





# SUGAR INDUSTRY REPORT

## CHANGE TO SURVIVE

*“... The number of suppliers on the local sugar market will decrease. Those firms with certain advantages and high awareness of how to change production process may apparently survive and develop...”*



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## THE WORLD

Due to the high level of labor-intensity, sugar industry is being protected worldwide from developed to developing countries. Sugar can be processed from cane and sugarbeet. Over the last ten years, there has been a movement in extending cane sugar and narrowing beet sugar production. Cane sugar is more competitive and less costly than beet sugar.

During this period, the total sugar supply grew by 2.1% per annum while the total sugar demand only grew about 1.9% per annum. In the last four seasons, excess of supply over demand has been causing the highly increasing stock. However, **the international sugar market are forecasted to get improved slightly from 2013 onwards** when the demand growth rate would appear to excess that of supply side (2.3% compared to -0.7% per annum).

The sugar outlook depends on the following factors:

- There is now nearly a 75% chance of an El Nino event by the Fall 2014. This greatly affects sugarcane planting at such tropical countries as Brazil, Thailand, India and Indonesia. It is more likely that **sugar price will increase** during the second half of 2014.
- Sugar price is on its medium downward trend while ethanol price is on the opposite direction; this fact turns out a motivation for mills in Brazil **restructure using sugarcane from producing sugar to ethanol**. Ethanol production is expected to achieve average growth rate of 6% per annum until 2022.
- Developed countries' needs will be slowed down because of consuming awareness while emerging economies or developing countries with young and crowded population such as **China, India and Indonesia would be key drivers for growth**. The world sugar production is expected to achieve 210 milion tonnes on 2020/21 crop.
- Sugar substitute market is on small- scale and still unable to solve the harmful effects of sweetener overconsumption.

## VIET NAM

The competitive disadvantage for Vietnamese sugar industry resulted from the backward production process: (1) most of sugarcane seeds were imported hence their adaptability is low; (2) R&D has not been under consideration yet; (3) the scattered sugarcane areas make them difficult to mechanize and (4) there appeared too many sugar plants with low productivity and efficiency. Local sugar firms must need a significant change in production process to go against the coming elimination wave.

It would appear that at the end of 2013/14 season the accumulated inventory is extremely high due to the excess of local production over its demand. Export is delayed and depends only on Chinese consumption whereas the low-cost smuggled sugar from Thailand easily floods across the domestic market. **We find it really hard for the locals to solve the supply surplus in short term.**

The prospect of the domestic sugar industry depends on:

- Local supply and sugar import from Thailand will be affected if El Nino happens by the Fall 2014.
- **The rising demand from China would help** release inventory.
- **Smuggled Thai sugar makes up more than 15% of total sugar supply**. Solving this problem would help balance local demand and supply.
- Sugar retail price is way too different from its wholesale price are. Solving the problem of intermediary will improve the gross margin of sugar firms.
- The high sugarcane feedstock cost is caused by the low level of mechanization. **It is forced to raise farming mechanization rate** to reduce the production cost and enhance the competitive advantage.
- The demand is expected to keep **rising because the sugar consumption per capita is as low as 16 kg/year/person**. The average global level is at 23 kg/year/person in 2013.
- Domestic sugar industry will continue to be supported **by the Government**, even if the protection no longer exists.



There are a total of eight listed firm operating in the domestic sugar industry. Among them, **SBT** và **BHS** are the two largest sugar companies in the Southern Key Economic Zone; **LSS** has the greatest design capacity and large farmland; the other medium and small scale enterprises such as **NHS**, **SEC**, **KTS** and **SLS** have different performances and efficiencies. In addition, **HAG** is a business-mixed firm having its farmland and sugar plant in Attapeu, Laos. The differences in potential between these above listed companies lead to different valuations.

#### **SBT – Thanh Thanh Cong Tay Ninh Sugar Joint-Stock Company**

**ADD – TARGET PRICE: 13.700**

SBT, which has the large capacity mill (9,800 tonnes of sugar per day) and the large farmland, is a Refined Extra sugar (RE sugar) supplier for many giant F&B corporations in the Southeast and its wholesale trade accounts for up to 90- 95 % of total revenue every year. In 2014, consumption output is expected to approximate to that of last year while sugar selling price would be supported in the second half of the year. In the long term, the potential of Alcohol plant project with a capacity of 21 million liters per annum should be under consideration.

#### **BHS – Bien Hoa Sugar Joint-Stock Company**

**REDUCE – TARGET PRICE: 10.400**

BHS is owning a developed retail channel; its RE retail price is higher than that of other businesses due to its highly recognized brand name. The business generates the highest sales among the listed sugar enterprises because apart from producing sugar, BHS also purchases raw sugar from other related factories to refine or purchases refined sugar for selling during the off-season. Financial expenses, SG&A expenses form a heavy burden on the firm's profitability, resulting in less than VNDbn 40 NPAT in 2013. BHS's abnormal profit is expectedly attributable to 30,000 tonnes of raw sugar imported from HAG if the purchasing price is relatively low.

#### **LSS – Lam Son Sugarcane Joint-Stock Company**

**REDUCE – TARGET PRICE: 9.400**

LSS has the competitive advantage of large sugarcane area (17,000 ha), high production capacity (10,500 tonnes of sugarcane per day) and large sugar production output. The firm locates near several industrial zones making it easy to build up a direct and stable relationship with industrial clients; RE sugar has accounted for up to 80% of total production since 2013. The current performance of LSS is quite inefficient and the annual dividend is relatively low (5.5% per annum) because of the burden of great interest expense. By 2014, interest pressure will be reduced due to its decreasing short and long-term debt.

#### **NHS – Ninh Hoa Sugar Joint-Stock Company**

**ADD – TARGET PRICE: 12.700**

Planting area of NHS is easy to be expanded and not competed by other sugar factories. In addition, its output remained stable during years due to its networking with the system of sugar intermediaries and commercial traders. However, the business is operating in a low yield of cane area and showing little improvement over the last three seasons, as well as its sugar extraction rate is only at the average level. Prospect of the business is lied on the project to increase the capacity up to 6,000 tonnes of sugarcane per day and to invest in RE sugar production line that can take advantage of economies of scale and improve its gross margin along with the thermal power station project from bagasse with design capacity of 30,000 kwh.

#### **SLS – Son La Sugar Joint-Stock Company**

**BUY – TARGET PRICE: 36.300**

SLS has a small-scale however is the most effective firm among the listed sugar companies (ROE> 30 %). Its gross margin from primary activity is very high (2013: 16.8%; 2012: 20.1%) and its cane/sugar ratio is low as well (below 9.0). The enterprise operates in a low-density region and focuses mainly on the Chinese market which is currently in a high demand.

#### **HAG – Hoang Anh Gia Lai Joint-Stock Company**

**POSITIVE**

HAG has a large and concerntrated planting area in Attapeu – Laos, which is surrounded by rivers and lakes and a modern irrigation system that helps solve the problem of water in the drought season. Its high mechanization rate from land preparation to harvesting step leads to higher yield of cane than that of local firms. Its low sugar production cost (less than VNDm 5 /ton) and high gross margin (~60%) are really competitive all over the world.

# I. THE WORLD SUGAR INDUSTRY

## 1. OVERVIEW OF SUGAR INDUSTRY

Sugar used to be a luxury item in the late fifteenth century to the early sixteenth century when Spanish and Portuguese had expanded sugarcane cultivation in Puerto Rico, Cuba and Brazil and shipped it back to Europe to refine. In the seventeenth century, the British Government developed sugarcane cultivation areas and sugar mass production on West Indian islands, since then sugar became a popular product for all classes. By the early nineteenth century, sugar beet had been used for sugar production in Germany. After nearly a century, this agricultural product have almost replaced the sugarcane and become the main raw material for sugar production throughout Europe.

Up to now, the sugar industry is one of the oldest food processing industries in the world, with more than 100 countries and territories participating in the value chain. The scale of global sugar production is about 174.8 million tonnes in crop year 2013/14 (*USDA*) and achieves average growth rate of 2 %/year (*Credit Suisse*). Sugar can be made from two main ingredients: sugarcane (75-80% of the global supply, mainly grown in tropical countries) and sugarbeet (25-30%, grown in temperate countries) (*Credit Suisse*). Some such countries as the U.S. or China can plant both of them since they have large areas. Sugarbeet is a short rotation tree, so cultivated area depends heavily on the price trend of other crops, particularly cereals. Meanwhile, it typically takes about 12 months to 16 months to plant and harvest sugarcane and roots of the predecessor can be used to re-grow sugarcane for 5 years, after this period the sugarcane begins to lose its sugar content.

Sugar industry is labor-intensive; so many countries around the world have been implementing protection measures through different methods. In the U.S., the government continues to maintain subsidy program for domestic sugar industry by limiting imports, limiting cultivated area and subsidizing the farmers (*U.S. Farm Bill*). In the EU Alliance, production management policies include setting quota for each member, setting the minimum purchase price of raw material and the minimum reference price of white sugar and raw sugar (*EU Sugar Regime*). As a result, EU has switched from a net exporter of sugar to one of the largest sugar importers in the world. China, the world's second largest sugar importer in 2013 (with 3.8 million tonnes *according to USDA*) has been also maintaining the import quota of 1.9 million tonnes per annum in accordance with the WTO agreement. That means that volume of sugar import within quota will be subject to the import tax rate of 5%, while the excess amount beyond quota will be subject to tax of up to 50%.

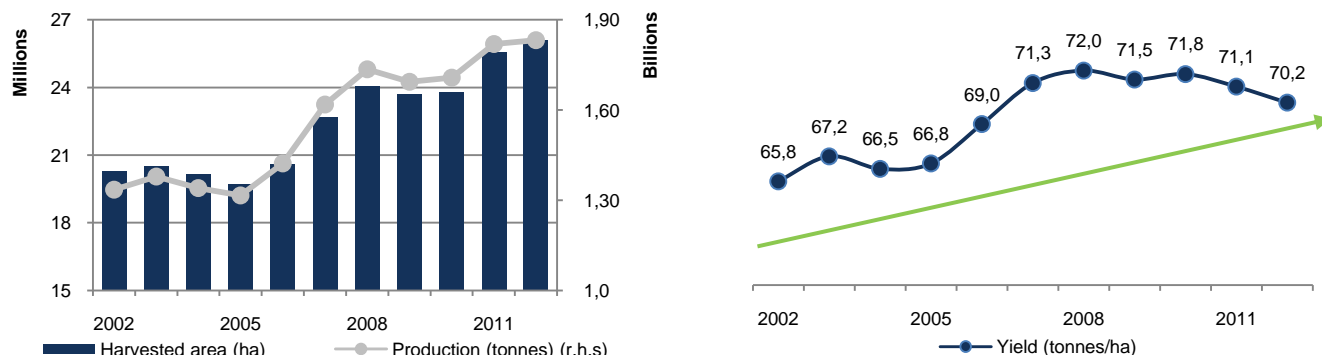
Sugar trading volume on the world market is around 55-60 million tonnes, of which the largest producing countries are Brazil (22% of total production), India (15%), China (8%) and Thailand (6%). As a result of greater domestic demand than production in India and China, the supply of sugar on the international market depends heavily on the two remaining countries, namely, Brazil and Thailand.

## 2. CANE AND BEET GROWING AREA

**Sugarcane, which** is a major industrial plant of the sugar industry, is mainly grown in tropical and subtropical regions and fond of light and water . By harvest time (about 12-16 months), farmers harvest sugarcane by hand or by machine and transport to mills within 16 hours in order to avoid losing sugar content. The plants are usually built close to the sugarcane growing areas to save transportation costs and reduce loss of sugar content. Normally sugar content ranges from 10% to 12%. At the end of 2012, the total sugarcane planted acreage in the world reached

nearly 26.1 million hectares and the total sugarcane production for harvest was 1.83 billion tonnes, increasing by 28.7% and 37.3% respectively compared to 2002. Brazil is the country with the largest sugarcane planted acreage of over 9.7 million ha (39%) in the world, following by other countries such as India (19%), China (7%) and Thailand (5%). The global average yield of sugarcane in 2012 was approximately 70.2 tonnes/ha.

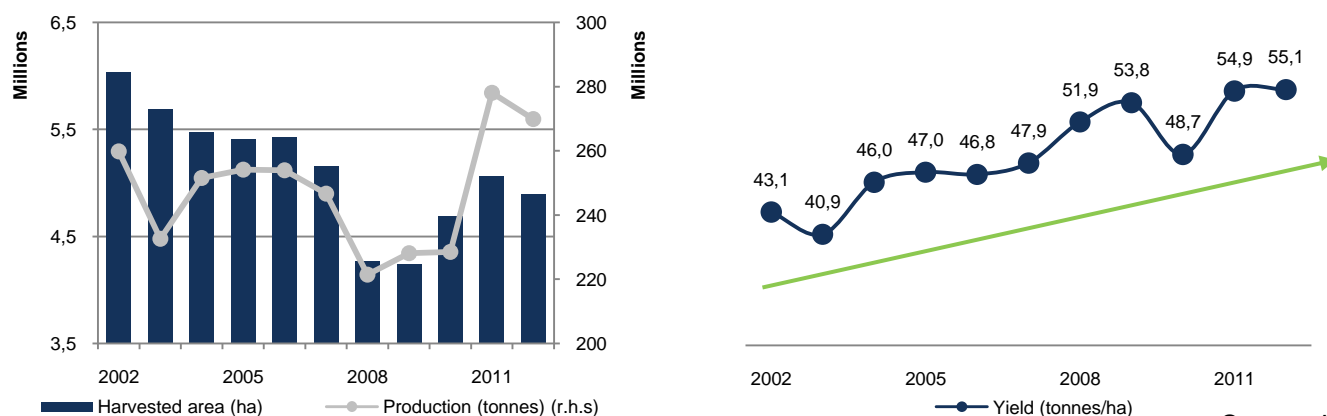
### Global sugarcane planted acreage, production and yield 2002-2012



Source: USDA

**Sugarbeet** is grown primarily in temperate regions; and has the sugar content of 14-18%. The harvest time is shorter than that of sugarcane (5-6 months). Until 2012 the total sugar beet planted acreage in the world has reached over 4.9 million hectares (-3.2% y-o-y), resulting in 269.9 million tonnes of output (-3% y-o-y). Russia had the largest sugarbeet acreage with over 1.1 million ha (22%) in the world and the production of 45.1 million tonnes (17%) in 2012, but its yield was only 40.9 tonnes/ha compared to the world's average yield of 55.1 tonnes/ha.

### Global sugarbeet harvested area, production and yield 2002-2012



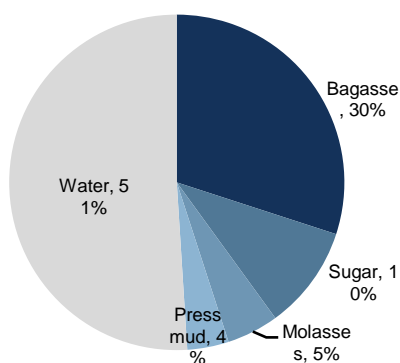
Source: USDA

### Top largest sugarcane and sugarbeet production countries

Country	Harvested area (ha)	Production (ton)	Yield (ton/ha)	Country	Harvested area (ha)	Production (ton)	Yield (ton/ha)
Brazil	9.705.388	721.077.287	74,3	Russia	1.102.000	45.057.000	40,9
India	5.090.000	347.870.000	68,3	USA	487.330	31.965.560	65,6
China	1.802.720	124.038.017	68,8	Ukraine	448.900	18.438.900	41,1
Thailand	1.300.000	96.500.000	74,2	Germany	402.100	27.891.000	69,4
Pakistan	1.046.000	58.397.000	55,8	France	389.558	33.688.393	86,5
Mexico	735.127	50.946.483	69,3	Turkey	281.000	15.000.000	53,4
Indonesia	456.700	26.341.600	57,7	China	235.480	11.469.050	48,7
Philippines	433.301	30.000.000	69,2	Poland	212.018	12.349.546	58,3
USA	370.000	27.900.000	75,4	Egypt	177.978	9.126.058	51,3
Others	5.149.400	311.470.807	<b>World: 70,2</b>	Others	1.164.481	64.879.974	<b>World: 55,1</b>

Source: USDA

### Sugarcane By-products



Source: SPA Securities Ltd

## 3. PRODUCTION OF RAW SUGAR AND REFINED SUGAR

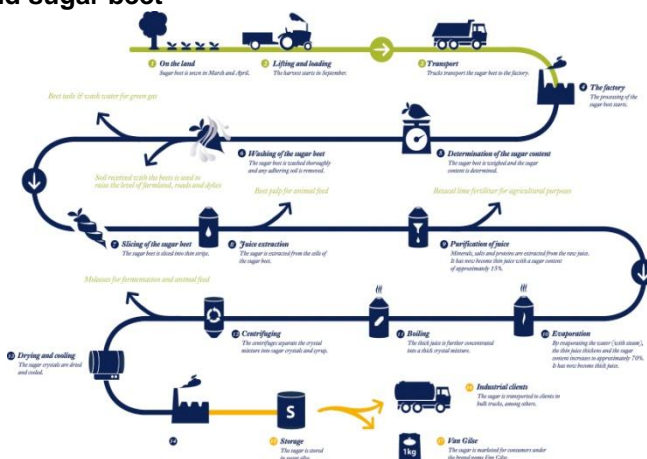
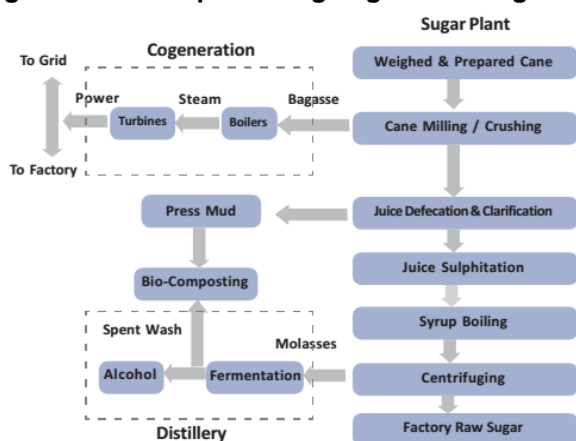
**Raw sugar** is purified and crystalized sucrose with polarization (Pol) of 96-99°, sugar crystals are covered with molasses having a golden color; and raw sugar is mainly used to produce refined sugar. Raw sugar can be processed from sugarcane or sugar beet.

**Refined sugar:** Molasses are still contained in raw sugar, which needs to go through the stage of removing impurities and bleaching before production of refined sugar with Pol of over 99°. This type of sugar is used primarily in daily consumption and is used as input material in the food and beverage industry.

### By-products during production process:

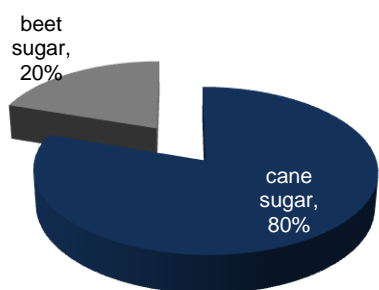
- **Bagasse**, accounting for 30-33% of the weight of sugarcane/ beet, is used as fuel in boilers to produce electricity. Produced electricity will be used for sugarcane crushing mills and for sale.
- **Molasses**, accounting for 5% by weight, is used in food processing and production of ethyl alcohol; and is used as input materials for producing alcohol or ethanol.
- **Microbiological**, accounting for 3% -5% by weight, is used as fertilizer in the cultivation process.

### Sugar Process of producing sugar from sugarcane and sugar beet



Source: SPA Securities Ltd

### Structure of sugar production in the world in the crop year 2013/14



Source: USDA

\*Basically, the process of producing sugar from beets and cane are similar when consisting of steps such as extraction, evaporation, boiling, centrifugation and drying to produce raw sugar and then refined sugar. While raw sugar produced from sugarcane can be stored and exported without immediate refining process; raw sugar produced from sugar beet needs to be refined to remove the smell of the sugar beet. Sugarcane crushing mills and raw sugar manufacturing factories operate only during sugarcane/beet harvest time whereas sugar refineries can run during the entire year.

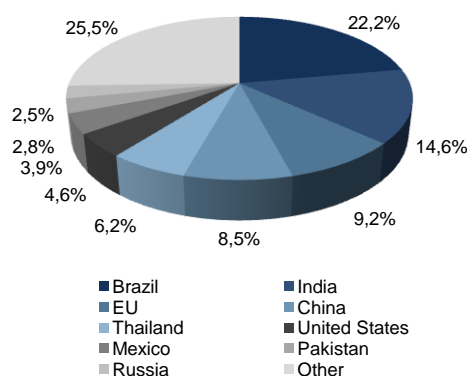
## 4. WORLD SUGAR PRODUCTION

Up to now, sugar production in countries such as Brazil, India and Thailand have greater competitive advantages compared to other EU countries which use sugar beet as the main material. This advantage does not come from technology or working conditions but it stems from low labor cost and low land cost as well as fewer legal restrictions from the government. However, natural barriers such as geography, rainfall, temperature, and competition from other agricultural activities have led to less land available for production expansion in the world's leading countries that produce sugar from sugarcane.

### Type of sugar in the country/region

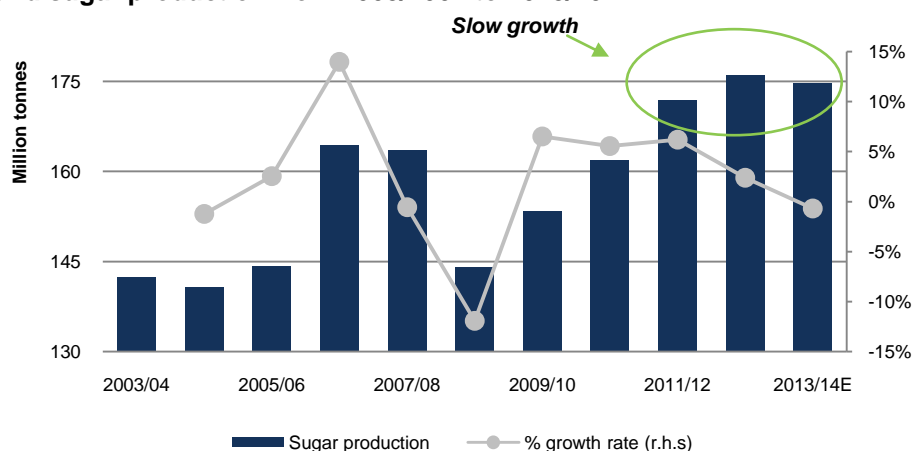
Nation	Type of sugar
Brazil	Cane
India	Cane
EU group	Beet
China	Beet / Cane
Thailand	Cane
America	Beet / Cane
Mexico	Cane
Pakistan	Cane
Russia	Beet
Australia	Cane

### Top sugar producers in the 2013/14 season



Cane sugar production is estimated at 140.2 million tonnes in the crop year 2013/14, only increasing by 0.37% compared with the previous crop year and increasing by nearly 30% after 10-year period since the crop year 2003/04. Meanwhile, beet sugar production dropped by 4.7% in comparison with the same period last year, reaching 34.6 million tonnes. Total global output in the crop year 2013/14 is estimated at 174.8 million tonnes, decreasing slightly by 0.7% compared to the previous crop year. The statistics also showed the shift in the proportion of cane sugar/ beet sugar production during the past 10 years. In the crop year 2003/04, beet sugar accounted for 24.3% of total sugar production, however it dropped to 19.8% ten years later. Currently, the two largest sugar producing countries are Brazil and India with total output of up to 64.2 million tonnes; representing roughly 36.7% of world sugar production. EU Union includes 28 countries with the largest beet sugar production of more than 16 million tonnes, equivalent to 46.2% of total sugar beet production in the crop year 2013/14.

### World sugar production from 2003/2004 to 2013/2014E



Source: USDA

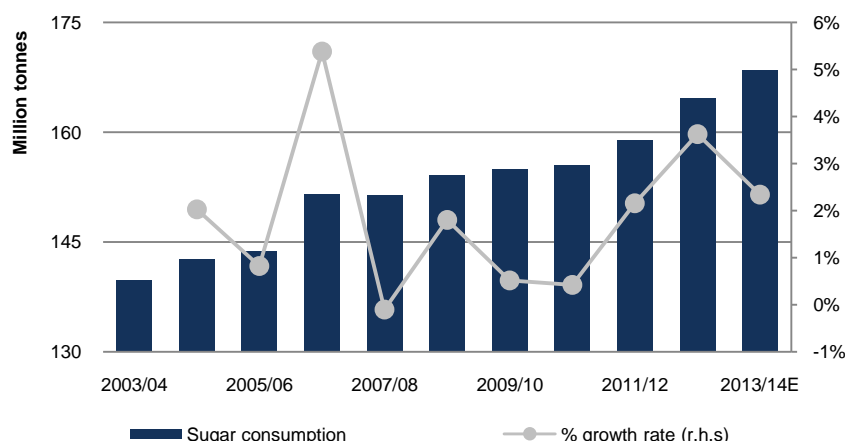
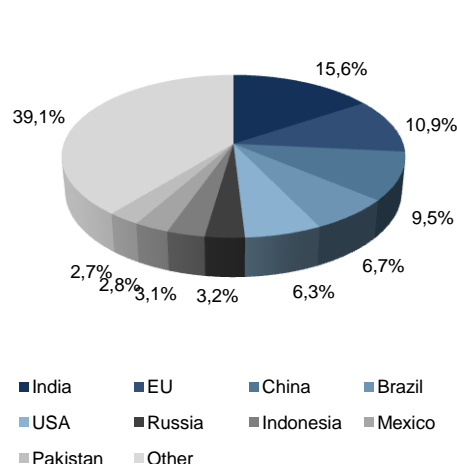
## 5. WORLD SUGAR CONSUMPTION

**Global consumption:** World sugar consumption in the 2013/14 season is estimated at 168.5 million tonnes, up 2.3% compared to consumption in the crop year 2012/13. During the last 10 years, world sugar consumption shows an upward trend with CAGR of about 1.9% per annum. However, this growth rate is lower than the CAGR of the total sugar production over the same period which is around 2.1% per annum, leading to increasing inventory accumulation.

**Consumption driving factors:** Sugar consumption depends on several main factors such as population growth rate, disposable incomes and income growth rate, sugar price in correlation to price of other products (energy, other sweeteners) or even cultural characteristics, demographic characteristics and perceptions of health issues. In the last period, regions with developed economy and low population growth rate, people pay more attention to the negative impacts of using sugar and food containing sugar, hence sugar consumption increased very slightly or at negative growth rate as North America (CAGR = 1.3% per annum for 5 years), Europe (1.3%) and Oceania (-0.2%). In contrast, regions with high population and developing economy, sugar consumption has increased steadily each year. Asia is the largest sugar consumer in the world, led by the Middle East (5.3%), Southeast Asia (4.5%) and South Asia (2.5%), which will create incentives for growth in sugar consumption and production in the future.

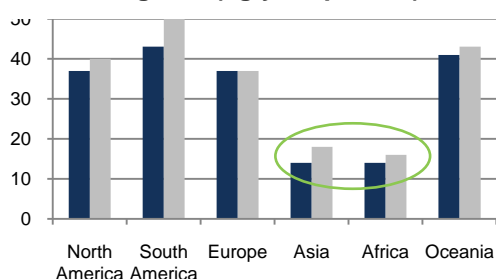


## The proportion of sugar consumption by nations in crop year 2013/14 and consumption over the crop years



Source: USDA

### Sugar consumption per capita in regions (kg/year/person)



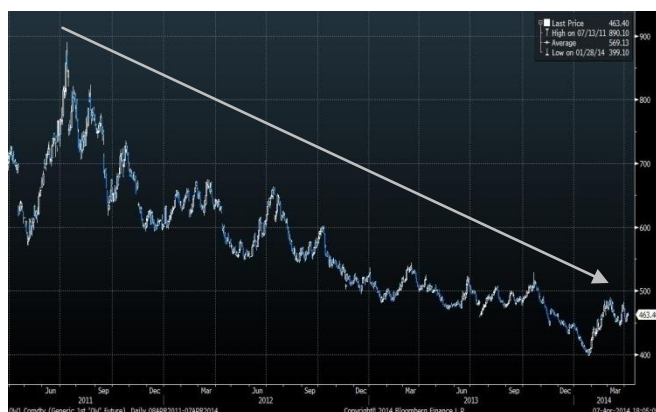
Source: Credit Suisse

### Sugar consumption per capita

Sugar is considered a necessity in daily life; however, per capita sugar consumption varies in different countries and regions in the world. In general, countries with low per capita sugar consumption and availability for expansion are developing countries with low per capita income (Asia, Africa). In developed countries, despite their high average income, the income elasticity of demand and growth potential are quite low due to concerns about the harmful effects of sugar consumption.

## 6. GLOBAL SUGAR TRADE

### Future raw and white sugar prices prolong a downward trend during the last two years



Source: Bloomberg

### World sugar trade

Sugar, an important agricultural product, is traded worldwide. However, up to 71% of sugar is consumed in its original countries; then the global traded volume is only about 60 million tonnes or USDbn 24. Even some of the largest sugar producers such as India (~14.6% of total output) or China (~8.5%) are net importers every year due to excess of domestic demand.

Owing to the small size of the global transaction, world sugar price is very sensitive to production of the leading sugar producers, especially Brazil with 45-50% of total global export annually. This means that even though there are more than 100 countries having a sugar industry in the world, sugar price is mainly decided by

changes happening to production and consumption in countries such as Brazil, Thailand, India and China. Transaction price on the world sugar market is often referenced by two common types of contract: ICT Futures Raw Sugar #11 and LIFFE White Sugar #5.

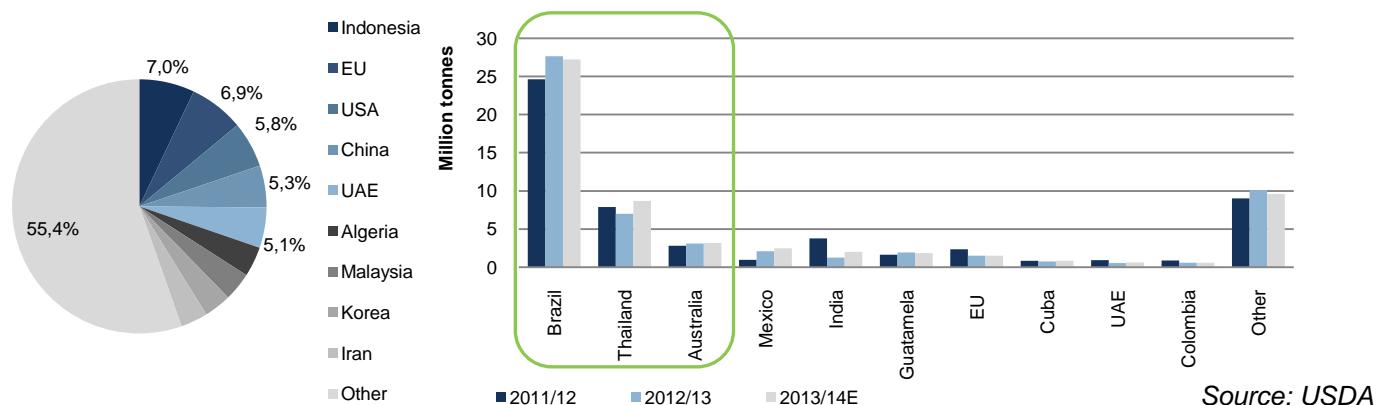
### Sugar export

Sugar can be exported as raw sugar or refined sugar for production and direct consumption. In the crop year 2013/14, it is estimated that the export volume is about 58.7 million tonnes, rising up 3.7% compared to that in the previous crop year. In particular, the amount of raw sugar accounts for about 38.4 million tonnes, equivalent to 65.5% of total sugar exports. The EU Union, Columbia, Thailand and Brazil are among the leading exporters of refined sugar. However, more than half of Brazil's and Thailand's sugar exports are raw sugar.

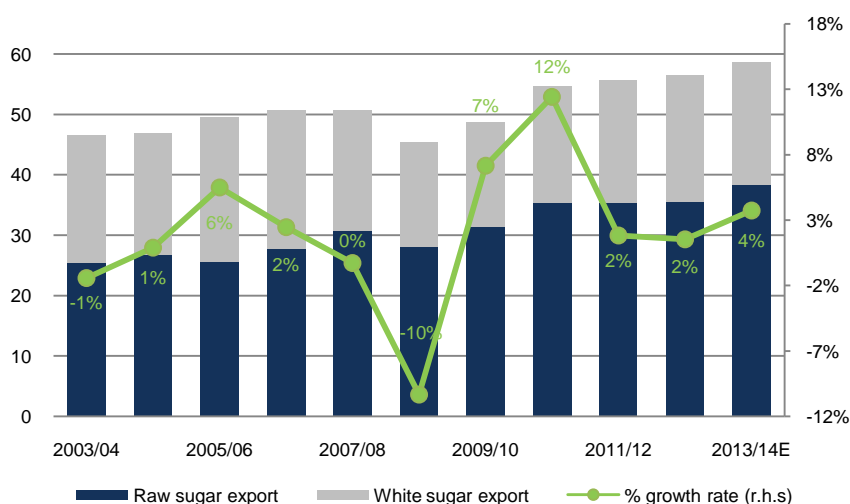
### Sugar import

In the crop year 2013/14, the total world output of the sugar import is estimated at 52.5 million tonnes, a slight increase of 0.41% compared with the output in the previous crop year. The countries and territories such as Indonesia (~7%), EU (~6.9%), USA (~5.8%) and China (~5.3%) are among the leading sugar importers in the world.

**Sugar import attributable to different countries in 2013/14E and top sugar exporters during the period**



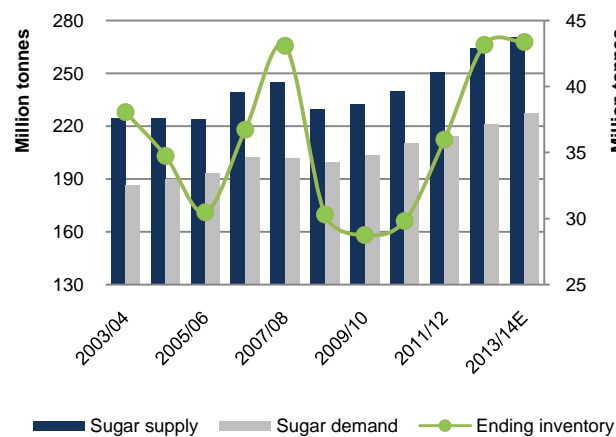
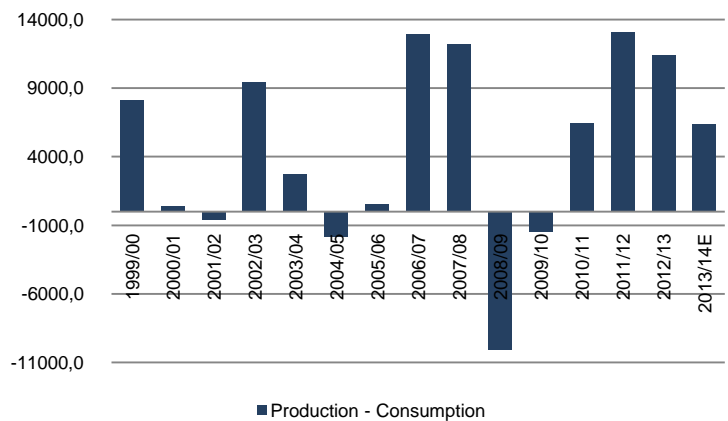
**World sugar export from 2003/04 to 2013/14E**



### High accumulated inventory

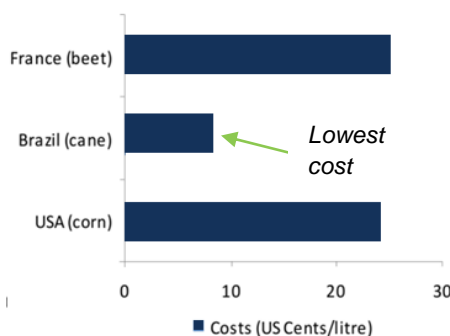
Total annual world sugar supply is determined by the beginning inventory and total manufacturing output in the crop year plus import; meanwhile, total world sugar demand is the sum of domestic sugar consumption plus export. World sugar

market is forecasted to show signs of a slight improvement in the crop year 2013/14 when the total supply has increased at a lower rate than demand (2.3% versus 2.7%); and consumption increases while production decreases (2.3% versus -0.7%). Nonetheless, the total ending accumulated inventory is expected to be at 43.4 million tonnes, a slight increase by 0.5% compared with the previous crop year and a 14% increase compared to the last ten years.

**World sugar supply, demand and ending inventory**

**World production surplus/deficit**


Source: USDA

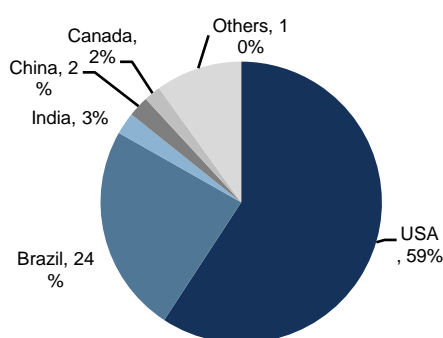
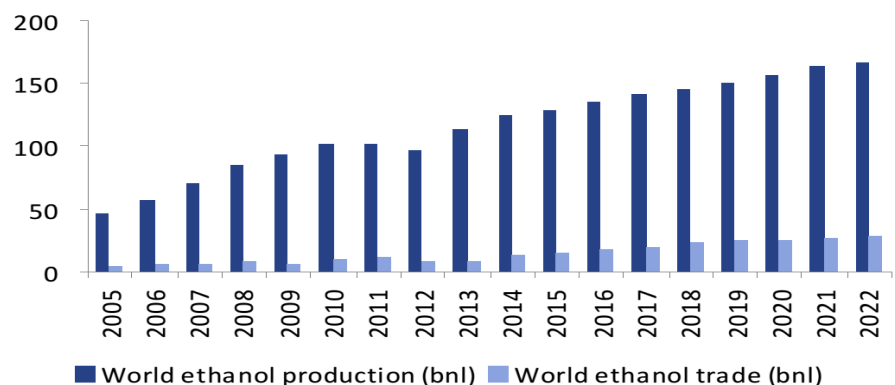
## 7. RELATION BETWEEN ETHANOL FUEL AND CANE SUGAR

**Gross feedstock costs per litre of fuel ethanol**


Source: SPA Securities Ltd

**Sugarcane can be used to produce ethanol fuel instead of producing sugar; hence sugar price highly correlates with ethanol price.**

Ethanol fuel can be produced from corn, sugarcane and other plants containing starch and cellulose. In particular, ethanol produced from sugarcane is cheaper and more energy efficient than ethanol produced from other crops (corn, sugarbeet), thus it has a greater competitive advantage over other traditional fuels. In Brazil with the largest sugarcane planted acreage in the world, sugarcane is used as an input material. The development of ethanol helps Brazil limit the heavy dependence on traditional fuels, overcome enhanced greenhouse effects and reduce pollution. But it is not easy for other countries to have the success like Brazil. Because the country has absolute advantages such as large land, a long history of growing sugarcane, so it is able to develop large-scale farming areas that are not in land competition with other agricultural plants and this does not put pressure on rising food prices, which is conducive to ethanol production.

**Global ethanol production in 2012**

**Ethanol production to grow at 6% CAGR**


Source: USDA; SPA; OECD-FAO Agriculture Outlook 2013

## 8. FUTURE PROSPECTS FOR THE INDUSTRY

Sugar consumption has increased at an average rate of 2.7% per annum in the last 5 years. In developing countries, consumption of sugar is in a downward trend as a result of sugar substitutes and concerns regarding obesity and health. However, in developing countries, sugar consumption accounts for 70% compared with the world's consumption, the growth is faster based on the increase in income and in population.

Sugarcane growing areas in the world has been expanded to meet the production needs of sugar and other products such as ethanol. Total world sugar production is forecasted to increase by 30 million tonnes to reach 210 million tonnes in the crop year 2020-2021. This increase of sugar production will derive from developing countries, particularly Brazil. Sugar production in this country has increased rapidly in the past two decades; however, the financial crisis in 2008 has reduced the new investment in the sugar processing plants and so sugar production growth has been dropped since then.

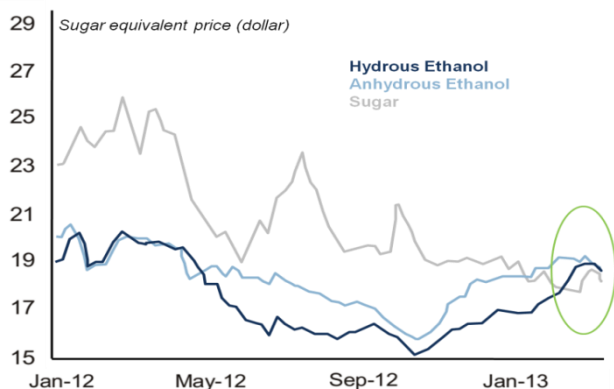
A huge impact on the sugar supply and demand relationship in the world is using sugarcane in ethanol production, a form of alternative energy. Brazil, the largest sugar producer and exporter in the world, is also one of the largest ethanol manufacturers and consumers. The decision to expand ethanol production in this country will have a huge impact on sugar trade and price in the world.

In the short term, an important factor affecting production and trade as well as the sugar price on the global market is weather risks. There is now nearly 75% chance of El Nino event in 2014 (*according to PNAS*) and this year will be witnessing the hottest weather in history. Agricultural activities in general and sugarcane planting in particular will be seriously affected, particularly drought will take place on a large scale in the countries of Eastern Hemisphere including sugarcane producing nations and large sugar producers such as Australia, Thailand, India and Indonesia. Sugar prices may rise again after a long period of declining trend.

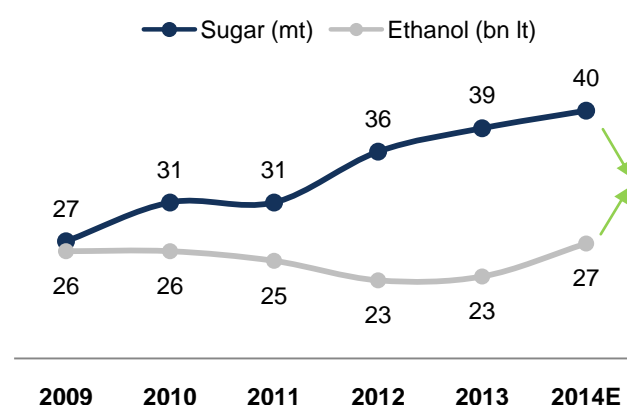
### Brazil is the key factor to affect the market

**In Brazil**, total sugarcane production increased by 5.4% to 591.1 million tonnes in the crop year 2012/13 when sugar production is up 6.8% at 38.6 million tonnes, reflecting the strong recovery compared with two previous poor harvests due to the weather. In the crop year 2013/14, with forecast showing favorable weather, sugarcane production is expected to increase by 8.3% to 640 million tonnes while sugar production only increased slightly by 38.8 million tonnes (0.4% YoY). Export volume is expected to reach 27.3 million tonnes (-1.4% YoY) to meet the need of international markets, in which raw sugar exports is estimated at 20 million tonnes.

Relative prices favouring ethanol production over sugar

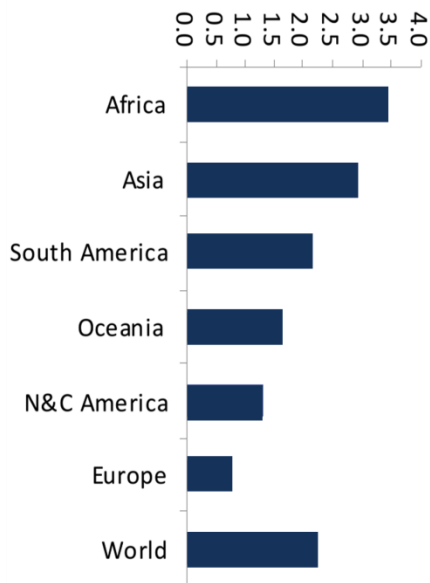


Brazil ethanol and sugar production



Source: Bloomberg, USDA, SPA



**CAGR in sugar consumption to 2021**


Source: Rabobank 2013

Sugarcane crushing mills in Brazil are designed to produce both sugar and ethanol and the production depends on the price movements of these two products. From 2012 and earlier, sugar production is more profitable. However, by 2013 when the world sugar price has plummeted, more sugarcane has been used for ethanol production than it was in the previous crop year. Ethanol output is estimated to rise by 14.9% to 26.8 billion liters including 12.6 liters of anhydrous ethanol and 14.2 liters of hydrous ethanol. It is estimated that proportion of sugarcane used for ethanol and sugar production will be 52% and 48% respectively, which has changed compared to the balance at 50% - 50% in the crop year 2012/13 and earlier. If ethanol prices continue to fluctuate on the increasing trend in the future, the increase of ethanol production will be in proportional to the decrease of the sugar production in Brazil and sugar export in the world. This could create a lift to the sugar price that is currently in the sharp decline. *According to estimation of SPA*, the world sugar inventory in four recent crop years will be released out within 18 months if demand for ethanol consumption in Brazil increases by 20%.

**Thailand and Australia continue to be the leading exporters**

**In Thailand**, production under the influence of drought declined from 10.2 million tonnes in the crop year 2011/12 to 10 million tonnes in the crop year 2012/13. But output is expected to reach 11.5 - 11.7 million tonnes in the crop year 2013/14 (*according to F.O.Licht*), exports reach 8.7 million tonnes as a result of increased demand in Asia, especially in Indonesia.

**In Australia**, the third largest exporter of raw sugar in the world, sugar production is expected to decrease by 6.5% to 4.25 million tonnes in the crop year 2013/14. This drop is caused by heavy rainfall in the first months of 2013 and the pandemic in Queensland - the country's largest sugarcane growing area. Sugar exports are expected to reach about 3.2 million tonnes.

**Demand in China, India and Indonesia is the key driver for growth**

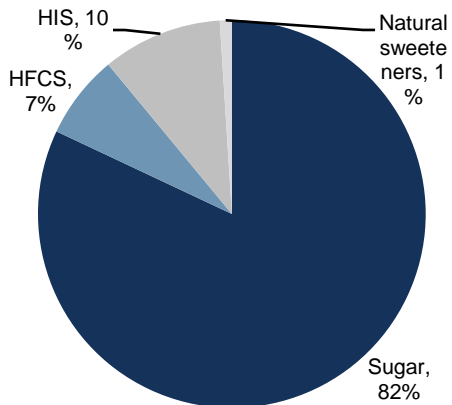
**China:** By the crop year 2014/15, domestic production is estimated at 16 million tonnes, which meets around 85% of demand for consumption and production (*according to SPA*). There is an upturn in demand for sugar imports as a result of pressure from domestic demand and narrowing the growing area due to the urbanization process. China, with their policy on sugar reserves, is still maintaining higher domestic sugar price than world price to support their farmers. Constant decline in world raw sugar price has created a huge price difference between the two markets since China is one of the countries with the highest production cost in the world. Production cost of raw sugar in China is about 30 cents/lb; while in Brazil is only 18-19 cents/lb. Cane price in China is USD 75 per tonnes compared to USD30 per tonnes in Brazil and Thailand.

**India** is the world's biggest sugar consumer with over 24.7 million tonnes in the crop year 2012/13; compound growth rate is at 2.3%/ per annum in the last 5 years. Domestic sugar production meets about 97% of sugar demand, so India still has had to import sugar in previous years. Effects of bad weather can cause major shocks to the domestic supply, which is similar to 2009 when output suddenly fell by 40%.

**Indonesia** is the world's largest sugar importer, with only 2.1 million tonnes of domestic production compared to more than 5.2 million tonnes of domestic demand in the most populous country of Southeast Asia.

**9. SUGAR SUBSTITUTE MARKET ON SMALL SCALE**

Sugar accounts for almost 80% of global sweetener market; the remaining 20% is syrup sweeteners and artificial sweeteners. The development of the sugar

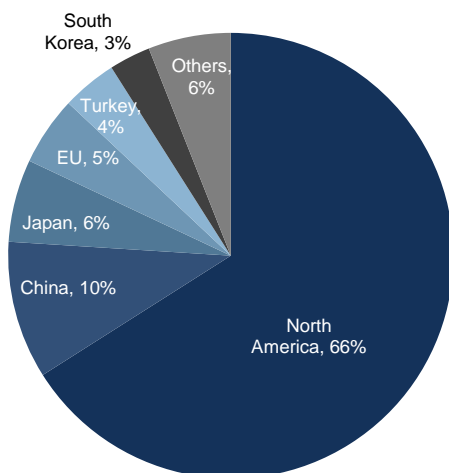
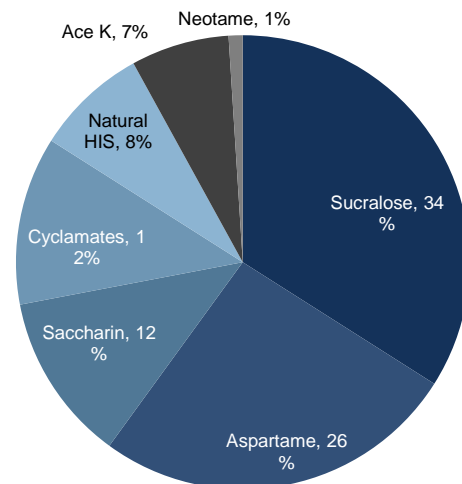
**Global market share of sugar and sweeteners in 2013**


Source: Credit Suisse

substitutes depend on the policies in different countries. Some products may be allowed to use in this country but banned in other countries.

**Corn syrup (High-fructose corn syrup – HFCS)**, best known for candy production and being used in several cake recipes, is not crystallized as refined sugars. This is a form of glucose extracted from corns. HFCS is not as sweet as sugar, and does not have typical smell like molasses or honey. 80% of HFCS production is originated from the United States, Japan, China and the EU. Demand for HFCS has an annual growth of 1.3% per annum, lower than sugar's growth of 2.1%. HFCS selling price is about 29 cents/lb, which is also higher than that of sugar. According to Credit Suisse, the harmful effects of HFCS and sugar in consumption are similar

**Artificial sweeteners** are said to have the ability to completely replace sugar in flavor and have the advantage of not causing negative impacts on health; however, this is still a controversial issue. These include a number of products such as Saccharin (300 times sweeter than sugar, price is under 1 cent/lb), Aspartame (160-220 times sweeter than sugar, price is 8 cents/lb), Ace K (150 -200 times sweeter than sugar, price is 5 cents/lb), Sucralose (600 times sweeter than sugar, price is over 20 cents/lb), Cyclamate (30-50 times sweeter than sugar). The size of the global market is about \$1.2bn.

**High-fructose corn syrup production by country**

**High-intensity sweetener value shares (of global USDbn 1.2 market)**


Source: Credit Suisse

## II. VIETNAM SUGARCANE INDUSTRY

### 1. THE HISTORY AND DEVELOPMENT GOALS

*"Intensively invest in and expand existing sugar mills, build some small and medium-sized factories in small sugarcane growing areas. In large growing areas with high concentration level, construct sugar mills with modern advanced technology, including joint ventures with foreign countries. Sugar production in 2000 is planned at about one million tonnes." (Resolution of 8th General Assembly of State Parties - 1996)*

Sugarcane and honey-sugar making industry emerged long time ago, however, the actual development of sugarcane industry only started in 1990s. Until 1994, there were only 9 sugar mills with a total capacity of less than 11,000 tonnes of crushing cane per day (TCD), and 2 refineries with small capacity and outdated equipment, leading to annual import of 300,000 – 500,000 tonnes of sugar on average. Recognizing the huge waste in domestic sugar processing and manufacturing, a program for sugarcane started in 1995. Program was chosen as the starting program for industrialization and modernization of rural agriculture, hunger eradication and poverty reduction, and job creation for agricultural workers. The sugar industry was informed to be "socio-economic industry rather than economic industry for maximum profit."

From the standpoint of policy makers, it can be seen that this program solved the two biggest problems of Vietnam's sugar industry at the time. The first is financial policy that supports financial capital by loan with low interest rate; the second is the equitization of sugar businesses. Thanks to the two policies, the sugar industry has achieved a certain development instead of billions of dollars import; basically met the domestic demand; and more importantly, created millions of jobs.

However, the massive development of the sugarcane plant projects without long-term planning has left to many unpredictable sequels later. When building sugar mills, the local units did not consider establishing concentrated sugar areas like sugarcane farms; and only focused on alternating with other crops. When the country has entered the market economy, farmers follow the market trend to grow crops generating high incomes so that sugarcane growing areas gradually are shrunk and pushed into the hilly region with exhausted soil, acid soil, and saline soil. Fragmented growing areas are not able to be mechanized and expanded, so the mill capacity could not be upgraded and sugar producing costs are high. The result is that domestic sugar industry is completely overshadowed by import sugar.

### 2. VIETNAM SUGAR INDUSTRY'S POSITION ON GLOBAL SCALE

Vietnam's sugar output in the crop year 2013/14 is estimated at 1.6 million tonnes, accounting for only about 0.9% of the total world sugar production. In this crop year, the average yield in the country is about 63.9 tonnes of sugarcane per hectare, an increase of 19.5% compared to the yield of the past decade. Compared to the world average yield (70.2 tonnes per hectare), Vietnam's yield is 8.8% lower, however, the gap is gradually narrowed. Scale of Vietnam sugar trade compared with other countries in the world is immaterial. Value of sugar exports in 2013 reached USD 202.2 millions, mainly from exporting refined sugar to China (approximately 95%) while imported volume in 2013 reached about USD 126.8 millions, mainly from Thailand (refined sugar), the U.S. (raw sugar and other sugars) and China (other sugars).

In the ASEAN region, Vietnam is located near to the world's second biggest exporter, Thailand (~14.8% of global exported turnover in the crop year 2013/14) and absorbs 300-500 thousand tonnes of smuggled sugar and illegally imported sugar through import and re-export from the southwest borderline every year. The tax avoidance sugar is derived from Thailand which has lower production costs than domestic sugar. Vietnam is also close to the world's largest sugar importers such as Indonesia (~7% of global imports for 2013/14) and China (~5.3%).

### 3. SUGARCANE GROWING AREA

#### Imported sugarcane seeds result in medium level of adaptability.

Sugarcane seeds mainly originated from other countries around the world. This is just a short-term solution since domestic cross-bred sugarcane varieties can not meet crop needs. According to many experts, only when Vietnam can produce its own sugarcane varieties that are suitable for each region, sugarcane growing industry is able to grow steadily. Therefore, the constant investment for cross-breeding and variety development is necessary and it is expected to take at least eight years to replace imported varieties which are used nationwide.

The investigation results of the Institute of Planning and Agricultural Statistics in 2012 in major sugarcane growing provinces throughout the country showed that the old seeds such as My55-14 still accounts for about 25%, ROC10 accounts for 23.3% of production in Northern provinces. In the South, the seeds such as R570, R579, K88-200 and ROC16 account for high proportion (34%). New varieties and varieties put into planting in recent 10 years are only representing about 40% of production.

Investment funding for scientific research and transfer of technical progress in Vietnam's sugar industry is too low, only about 3-6% compared to the average in other sugar-producing countries in the world. According to ERSUC (French Development Agency), research and development (R&D) cost on sugarcane have to reach at least 0.5-1% of the total output of sugarcane being processed.

#### Majority of land belongs to local farmers and mechanization of sugarcane cultivation is low, resulting in higher sugarcane costs than that of the world.

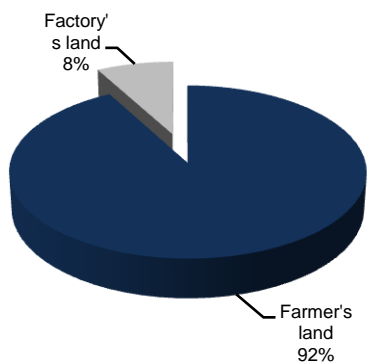
Total sugarcane acreage in 25 provinces that have sugar mills across the country reaches 288,000 ha in the crop year 2012/13 (+6.3% YoY) and planted acreage under ownership of farmers that sugar mills have signed contracts to invest is 265,100 ha. It can be seen that most of sugarcane growing areas in Vietnam are cultivated on farmers' land, leading to individual and small-scale farming model in the form of household, high fragmentation of land, and lack of investment in infrastructure.

There are too many problems in the process of cultivation and harvest affecting to quality and yield of sugarcane in Vietnam. Up to now, the level of mechanization of sugarcane cultivation is only about 10-20% compared to 80-90% at the world's largest sugar producers as Brazil or Thailand. Except for mechanized and semi-mechanized land cultivation; stages of cutting, planting and caring are done manually and irrigated by rainfall; therefore not only production costs increase but also sugar content and yield of sugarcane are low. In addition, sugarcane is the variety with large living mass, so stages of harvesting, handling and shipping usually requires a lot of labors if mechanization is not applied. Estimated labor costs in our country account for 18-20% of value of sugar cane.

According to the Department of Processing and Trade for Agro-Forestry-Fisheries Products and Salt, price of sugarcane in Vietnam during the last 2 years ranged from VND 850,000 to 1.1 million per ton. Meanwhile, according to USDA, in Thailand and Brazil, sugarcane price converted at the current exchange rate is about VND 600,000 per tonne, more or less. In addition, sugarcane is produced by Hoang Anh Gia Lai in Laos has even lower price when the business announced sugarcane price at around VND 300,000 per tonne due to the advantages of mechanization and large cultivated areas. This suggests that the weak competition of Vietnam sugarcane industry stems from low mechanization in sugarcane farming.

Sugarcane is vital for enterprises producing sugar. In recent years, businesses have made certain efforts to invest in developing sugarcane growing areas by co-operation with farmers through contracts for support in seeds, capital investment and technology as well as purchase agreement. However, the inherent problems in raw material source of Vietnam's sugar industry are still persistent.

Ownership structure of sugarcane growing land



Source: MARD



Mechanization of sugarcane cultivation is the current inevitable trend of the world's sugarcane and sugar producers in order to unleash heavy labor and scarcity of labor, lower production costs and satisfy demand for producing and processing. It is projected that if mechanization can be applied in sugarcane cultivation based on method of developed countries, production costs can be reduced by 20% and sugar yield per hectare can be increased by 15-20%.

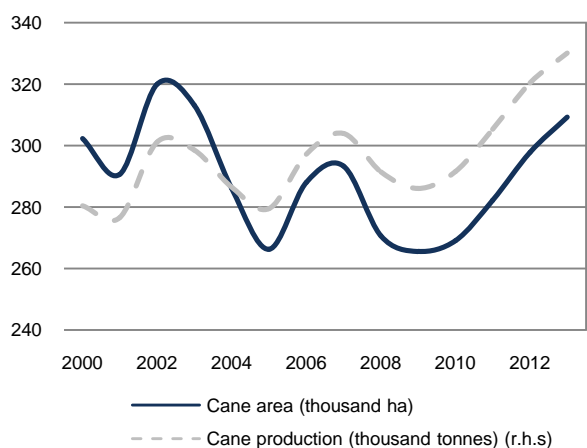
### **High cane purchase price versus low income of farmers**

Price of sugarcane in Vietnam as mentioned above is quite high while income of sugarcane growers is still low. Average capital requirement for one hectare of sugarcane is VNDbn 32 allocated for three crops (one plant and two ratoons), yielding approximately 64 tonnes per hectare. With the country's average commercial cane sugar of 9.8 ccs, the purchase price of sugar cane at sugar mill's scale is around 1 million VND per tonne, applied to commerciale sugar of 10 ccs while the actual selling price is approximately VND 980,000 per tonne. After deducting costs for harvesting, around VND 220,000 per tonne; farmers have VND 760,000 per tonne of sugar cane. Thus, income of sugarcane growers is only around VNDm 38 per hectare, equivalent to VNDm 3.2 per hectare per month, which is much lower than income from growing other crops.

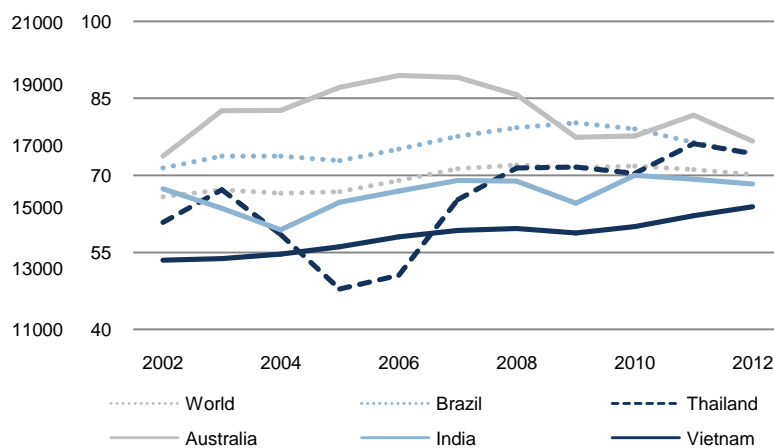
In addition, mill location planning and growing region planning are not appropriate, leading to the issue that some mills colluding with traders scramble to procure sugarcane in regions where other mills have had invested in it and underwritten. This not only pushes up the cane price, leading to huge benefits for traders as intermediaries while forced low price for farmers, but also causes a shortage of raw materials and loss of costs at many legal businesses producing sugar.

### **Upward trend of crop areas, production and yield of sugar cane**

**Cultivated land and production over the years**



**Comparison of yield between Vietnam and the World**



Source: Bloomberg; GSO

According to the General Statistics Office, total areas of growing sugar cane throughout the country in crop year 2012/13 reached 309.3 thousand hectares, increased by 3.8% YoY. Production of sugar cane reached more than 20 million tonnes and national average yield reaches 64.7 tonnes per hectare, which indicated a slight improvement compared with 63.9 tonnes per hectare the previous crop. In this season, the average commercial cane sugar is around 9.8 ccs, equivalent to 0.2 ccs higher than that of the 2011/12 crop.

This is the 4<sup>th</sup> consecutive year that national crop areas of sugar cane shows an increasing trend while production of sugar cane reaches its highest level during the past ten years and average yields is close to the average level of world of 70.2 tonnes per hectare. Sugar cane farming is an activity following a high cyclical

pattern and is vulnerable to replacement by other industrial crops (rubber, cassava), thus a large increase in arable land and supply of sugar cane will put more pressure on purchase price, which will decrease the price. Shrinking profit will make the farmers stop growing sugar cane and switch to other crops.

## Regional break-down of cane growing and sugar production in Vietnam

Region	No of plant	Cane area under contracts (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
North	5	18,345	56	9.58	10,200 <sup>1</sup>	1,018,500	100,200	10.2	5.5

### <sup>1</sup>. Low design capacity

Sugarcane land is mainly located in such provinces owning sugar mills as Tuyen Quang, Hoa Binh, Son La and Cao Bang. In the crop year 2012/13, cane acreage under agreement between local farmers and mills is more than 18.4 thousand hectares and is expected to increase by 6.3% in the next crop. There are five sugar mills with low design capacity in the region, specifically with the average production of 2,014 tcd, production of sugar accounts for only 6.6% of national production. Although commercial cane sugar is relatively high (9.6 ccs), on average, one hectare of sugar cane only yield approximately 5.5 tonnes of sugar due to low cane yield. In general, the region has low potential for growth; however, there are advantages for consumption in high land due to low density of mills and favorable export to China through Ban Vuoc Border Gate (Lao Cai).

Region	No of plant	Cane area under contracts (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
North Central Coast	6	63,212	58	9.6	30,800	3,696,200	363,350 <sup>2</sup>	10.2	5.7

### <sup>2</sup>. Largest production of sugar

There are six mills operating in two largest sugarcane growing provinces, namely, Thanh Hoa and Nghe An, in which mills with high capacity are Lam Son (10,500 tonnes of sugar cane per day), Viet Dai (6,000 tonnes of sugar cane per day) and Nghe An Tate&Lyle (8,400 tonnes of sugar cane per day). Total acreage of sugar cane under investment contracts with these 6 mills are 63,212 hectares; cane crushing volume in crop year 2012/13 reached 3.7 million tonnes, production of sugar reached 363.4 thousand tonnes equivalent to 23.9% of national output. This is the largest sugarcane producing region in the country with the lowest sugar cane/sugar ratio. Cane yield has been gradually improved over the crop years through investments in intensive farming and is expected to reach 60 tonnes per hectare for the crop year 2013/14

Region	No of plant	Cane area under contracts (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
South Central Coast	8	68,825	53 <sup>3</sup>	9.5	29,000	3,653,000	343,230	10.6	5.0

### <sup>3</sup>. National lowest yield

Sugar cane is grown along the coast and cultivated areas are spread to Binh Thuan, in which provinces with large cultivated land are Phu Yen (23.5 thousand hectares), Khanh Hoa (17.77 thousand hectares) and Quang Ngai (5.7 thousand hectares). In general, with 53 tonnes of cane and only 5 tonnes of sugar per hectare, this region has the lowest yields in the country. The biggest disadvantage for sugarcane growers and sugar production activities in these central coastal provinces is unpredictable stormy weather every year. Production of sugar in this region accounts for 22.6% of national output.

Region	No of plant	Cane area under contracts (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
High Lands	5	38,661	55	9.8	19,700	2,109,600	223,030	9.5 <sup>4</sup>	5.8

#### 4. Lowest cane/sugar ratio

This region has the fastest growth rate in the country in terms of cultivated land and production of sugar cane over the past ten years. Total cultivated acreage reached 49.7 thousand hectares by the end of 2012, sharply increasing by 57% compared with this in 2002 while production of sugar cane reached 2.92 million tonnes, increasing by 117.8% over the same period. The two largest sugarcane growing provinces are Gia Lai (30.3 thousand hectares) and DakLak (16.1 thousand hectares). Sugarcane growing land under investment contracts with 5 mills in the region reached 38.7 thousand hectares in the crop year 2012/13; commercial cane sugar is at the highest level and the cane/sugar ratio is the lowest compared with the ones in other regions across the country. However, the current average cane yield of 55 tonnes per hectare is quite low due to difficulties of mechanization implementation in hilly areas. Sugarcane growing areas in the region are threatened in competition with cassava growing areas.

Region	No of plant	Cane area under contracts (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
Southeast	5	32,367	68 <sup>5</sup>	8.3	19,500	2,207,600	181,520	12.2	5.6

#### 5. Quick improvement in yield

Sugarcane growing areas are mainly located in Tay Ninh Province (23.6 thousand hectares) and Dong Nai (10.7 thousand hectares), representing 13.6% of national acreage. Sugarcane yield in this region has increased rapidly during the last ten years, from 53.3 tonnes per hectare in 2002 to 68 tonnes per hectare in 2013. However, commercial cane sugar is the lowest and cane/sugar ratio is the highest in the country due to weather conditions. This is the area of high ground with rainy season of 6 months and dry season of 6 months each year. If the issue of water source for irrigation in dry season is solved, it is very favorable for the development of sugarcane. The sugarcane growing land can be expanded to areas in Cambodia (such as BHS and SBT).

The region offers sugar mills with big advantages when adjacent to the key economic zone of HCMC – Dong Nai – Binh Duong, leading to high chances for expansion of sugarcane growing areas and mechanization in production while having relatively low density of mills. Production of sugar reached 181.5 thousand tonnes in the crop year 2012/13, accounting for 12% of total national output.

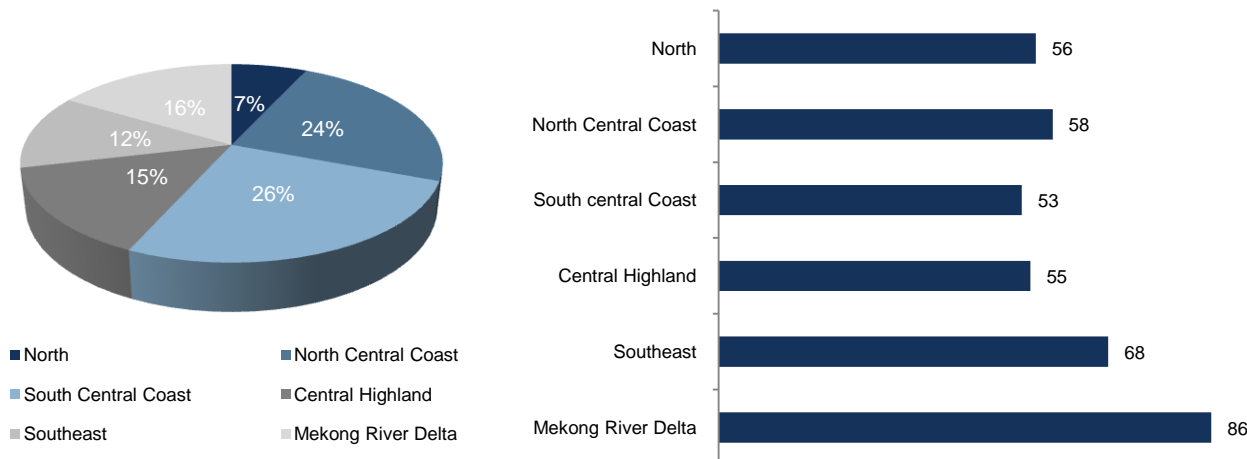
Region	No of plant	Cane area (ha)	Cane yield (tonnes/ha)	CCS	Design capacity (tcd)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio	Sugar yield (tonnes/ha)
Mekong River Delta	9	43,690	86 <sup>6</sup>	9	25,000	3,767,500	306,800	12,3	7,0

#### 6. Highest cane yield in the country

Total sugarcane growing area and production of sugar cane in the country account for around 20% and 26.6% respectively. The average cane yield of 86 tonnes per hectare in this region is the highest in the country and sugar recovery rate is also the highest, reflected by 7 tonnes of sugar per hectare. However, chances for expansion of sugarcane growing acreage are limited by competition from other agricultural products such as rice, coconut, cashew, and dragon fruit. On the other hand, most of acreage is cultivated in low-lying and/or flood-prone area, so it is easy to be flooded or farmers are forced to opt for premature harvest of sugarcane, which influences both yield and commercial cane sugar and makes it difficult to implement large-scale production. There are nine sugar mills in the region, leading to competition in procurement of sugarcane, resulting in higher price of sugar cane

than price in other regions. The average capacity is low with 2,780 tonnes of sugar cane per day.

### Structure of sugarcane growing acreage in the country and comparison of yield in the crop year 2012/13 (tonnes per hectare)



Source: compiled by FPTTS

### Main sugarcane crop in the country

Region	Crop	Planting time	Harvesting time	Age (months)	Characteristics
North	Winter - Spring (Main)	Nov - Mar	Feb - Apr	10-12	Avoiding cold in January
	Autumn	Sept	Oct - Dec	13-15	Long time growing, high yield (80-100 tonnes/ha)
Mekong River Delta	Beginning of rainy season	Apr - June	Feb - Apr	10-12	Quick growing, no bloom
	Ending of rainy season	Oct - Nov	Oct - Dec	12-15	Drought tolerance, long time growing, high yield
	Spring	Dec - Feb			Grow in low-lying land, good condition of motorizing or irrigation for dry season
Southeast	Land of raised beds	Apr - June	Feb - Apr	10-12	
	Flooded land	Nov - Jan	July - Oct	8-10	Premature sugarcane seeds
Central Highland		Dec - Mar	Dec - Apr	12	Late crushing season

Source: compiled by FPTTS

## 4. AGGREGATE SUPPLY OF SUGAR

### 4.1. Domestic production capacity

#### In general, production capacity of sugar mills is low

Until now, 38 sugar mills in total are operating in six sugarcane growing regions throughout the country. The distance between these mills is quite long, except for Mekong River Delta with high density of sugar mills leading to the shortage of raw materials and competition in procurement of sugarcane. Operating time of sugar mills depends on sugarcane crop in each region but usually lasts 4-5 months from November this year to April the following year, except for early harvest from July to September in some flooded low-lying areas in Mekong Delta with short cane age (8-10 months).



### Distribution of sugar mills

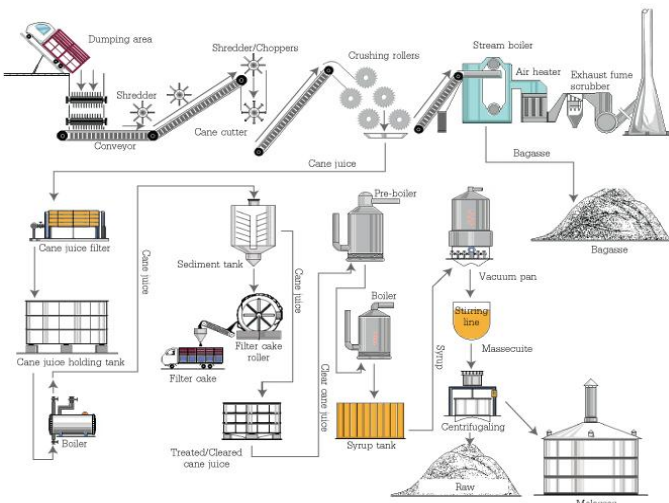


Source: VSSA

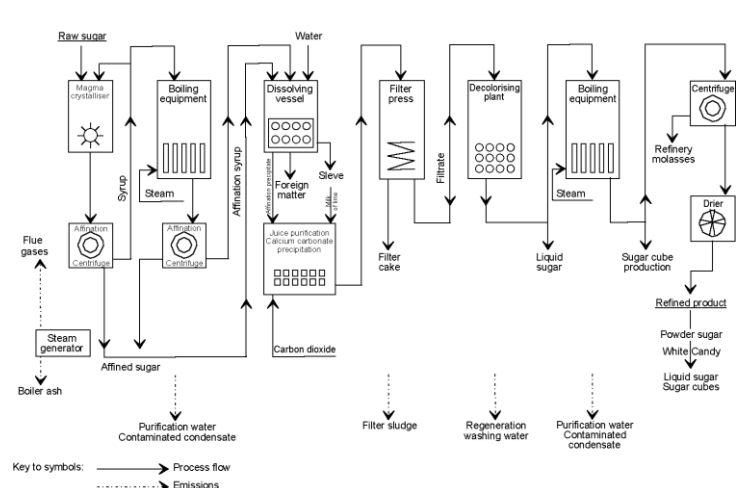
Regarding to production line, sugar mills in Vietnam used to have obsolete technology with equipment mainly imported from China. However, in recent years, many sugar mills upgraded production capacity with equipment imported from Australia and other developed countries. For a sugar mill, besides sugarcane growing area, capacity is the second most important factor. **Usually with a minimum capacity of 6,000 tonnes of sugar per day, a certain sugar mill is able to gain advantages in economies of scale.** Currently, there are eight mills with capacity greater than 6,000 TCD and seven mills with intention to increase design capacity in the crop year 2013/14 out of total 38 mills, which is compared with the number of mills upgrading capacity in the crop year 2011/12 – 21 mills out of 38 mills. Apparently, decision in increasing production capacity heavily depends on chances for expansion of cane growing acreage, and is also influenced by supply and demand of the industry.

Total design capacity of 38 sugar mills in the crop year 2013/14 is expected to reach 139,050 TCD, increasing by 5.3% compared with the capacity in the previous crop year and equivalent to capacity of squeezing approximately 18.8 million tonnes of sugar cane. However, according to the production plan for the 2013/14 season, total volume of crushing cane is expected at about 16.8 million tonnes. Thus, the actual capacity is quite high, up to 89.4% of design capacity.

### Raw sugar production process from sugarcane



### Refining raw cane sugar



Source: Prachuap; Environmental Handbook

### Sugar mills with the largest capacity and the largest cultivated area in the country in the crop year 2013/14

Factory	Cane area under contracts (ha)	Yield (tonnes/ha)	CCS	Design capacity (TCD)	Cane crushing volume (tonnes)	Sugar production (tonnes)	Cane/sugar ratio
Lam Son	17,000	71	10.0	10,500	1,200,000	125,000	9.60
An Khe	16,000	50	10.0	10,000	800,000	80,000	10.00
Thanh Thanh Cong TN	15,176	66	8.7	9,800	1,000,000	85,000	11.76
N.An-Tate&Lyle	19,950	52	10.0	8,400	1,040,000	102,500	10.15
Khanh Hoa	15,194	50	10.5	8,000	760,000	76,000	10.00
KCP Phu yen	19,000	52	9.0	7,200	995,000	88,000	11.31
Can Tho	12,867	93	9.5	6,500	1,200,000	105,000	11.43
Viet – Taiwan	12,340	61	10.0	6,000	750,000	75,000	10.00
Ninh Hoa	12,400	54	10.0	5,200	670,000	67,000	10.00
Binh Dinh	8,500	60	10.0	5,000	510,000	51,000	10.00

Source: compiled by FPTS

## Refined Standard Sugar (RS) accounts for more proportion than Refined Extra Sugar (RE)

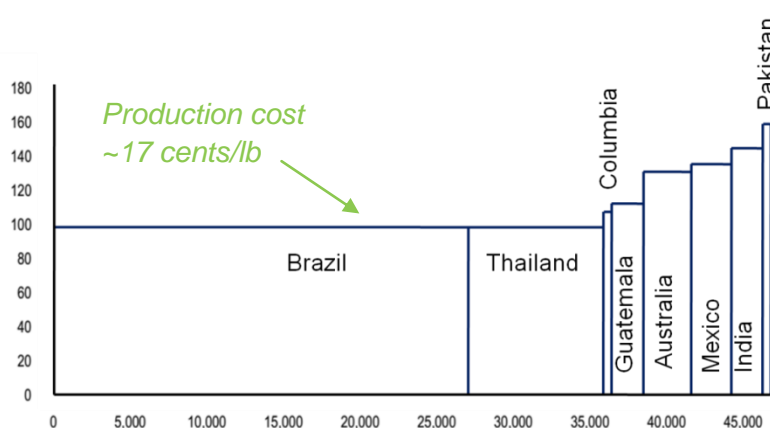
Sugar produced by sugar companies in Vietnam includes **RS Sugar (Refined Standard)** and **RE Sugar (Refined Extra)**. RE sugar is of better quality, whiter, contains fewer impurities than RS sugar and is normally used as materials in food processing such as milk, beverage, and food. Meanwhile, RS sugar can be used in daily consumption. Currently, there are only seven companies with ability to produce RE sugar including SBT, BHS, LSS, NIVL, La Nga, Viet Dai and Nghe An Tate&Lale. Production of RE sugar accounts for approximately 39% of total national sugar output and mainly supplied to industrial customers, thus, leading to high demand, less volatile price and less competition with smuggled RS sugar.

## Sugar production cost in Vietnam is higher than the world sugar price

Cost of raw materials is too high and account for 80-90% of production cost, therefore, the average sugar producing cost in Vietnam fluctuates at high level of VNDm 11-13 per tonne. This is also much higher than current reference price of raw sugar under Contract No. 11 (~VNDm 7.8 per tonne) and white sugar under Contract No. 5 (~VNDm 10 per tonne) on the global market.

In Brazil, costs of producing raw sugar are equivalent to VNDm 7.9 – 10.3 per tonne (*According to Bloomberg*), particularly, production costs of Raizen - the largest sugar producers in this country are only around VNDm 6.5 per tonne. Hoang Anh Gia Lai also declares the production cost of less than VNDm 5 per tonne under the effects of high level agricultural mechanization.

## Sugar production cost relative to Brazil and export in '000 metric tonnes

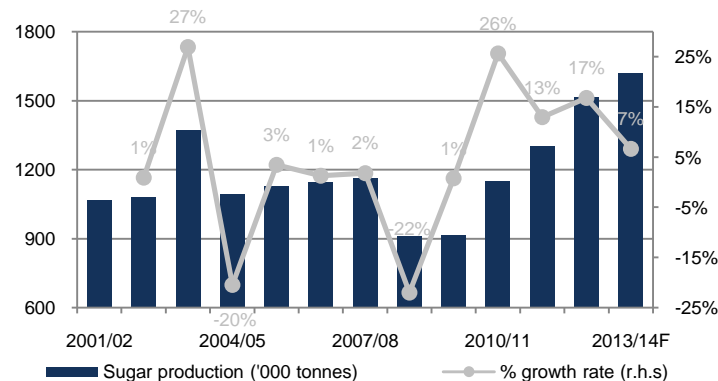


Source: LMC, USDA

## Sugar production plan in crop year 2013/14

Region	Design capacity (TCD)	Cane crushing volume (tonnes)	Sugar production (tonnes)
<b>Country</b>	<b>141,250</b>	<b>17,231,000</b>	<b>1,619,420</b>
North	12,800	1,006,000	112,800
North Central Coast	31,700	3,888,000	392,300
South Central Coast	32,400	3,765,000	359,800
Central Highland	19,700	2,133,000	217,000
Southeast	19,500	2,261,000	193,870
Mekong River Delta	25,150	4,178,000	343,650

## Domestic production to increase over the crop years



Source: Agroinfo

**By-products during sugar production process can bring added value, which is the opportunity of profit improvement for businesses to invest in the right direction.**

**Electricity from Bagasse:** Bagasse is put into the furnace producing steam to run electric generators. If investment in high-pressure boilers and multi-stage turbine is made, mills only use a maximum of 40% of electricity generated; excess power can be sold to the national grid. On 24<sup>th</sup> Mar 2014, the Prime Minister approved Decision No. 24/2014/QĐ-TTg on supporting the development of biomass power project in Vietnam, in which biomass power purchase price is adjusted to VND 1,220/kWh (5.8 cents/kWh, excluding VAT, and will be adjusted according to fluctuations in exchange rate of VND/USD). Those sugar firms which are able to produce electricity from bagasse (SBT, SEC, NHS, LSS, etc) will benefit from this increase since the previous price of electricity sold to EVN was only about VND 900/kWh, leading to low gross profit margin from this business activity in the past.

**Molasses** are obtained from crystallization process of sugar and ethanol can be obtained through fermentation. Molasses products have low gross profit margin (below 1%) while trading ethanol could bring in margin up to 30% (regarding to LSS). There are only two sugar mills with ethanol production line, Hiep Hoa Sugar Joint Stock Company and Lam Son Sugar Joint Stock Company (LSS), while other mills just sell molasses. Thanh Thanh Cong Tay Ninh Sugar Joint Stock Company (SBT) has also been launching construction projects of ethanol production plant with capacity of 21 million liters per day and it is expected to put into operations in 2015 to utilize molasses by-product obtained from the company's mills and other related mills such as NHS, BHS, SEC, etc. This is the logical direction to extend the value chain when sugar production as main business activity has been encountered more difficulties.

## 4.2. Import: Increasing supply of imported sugar

### Import turnover

In 2013, Vietnam's sugar import turnover was approximately 126.8 million USD, decreasing by 13.73% compared to that in 2012. In the structure of imported sugar, refined sugar accounted for 18.6%, other sugars accounted for 81.4%, while raw sugar only made up a tiny proportion. Vietnam imported refined sugar mainly from two countries including Thailand (97.9%) and Malaysia (1.1%) while importing other sugars mainly from China (42.4%) and the U.S. (23.5 %).

### The existing protection measures and potential risks of free trade agreements

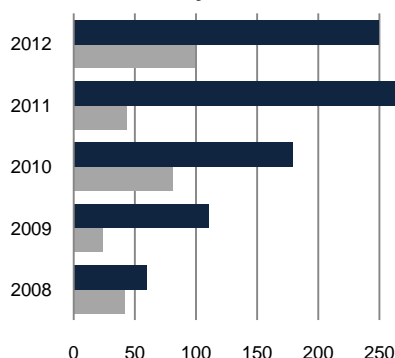
#### Tariff for sugar (code 1701) under the WTO commitments and CEPT / AFTA

Type of sugar	TRQ/WTO rate		CEPT/AFTA rate	Beyond quota
	Initial rate	Final rate		
<b>Raw sugar</b>				
- Cane sugar	30%	25%	5%	80%
- Beet sugar	50%	50%	5%	80%
- Others	60%	60%	5%	100%
<b>Refined sugar</b>				
- White sugar	60%	60%	5%	100%
- Others	60%	60%	5%	100%

Source: compiled by FPTS

From 2015 onwards, we expect that some sugar companies in Vietnam will have to choose between dissolution and sporadic operation with loss. However, we do not expect a systemic collapse of the sugar industry in the country. There are chances of development for businesses that invest in sugarcane growing areas, have a steady number of industrial customers, successfully build retailing distribution channel to eliminate price difference caused by intermediaries or operate in regions that is difficult for imported sugar to access.

**Refined sugar (blue) and raw sugar (grey) imported to Vietnam from Thailand over the years**



Source: Thailand Ministry of Industry

**Some indicators of sugar at Thailand for the crop year 2012/13**

Category	
Cane yield (tonnes/ha)	74.2
Cane price (VND/tonne)	595,000
Cane/sugar ratio	9.6
White sugar wholesale price (VND/kg)	13,436
Raw sugar F.O.B price (VND/kg)	10,966
White sugar F.O.B price (VND/kg)	11,913

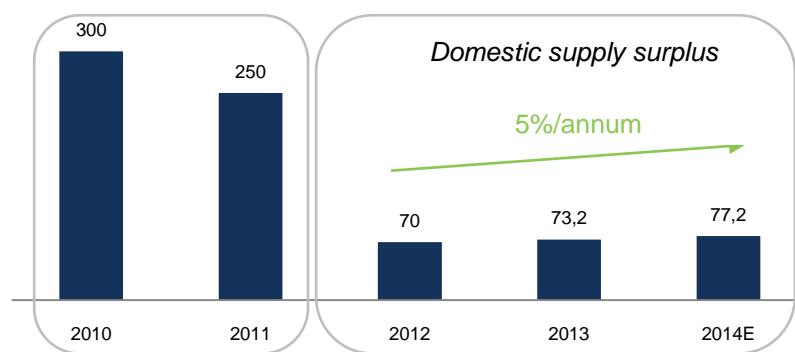
Source: Thailand Ministry of Industry

**Other sugars**, also known as sweeteners including products of **group 1702** are subject to preferential import tariff of 10-15% (Circular No. 79/2013/TT-BTC) and not constrained by quota. This explains why import turnover of this commodity is superior to the one of raw sugar or refined sugar.

**For normal sugar commodities (made from sugarcane and sugarbeet) of group 1701**, according to WTO accession commitments before, tariff quota is applied for Vietnam. Two tariffs will be applied for sugar within quota, tariff for sugar originating from ASEAN countries (CEPT/AFTA) and tariff for non-ASEAN countries (WTO commitments). The amount of quota is controlled by the Ministry of Industry and Trade with the aim to put priority on domestic demand-supply balance and avoid large inventories. Since the price of imported sugar plus tax rate of 5% is still lower than sugar produced locally and quota is also limited, so far setting quota has been encountering many inadequacies and lack of publicity. Meanwhile, sugar imported beyond quota is subject to quite high tariff in the range of 80 - 100% depending on sugar type.

Thus, until now, Vietnam is applying two measures of protection for the sugar industry, that is, tariff and quota. However, according to ATIGA signed in 2009 (the first comprehensive agreement of ASEAN to adjust merchandise trade within the association and was built on the basis of aggregate commitments agreed in CEPT/AFTA as well as other related agreements, protocols), trading liberalization includes the elimination of import bans, termination of tariff quota and switching to trade tariffs in goods. For sugar products, Vietnam only has flexible timeline from 01/01/2015 to 2018 to remove tariff quota (*Article 20*). This means that from 2015 onwards, sugar from ASEAN countries will no longer be restricted for importing into Vietnam; while the import tax rate is only 5%. This is a major threat to the sugar industry which is currently very weak.

**Imported sugar by quota (thousand tonnes) over the years**



Domestic supply deficit

Source: Ministry of Industry and Trade

### More smuggled sugar in 2014 if there are no stricter management measures

Besides quota-imported sugar, there is a huge amount of sugar smuggled from Thailand via the southwest border, with 300-500 thousand tonnes of sugar annually. Regulation in Thailand defined three categories of sugar export quota: A, B and C. Each sugar business in Thailand must be obliged to implement quota A to supply for domestic demand with prices higher than export prices and world prices; and implement quota B for the long-term international supply contracts signed beforehand. Finally, quota C is quota of surplus, sugar businesses can export freely without documents; and with quota C, however low prices are, businesses still gain profit since major profit are guaranteed by quota A and quota B. A special feature of this legislation helps to ensure sugarcane growers and sugar mills in Thailand to benefit. And this is the cause of the illegal invasion of smuggled sugar



from Thailand to Vietnam, which disturbed domestic sugar prices during the last period. The retail price of sugar from Thailand is normally VND 1,500 - 2,000 cheaper than domestic sugar. **According to the latest forecast, production for 2013/14 of Thailand is expected to reach 11.5 to 11.7 million tonnes (according to FOLicht), exports reach 8.7 million tonnes (+24% YoY) (according to USDA), and this bumper crop will lead to more smuggled sugar in Vietnam in 2014.**

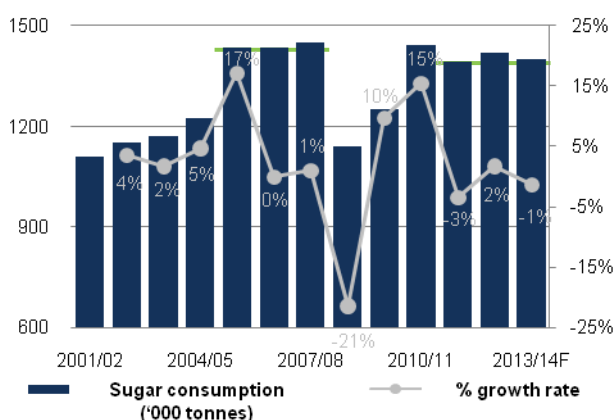
## 5. AGGREGATE SUGAR DEMAND

### 5.1. Domestic consumption of sugar

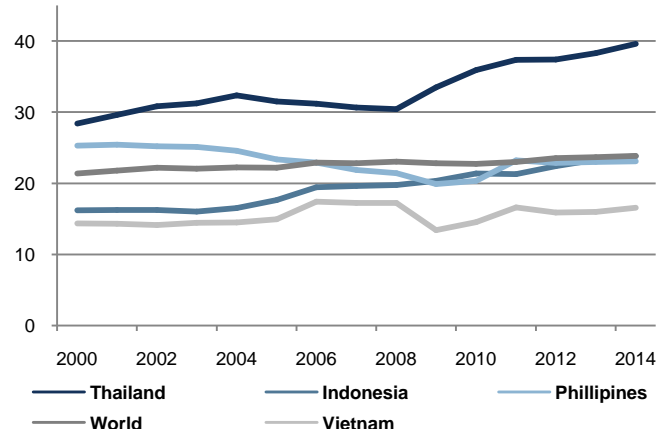
Sugar produced from the mills can be provided directly to consumers or sold as input raw materials to Food and Beverage sector. In Vietnam, total demand of sugar is supported by the young population, low consumption per capita and the development of industries used sugar as raw materials for production.

Current aggregate domestic demand for sugar reaches more than 1.4 million tonnes per year and shows no significant sign of growth in three most recent crops. Consumption per capita of Vietnam is currently quite low compared with the global average consumption of 23 kg/year.

Constant consumption over the crops



Sugar consumption per capita (kg/year)



Source: Agroinfo; Bloomberg

### Price movement: the difference between wholesale price and retail price

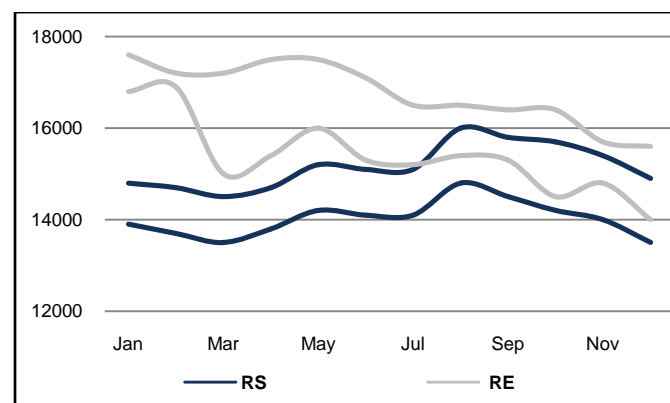
Compared with the world price, price of sugar – which was produced in Vietnam, is much higher due to greater production cost. White sugar price at London at the end of 2013 is equivalent to 9,500-10,000 VND/kg, whereas wholesale price of RS sugar and RE sugar in Vietnam is relatively higher hence showing a downward trend.

**Wholesale price of RS sugar** generally fluctuated in the range of 13,500 -15,000 VND/kg in 2013. There was a slight upward adjustment in July to September before returning to prolong downward trend since 2012. RS sugar price decreases by 3% compared with the beginning of the year.

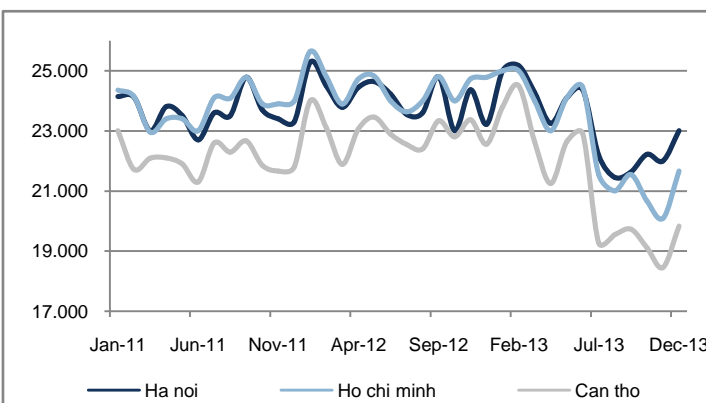
**Wholesale price of RE sugar purchased at factory in 2013 dropped sharply by 11-17% depending on the regions.** This was due to weak demand in the Food and Beverage sector which made demand for RE sugar from industrial customers fall dramatically, while there was an excess supply. Price range of RE sugar purchased at factory is from VND 14,000-17,500/kg, compared to VND 17,000-19,800/kg in 2012. However, **the retail price of RE sugar** on the market was pretty high at VND 18,000-23,000/kg depended on the regions, decreased slightly by VND 1,000 - 2,000 from 2012. This reflects a paradox that the selling price of

the sugar mills fell sharply but consumers continued to buy sugar at high prices. We believe that the issues are really from distribution intermediaries.

**Movements in wholesale sugar prices in 2013**



**Movements in RE retail price from 2011 – present**



Source: Agroinfo

## Distribution is the inherent weakness of the sugar industry

RE sugar and RS sugar sold at the factory and bought by consumers have a huge price gap from VND 4,000-5,000/kg. In fact, sugar mills are only responsible for processing stage in the value chain and up to 90% of sugar from mills is bought by trading companies in order to supply to the market (*according to VSSA*). Except for a small number of sugar firms such as BHS, SBT which has developed retail channels, the remaining companies are dependent upon a system of traders as intermediaries for sugar output, so those companies virtually have no ability to decide sugar prices in the market. This system of intermediaries is having great benefit unreasonably, while manufacturing firms always complain about difficulties when prices fell sharply and they have to stabilize sugarcane's purchase price to ensure a stable life for farmers. And consumers still keep buying sugar at high prices. It can be said that, intermediaries not only create disadvantages for consumers but also reduce profit margins of the sugar mills. Focusing only on wholesaling activities will help businesses reduce SG&A expenses and release inventory rapidly if market conditions are favorable. However, sugar mills also face the risk of losing major customers and are also vulnerable to price pressure.

In addition, we believe that there is collusion between sugar mills and the intermediary companies which has the same owners to benefit from difference prices. Those companies have trading functions such as Thuan Thien Investment and Trading Limited Company, Thanh Thanh Cong Investment Joint Stock Company and Kim Ha Viet Limited Company are also the major shareholders in the sugar companies throughout the country (*see Appendix 2*). Although minor shareholders in these sugar businesses may suffer, considering the current situation, these companies are more likely to survive and develop than those who could not access to the market

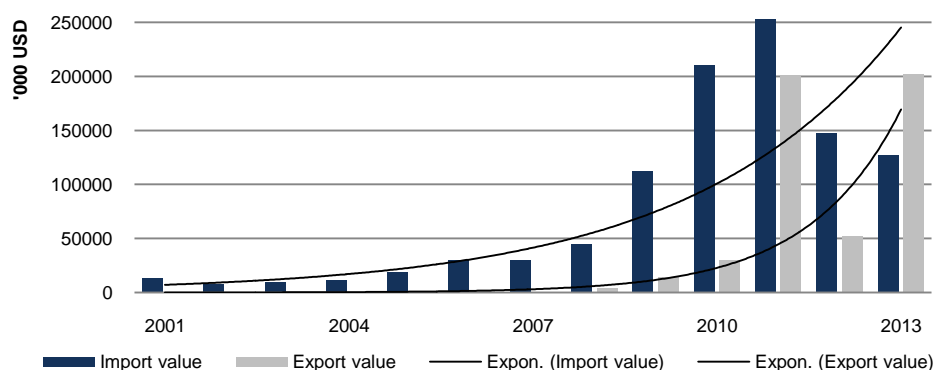
## 5.2. EXPORTS DEPENDING ON ONLY ONE MARKET

### Export turnover

In the first eleven months of 2013, sugar export turnover reached 202.2 million USD, increasing by 413% YoY. In the structure of exports, refined sugar accounts for major proportion of 99.6%, other sugar accounts for only 0.38%. Vietnam does not export raw sugar at all. Sugar exports until 2010 are almost negligible, however in the last 3 years it grew very quickly to tackle domestic demand-supply gap.

*The largest importer to Vietnam is China, with the proportion of up to 95%, followed by Cambodia (2.2%) and Singapore (1.5%).*

### Sugar export/import turnover over the years



Source: Agroinfo

### Export depending on the China market

Local firms can export sugar through two forms: official trade (through main international border gates) and unofficial cross-border trade to China. Despite no restricted regulations and no requirements on permit that prevent businesses from exporting sugar via the official method, the high production cost and high selling price is the main factor that discourages this activity. Unofficial export of sugar is required to comply with the frontier trade policy. Sugar is also an essential commodity which is needed to balance supply and demand for market stability, so it is not encouraged to export through the side border gates, border crossings located outside border gate economic zones.

The largest importer of Vietnam's sugar is China, with the proportion up to 95%, followed by Cambodia (2.2%) and Singapore (1.5%). Although sugar price in Vietnam is higher than the world price; the domestic sugar exported to China is the result of this country's supply shortage. In the crop year 2013/14 China is estimated to lack 2 million tonnes of sugar and until crop year 2014/15 the shortage will increase to 2.8 million tonnes. In 2014 the Ministry of Industry and Trade allowed unofficial export of 200,000 tonnes of sugar by the end of June, however with the inventory forecast to be high (over 540,000 tonnes) and with increasing demand for imported sugar in China, expansion of sugar export quota is necessary and reasonable in order to relieve pressure on the local sugar industry

Total sugar supply is about 1.84 million tonnes in 2014. Domestic consumption is about 1.4 million tonnes and export is over 200 thousand tonnes. After supply-demand balance, there is a surplus of 260,000 tonnes.

## 6. OVERSUPPLY RESULTING IN HIGH INVENTORY

Since the crop year 2001/02, CAGR of sugar consumption reached about 1.9%/year while production increased by more than 3.5%/year on average. Until the crop year 2012/13, the sugar industry has moved from internal deficit into internal surplus, ending prolonged deficit that lasted during eight consecutive previous crops. However, the demand-supply gap has been widened, which pushed domestic sugar price into the downward trend.

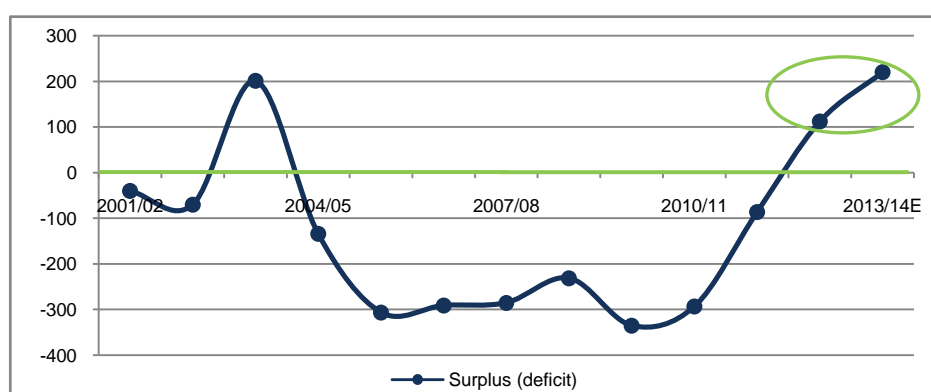
According to the summary report of Vietnam Sugar Association, total sugar production in 2012/13 was 1.53 million tonnes (+17% YoY). Meanwhile total sugar was sold by sugar mills is 1.27 million tonnes, an increasing of 58,000 tonnes compared to the same period last year. Domestic firms export about 200,000 tonnes and import 73,500 tonnes (According to 2013 quota). By contrast, the domestic consumption is about 1.4 million tonnes, lower than the consumption in the previous crop year. MARD and Vietnam Sugar Association forecast that in the 2013/14 season, local sugar production is expected at 1.6 million tonnes, increasing by 5% YoY. Beginning inventory is 167,000 tonnes, import under the tariff quota is 77 200 tonnes. So, total sugar supply is about 1.84 million tonnes in this year. Domestic consumption is 1.4 million tonnes; export is about 200

thousand tonnes, after supply-demand balance there is a surplus of 260,000 tonnes. However, in our opinion, excess sugar at the end of the crop year 2013/14 will reach over 500,000 tonnes due to 300,000 tonnes of smuggled sugar from Thailand.

Years ago, the shortage of sugar supply had led to the planning of a series of sugar mills under the support of Government policy. The sugar industry is encouraged to develop in order to meet domestic sugar demand and to serve social purposes, create jobs and eradicate poverty. So far, domestic supply has exceeded demand but obsolete agricultural production makes sugar industry less competitive compared with other regions and the world. Demand for sugar in Vietnam in recent years has almost dropped, compared with the demand in period 2005-2008 because the expansion and development of confectionery industries has leveled off. Domestic sugar is almost impossible to export to the world markets except China. In addition, sugar imported within quota or even smuggled is much more competitive and keeps growing in the market.

With the objective factors and internal weaknesses which have been impacting on the industry, we believe that sugar prices and the profit margins of sugar companies are unlikely to improve in the short term. In the long term there will be many businesses which cannot withstand rejection due to inability to compete in terms of production costs and output markets. When domestic supply decreases, it would be the chance for the remaining businesses to improve operational efficiency.

## Internal demand-supply surplus (thousand tonnes)



Source: estimated by FPTs; Bureau of Price Administration; Agroinfo

## 7. SHORT-TERM AND MEDIUM TERM IMPACT OF THE POLICIES ON THE DOMESTIC INDUSTRY

**Decision No. 26/QĐ-TTg** approved national sugar development plan until year 2010 and orientation plan until year 2010: (i) Do not open more sugar mills (ii) until 2020, production of sugar meets demand for domestic consumption and export, production of 2.1 million tonnes includes 1.5 million tonnes of refined sugar, 500 thousand tonnes of white sugar and 100 thousand tonnes of raw sugar.

**Circular No. 08/2014/TT-BCT:** for sugar products, import tariff quota is granted to traders who directly use sugar as raw materials for production and traders who produce raw sugar for refining. The after-tax price of imported sugar is still cheaper than that of domestic from 10-15%, then the **sugar company granted import quota of raw sugar will benefit from this gap.**

**Official Dispatch No. 1113/VPCP-QHQT** allows **Bien Hoa Sugar Joint Stock Company (BHS) to import 30 thousand tonnes of raw sugar** from Hoang Anh Attapeu Sugar Limited Company (Laos) - a subsidiary of Hoang Anh Gia Lai

(HAG) for refining and exporting. This raised concerns that the temporary import for re-export will not strictly follow regulations, smuggled sugar on the market will create even more serious problems of oversupply and lower prices.

**Official Dispatch 17 Jan 2014** of the Ministry of Industry and Trade on sugar exports through small border gates: Ban Vuoc, Bat Xat, Lao Cai. Accordingly, the Ministry allows export only 200,000 tonnes of RS sugar until 30/06/2014, and RE sugar is not allowed. ***This can easily lead to stagnation of RE sugar in domestic businesses***, while Ministry of Industry and Trade will set import quota of 77.2 thousand tonnes of sugar in June, mainly for RE sugar used in food processing companies.

**Decision No. 24/2014/QĐ-TTg** on supporting the development of biomass power project in Vietnam, in which biomass power purchase price is adjusted to 1,220 VND / kWh (5.8 cents / kWh, excluding VAT, and will be adjusted according to fluctuations in exchange rate of VND/USD). The sugar plants that are able to sell electricity to the national grid will benefit.

## 8. LONG-TERM PROSPECTS

**Vietnam has enough favorable conditions** to grow sugarcane across the country: Large plain land, rainfall of 1,400mm - 2,400mm, appropriate temperature and sunshine.

**Sugarcane cultivation under protection:** This is the agricultural sector contributed to economic development - society in rural, midland and mountainous areas, helping farmers reclaim, recover land and restructure for growing plants. Besides the economic benefits, sugarcane also brings in other social benefits, thus it normally receives support from the government.

**Activities of merging land and exchanging field to create larger fields** have been implemented in many places, but there are many shortcomings and lack of publicity due to involvement of multiple interest groups. If merging land and exchanging field are implemented well, it will set premise for centralized production of sugarcane with intensive farming and application of advanced techniques in production to help stabilize sugarcane growing regions and reduce the cost of raw materials.

**Domestic demand for consumption is low:** One Vietnamese person uses 16 kg of sugar on average each year, lower than global consumption of approximately 23 kg/person/year. In addition, young population structure with more than 50% of the population under 30 years old (*according to GSO*) and the high population growth rate are a driving force for sugar consumption in the foreseeable future.

**Demand in Asian countries rapidly grows** while the potential risks of weather, especially El Nino, crude oil prices and boost in fuel ethanol production in Brazil are factors driving world sugar prices to return to the upward trend, thereby causing indirectly positive impact on the sugar industry in Vietnam. For Vietnam sugarcane industry, fluctuations in the world price of sugar will not directly affect production, domestic consumption as well as official export and import. However, every year there is more than 300,000 tonnes of sugar smuggled from Thailand via the southwest border to Vietnam (accounting for over 19% of total sugar supply) with cheaper price than domestic sugar due to tax evasion and lower production cost. Smuggled sugar is the biggest problem for the sugar industry in Vietnam. If the world price of sugar is recovered, sugar smuggled from Thailand (the second largest sugar exporter after Brazil) to Vietnam will decrease, and local producers will be able to balance the consumption; thus domestic sugar prices as well as gross profit margin of sugar businesses will be improved. Currently, upward trend



of world sugar prices remains unclear while inventory is still very high; however, the prospects of recovery of this agricultural product price are completely founded.

## 9. PORTER'S FIVE FORCES ANALYSIS

Force	Factor	Level			Assessment
		Low	Medium	High	
<b>Entry barriers</b>	Economies of scale	x			A sugar mill must have a minimum design capacity of 6,000 TCD and corresponding sugarcane growing area in order to gain advantages in economies of scale. There are only eight out of 38 mills to be up to this standard.
	Restrictive government policies			x	According to Prime Minister's decision No. 26/2007/QĐ-TTg no more mills are built based on development plan of sugar industry until 2010. However, in this document, based on orientation until 2020, sugar production has to reach 2.1 million tonnes; hence the ability to open more mills remains unanswered.
	Access to the inputs	x			The ability to maintain or expand sugarcane growing area depends largely on the economic feature of sugarcane compared to other manufacturing activities; however, growing sugarcane is becoming less attractive since sugar prices kept falling during the recent years. If new investors just want to participate in the industry starting from refining stages, they may not need to develop sugarcane growing areas and only to buy raw sugar from domestic or foreign markets. But sugar import quota currently is very limited (more than 70,000 tonnes/year) but the protection measures are required to remove gradually over the medium term.
	Access to distribution channels, customers			x	Except for few mills which have developed retail distribution channel and wholesale directly to industrial customers, 90% of sugar produced via intermediaries reaches the market for consumption.
	Capital requirements		x		Approximately 60 million USD for a sugar mill with crushing capacity of 6,000 TCD.
	Technical and technological requirements		x		For agricultural products, technological requirements in the production stage are not high, but stage of growing sugarcane requires certain mechanization to reduce production costs
<b>Conclusion: For the Vietnamese sugar industry, considering the aspects of government policy and access to sugarcane growing area, barriers to entry are high.</b>					
<b>Bargaining power of suppliers</b>	Concentration of suppliers	x			The number of sugarcane growers is large and the concentration is not high.
	Product differentiation of suppliers	x			Product differentiation among suppliers is not high.
	Impact of inputs on cost or product differentiation			x	For sugar mills in Vietnam, because the mechanization rate is very low, sugarcane feedstock cost accounts for over 80% of total

production cost. Sugarcane growing area is vital for companies operating in this industry.

Costs of switching suppliers

x

Most of sugar mills are allocated with separate cane growing area and have signed investment contracts with sugarcane growers. Changing suppliers is very difficult unless the mill is approved to develop other planning areas. In addition, sugarcane growing area is required to be close to the mill to reduce transportation costs and more importantly, avoid losses of commercial cane sugar in sugarcane.

The existence of alternative suppliers

x

Mills can purchase raw sugar on the world market to refine RS sugar or RE sugar without developing sugarcane growing area. Although this activity is currently encountering difficulties from government policy on import restrictions, they are gradually removed from 2015 onwards.

Risks of enhancing combination of suppliers

x

The ability to accumulate land for growing sugarcane on large scale is very low to happen widespread

**Conclusion: Although the concentration of sugarcane farmers is not high, bargaining position is quite high. If sugarcane purchase prices of the mills are not reasonable, stopping growing sugarcane and switching to other crops can happen. Sugar mills are still under pressure from the policy because the industry is closely related to social objectives.**

### Bargaining power of buyers

Number of buyers

x

The system of intermediaries and industrial customers are the main customers of the sugar mills.

Information obtained by buyers

x

Buyers can get much information about businesses in the industry since sugar is the identical product among producers.

Sensitivity to price

x

Sugar is an essential product for daily consumption and is a raw material in the food and beverage sector, thus sugar is not sensitive to price.

Product differentiation

x

The difference among these products is low because the manufacturers have fairly similar production processes.

Concentration level of customers in the industry

x

Concentration of customers in the industry is high

Availability of substitute goods

x

The availability of substitute products in Vietnam market is relatively low.

**Conclusion: Bargaining power of buyers is very high because sugar market mostly depends on wholesaling activities. This power is also reflected in the large difference between the selling prices of sugar at factory and the retail prices (approximately 4,000-5,000 VND/kg).**

### Substitute products

Cost of switching products

x

Costs for switching products is high

Correlation of price and quality of substitute

x

Market for other sweeteners in Vietnam is very small compared to market for sugar

	products		
	Trend to use substitute products of customers	x	The trend to use substitute products of customers is not high. Like the consumption of sugar, consumption of other sweeteners is controversial on health issues.

**Conclusion: The ability to switch to alternative products is low due to consumer habits, switching costs as well as the popularity of other sweeteners.**

<b>Competitive rivalry</b>	Barriers to exit the industry		x	Barriers to exit the industry are high due to the unique characteristics of machinery, equipment and policies for employees. Sugarcane can be used as raw material to produce ethanol fuel but this transition face many risks when ethanol market in Vietnam is limited by the delay in implementation of the government's plan to use biofuels (ethanol) blended with gasoline.
	Concentration level of the industry	x		The concentration level of industry is low; there are 38 sugar mills in operation, the majority of which are having small and medium scale
	Added value	x		Current added value is low due to high input costs
	Growth status of the industry		x	If the problem of production cost is not solved, it is very difficult for domestic sugar to compete with imported sugar.
	Excess capacity		x	Current production capacity exceeds domestic demand by more than 14%
	Product differentiation		x	Product differentiation is not high, except for products with retail brand positioning on the market (BHS, SBT)
	Screening status in the industry		x	Screening status in the industry is increasingly high due to the pressure on input costs and operational efficiency.
	The ability to impose price	x		The ability that producers impose prices is low since producers are not responsible for distribution channel in the value chain

**Conclusion: The demand for sugar in Vietnam, a developing country is very high. However, domestic production currently exceeds demand, and domestic sugar price is higher than imported and smuggled price, which results in competition within Vietnam sugar industry at a high level.**

### III. LISTED SUGAR COMPANIES

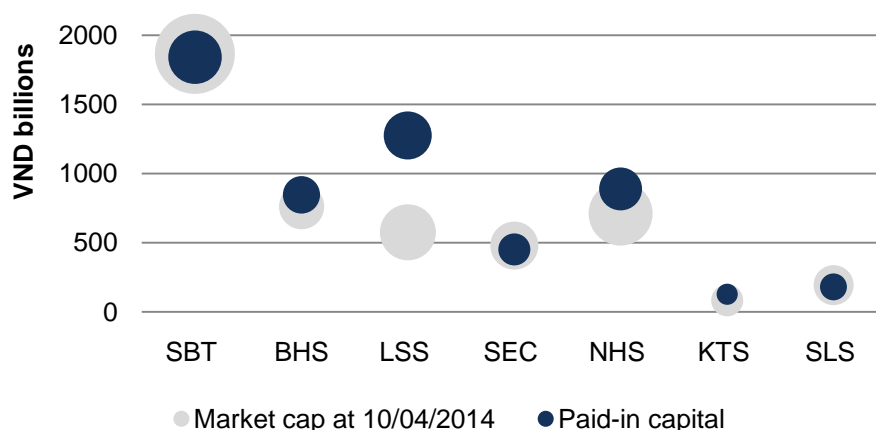
#### 1. LISTED COMPANIES

There are total 8 companies running sugar operation which are listed on two exchanges in Ho Chi Minh City and Hanoi, including:

Code	Company name	Exchange	Region
SBT	Thanh Thanh Cong Sugar JSC	HOSE	Southeast
BHS	Bien Hoa Sugar JSC	HOSE	Southeast
LSS	Lam Son Sugar JSC	HOSE	North Central
SEC	Gial Lai Sugar JSC	HOSE	Central Highlands
NHS	Ninh Hoa Sugar JSC	HOSE	Central Coastal
KTS	Kon Tum Sugar JSC	HNX	Central Highlands
SLS	Son La Sugar JSC	HNX	North Central
HAG*	Hoang Anh Gia Lai JSC	HOSE	Laos

\* HAG is a business-mixed company with sugarcane growing area and sugar mill located in Laos. Revenue from sugar accounted for 30, 3% of total revenue in 2013, the largest proportion among its activities

Hình: Quy mô vốn chủ sở hữu và vốn hoá ngày 10/04/2014



Source: Bloomberg

#### 2. DIFFERENCE IN PRODUCTION SCALE

##### Sugarcane growing area

- SBT and BHS are two largest sugar producers in southeast key economic zone.

- LSS has the largest capacity and large cultivated area.

- NHS, SEC have medium scale but are planning for expansion.

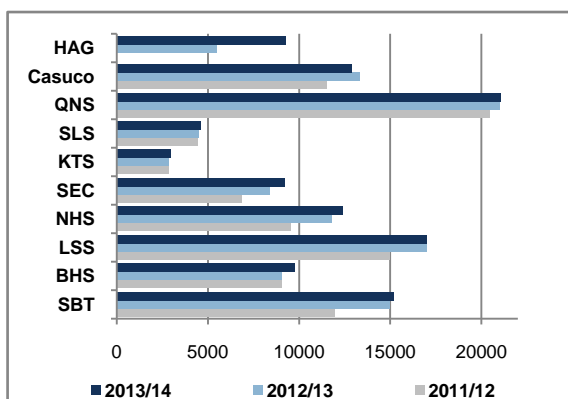
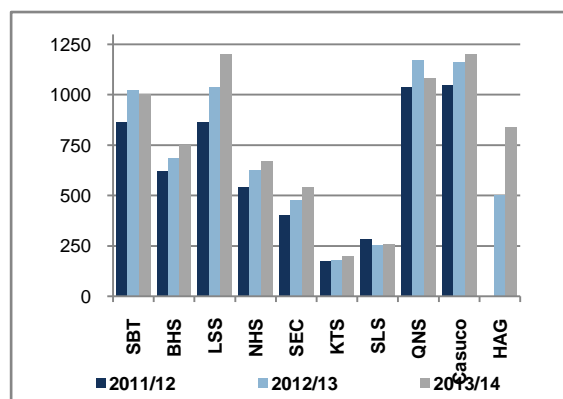
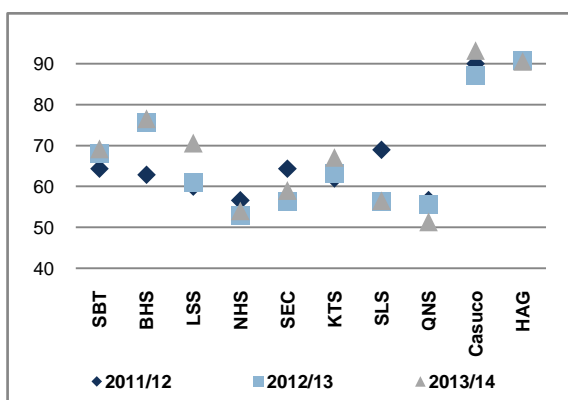
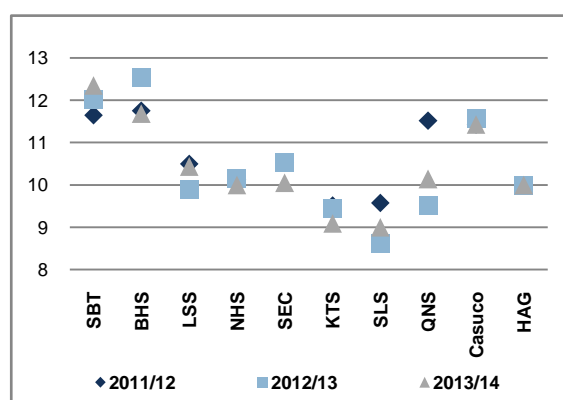
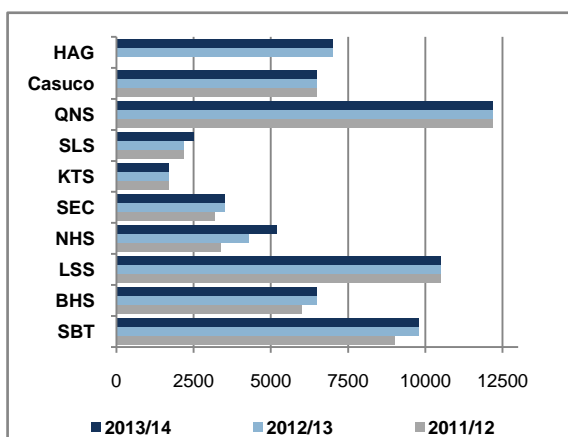
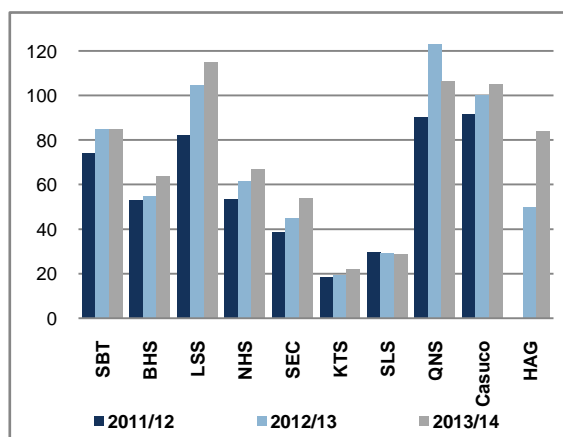
- KTS and SLS have relatively small scale

**For local companies:** there is no major change in sugarcane growing area under contracts with farmers in the crop year 2013/14 compared with this in the previous crop year, only SEC (+9,5% YoY) and BHS (+8% YoY) indicated the most significant changes. However, cane crushing volume showed a considerable increase in LSS (+16% YoY), SEC (+15%) and KTS (+10%). In which it is notable that KTS with small cultivated areas has to purchase sugarcane outside its contracted area, leading to dispute of sugarcane procurement at the area that SEC has made investments. The sugarcane volume increased more than the cultivated area, which proved that yield in crop year 2013/14 has been improved, especially LSS have a very high yield, increasing from 61 tonnes/ha to 70.6 tonnes/ha in crop year 2013/14. Only NHS (54 tonnes/ha) and SLS (56. 6 tonnes/ha) have lower yield than the national average yield (64 tonnes/ha).

It can be seen that the yield of sugarcane in each firm depends largely on there operation area. SBT, BHS have their cultivated area in the Southeast region where have good conditions for mechanization while LSS has the large sugarcane growing area with good intensive farming, therefore, yield of these three enterprises is high. In contrast, businesses such as NHS, SEC, KTS and SLS have

lower yield due to operation in mountainous area, difficulties in merging land and exchanging field and application of science and technology to farming

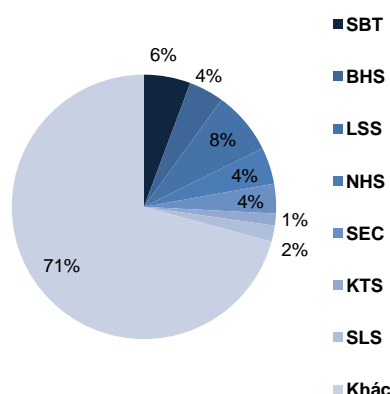
**For HAG**, the crop year 2013/14 is the second one that the company started producing sugar. In this season HAG has planted 3,770 more hectares, increasing total expected acreage up to 9,270 ha for exploitation. Sugarcane growing area of HAG is located in Attapeu Province, Laos and cane is planned in large field with complete application of mechanization, and 24/24 irrigation system. Thus yield is higher than that of other domestic businesses. Yield declared by the business is 120 tonnes/ha, while we conduct a cautious estimate at over 90 tonnes/ha.

**Sugarcane growing area**

**Cane crushing volume**

**Cane yield**

**Cane/sugar ratio**

**Design capacity**

**Sugar production**


\* Casuco: Can Tho Sugar Joint Stock Company; QNS: Quang Ngai Sugar Joint Stock Company

Source: compiled by FPTs



**Structure of sugar production  
by business in the crop year  
2013/14**


Source: compiled by FPTs

**Production capacity**

**Sugar:** Among these eight businesses, crushing capacity of LSS, SBT, BHS and HAG is relatively high (> 6,000 TCD), NHS and SEC have projects of upgrading design capacity up to 6,000 TCD for the crop year 2014/15 while SLS and KTS have small scale. There are three businesses capable of refining RE sugar, that is, LSS, SBT, BHS and in the future NHS will be able to refine RE sugar if its mill is completely upgraded.

With the planned cane crushing volume in the 2013/14 season, we estimate the mills of these companies will operate with a capacity of about 75% - 90% of design capacity, especially SEC may have to prolong sugarcane crushing season to last more than 150 days. Except for NHS and SLS which implemented to increase the capacity of their mills in this crop year, the rest of businesses have to operate with an actual capacity 2-14% greater than that of the last season due to their stable design capacity and increase in sugarcane as material input.

Total sugar production of 7 domestic companies is estimated at 563,500 tonnes, equivalent to 29% of the national output in the crop year 2013/14, while HAG increases production to 84,000 tonnes (+68% YoY) due to expansion of its cultivated area in Laos.

**Ethanol:** only LSS is currently operating an ethanol plant with a capacity of 25 million liters per annum, however producing only 8-9 million liters in the past 2 years. SBT also has recently announced a project of advanced ethanol plant with a capacity of 21 million liters and total investment of 20 million USD, and it is expected to go into operation and contribute to revenue from crushing season 2015/16 onwards. Gross profit margin of this product reaches up to 30% (according to LSS).

**Commercial electricity:** In the past, electricity produced from bagasse in the sugar companies serves the primary purpose of providing electricity to cluster of crushing and manufacturing factories, which helps reduce input costs. Selling commercial electricity to the national grid is just to take advantage of excess capacity and it has a quite low gross profit margin. Decision No. 24/2014/QĐ-TTg is issued with the main content of adjusted biomass power prices to increase more than 35-40% in order to improve profits in the sugar businesses with the following power plants:

**Businesses with plant producing electricity from bagasse**

Firm	Design capacity (kWh)	Plant consumption	Selling electricity
SBT	34,000	28%	72%
SEC	12,000	50,0%	50,0%
HAG*	30,000	20%	80%
LSS	12,500	NA	NA
NHS**	30,000	20%	80%

\*: Electricity price of HAG in Laos is about 6 cents per kw, equivalent to the adjusted biomass power price in Vietnam.

\*\*: Expected completion in Sept 2014 and start contributing to NHS's revenue in 2015

Source: compiled by FPTs

**3. CONSUMPTION MARKET: ALMOST B2B**

Most of the businesses mainly developed B2B wholesale distribution channel to clients including food manufacturing companies, trading companies or even businesses that procure raw sugar to refine RE sugar (BHS, SBT). Only BHS has

developed B2C distribution channel for a long time and has built a well-known retail brand.

#### Some major customers of listed sugar companies

SBT	BHS	LSS	NHS	SEC	KTS	SLS
Pepsi, Vinamilk, Trung Nguyen, URC	Bibica, Vinamilk, Kinh Do, Vinacafe	North Tribeco, Lam Kinh, Lam Son	Thanh Thanh Cong, SBT, BHS	Thanh Thanh Cong, Minh Tam	Kim Ha Viet	Kim Ha Viet, Thai Lien

\* Traditional customers of the businesses such as NHS, SEC, KTS or SLS are related to key personnel in these companies. They are also trading companies responsible for distributing sugar.

Source: compiled by FPTs

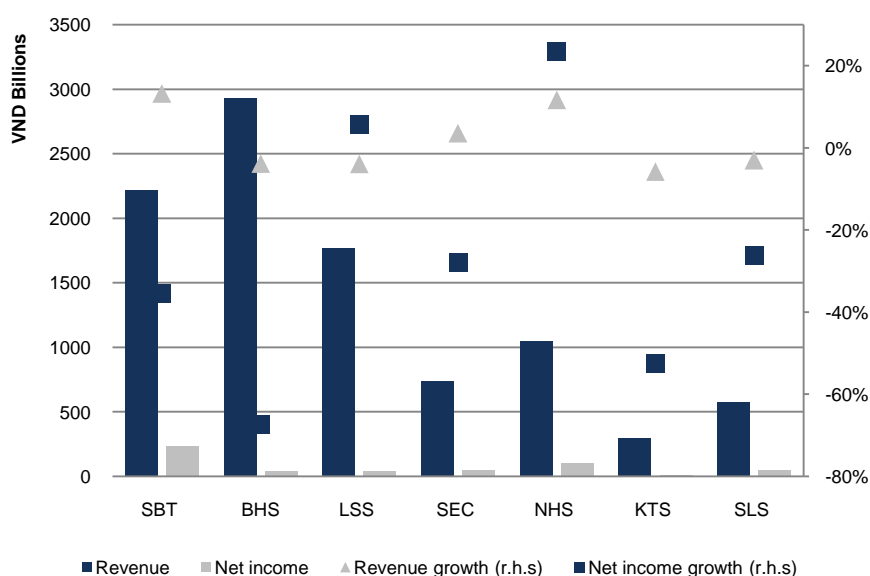
For HAG in the 2012/13 season, total production of 50,000 tonnes of sugar is consumed in Laos's domestic market. In crop year 2013/14, production increased to 84,000 tonnes and the company has reached agreement with BHS, under the consent of the Government of Vietnam to temporarily import 30,000 tonnes of sugar for BHS to refine RE sugar and then re-export to China.

#### 4. BUSINESS PERFORMANCE IN 2013: STILL NO POSITIVE SIGNALS

2013 continues to be a difficult year for most of the domestic listed sugar companies when sales are with slow or negative growth and net profit declines sharply. In this year, only NHS has positive revenue and net profit growth.

However, for HAG, the first crop year of growing sugarcane and producing sugar was very successful with VNDbn 838 in revenue (131% of plan), and that was the business activity to generate the largest revenue for the enterprise in the year (30.2% of total revenue). With production model of a large sample fields, mechanization in land cultivation and harvesting and modern irrigation system of water and fertilizer from Israel technology, the enterprise becomes far more efficient than any other domestic sugar businesses. Gross profit margin of HAG sugar business is up to 66%, with an average RS selling price of VNDm 13 per tonne in 2013 and production cost of around VNDm 4.5-5 per tonne.

#### Revenue and net profit in 2013

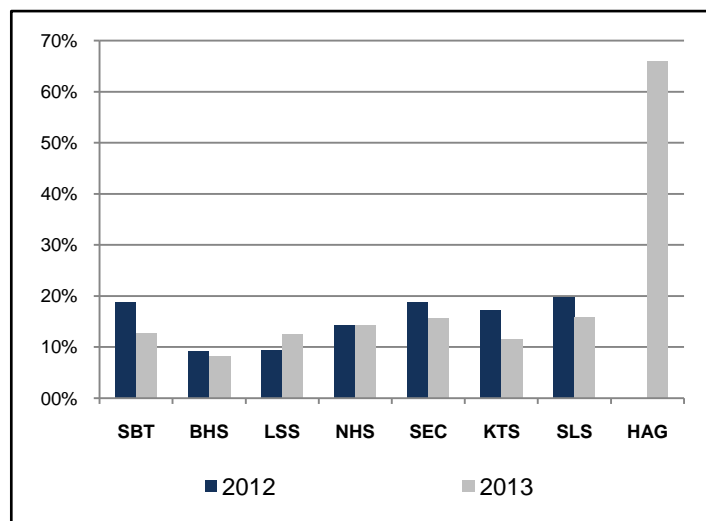


Source: compiled by FPTs

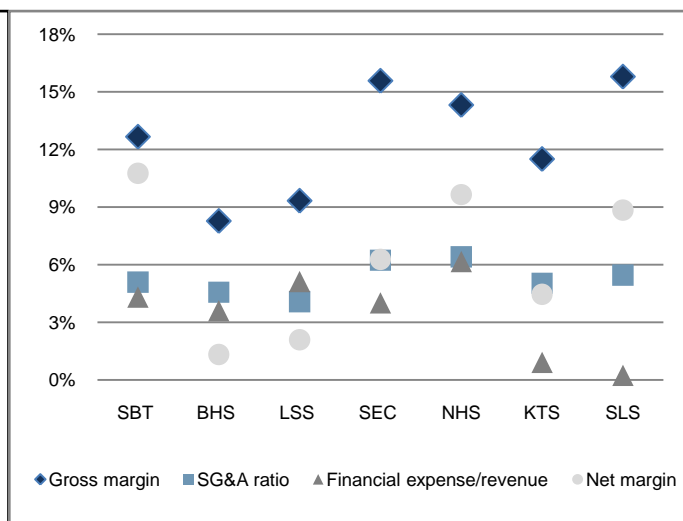
## Gross profit margin declined under the pressure of over-supply

Average gross profit margin of 7 domestic sugar businesses in 2013 was about 12%, decreasing by 140 percentage points compared with that in the previous year due to unfavorable movement of both RE sugar price and RS sugar price (see *Vietnamese sugar industry*). Clearly, businesses are required to accept lower and lower gross profit margin than the margin of 20% -30% from 2011 backwards where there was a local supply shortage.

Gross profit margin over the years



The proportion of items over revenue in 2013



Source: compiled by FPTs

**SEC** has the highest gross profit margin, even though Central Highlands are not the most suitable region for growing sugar cane and producing sugar.

After upgrading the mill, LSS has changed production structure of RE/RS from 50/50 to 80/20, because of the high price of RE sugar and less volatility, so gross profit margin also improved (from 9,3% to 12.5%). This is the only domestic enterprise with improvements in gross profit margin in the past year.

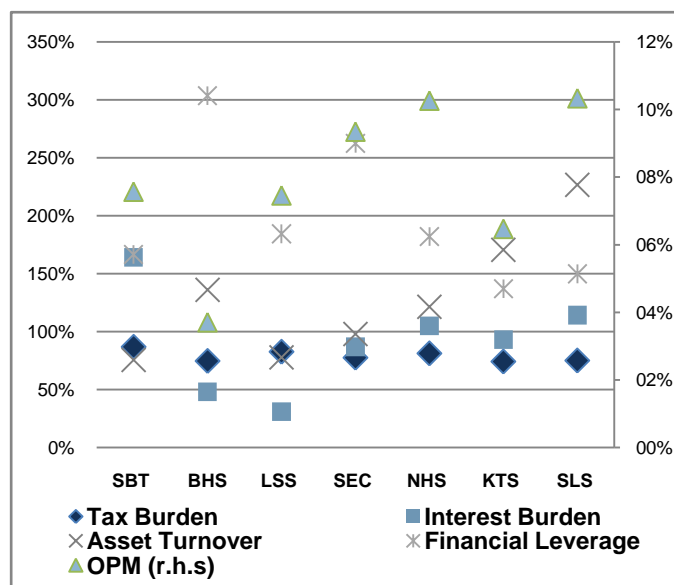
Gross profit margin of **NHS** remaining stable compared with that in 2012, however, sales expenses and administrative expenses (SG&A) increased (+62.7% YoY). The enterprise states that changing the delivery method of selling sugar from the mill factory to customer's warehouse has increased transportation costs sharply in the period. But this also helps preserve gross profit margin of the business and increase consumption.

Major activities of BHS are procurement of raw sugar and refining RE sugar, accounting for 65% -70% of the total sugar produced by the business every year. Due to this outsourcing stage, BHS's gross profit margin is much lower than other companies in the industry (8.3% in 2013), and we believe that BHS's procurement of raw sugar BHS is to support other related businesses (NHS, SEC ...) to release annual inventory.

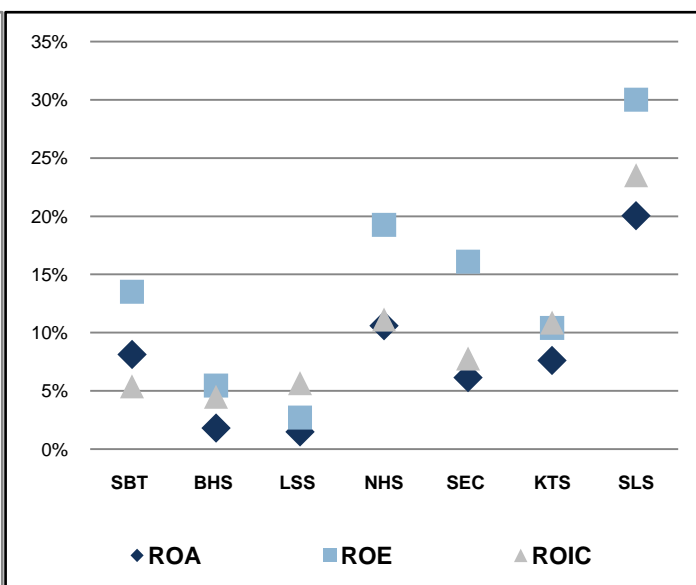
### Rate of return: the smaller, the more effective?

SLS has the highest rate of return (ROE > 30%) while production capacity of the mill is lower than the national average capacity and the cultivated area is quite smaller, NHS with medium scale has the second highest rate of return (ROE = 19.3%). Meanwhile, the leading enterprises with large scale such as BHS and LSS has very low rate of return.

### DuPont 5 Factors



### Rate of Return in 2013



Source: compiled by FPTs

**Tax Burden:** Effective tax rate in SBT is the lowest (13.2%) while in BHS and KTS, effective tax rate is approximately equal to corporate income tax rate in 2013, respectively 25.4% and 25.8%.

**Burden of interest rates:** net interest expenses in BHS and LSS accounts for up to 52% and 69% of EBIT, which reduces profits very much. Businesses such as SBT, NHS and SLS have net revenue from lending activities; SBT has revenue from interest of up to 64% of EBIT, which helps improve profits.

**Operating profit margin** in NHS and SLS are the highest among seven businesses, both achieve 10.3%; BHS has the lowest profit margin of 3.7%.

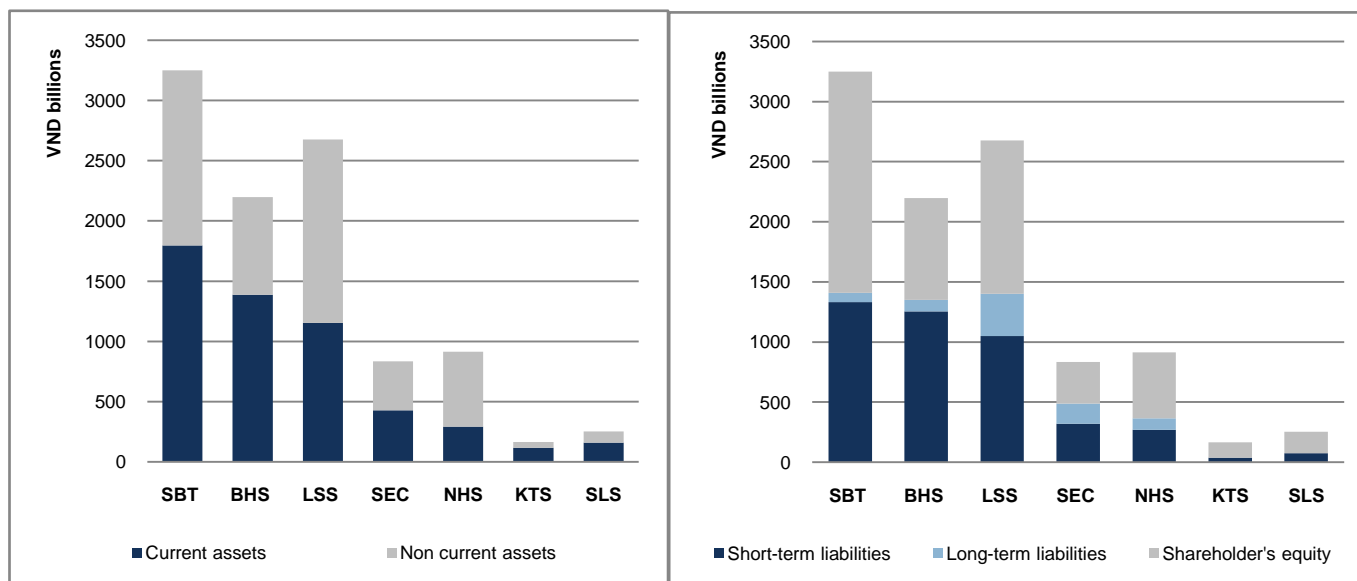
**Asset Turnover:** SLS uses fixed assets very efficiently when 1 VND of assets generates 2.26 VND of revenue while SBT only generates 0.75 VND.

**Financial leverage:** For sugar companies at the end of year, which is also the beginning of crop year, short-term debt increases sharply compared to other periods of the year to make payment to sugarcane farmers. However, it is notable that BHS and SEC have very high leverage ratio, respectively 3.3 times and 2.6 times.

### Operating efficiency ratios

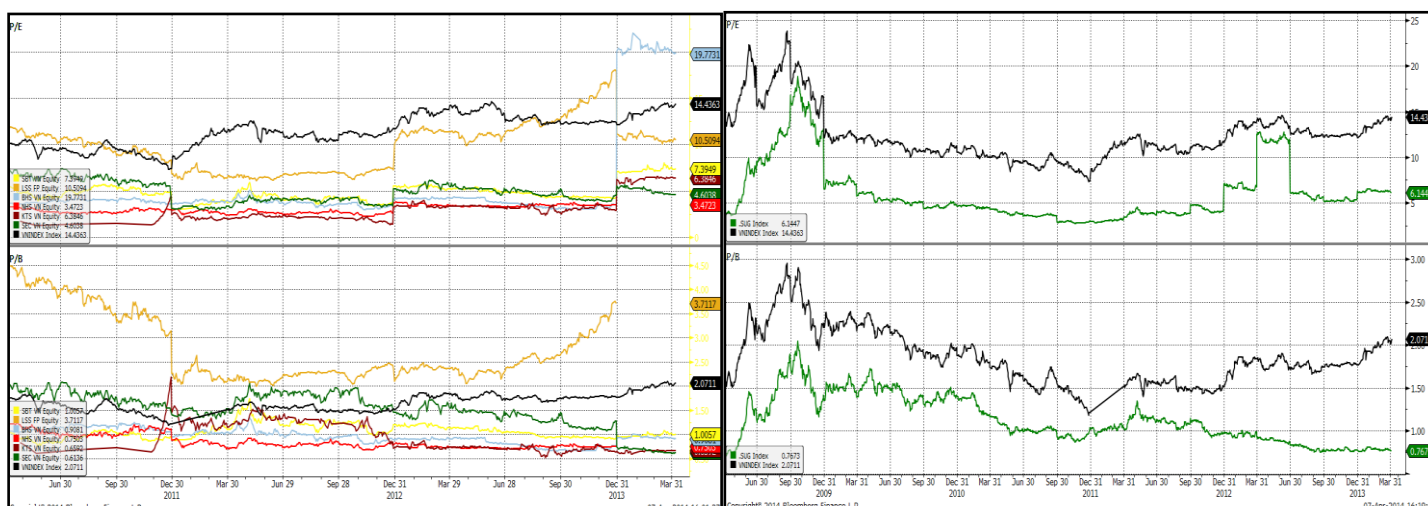
Code	Inventory turnover	Receivable turnover	Payable turnover	Asset turnover	Fixed asset turnover	Net fixed asset turnover
SBT	6.8	10.9	16.6	0.8	1.3	3.6
BHS	4.6	21.0	24.9	1.4	3.1	5.1
LSS	5.3	16.9	23.7	0.8	0.9	1.6
NHS	16.0	159.0	29.8	1.2	2.5	3.2
SEC	7.4	17.1	18.3	1.0	1.3	2.0
KTS	3.9	52.6	6.9	1.7	1.8	6.8
SLS	8.9	727.4	13.1	2.3	3.5	7.4

Source: compiled by FPTs

**Assets and Equities in 2013**


Source: compiled by FPTs

## 5. INVESTMENT RECOMMENDATION: BEING UNDERVALUED COMPARED WITH THE MARKET

**P/E and P/B comparison between sugar stocks and VNIndex**


Source: Bloomberg

Average ratio of P/E and P/B weighted by market capitalization of 7 domestic sugar businesses is about 6.1x and 0.8x, discounted up to 57% and 63% compared to current P/E and P/B ratio of VNIndex. High price for sugar stocks has not been accepted in the market, even in a period when sugar prices rose due to supply shortage, however, current huge discount reflected quite pessimistic expectations from investors in all stocks in the industry.

Price of sugar stocks has fallen and remained at a certain low level for a long time, together with being neglected by the cash flow in the bull market during the past period; we believe that the shares are still being undervalued in terms of business prospects. A major problem for most of sugar stocks is very low liquidity due to concentrated shareholder structure. Investors should consider and choose an appropriate discount rate for liquidity risk before making a decision.

Again, we still believe that the less efficient operation of sugar businesses than period of year 2011 is entirely reasonable based on the law of supply and demand.



Difficulties faced by sugar industry are also the inherent problems of Vietnam agriculture. Although they cannot be solved completely in a short time, the Government is certain in putting emphasis on agricultural investment in the long-term future. Not all of sugar businesses are weak and not all will collapse if imported sugar can penetrate the market. The number of "players" on the domestic sugar supply market will decrease, and the rest will be the most advantageous businesses and realize changes to survive.

Code	Market price (VND/share)	Market Cap (VND bn)	Dividend yield (%)		EPS (VND/share)		PER		Recommendation	Target price (VND/share)
	22/04	22/04	2013	2014E	2013	2014E	Trailing	Forward		
SBT	12,000	1,722	6.3	8.3	1,773	1,790	6.77	6.70	ADD	13,700
BHS	11,700	731.8	3.0	4.3	678	1,308	17.26	8.94	REDUCE	10,400
LSS	10,800	540	3.5	5.1	743	1,120	14.54	9.64	REDUCE	9,200
NHS	10,900	662.2	10.2	9.2	1,659	1,695	6.57	6.43	ADD	12,700
SLS	27,900	189.7	12.9	10.8	7,483	7,260	3.73	3.84	BUY	36,300

## SBT

**ADD**
**Target price: VND 13,700/share**

### Strengths

- The largest sugar producer in Southeast region, location of the mill is near major industrial parks in the triangle economic zone of HCMC - Dong Nai - Province, thus the business has advantages on price and supply capacity. Main product line is RE sugar with high purity, used in industrial production, thus this product price is less volatile than the price of RS sugar.
- Supplier of RE sugar for many large companies in the food and beverage industry. Industrial customers contribute to 90-95% of sales, output supply for this customer group increased by 43% YoY in 2013.
- Working closely with farmers, participating actively in work of sugarcane growing area: investment in irrigation system, research on new seeds and fertilizers to suit growing conditions, adopting harvest policy to increase commercial cane sugar by cutting to stump, cutting the treetops, etc.

### Weaknesses

- Operating in region which has strong competition with smuggled sugar.
- Negative cash flow from operating activities in two consecutive years must be offset by short-term loans, long-term loans and sales of treasury shares.
- Dividend rate will not be as high as before, only 10% in 2013.
- Investing in Bourbon An Hoa Industrial Zone (BAC) is not effective, the occupancy rate is very low.

### Highlights

- Increasing biomass electricity price is expected to increase gross profit of VNDbn 14 per annum.
- Project of ethanol plant with capacity of 21 million liters per year is expected to contribute to revenue from 2015 onwards.
- Issues to be considered in SBT in 2014 are still RE sugar price movements, progress of project and plan for loan repayment of BAC.
- Low plan in 2014: sugar consumption output of 130,000 tonnes (+1.35% YoY), net revenue of VNDbn 2,096 (-5.6% YoY), EBT of VNDbn 160 (-42%).

## BHS

**REDUCE**
**Target price: VND 10,400/share**

### Strengths

- Operating in Southeast key economic zone, the mill is located near industrial zones
- Developed retail channel; retail price of RE sugar is higher than that of other businesses due to brand recognition. Wholesale channel has many large customers.
- Less seasonal business activities since the business can purchase raw sugar for refining or purchase RS sugar for inventory to sell gradually in off-peak season.

### Weaknesses

- Operating in region which has strong competition with illegally imported sugar.

		<ul style="list-style-type: none"> <li>• Lowest gross profit margin due to sugar trading. BHS, with development of distribution channel, becomes the focal point for purchasing sugar from the other companies involved (NHS, SEC ...) to help those businesses release inventory.</li> <li>• Financial expenses, SG&amp;A expenses account for too large proportion over revenue, which makes business operations inefficient.</li> <li>• Consider: Imported price of 30,000 tonnes of raw sugar from HAG for refining; RE sugar price movements.</li> </ul>
	<b>Highlights</b>	
<b>LSS</b>	<b>REDUCE</b>	<b>Target Price: VND 9,200/share</b>
	<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Yield and cane/sugar ratio have been rapidly improved during the last 3 crops.</li> <li>• There are advantages of scale of growing area, production capacity and production of sugar each year. Location of the mill is near industrial zones, thus is easy to build direct and sustainable relationship with the customers</li> <li>• Structural change in sugar production with high proportion of RE sugar (80%) which has the ability to keep selling price stable.</li> <li>• Highly focus on project of restructuring business, reducing non-core investment</li> <li>• Be granted export quota to China each year</li> </ul>
	<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Poor performance, high interest expense</li> <li>• Low dividend rate: 5.5% per annum for 2013 and 2014</li> </ul>
	<b>Highlights</b>	<ul style="list-style-type: none"> <li>• 200 billion of Bonds converted to Equity in October 2014 have the ability to dilute EPS by 40%.</li> <li>• Interest expense will decline sharply in 2014.</li> <li>• Low plan in 2014: expected sugar production of 115,000 tonnes (+10% YoY) but planned revenue of only 1,615 billion (+0.3% YoY), net profit of 42.9 billion (+3%)</li> </ul>
<b>NHS</b>	<b>ADD</b>	<b>Target price: 12,700 VND/share</b>
	<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Sugarcane growing area is likely to expand; procurement is not competed by other sugar mills.</li> <li>• Stable production due to be sponsored by the system of sugar intermediaries and other stakeholders.</li> </ul>
	<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Low yield with little improvement over the 3 most recent cropS, the cane/sugar ratio is in the average level.</li> </ul>
	<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Plans in order to increase the capacity of crushing and investment in production lines of RE sugar can help take advantage of scale and improve gross profit margin.</li> <li>• Project of power plant using bagasse with capacity of 30,000 kWh is expected to contribute more VNDbn 22 to gross profit each year since 2015.</li> </ul>
<b>SLS</b>	<b>BUY</b>	<b>Target price: VND 36,300/share</b>
	<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Small-scale but the most efficient operations among current listed sugar businesses (ROE&gt; 30%), gross profit margin from the sale of sugar is very high (2013: 16.8%, 2012: 20, 1%). The ratio of cane/sugar is low</li> <li>• Operating in region with low density of mills, indicating low level of competition.</li> <li>• Focusing on consumption in the Chinese market (95% of production of crop year 2012/13)</li> </ul>
	<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Low liquidity</li> </ul>
	<b>Highlights</b>	<ul style="list-style-type: none"> <li>• The stock is undervalued</li> <li>• High annual dividend rate (2012, 2013: 35%)</li> </ul>
<b>HAG</b>	<b>N/A</b>	<b>Positive</b>
	<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Concentrated growing area surrounded by a large system of river and lake and modern irrigation system help solve the problem of water in the drought season, complete mechanization from cultivation to harvesting.</li> <li>• High yield and commercial cane sugar compared with domestic businesses.</li> <li>• Low price, high gross profit margin, able to compete with sugar in the world.</li> </ul>
	<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Exporting sugar to Vietnam encounters many protective barriers.</li> </ul>
	<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Consider the possibility of consumption in other markets outside Laos</li> </ul>

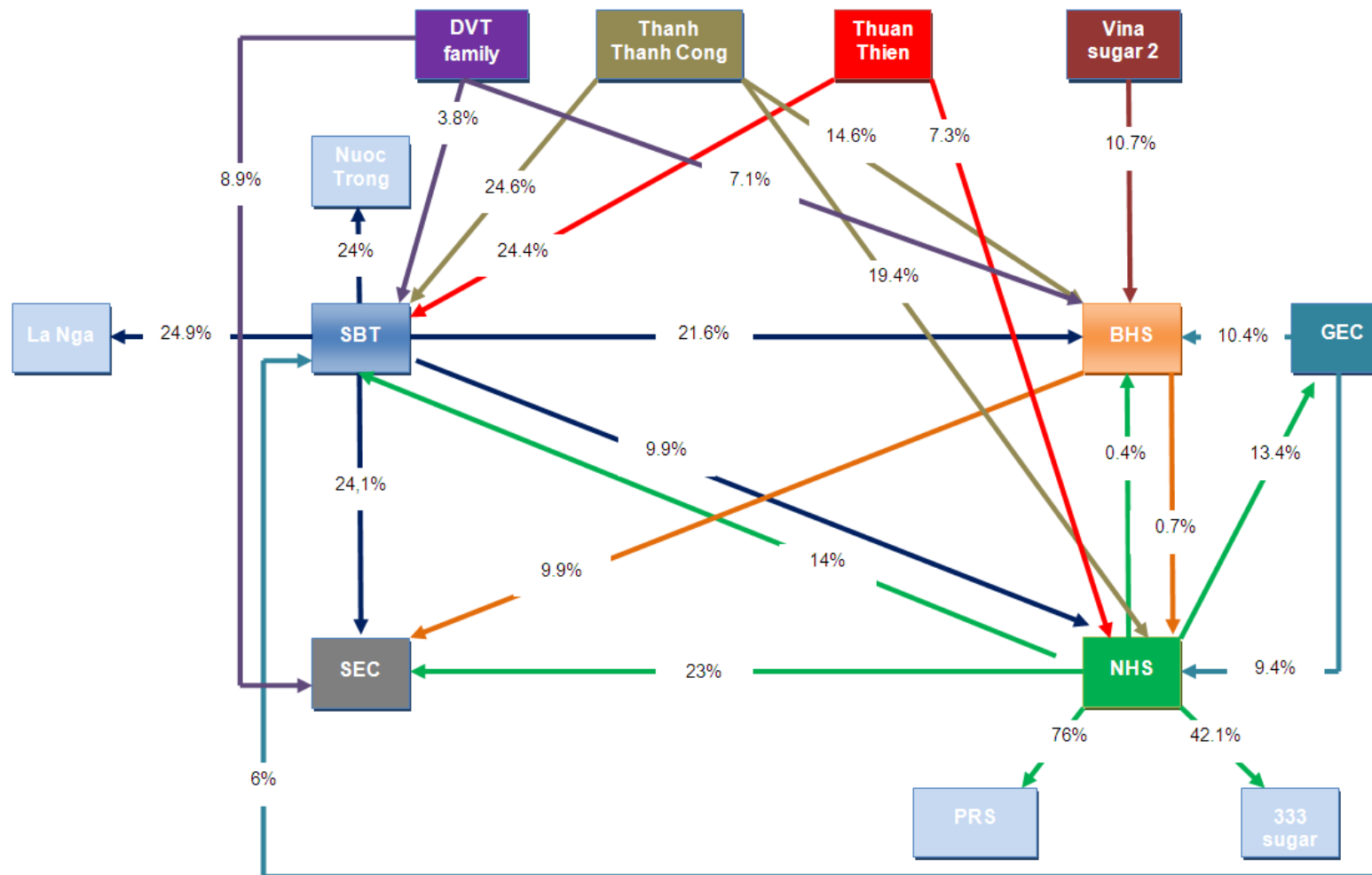
**Appendix 1: Key ratios and recommendation for Vietnam's listed sugar companies**

Cod-de	Name	Exchange	Current price	12M-target price	Recommendation	Outstanding shares	Average 3M volume	Foreign ownership	EPS		P/E		BV trailing	P/B trailing
									trailing	forward	trailing	forward		
SBT	Thanh Thanh Cong Sugar	HSX	12,000	13,700	ADD	143,506,160	392,989	15.4%	1,773	1,790	6.77	6.70	13,256	0.91
BHS	Bien Hoa Sugar	HSX	11,700	10,400	REDUCE	62,994,918	118,343	6.9%	678	1,308	17.26	8.94	13,481	0.87
LSS	Lam Son Sugarcane	HSX	10,800	9,200	REDUCE	51,500,000	135,276	15.9%	743	1,120	14.54	9.64	25,076	0.43
NHS	Ninh Hoa Sugar	HSX	10,900	12,700	ADD	60,750,000	264,672	4.8%	1,659	1,695	6.57	6.43	14,733	0.74
SLS	Son La Sugarcane	HNX	27,900	36,300	BUY	6,800,000	6,273	2.2%	7,483	7,260	3.73	3.84	26,463	1.05

Cod-de	Name	Revenue (VND bn)			EAT (VND bn)			ROA (%)			ROE (%)			Gross margin (%)			Net margin (%)		
		2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
SBT	Thanh Thanh Cong Sugar	2,050.3	1,960.8	2,222.4	553.0	370.0	239.0	25.9%	15.0%	8.1%	31.0%	21.2%	13.5%	29.4%	18.5%	12.7%	27.0%	18.9%	10.8%
BHS	Bien Hoa Sugar	2,566.0	3,045.8	2,930.0	147.2	119.2	37.4	10.8%	7.0%	1.7%	29.1%	21.3%	5.3%	10.5%	9.2%	8.2%	5.7%	3.9%	1.3%
LSS	Lam Son Sugarcane	2025	1888.9	1847.4	413	37.2	41.6	23.0%	1.5%	1.7%	32.1%	2.7%	3.2%	30%	9%	12%	20.4%	2.0%	2.3%
NHS	Ninh Hoa Sugar	782,5	934.6	1,044.4	80.4	81.2	100.8	15.8%	10.8%	7.2%	31.7%	20.0%	14.0%	18.3%	14.3%	15.4%	10.3%	8.7%	9.6%
SLS	Son La Sugarcane	365,3	593.0	575.1	34.7	69.1	50.9	16.7%	27.5%	20.0%	38.9%	53.4%	30.0%	17.8%	19.8%	15.8%	9.5%	11.7%	8.9%

Source: FPTs; Bloomberg

Appendix 2: Cross-ownership among Vietnam's sugar firms



Source: FPTs

**Appendix 3: Popular cane seeds in different regions across the country**

Seed	Origin	Region	Strength	Weakness	Characteristic
<b>Comus</b>	Australia	Mekong River delta	Suitable for low-lying land with acid soil	Less drought-tolerant, vulnerable to insect	Yield: 80-100 tonnes/ha Early maturity for harvest (10-11 months), high sugar rate
<b>Co 775</b>	India	Mekong River delta		Vulnerable to insect, leaf twisted	
<b>F156</b>	Taiwan	Southeast, Quang Ngai	Good grow, drought-tolerant	Vulnerable to insect	Yield: 70-100 tonnes/ha Average time for maturity (11-12 months), high sugar rate
<b>MY 5514</b>	Cuba	Southeast, North	Quick and good grow	Blooming	Yield: 80-100 tonnes/ha if cultivated in high land Late maturity and average time for maturity (12-14 months), medium and high sugar rate
<b>VN 84 – 4137</b>	Vietnam	National wide	Good grow with many plants, insect-resistant	Average size	Yield: 70-100 tonnes/ha If cultivated in high land Early maturity for harvest and high sugar rate
<b>VN 84 – 2611</b>	Vietnam		Insect-resistant		
<b>VN 84 – 196</b>	Vietnam		Quick grow	Less drought-tolerant	
<b>VĐ63 – 237</b>	China	North and other regions	Good grow	Strong and early blooming	Yield: 70-100 tonnes/ha Average time for maturity (12 months), medium sugar rate
<b>VĐ 81 – 3254</b>					Medium yield, average ability for stump Early maturity for harvest and high sugar rate
<b>ROC1</b>	Taiwan	Other regions	Good grow, less blooming	vulnerable to insect	Very high yield
<b>ROC10</b>					Average time for maturity (11-12 months), medium sugar rate
<b>ROC16</b>	Thailand	Long An, Ho Chi Minh and other regions	Suitable for low-lying land with acid soi		Yield: 80-100 tonnes/ha Average time for maturity, medium sugar rate
<b>K84-200</b>					

Source: FPTS



**Appendix 4: Production plan of all Vietnam's sugar factories in the 2013/14 crop**

No	Region	Harvested area (ha)	Yield (tonnes/ha)	CCS	Design capacity (tcd)	Crushing cane (tonnes)	Sugar production (tonnes)	Cane/sugar ratio
<b>Country</b>		<b>269,900</b>	<b>64</b>		<b>141,250</b>	<b>17,231,000</b>	<b>1,619,420</b>	<b>10.6</b>
<b>North</b>		<b>19,504</b>	<b>52</b>		<b>12,800</b>	<b>1,006,000</b>	<b>112,800</b>	<b>8.9</b>
1	Son Duong	5,380	50	10.0	3,500	269,000	27,000	10.0
2	Tuyen Quang	4,526	60	10.0	4,000	271,000	27,200	10.0
3	Cao Bang	3,474	59	10.0	1,800	205,000	20,500	10.0
4	Son La	4,614	57	11.0	2,500	261,000	29,000	9.0
5	Hoa Binh	1,510	-	10.5	1,000		9,100	0.0
<b>North Central Coast</b>		<b>65,240</b>	<b>60</b>		<b>31,700</b>	<b>3,888,000</b>	<b>392,300</b>	<b>9.9</b>
6	Lam Son	17,000	71	10.0	10,500	1,200,000	125,000	9.6
7	Viet - Dai	12,340	61	10.0	6,000	750,000	75,000	10.0
8	Nong Cong	6,350	54	10.0	2,700	343,000	34,300	10.0
9	NA-Tate&Lyle	19,950	52	10.0	8,400	1,040,000	102,500	10.1
10	Song Lam	1,800	58	10.0	800	105,000	10,500	10.0
11	Song Con	7,800	58	10.0	3,300	450,000	45,000	10.0
<b>South Central Coast</b>		<b>69,882</b>	<b>54</b>		<b>32,400</b>	<b>3,765,000</b>	<b>359,800</b>	<b>10.5</b>
12	Pho Phong	5,033	56	9.6	2,200	280,000	26,500	10.6
13	Binh Dinh	8,500	60	10.0	5,000	510,000	51,000	10.0
14	KCP Phu Yen	19,000	52	9.0	7,200	995,000	88,000	11.3
15	Tuy Hoa	6,000	50	9.7	2,300	300,000	29,000	10.3
16	Ninh Ha	12,400	54	10.0	5,200	670,000	67,000	10.0
17	Khanh Hoa	15,194	50	10.5	8,000	760,000	76,000	10.0
18	Phan Rang	3,100	48	10.0	1,300	150,000	13,800	10.9
19	Sugar VN	655	153	9.0	1,200	100,000	8,500	11.8
<b>Central Highlands</b>		<b>39,780</b>	<b>54</b>		<b>19,700</b>	<b>2,133,000</b>	<b>217,000</b>	<b>9.8</b>
20	Gia Lai	9,200	59	10.0	3,500	543,000	54,000	10.1
21	Kon Tum	2,980	67	10.0	1,700	200,000	22,000	9.1
22	333 Daklak	6,900	49	10.0	2,500	340,000	34,000	10.0
23	Dak Nong	4,700	53	9.0	2,000	250,000	27,000	9.3
24	An Khe	16,000	50	10.0	10,000	800,000	80,000	10.0
<b>Southeast</b>		<b>31,119</b>	<b>73</b>		<b>19,500</b>	<b>2,261,000</b>	<b>193,870</b>	<b>11.7</b>
25	La Nga	5,500	57	9.1	2,200	313,000	26,870	11.6
26	Bien Hoa Tri An	3,123	99	9.0	2,500	308,000	27,000	11.4
27	Bien Hoa TN	4,650	95	8.5	4,000	440,000	37,000	11.9
28	Thanh Thang Cong TN	15,176	66	8.7	9,800	1,000,000	85,000	11.8
29	Nuoc Trong	2,670	75	9.0	1,000	200,000	18,000	11.1
<b>Mekong River Delta</b>		<b>44,375</b>	<b>94</b>		<b>25,150</b>	<b>4,178,000</b>	<b>343,650</b>	<b>12.2</b>
30	Hiep Hoa	4,200	88	8.5	2,000	370,000	28,000	13.2
31	Soc Trang	4,500	89	9.5	2,500	400,000	35,000	11.4
32	Ben Tre	3,620	88	8.9	2,000	320,000	26,500	12.1
33	Can Tho	12,867	93	9.5	6,500	1,200,000	105,000	11.4
34	Long My Phat	3,658	96	8.5	2,500	350,000	25,000	14.0
35	Kien Giang	1,600	75	8.4	1,000	120,000	9,500	12.6
36	Ca Mau	2,270	57	8.6	1,000	130,000	10,650	12.2
37	Tra Vinh	3,660	106	10.3	2,650	388,000	35,000	11.1
38	NIVL	8,000	113	8.5	5,000	900,000	69,000	13.0

Source: Agroinfo

**Appendix 5: Performance of top sugar companies all over the world (12M-trailing)**

Code	Company	Nation	Gross margin	EBITDA margin	Operating margin	Net margin
CZZ US Equity	COSAN LTD	Brazil	14.9%	N/A	3.5%	1.5%
SZU GR Equity	SUEDZUCKER AG	Germany	N/A	13.2%	12.3%	5.6%
SAVOLA AB Equity	SAVOLA	Saudi Arabia	18.6%	9.2%	6.9%	6.5%
TATE LN Equity	TATE & LYLE PLC	United Kingdom	N/A	13.3%	10.7%	7.2%
2108 JP Equity	NIPPON BEET SUGAR MFG CO LTD	Japan	25.6%	6.6%	2.4%	1.8%
SLCE3 BZ Equity	SLC AGRICOLA SA	Brazil	22.1%	21.7%	12.7%	8.1%
LEDE AR Equity	LEDESMA S,A,A,I,	Argentina	32.5%	11.1%	9.1%	1.8%
CARTAVC1 PE Equity	CARTAVIO SAA	Peru	24.4%	23.6%	16.1%	8.2%
LAREDOC1 PE Equity	EMP AGROINDUSTRIAL LAREDO-CM	Peru	28.5%	27.0%	21.9%	13.9%
AGRO US Equity	ADECOAGRO SA	South Africa	18.6%	19.7%	9.8%	-0.9%
SHRS IN Equity	SHREE RENUKA SUGARS LTD	India	N/A	14.7%	6.1%	-3.6%
ILV SJ Equity	ILLOVO SUGAR LTD	South Africa	N/A	N/A	17.0%	8.0%
000070 KS Equity	SAMYANG HOLDINGS CORP	Korea	17.4%	5.5%	4.5%	-11.3%
DCMS IN Equity	DCM SHRIRAM LTD	India	N/A	10.0%	7.3%	3.7%
2109 JP Equity	mitsui SUGAR CO LTD	Japan	21.7%	8.6%	4.3%	5.5%
BJH IN Equity	BAJAJ HINDUSTHAN LTD	India	N/A	10.6%	2.2%	-7.4%
KSL TB Equity	KHON KAEN SUGAR INDUSTRY PCL	Thailand	22.8%	15.9%	8.9%	9.4%
<b>Average</b>			<b>22.5%</b>	<b>14.1%</b>	<b>9.2%</b>	<b>3.4%</b>

Code	Company	Nation	Debt/EV	Debt/Equity	EBITDA/Interest expense
CZZ US Equity	COSAN LTD-CLASS A SHARES	Brazil	157.0%	35.4%	3.39
SZU GR Equity	SUEDZUCKER AG	Germany	32.3%	30.5%	15.02
SAVOLA AB Equity	SAVOLA	Saudi Arabia	20.1%	43.6%	9.59
TATE LN Equity	TATE & LYLE PLC	United Kingdom	21.6%	46.4%	15.17
2108 JP Equity	NIPPON BEET SUGAR MFG CO LTD	Japan	43.4%	15.4%	28.90
SLCE3 BZ Equity	SLC AGRICOLA SA	Brazil	40.2%	35.4%	4.42
LEDE AR Equity	LEDESMA S,A,A,I,	Argentina	39.4%	39.3%	2.51
CARTAVC1 PE Equity	CARTAVIO SAA	Peru	0.0%	0.0%	7.53
LAREDOC1 PE Equity	EMP AGROINDUSTRIAL LAREDO-CM	Peru	24.7%	16.0%	10.23
AGRO US Equity	ADECOAGRO SA	South Africa	51.3%	34.4%	1.70
SHRS IN Equity	SHREE RENUKA SUGARS LTD	India	87.9%	85.3%	1.85
ILV SJ Equity	ILLOVO SUGAR LTD	South Africa	19.3%	25.1%	6.64
000070 KS Equity	SAMYANG HOLDINGS CORP	Korea	17.4%	10.4%	3.69
DCMS IN Equity	DCM SHRIRAM LTD	India	67.8%	51.0%	3.65
2109 JP Equity	mitsui SUGAR CO LTD	Japan	22.7%	19.8%	48.37
BJH IN Equity	BAJAJ HINDUSTHAN LTD	India	83.0%	66.9%	0.75
KSL TB Equity	KHON KAEN SUGAR INDUSTRY PCL	Thailand	49.7%	57.3%	3.68
<b>Average</b>			<b>45.7%</b>	<b>36.0%</b>	<b>9.83</b>

Source: Bloomberg

## RECOMMEND AND EXPLANATION

This recommendation based on the difference between targeted value and market value of each stocks in order to provide appropriate information for investors in 12-month investment period from recommend day.

The expected at 18% is estimated based on 12-month government bond rate in addition to market risk premium in Vietnam.

Recommendation	Explanation
<b>12 months period</b>	
<b>Buy</b>	If targeted price is <b>higher</b> than market price 18%
<b>Add</b>	If targeted price is <b>higher</b> than market price about 7%-18%
<b>Monitor</b>	If targeted price compared to market price is <b>within</b> -7%-7%
<b>Reduce</b>	If targeted price is <b>lower</b> than market price from -7% to -18%
<b>Sell</b>	If targeted price is <b>lower</b> than market price -18%

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