a delicate process as crops are susceptible to various conditions including weather patterns, diseases, and insects. Unlike larger, industrialized agribusinesses, the vast majority of cocoa still comes from small, family-run farms, who often confront outdated farming practices and limited organizational leverage. A steady demand from worldwide consumers draws numerous global efforts and funds committed to support and improve cocoa farm sustainability.

Cocoa beans are primarily used as raw material for chocolate and 90% of the global cocoa beans produced are consumed for chocolate production. On an average, around 4 million metric tons of cocoa beans are produced each year. Global production of cocoa beans during 2018 was 5.16 million metric tons. The international market prices of cocoa are very volatile and changes variably with demand and supply. It is forecasted that during 2019 the crop prices will go down due to expected surplus supplies. However, the low prices will drive the demand in the coming years with expected changes in product pipelines of major confectionery companies. The high prices in 2018 has led to lesser profits in grinding which in turn forced grinding companies to close their operations at various places.



Fig.1. Share of the 4-largest entities in 2019: (3.973 million tonnes)
World Cocoa Economy

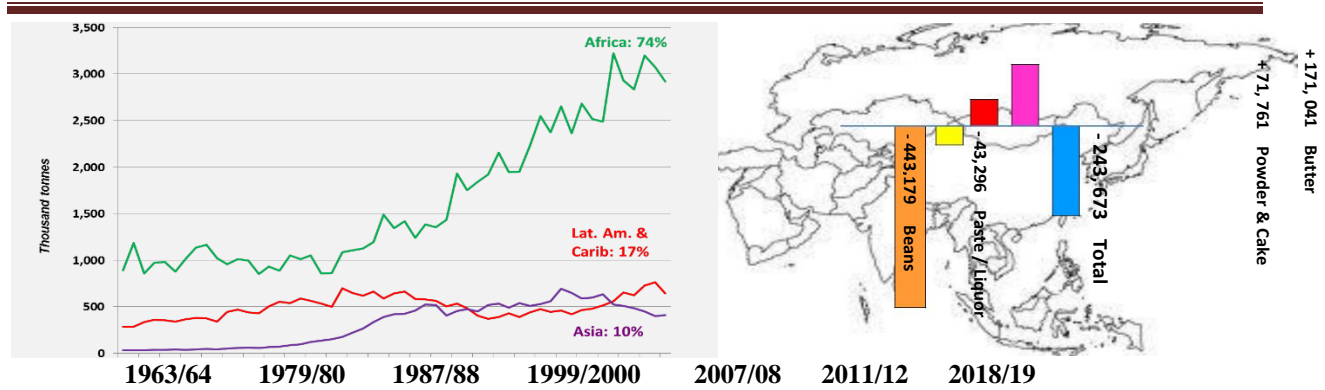


Source: Ecobank Research

Fig.2. World Cacao Production (gross) from 2018/

The cocoa beans has captured the attention of consumers from around the world, due to fast growth of chocolate confectionary market. The same is the major factor driving the market growth. Other than chocolate confectionary market factors stimulating the market growth include increasing disposable income among middle class and increasing popularity of cocoa based products like cocoa beverages and cocoa powder. However, the commodity price fluctuation, pest and diseases, low productivity, high dependence on seasons and environmental conditions and high cost of farm inputs are restraining the market growth. This market can be broadly segmented by bean type into organic cocoa bean market and inorganic cocoa bean market. Currently, the market is dominated by the inorganic cocoa bean, however, in the coming years, the demand of organic cocoa bean is going to increase globally. Share of the 4-largest entities in World Cocoa Economy are Chocolate Manufacturing (55%), Cocoa Grindings (60%), Cocoa Trading (40%) and Cocoa Production (74%) (see Fig.1).

The largest *Cocoa producers* are Latin America, Africa, Asia and Oceania. Africa is the leader in cocoa production, accounting for 74% of cocoa in the world, amounting to 2 922 million tonnes for 2018/2019 (see Fig.2). Latin American countries rank second in the world - accounting for 16% of the world's cocoa production, amounting to 644,000 tonnes for 2018/2019 . Third place is in Asia and Oceania, accounting for 10% of the world's cocoa production, which amounts to 408,000 tonnes in the same year. The largest cocoa producers in the top 12 in thousand tones for 2018/19 year are Côte d'Ivoire (1 570), Ghana (800), Indonesia (330), Cameroon (250), Ecuador (190), Nigeria (190), Brazil (140), Peru (85), Dominican Republic (72), Colombia (53), Papua New Guinea (36) and Mexico (30).



Source: ICCO, Ecobank research calculations

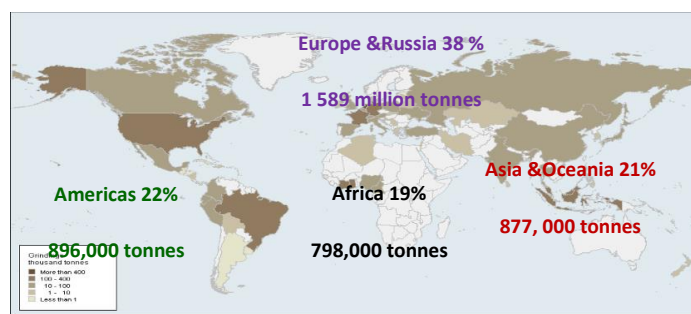
Source: ICCO, own

Fig. 3. Dynamics of cocoa production for the period (1963-2019)

Fig. 4. Asia & Oceania as a net importer of cocoa (in 2018/19)

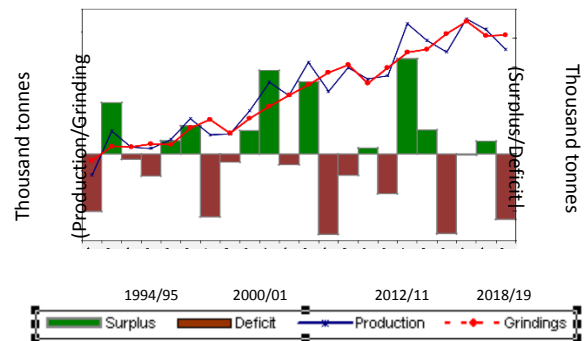
Dynamics of *Cocoa production* in the world over the period (1963-2019) is evidence that Africa has maintained its leading position in the years with a steady trend in the years from 1963 till 1984, with significant growth since 1985, rising approximately three times over the period to 2018 (see Fig. 3). Latin America retained its second place during the years 1963 to 1996, which saw a slight increase in cocoa production, after which in the period 1996 -2012 it lost its position and was overtaken by Asia and Oceania. In 2013, Latin America again registered growth and returned to second place by 2019. Asia and Oceania is third in the ranking of world cocoa producers, with a steady rise to levels of 500,000 tonnes between 1963 and 1996, and temporarily wins second place with growth to 560,000 tonnes between 1996 and 2012, after which production dropped significantly to around 200,000 tonnes, bringing it back to a stable third position. Cocoa imports from Asia and Oceania for 2018/19 show a deficit (-243 673 tonnes) due to the negative imports of cocoa beans (-443,179) and cocoa paste and liqueur (-43,296). In contrast, imports of cocoa butter (+171 041 tonnes) and cocoa powder (+71 761 tonnes) were positive (see Fig. 4).

In the *Cocoa grindings* segment, Europe and Russia hold the largest share, with 38%, equivalent to 1 589 million tonnes in 2018/19. The Americas are second with 22% or 896,000 tonnes, followed by Asia and Oceania with 21% of the cocoa bean market, which amounts to 896,000 tonnes. Last is Africa with a share of 19% or 798,000 tonnes (see Fig. 6). The largest world cocoa grindings in the top 15 in thousand tones for 2018/19 year are Netherland (1 570), Côte d'Ivoire (510), Germany (440), United States (410), Indonesia (370), Brazil (228), Ghana (210), Malaysia (190), France (100), Spain (36), Belgium (95), Turkey (93), Singapore (83), Italy (75) and Canada (62).



Source: Ecobank Research calculation

Fig.6. World cocoa grindings from 2018/2019: (4 160 million tones) ratio from 1994 till 2018



Source: EUROSTAT, own

Fig.7. Production /Grinding

Cocoa prices are affected by various factors including stock/grind ratios, expectations for future production/demand, global food prices, and consolidation/fragmentation in cocoa trade and processing industries. These components generally set the tone for long-term trends in cocoa prices while trading by investment funds tend to drive movement in the short-term. Over the past five years, the price of cocoa overall has increased, but it has been prone to

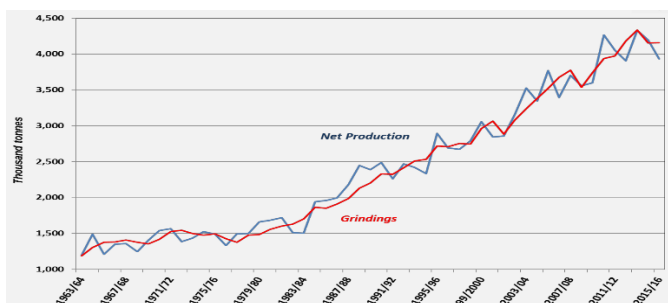
volatility from 2008 through 2011, spiking to a 30-year high of \$3,625/tonne in January 2010 and dropping back to \$2,200/tonne in December 2011. Since the beginning of the 2018 year, cocoa is among the worst performing commodities on the market. Since July last year, the price per tonne of cocoa has dropped by over 40%. Then it reached record highs because of a referendum on leaving the European Union voted in the UK.

The dynamics of the Production / Grindings ratio between 1994 and 2018 is shown in Fig. 7. It can be seen that the ratio has increased significantly over the years from 2 100 tonnes to 4 500 tonnes, despite the even alternation of deficit years with years of surpluses.

2.1.1. Cocoa supply and demand situation in the world market

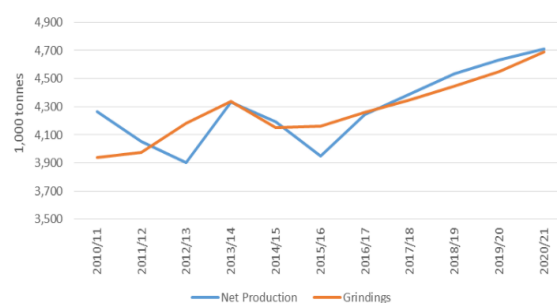
The 2018/19 crop year is over and as at 23 September 2019, cumulative arrivals of cocoa beans in Côte d'Ivoire were reported to have reached 2.164 million tonnes, up by 10.7% from the 1.954 million tonnes recorded at the same period last season. During the period 16-22 September 2019, only 4,000 tonnes of cocoa beans were sent to Ivorian ports, down from 14,000 tonnes seen a year ago. In addition, the country has exported 1.534 million tonnes of cocoa beans over the timeframe October 2018–August 2019 against 1.491 million tonnes during the same period of the 2017/18 cocoa season. According to officials from the Ivorian cocoa sector regulatory body (Le Conseil du Café Cacao), domestic grindings settled at 566,000 tonnes in the course of the 2018/19 season. As at 3 October 2019, exports of cocoa semi-finished products from Côte d'Ivoire attained 412,577 tonnes, up by 10% from 374,561 tonnes recorded a year earlier. At the start of the 2019/20 cocoa season, Côte d'Ivoire and Ghana opened the marketing season by jointly announcing their farmgate prices. In Côte d'Ivoire, the farmgate price of cocoa beans was established at US\$1,394 per tonne, up by 10% from US\$1,267 per tonne applied last season. Concurrently, in Ghana, the farmgate price of cocoa beans settled at US\$1,528 per tonne, 8% higher compared to the level of US\$1,409 per tonne seen during the 2018/19 season. Moreover, Côte d'Ivoire's harvest for the 2019/20 cocoa season is envisaged at 2 million tonnes while in Ghana the crop size is anticipated at 850,000 tonnes.

The dynamics of world supply and demand of cocoa for the period of 1963 to 2015 are shown in Figs. 8. It can be concluded that there is an upward trend in these indicators for both cocoa production and grinding. According to the results of the application of the econometric model for the World Cocoa Economy of ICCO, Figure 9 presents the forecast for the development of demand and supply of cocoa by 2021. The aim of the model is to provide a likely trend with a view to adapt government policies and investments.



Source: Ecobank Research
Organization

Fig.8. Trends in world cocoa supply and demand (1963 - 2015)



Source: International Cocoa

Fig.9. Forecast for cocoa supply and demand (2011 – 2021)

2.2. Analysis of the condition of the Europe cocoa economy and potential directions of its development

European Union continues to take around 60% of Africa's cocoa, and North America around 15%. Chinese & Indian consumption is rising fast, but is still less than 3% of world demand. Of greater significance is the emergence of new grinding hubs in South-East Asia, led by Indonesia, which are increasing competition for West African grinders. Leading importers of African cocoa by regions are listed on fig.10. According to the Ecobank report (2018), the Netherlands is the leader in cocoa imports from Africa with a share of 27%, followed by the USA with 18%, England with 11%, Malaysia, Belgium and France with 7% each. Germany holds 5% of cocoa imports from Africa, Estonia, Spain and Turkey with 3% each, Indonesia with 2% share and China with 1%.

The chocolate, biscuits & confectionery industry is a major contributor to the European economy. According to the figures collected from Eurostat the production in Europe has increased by 3.4% in 2018, reaching 12,836.975 metric tonnes. This shows that the passion to create innovating treats and bring pleasure to consumers remains vivid among the sectors. The high value added, globally acknowledged savoir-faire and creativity of European manufacturers

enable them to export their products all over the world. Around 60% of the production was exported: the top three destinations outside the European continent were the USA, Russia and Australia. The success of chocolate, biscuits & confectionery industries relies more and more on their exports. In 2018 the countries that export the most chocolate are Romania (6 939 993 kg), Poland (5 841 861 kg), Greece (2 887 027 kg), Germany (2 760 098 kg) and Austria (2 032 219 kg), and most import Germany (10 968 963 kg), Romania (6 128 216 kg), Poland (3 188 216 kg), Ukraine (2 525 035 kg) and Turkey (2 406 064 kg).

It is to note that the consumption per capita remained null meaning that consumers understand the place of chocolate, biscuits & confectioneries in their lives and choose to enjoy them in moderation. This also means that the efforts made by the industry to provide consumers with the information, options and support they need to make informed choices are bearing fruits. Companies innovate to offer a wide variety of product formulations and portions to allow consumers to treat themselves mindfully. In 2018 the three sectors together came in at the first place of the most innovative food sectors in Europe (9.2% of total European food innovation). In 2018 the chocolate, biscuits and confectionery sector was composed of 13.115 companies, including thousands of small and medium-sized family-owned businesses (around 99%) and multi-national companies operating all over Europe. Together they directly employed over 354.000 people in Europe. The three sectors also had a great impact on employment in the agriculture, retail and transportation sectors. These figures have slightly decreased compared to 2017, respectively by 3,16% and 1,28%. It reminds us that preserving the production capacity and the competitiveness of our industries in Europe is capital and requires a real inclusive policy allowing European manufacturers to continue their operations in Europe and keep an entrepreneurial spirit.

2.3. Analysis of the condition of the Bulgarian cocoa economy and potential directions of its development

In 2018, the growth of the market for sweets and chocolates and sweets is accelerating, exports are doubling compared to 2013 and more companies are expanding their range. In this sector, where the main drivers are multinationals and strong local players, the turnover for 2018 amounts to BGN 820 million, making it one of the largest markets in the food industry in general. At the same time, it is also one of the most export-oriented industries - among the 25 largest companies, only six have no exports. Another trend is clear - sugar exports are beginning to take an increasing share in total sales. So for 2018 it is already approaching 40 %, compared to about 22 % the previous year. According to the NSI, the production of chocolate and cocoa products in Bulgaria is as follows: for 2009 – 902 324 kg, for 2014 – 1 100 927 kg, for 2018 – 1 768 359 kg. According to the European ranking, the German (11,69) kg ate the most chocolate and cocoa per year, measured in kilograms, followed by Swiss (9.9 kg), Norway (7.9 kg) and Austria (7.8). Bulgaria is last in consumption of chocolate and cocoa creams - 1.36 kg per year. Calculated in grams per day, on average, Europeans eat 30-50 grams of chocolate. Bulgarians consume 20-40 grams daily.

In 2018, the first three companies in the sector remain unchanged: these are the Bulgarian companies of multinational companies "Mondelez Bulgaria Production" and "Nestle Bulgaria", as well as the company Prestige-96 established in Veliko Tarnovo. The leader in the category of sugars, chocolates and sweets is Mondelez Bulgaria Production, with sales of over BGN 272 million, which is an increase of nearly 12% compared to 2017. The share of this company in the category remains high - it accounts for 1/3 of the total sales of all companies. The top 3 also includes another multinational company, Nestle Bulgaria, which owns a sugar factory in Sofia. Last year, it had revenues of over 124 million levs and a year-on-year growth of nearly 4% compared to a decline in 2017. For 2018, the company also reported a double-digit increase in exports - it was almost 8.9% higher than the previous year and has high share of total sales. The top three also include Prestige-96, which has a production base in Veliko Tarnovo. Its sales amount to about BGN 67 million, which is an increase of 0.78% on an annual basis. At the same time, Prestige-96 registered a sharp jump in exports - by over 49% to BGN 14.3 million. It was similar to 2017, when sales on foreign markets increased by nearly 63%, which ranked the company second in jump export. Outside the three largest companies in the chocolate business, the top 10 in the sector are complemented almost entirely by local players, who with a few exceptions make the majority of their sales on the Bulgarian market. "Internion", which is in the specific segment of cocoa creams, climbs in one place and enters the top ten during the 2018. The company's revenues are nearly BGN 9.8 million and have an annual growth of 9.5%. The company is owned by Greek Interia and produces Nucrema branded cocoa and hazelnut creams at its base in Kostinbrod. Its direct competitor is the young Swiss company Torfellini, which has succeeded in successfully implementing innovative technologies combined with high quality raw materials and recipes in its cocoa cream production. In just less than 2 years, it has been able to market non-palm oil products, preservatives, colorants, soybeans and GMOs in the short term, and has been able to displace many of its competitors in sales.

The main brands on the chocolate market in Bulgaria are Svoige, Milka, Fine Milk Chocolate, Nestlé, Lind, and on the cocoa cream market -Nutella, Nucrema, Torfellini. Typically, these oligopoly structures are interdependent in defining their strategy. Individual brands are highly market dependent because the competition between are highly

personalized, and individual oligopolies need to be mindful of each other when determining market price and firm supply. Strategically, they must take into account their market constraints in terms of cost and capacity. They must also take into account the behavior and reaction of other competing companies.

4. CONCLUSION

Changes in consumer attitudes toward healthier products seeking higher-end offers are driving the following trends for the cocoa industry: the replacement of palm oils with non-hydrogenated oils; the replacement of palm oils with a completely different type of fat - sunflower oil, rapeseed oil, vegetable fats in different combinations; reducing white sugar when cooked; replacing sugar with other sweeteners; adding new and innovative ingredients to recipes in order to create a new trend in the field - supplements such as: protein, vitamins, etc.; removal of basic ingredients containing lactose and other allergens /e.g. milk powder / to satisfy this niche from the market- more and more children are allergic to lactose; improving the quality of products and raw materials used. The main tendency is to offer better quality and cleaner products, even niche-oriented ones, such as BIO – and ORGANIC products.

Mars, the world's largest chocolate maker, will invest \$ 1 billion in renewable energy, thus giving examples to other companies in the sector to make efforts to tackle climate change. The Snickers and Twix manufacturer's investment has been planned for several years and among the programs already known are the construction of wind farms. The company is currently relying on such electricity for its plants in the US and UK, and the idea is that by 2025, another 9 countries will use solar or wind power. The company promises to reduce greenhouse gas emissions by 27% by 2025 and by 67% by 2050.

Other big companies trying to drive green are Apple, Walmart Stores, Home Depot, General Mills and The McLean. The three market leaders who hold about 60% of the cocoa and chocolate market in the world are Barry Callebaut, based in Switzerland the American giant Cargill Inc., and the Singaporean company Olam. They are focused on improving processes and developing a long-term strategy through product innovations, especially in the bio-food segment.

In conclusion, as an EU member state, Bulgaria follows global trends and seeks to gain competitive positions in the chocolate and cocoa market with a focus on product innovation, environmental protection and consumer health concerns.

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