KT&G

2017 I-Core Project

Team 15

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Executive Summary

Korea Tomorrow & Global (KT&G from now on) is a public company in South Korea that operates mainly on tobacco and ginseng industry. In Part I, our team performed a situational analysis to understand the circumstances of KT&G in both internal and external sense. SWOT analysis was performed to specify its strength, weakness, opportunity, and threat, and future strategies were established accordingly.

In Part 2, issues of KT&G were organized into each division: Tobacco(cigarette), Ginseng, and CSR. Past events in each division were analyzed, and future strategies were proposed in ways that can mitigate its current hardship and improve.

In Part 3, financial analysis of KT&G in its current status was conducted. Additional financial projections regarding our strategic proposal are presented to support its feasibility.

Part. 1 Situational Analysis

KT&G – Overview

KT&G is a public company in South Korea. Rooting back to almost 120 years of history, the current form of KT&G was established after finalizing the privatization in 2002. KT&G is currently a leading corporation in both tobacco and ginseng industry.

The vision is to become a global “blue-chip” corporation by maximizing the value of enterprise and members. The specific missions for the two divisions are as follows:

Tobacco: Reinforce value-based business through intense investment in R&D, brand management, marketing, and qualitative, quantitative transformation foreign business.

Ginseng: Nurturing value-enhancing business to support the growth of KT&G

Strategic Goals in order to achieve its vision and missions are growth, profitability, sustainability, and stability.

External Analysis

Competitor Analysis

Our team identified three main competitors that may be of threat for KT&G in the domestic cigarette business: Philip Morris International, British American Tobacco, and Japan Tobacco International. After the complete opening of the domestic cigarette market in 1988, these three companies have operated in Korea and now account for about 40% of the tobacco market share in Korea, with estimated 20%, 14%, and 7% market share respectively.

Philip Morris International is the second largest tobacco company in the world, after CNTC, and account for 15% of the market share in the international cigarette market. Out of its diverse portfolio of cigarette brands, its product lines in Korea are limited to Marlboro, Parliament, Virginia S., and Lark. PMI has been operating its own manufacturing facilities in Yangsan since 2002. The facilities cover the entire production process from processing to packaging and retain an annual production capacity of 40 billion cigarettes.

British American Tobacco is the third largest tobacco company globally and is in charge of 11% of the international tobacco market. Renowned for its top-brand Dunhill, BAT only sells two brands of cigarettes in Korea: Dunhill and Rothmans. BAT also operates its own factories in Sacheon which are considered one of its best factories worldwide, and functions as an exporting hub for BAT in Asian regions.

Japan Tobacco International is the fourth largest tobacco company in terms of market share, controlling 9% of the cigarettes sold worldwide. Entering the domestic market in 1992, JTI's products sold in Korea are imported from overseas (no manufacturing facilities in Korea), and product lines are limited to Mevius(formerly Mild Seven) and Camel.

Industry Environment

The industry environment analysis was conducted using Porter's Five Forces Model.

Rivalry among Competitors – Strong: As mentioned in the competitor analysis, there are only three competitors posing threat to KT&G. The limited number of companies competing for large-scale customers lowers the rivalry level. Also, due to the regulation of cigarette prices, retail price is stable with low price-competition resulting in lower rivalry level. However, the demand for cigarettes is gradually declining due to the increase in concern for health. In addition, the cigarette business is a capital-intensive industry requiring high fixed costs and long payback period, and therefore heightening the exit barrier for companies operating in the business.

New Entrants - Weak: The threat of new entrants is minimal. The cost conditions of the cigarette industry in terms of high fixed costs calls for economies of scale, preventing new entrants. Moreover, as tobacco products are socially "evil" goods, there are intense government regulations regarding the operation in the industry, therefore creating a high entry barrier for potential new entrants. Brand loyalty is also an obstacle for newcomers.

Suppliers - Weak: The supplier for KT&G and the tobacco companies are farmers of tobacco leaves. The bargaining power balance between KT&G and the suppliers is tilted largely in favor of KT&G. The size of KT&G is extremely large compared to the size of tobacco leaves farmers, thus allowing KT&G to exert more power. In addition, KT&G has diverse choices to substitute their tobacco leaves, thus low in switching costs. Even though all domestic tobacco leaves are consumed by KT&G in the name of social responsibility, KT&G is now pressuring farmers to change from tobacco to other crops, proving KT&G's strong power.

Buyers - Weak: The buyers of cigarette industry includes retailers and end consumers. Both retailers and consumers display less power relative to KT&G. Retailers and end consumers are small in size and large in numbers, and purchase trivial amount compared to the total production of KT&G. The switching cost for retailers is high, because there are few competitor products available, and the high loyalty of end consumers in KT&G's products.

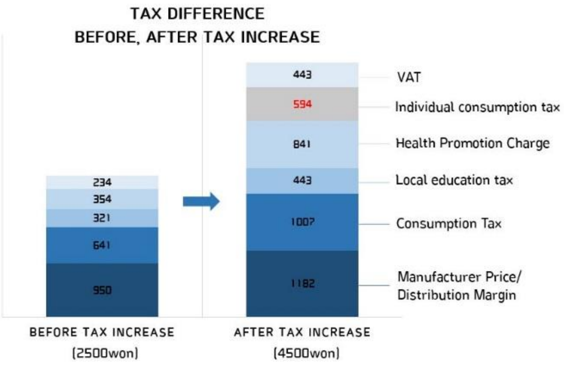
Substitutes - Strong: The biggest substitute for the traditional cigarette KT&G exploits in is the growth of electronic cigarettes. The increasing growth in health concerns paved the way for electronic cigarettes in the 21st century. With the technology improving, more advanced types of electronics such as IQOS are entering the market and may pose a threat to the traditional cigarette of KT&G.

General Environment

The general environment surrounding the cigarette industry shows gloomy future for KT&G, with some hints of light that may be exploited. The general environment was analyzed in the aspects of government regulation, consumer trend, and global market opportunity.

Government Regulations: The government regulation on tobacco is intensifying rapidly. As tobacco is an evil good that creates social-economic costs in terms of publicness, government regulation exists in various aspects to demotivate its consumption. The regulation includes price and non-price regulations.

Price regulation: In a measure to lower smoking rates, the government has increased the regulated price level to 4,500 won and increased the tobacco tax rates in 2015. Currently, out of 4,500 won of retail cigarette pack price, 3,318 won(73.7%) is collected as tax. The specific tax amount is provided in the diagram below.



Non-price regulations: Government implement diverse measures of non-price regulations in directly and indirectly to decrease smoking rate. Examples of non-price regulations are provided in the table below.

< Non-price Regulation >

Education	- Educational resources on the negative effects of smoking a re provided to academic and organizational level - Smoking Campaigns on medias such as TV
Non-Smoking Areas	- Increasing designation of non-smoking areas
Packaging Design	- Compulsory insertion of images displaying the negative co nsequences of smoking on cigarette packs
Promotion Restriction	- Extreme limitation of promotions on tobacco products

Consumer Trends: Due to the continuous effort of government regulations combined with the consumer's increase in concerns for health, people's overall attitude toward cigarettes is deteriorating. While the smoking rate for men older than 19 has fallen to the historic low of 37.8%, the consumption of health supplements is increasing at a rapid rate of 8% for six consecutive years. Aligning with the healthy trend, smokers are opting for more healthy cigarettes. 53.8% of cigarettes sold in 2016 was that of low-tar products (less than 3mg), and Esse, the slim tobacco brand conveying the healthy image, has not yielded its top position since 2003.

Meanwhile, smokers are seeking for additional value in tobacco products, either in its premium image or flavor variation. The sales percentage of mid/high priced tobacco products are 87%, with only 13% smokers choosing low-priced tobacco products. Flavor variation is a booming trend, especially in the younger generation, with more and more creative products released to satisfy the needs.

Global Market Opportunity: As opposed to the weary circumstances of the domestic market, the global market shows good prospects. Areas of opportunity have arisen in the overseas market, especially in the emerging markets. Unlike Korea and other developed markets, the regulations in the emerging markets are rather loose, therefore providing space for KT&G to target. Moreover, the customers in the foreign markets are especially favorable towards the "slim" tobacco products, one of KT&G's strongest product line.

Internal Analysis

Internal Analysis of KT&G was conducted based on the evaluation of its capabilities and resources in terms of strength and weaknesses.

Strength

In terms of valuable resources/capabilities, our team identified four main strengths: Manufacturing capabilities, distribution network, marketing & sales, and brand image.

First valuable resource for KT&G is its distribution network. KT&G's products are available almost anywhere in Korea. As of 2016, there are 14 regional centers, 123 branches of KT&G wholesalers and 121,087 end retailers selling KT&G cigarettes nationwide. The products are transferred from factories to consumers in an efficient manner, where supplying bases and integrated logistics bases work interdependently to ensure proper management of distribution. The distribution network extends worldwide, where in seven countries KT&G foreign firms are established to promote distribution.

The second strength of KT&G is the superior manufacturing facilities. One of the key success factors of KT&G's manufacturing facilities is efficient resource allocation. KT&G has five factories in Korea, and each factory is assigned with its own specific responsibilities. Processing of tobacco leaves takes place in Gimcheon Factory, production of cigarettes in Sintanjin, Youngju, Gwangju Factory, and packaging and distribution are managed in Cheonan Factory. The division of duties allows for additional efficiency. Moreover, the factories are equipped with extensive, state-of-the-art facilities. For example, the Sintanjin factories is the world's biggest ultra-slim tobacco factory and has the production capacity to meet 50% of the ultra-slim cigarettes needs.

The third strength is KT&G's proficiency in marketing and sales. Regarding sales, as government regulation prohibits promotion of tobacco products, it is important for the sales forces to perform their part well. The highly trained sales forces of KT&G maintain an extensive personal relationship with retailers to enhance sales. Regarding marketing, comprehensive management of the brand portfolio is delivering additional value to end consumers. Through efforts of brand marketing, KT&G effectively targets customers and create brand loyalty.

Last strengths of KT&G is its positive brand image. In 2016, KT&G ranked 1st place among competing tobacco companies in the National Customer Satisfaction Index. This is not only a result of the strengths mentioned above but also a result of KT&G's active participation in CSR activities. KT&G spends 50~60 billion won in social contribution activities annually. With a 'SangSang' keyword, KT&G operates scholarship foundation, welfare foundation and SangSang University for university students. In addition, KT&G purchases the entire tobacco leaves produced from domestic farms, which is also contributing to its good brand image.

Our team organized the strengths into the VRIO framework.

	Valuable	Rare	Inimitable	Organization	Performance Implication
Distribution Network	Yes	Yes	Yes	Yes	Sustainable Competitive Advantage
Marketing & Sales	Yes	Yes	No	No	Temporary Competitive Advantage
Manufacturing Capability	Yes	No	No	No	Competitive Parity
Brand Image	Yes	Yes	Yes	Yes	Sustainable Competitive Advantage

First, Distribution network is valuable, rare, inimitable, and organized to exploit the capability. In a domestic sense, the distribution channel of KT&G is most dense and wide in Korea. Furthermore, as the No.1 tobacco maker, KT&G possess the strongest bargaining power in its supply chain. In a global view, KT&G has expanded its distribution network to many countries. Only few companies has this expanded distribution network like KT&G and it entails a lot of cost and risk. Therefore, the wide and dense distribution network is KT&G's core competency and also a sustainable competitive advantage. Using the core competency, KT&G is increasing its sales not only in major markets such as the Middle East and Central Asia but in new markets such as Asia-Pacific and Latin America.

Second, Manufacturing capability is valuable but not rare. Competitors Philip Morris International and BAT both retains the manufacturing capabilities similar to that of KT&G. Philip Morris Korea has automated advanced facilities from raw material processing to packaging and high producing capability that can produce 40 billion per year. British America Tobacco Korea's factory in Sacheon is also recognized as the best factory among 44 production facilities in BAT and they have maintained high quality and high productivity.

Third, KT&G's marketing and sales capability have value and rarity. Due to characteristics of the tobacco industry, tobacco companies cannot promote their products through media which is one of the strongest means of promotion. KT&G has dealt with the situation with CSR and limited promotion in convenient store stand. Not many companies are control of this capability but they can imitate without the disadvantage of the cost if they want.

Lastly, the positive brand image of KT&G satisfies all VRIO questions. Consumers recognize KT&G positively which leads to more sales. The brand image in the domestic market which is accumulated through various CSR activities is also rare and inimitable. KT&G is also proven to be organized as the whole activities have been done by the company. Competitors who have a limitation as foreign companies would be hard to catch up this strength.

weakness

In terms of KT&G's resources/capabilities, our team identified three main weaknesses: Brand image dilution, Lack of R&D investment, the innate evilness of cigarette product.

First, KT&G is specialized on existing successful brand and implementing excessive line extension. KT&G released about 6 new products a year. As a result, the successful brands have dozens of products under each brand name and it is causing brand image dilution. They use only a few characteristics to differentiate their products like flavors or content of nicotine and tar. Trying differentiation with few characteristics, oppositely positioned products are in the same brand name. For example, ESSE has the image of elderly men's cigarette. However, products in the ESSE Change series have the image for young generation and female consumers since KT&G added flavored characteristic for them similar to other brands like Raison.

Second, as they have focused on successful products, they relatively neglected research and development for the new type of products compared to their competitors. BAT and PMI are making the huge investment for developing activity. PMI invested more than 3 trillion won only for developing their heated cigarette, IQOS. However, KT&G's total research and development expenses in the same period were only about 120 billion won and they haven't released similar new type of products yet. It can cause the difficulty in occupying the growing new cigarette market.

Lastly, KT&G has another weakness that its main products are cigarettes. The cigarette is one of the most typical products which harm social utility. The cigarettes contain many carcinogens like tar and nicotine which are harmful to health. Furthermore, the second-hand smoking even harms non-smoker and causes huge social costs. This trait of cigarettes make government establish and reinforce more regulations.

Strength	Weakness
• Wide and dense distribution network • Marketing & Sales • High manufacturing capability • Positive brand image	• Brand image dilution from excessive line extension • Neglecting R&D • Main products harming social utility
Opportunity	**Threat**
• Global cigarette market • Rising of new market of e-cigarette	• Release of new types of e-cigarettes • Decrease in smoking rate • Government Regulations

Strategy Suggestions

1. WO strategy: “Increase the R&D expense and jump into the new blue ocean market.”

KT&G’s R&D expense size is small with 120 billion won for 10 years compared to the competitors like PM who spent 3.4 Trillion won in the same period. Currently, the new heated tobacco market is being developed and expanding as the new product demand increases. However, because of the KT&G's low R&D investment, KT&G could not preoccupy this new blue ocean. The market share of the heated tobacco in Japan tobacco business has grown rapidly, from 2016 1/4 quarter 0.8% to 2017 April 8.8%. Also, the heated tobacco IQOS launched in domestic market in July 2nd and BAT's GLO is coming soon.

2. WT strategy 1: "Divest the several products line"

KT&G should divest some lines. The smoking rate in Korea keeps decreasing and it can lead to the decrease of the consumers and market size. Then it becomes difficult to manage every product line profitably. Therefore, divesting unprofitable product lines is the best strategy for KT&G. Then, the cost of maintaining the lines will go down and the profitability will be improved. In addition, by eliminating some lines which cause the brand dilution, KT&G can solve the problem from indiscriminate line extension.

3. WT strategy 2: "Launch new brand 'Compact'"

Currently, people are concerning more about their health, resulting in smoking rate decrease. Also, the current tobacco lines are differentiated only by few axises such as flavor or Tar content. To fit in the current trend and to introduce a new differentiation axis, the new brand "Compact" is here. Compact will be further elaborated later in this report.

4. ST Strategy 1: "Implement new CSR activity"

KT&G's new CSR activity is establishing and managing smoking booths. This activity could make it possible to overcome the external threat that is decrement of the smoking rate by using outstanding image marketing skill. KT&G can break through the situation of intensified non-price regulation. Detailed content of CSR will be explained later in this report.

5. ST strategy 2: "Reduction of Domestic Facilities and Expansion of Oversea Facilities"

As stated above, demand of cigarette in Korea is decreasing nowadays, and KT&G's manufacturing capability is enough to satisfy domestic demand even if they stop production in Gwangju plant. Also, it can help to reduce the manufacturing cost by maximizing the economy of scale. This strategy will also be elaborated in later part of this report.

Strategy Priority

To maximize benefit from implementing the strategic options, our team set priorities based on three criteria: Urgency, strategic importance and ease of implementation. We estimated whether each option meets the criteria or not, and weighted the criteria in case of some options record tie in the estimation. The order of weighted criteria is Urgency, Importance and Ease of implementation.

Urgency took the first place as the facing situations are highly restricted by time which cannot be returned. Moreover, brand image is very important for tobacco companies, so regardless of the importance, KT&G must take care of facing issue. Strategic importance took the second place because it affects various parts of the company. Rough or detailed marketing plans can be set only after the importance is set. Finally, ease of implementation took the last as KT&G has enough capacity to do any of options listed above.

	R&D	CSR	Divesting	New Brand 'Compact'	Reduction Facilities
Urgency	O	X	X	X	X
Importance	O	O	X	O	O
Ease of implementation	X	X	O	O	X

1. Increase R&D expense and jump into the new blue ocean market.

Since the threat from the new type of cigarettes become urgent, increasing the R&D expense is urgent too. Competitors are launching new innovative products. IQOS, heated cigarette product of PM, is getting highlights as a new type of smoke and attention from investors. Also, it is the important strategy for KT&G since the new type of tobacco might change the structure of tobacco industry. However, it is not easy to implement. Countering the PM's IQOS product will spend a lot of time and money for KT&G.

2. Divest the several products line

First, divesting strategy doesn't have urgency. If KT&G doesn't divest some products, they would maintain their profits for several years since they have some highly profitable products. Second, divesting also doesn't have importance. Unlike the CSR and expansion of capability for R&D, divesting will only bring the short-term improvement of profitability and not the long-term impact to the company. Lastly, divesting is easy to implement. KT&G doesn't need any new resource from outside. They can divest their products just by changing the kind of produced and distributed products.

3. Implement new CSR activity

KT&G CSR activity is building smoking booths in university campus. It doesn't have to be implicated in the near future because they are still doing other CSR activities in various fields. CSR is important to maintain the company's good brand image and for the society where the problem of non-smokers' secondhand smoking is increasing. However implementing this CSR strategy is not easy because it need sufficient discussion with each university and agreement with government to provide the public jobs.

4. Launch new brand ‘Compact’

New brand “Compact” strategy is not urgent because KT&G is holding more than half of the domestic tobacco industry and the structure is currently stable. However, this strategy is important. The smoking rate is declining because of concerns about health is rising. “Compact” can increase the market pie in the declining situation. Also, this is easy to implement for KT&G because the “Compact” needs normal tobacco factory to produce and KT&G had residual manufacturing capacity in 2016 with the operating ratio 75%.

5. Reduction of Domestic Facilities and Expansion of Oversea Facilities

Downsizing of unnecessary facilities is not urgent because the status quo of KT&G is good enough in regard to satisfying demand. However, it is important to accomplish cost reduction through the economies of scale in the demand decreasing trend. It needs a lot of time and money to establish new facilities in overseas and to cut down needless domestic facility such as Gwangju.

We evaluated five options according to our priority as above; urgency, importance and ease of implementation. In sum, we rank the options in order of 1,2,3,4 and 5. We thought R&D should be implemented at the first and reduction or expansion of facilities can be done later.

Part. 2 Divisional Issues

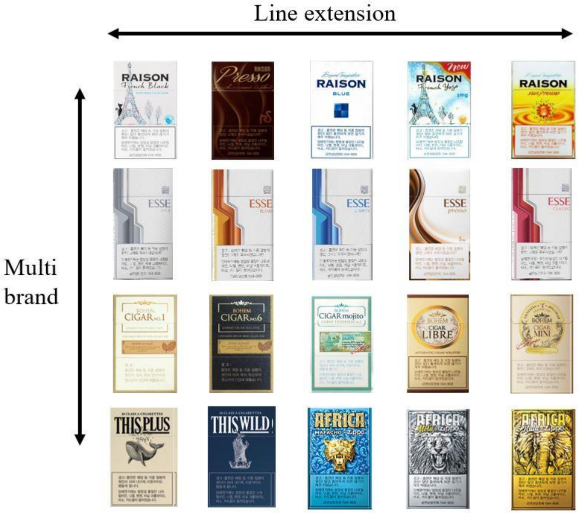
1. Cigarette division

(1) Branding Strategies : Multi-brand & Line extension

Branding strategies is one of the most important success factors of KT&G.

Before privatization, a single division jointly managed several brands within KT&G, which resulted in slow responsiveness to cope with the shifting market trends. Following the privatization, the first agenda of KT&G was to implement the "brand manager" system. KT&G recruited several branding experts and placed them into subdivided teams that are responsible for separate brand marketing, and as a result drastically increased expertise in each brands.

KT&G focused on two methods of branding strategies: Multi-brand and line extension.



First, the cigarette brand portfolio was diversified into different brand names using multi-brand strategy. The key intention for this strategy was to create a brand equity that clearly differentiates each other in terms of targeting varying customer needs. Through multibrand strategy, KT&G created unique features in terms of concept, ingredients, design, etc. for each brand, thereby widening the consumer spectrum.

As a result of multi-brand strategy, KT&G now holds more than 10 brands, each brand carrying unique concept that differentiates itself from other brands. Major brands includes:

Esse: Slim tobacco brand that displays a concept of low-tar and healthiness

This: Simple, classic cigarette brand, with its name intended for "Give me 'This'".

Raison: Young, fresh cigarette brand, with its signature “Cat” logo.

TheOne: Low-tar cigarette brand, containing oxygen filter

Bohem Cigar: Premium cigarette brand containing “Cigar” leaves

Second, line extension was employed to further specify needs within the brand created. Line extension took place in forms of Tar content variation and flavor alternation while carrying the general concept of the brand. Line extension allowed KT&G to exploit the existing customers at a low risk, and to provide more value to existing customers by offering variety.

For example, Esse, the slim cigarette brand, is further broken down into Esse Prime, Esse Su, Esse Change, etc. These brands are created upon the same general format of slimness, but extension provides additional variation and value to customer. Specific product features are as follows:

Esse Prime: Original model of the brand, carrying 4.5mg of tar with no variation in features

Esse Su: Lighter model of the brand equipped with bamboo filter

Esse Golden Leaf: Premium line with exquisite design. Price Premium.

Esse Change: Flavor variation using capsule filter.

Through the management of well-diversified brand portfolio via branding strategies, KT&G established high product competitiveness, which enabled them to retain the leadership in domestic tobacco market under fierce competition and intensifying regulation.

Segmentation, Targeting, and Positioning

The success branding strategies could not have been possible if it had not been for the arduous effort of KT&G brand managers in terms of segmentation. According to KT&G 2014 -

15 Sustainability Report, KT&G conducts comprehensive market analysis in establishing brand strategies. This allows them to successfully identify key target segments for each brands.

Each brand differs significantly in terms of target segment and the segmentation bases and descriptors used to identify each segment. Our team analyzed the potential segmentation approaches KT&G may have used for appropriate targeting for the three major products of KT&G Brands: Esse Su, Raison French Black, and Bohem Cigar No.6.

Esse Su

Esse Su is a product of Esse brand, whose unique feature is its signature bamboo filter. Its tar content varies from 0.1mg to 1mg, which is lower than other cigarette lines.

Esse Su used need-based segmentation approach in reaching the target segment for the product. The key segmentation bases of Esse Su is the need for healthy cigarettes. The slimness of Esse Su and its bamboo filter, known for its outstanding filtering ability, mitigates the health concerns of consumers. Moreover, tar content of Esse Su is limited to 1mg, so it will most likely attract those who have high standards for healthy cigarettes.

The descriptor used to identify the health conscious segment was demographic. Out of all demographic segments, middle-aged men showed most favorable attitudes towards healthy cigarettes, as health concerns seemed most evident in the segment. As a result, Esse Su specifically targeted middle-aged men in terms of brand concept and case design, and is now almost exclusively consumed by middle-aged men.

Raison French Black

Raison French Black is a unique grape-flavored product of Raison brand. The black tobacco leaves in the cigarette emits exotic flavor, and its filter flavor is among the strongest of all of KT&G product lines.

The main target segment for Raison French Black is younger generation. It is most welcomed in areas where young smokers are concentrated. The strong flavor of filter also attracts younger generations more strongly, as younger generations often seek bold variations in flavor relative to older generation.

Characteristic-based approach is used in identifying the segment for French Black. Raison itself clearly targets younger generations, with its youthful concept and the “cat” logo. Additionally, the product feature in terms of unique flavor clearly shows elements targeted towards younger generation. Naturally, the descriptor for this segment was the younger demographic groups. Now, French Black is among the favorites for smokers in the 20s.

Bohem Cigar No.6

Bohem Cigar No. 6 is the signature product of the Bohem Cigar brand, and is known for its high tar content and strong exquisite flavor. The concept is also a key differentiation for Bohem Cigar No.6, where premium and classy image is incorporated in its design.

Bohem Cigar No. 6 identified its target segment through need-based segmentation approach. The name Bohem Cigar No. 6 was coined to emphasize its high tar level, and the “cigar” leaves content Bohem Cigar brand boasts strongly appealed to those who want strong flavor. In addition, the luxurious brand equity of Bohem Cigar targets the need for premium image cigarettes. In sum, the need for strong and high-class cigarette was the segmentation base for Bohem Cigar.

The descriptor that distinguished the segment showing such need was customer demographic. The need for the features of Bohem Cigar No.6 was shown most strongly in segment in their 20s to 30s. Accordingly, Bohem Cigar No. 6 successfully positioned itself as the premium cigarette of the younger males, and is tapping the global market to target the same segment worldwide.

New brand suggestion

Concept

Our team's new brand suggestion for KT&G is "Compact". The concept of Compact is "Economical cigarette, fulfilling thirst in a moment." A distinct feature of Compact would be having a shorter length without a change in thickness thereby reducing the time it takes to consume a single Compact cigarette.

The origination of the new concept "Compact" reflects the current market situations and the "pain-points" many smokers experience. According to our external analysis, the smoking rate is declining at a rapid rate, due to the increasing demand for health. The consumption of tobacco depends not only on how many cigarettes you smoke, but how much tobacco you consume each time. The image "shortness" implies to the consumers that they can smoke less each frequency they smoke.

Moreover, there are pain-points of smokers regarding the inability to finish each cigarette every time they smoke. The reasons may include time-constraints that hinders the smokers from finishing the cigarette, or the physical limitations in smoking a full cigarette. The result of these phenomenons is the waste of cigarettes, which with the current price increase, building up a burden for consumers.

Compact can solve all the problems. With the shortened length of cigarettes, consumers save both money, time, and health at the same time.

STP Strategy

For STP strategy, our team used need-based segmentation in identifying the target customer for the product. The brand Compact's target segment is consumers who have the needs for shorter cigarettes, whether it be health, time, or economic reasons. According to the needs, we have identified two possible segments that can be targeted.

First segment is busy office workers and students. During their everyday life, they have to fulfill their cravings for tobacco within a short time given between meetings or lectures. Consuming Compact would keep them from wasting with its shorter size. The second target is elderly people who consider reducing smoking based on health concerns. Considering the popularity of Esse lines under the image of healthy cigarettes, our team believes that Compact can also be competitive in the segment. Out of the two segments, we would like to suggest the appropriate target based on the marketing study we request later.

Positioning statement would be: For your time and your health, Compact is the most economical among all cigarette brands.

Marketing Strategies and Plan: 4P

Product: There are two possible options for Compact. One is a pack of cigarettes containing 20 cigarettes and the other is a pack of cigarettes containing 23 cigarettes. One of the option would be chosen based on the result of Study 3. Regardless of the options, Compact's cigarettes would have a shorter length compared to the ordinary ones. Packaging would reflect the short feature by minimizing the height of a pack. A bright-solid color without flashy design would be applied on the package to emphasize the compactness.

Price: Two different price option would be used depending on the selected option. If a pack with 20 cigarettes is chosen, a cheaper price of 4300 would be adopted. On the contrary, if a pack with 22 cigarettes is chosen, the price of a pack would be 4700.

Place: Limited

Promotion: Promoting tobacco products is highly regulated by the government. Thus, in-store advertisement is the only way to promote a new brand. The result from Study 4 will determine the main target segment of Concept, and then the copies and product image would be made to fit the surveyed image.

4P mix is used to organize the information stated above.

Product	Shorter in length keeping the thickness. A few more or less cigarettes in a pack according to the set price
Price	4300 won with 20 cigarettes VS 4700 won with 22 cigarettes
Place	Use existing distribution channels
Promotion	In-store advertisement which is the only allowed advertisement. Use copies and posters that fit the investigated image

Marketing Studies

When a company is thinking about launching a new band, demonstrating the feasibility should take a priority. Two studies that might be helpful are listed below. (Appendix 1)

i) Study 1: Consumer study

Description: This study involves focus group interviews and a mail questionnaire to determine consumers' past experience of throwing away unfinished cigarettes. A questionnaire would be developed and sent to adult smokers to measure the frequency of , reason of, and the length of unfinished cigarettes. A question would be added to get the age, gender and job of respondents. From this questionnaire, the target consumer groups and consumer need of a shorter cigarette would be definitized.

ii) Study 2: Market share Estimates of “Dunhill Pocket pack” and “Bohem Cigar”

Description: Market share estimates of “Dunhill Pocket pack” and “Bohem Cigar mini”. The two brands have a distinctive feature respectively. Dunhill Pocket pack has only 14 cigarettes in a pack with a lower price of 3000 won and Bohem Cigar mini contains shorter length of cigarettes with higher tar and nicotine content. Based on sales volume, the present and future market share of the two brands would be estimated. From the data, the correlation between change in numbers and length of cigarettes to price can be guessed. In addition, position of competitors in the market would be analyzed.

After the feasibility of launching Concept is proved, more detailed strategies and plans are needed for the brand. Among the 4P of marketing mix, “product” is elaborated above and “place” is quite fixed for KT&G in current domestic tobacco market. For the reason, we decided to look for studies that would help “price” and “promotion” take shape.

iii) Study 3: Consumers’ preference on pricing policies

Description: A binary question will be given to multiple smokers to find out which pricing policy is more attractive to them. There are two possible pricing policy for KT&G to take when it launches Compact. One is taking 4700 won for a pack which is the higher price with the most of cigarette brands, and the other is taking a lower price for a pack. To compensate price difference, the number of cigarettes in a pack will be adjusted. In the policy of 4700 won, 22 cigarettes instead of ordinary 20 cigarettes will be contained in a pack. The result of this study would help KT&G to set proper price for the new brand.

iv) Study 4: The best fit marketing image research

Description: Interviews and a questionnaire would be conducted to find the best suit Compact. Respondents who are informed about the distinct features of Compact would answer the fittest brand image for the brand. Based on the survey result of Study 1, the specific target consumer segments would be determined. Among the segments, the respondents of Study 4 would choose a segment that seemed to fit with the brand features. For example, whether Compact has image of concerning health, or it better fit with the busy office workers would be asked. From the data obtained in this study, KT&G might decide its position for the new brand in the market. Afterwards, the company would set detailed marketing strategies.

Financial analysis will be shown in the part 3.

Financial Factors

Launching a new brand requires additional investment, and the notion of ROI can be applied to value the investment. As ROI equation is "(Revenue from investment – Cost of investment) / Cost of Investment", estimates for the revenue and the cost is needed. The official blog of Korea Law Information Service states the portion of tax in the price of a cigarette pack. When a cigarette is sold, various taxes of 165.9 won are generated. As a result, if the price of a pack was 4700, 1050.2 won remains, and if the price of a pack was 4300, 982 won remains. Production cost and distribution margin compose the remaining part. The thing is, the COGS for products, which is one of the internal information is needed to calculate exact profit. Factors that are included in COGS, such as depreciation, R&D expense, and SG&A would be required to build detailed marketing strategies and plans.

Expected Effect

The new brand Compact will bring a new momentum to the cigarette market by simultaneously targeting varying needs of consumers. The expected profit of the new brand will be covered in Part. 3 Financial Analysis section.

(2) Operation analysis and strategy

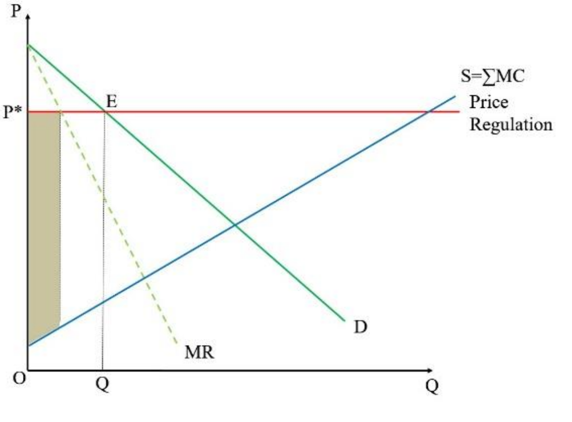
FTC’s Regulation in 2015

February 15th in 2015, Fair trade commission (FTC) intervened KT&G’s contract with convenient stores which is about KT&G’s product to be prioritized and increased in importance on the showroom of convenience stores. Accordingly, most of the imported cigarettes are moved backwards or decreased in shelf space ratio, resulting in KT&G’s market share increase compared to other competitors in cigarette industry.

First, the contract between KT&G and convenience stores was illegal because ①KT&G was doing exclusive dealing with convenience stores by giving illegal rebates. ②Also the contract was to manipulate the market share by distorting the preference of customers with its powerful supply chain bargaining power.

This also hinders the function of free market and reduces the total market surplus in the aspect of economic efficiency. First, our team assumed that 1.Tobacco industry is monopolistic competition market. 2. The price is stable because of the regulations in tobacco industry. Figure 1 shows that domestic tobacco market before the contract between KT&G and convenience stores. The brown colored space means KT&G’s surplus amount

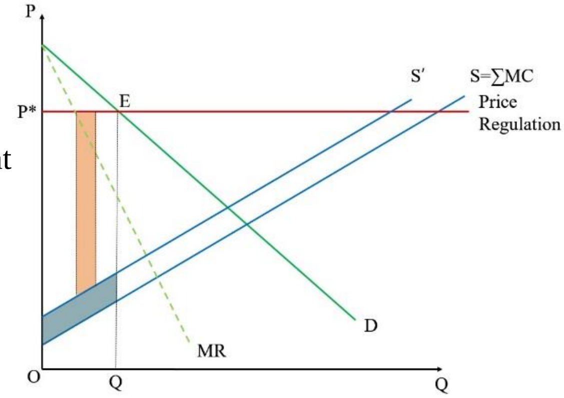
(Figure 1)



Through the contract, KT&G gave rebates to retailers. This contract caused marginal cost increase for KT&G, making the total supply curve to move up.(Figure 2) This made total supplier surplus decrease, as the amount of blue colored space. The blue colored space can be estimated as follows.

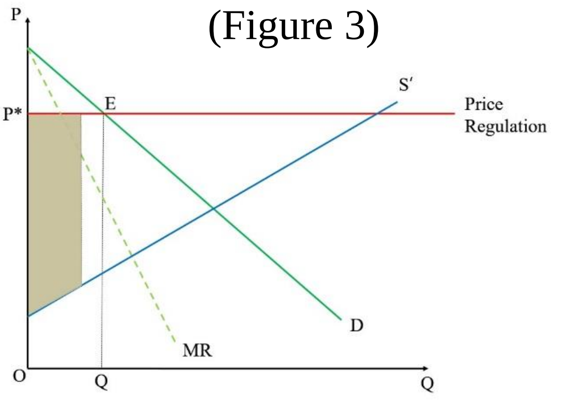
According to the FTC's session of the council record(공정위 전원회의록), KT&G manipulated the cigarette market share in convenience store from 48% to 52% by the contract of exclusive dealing. Also, according to the data from KT&G's IR team, the KT&G sells 44% of its cigarette through the convenience store. If we assume that other competitors in the cigarette industry also sell 44% of their cigarette through the convenience store, the other competitors' total pack sales number decreased from KT&G's contract is calculated as Q_D(Decreased sales of other competitors' cigarettes in packs) = Q_T(Total cigarette market sales in packs) x 4% x 44%. Because Q_T was 3,477,850,000 packs, the Q_D is calculated as 61,210,160 packs. Also, according to FTC's session of the council record, the average rebate payment from KT&G on decreased sales of other competitors' cigarettes is ₩500 per pack. So in conclusion, the total rebate expenditure of KT&G is calculated as ₩500 x 61,210,160 = ₩30,605,080,000. Which is the amount of decreased total supplier surplus colored as blue in Figure 2.

However, the supplier surplus of KT&G had increased by taking competitor's surplus as the amount of orange colored space.



(Figure 2)

FTC had to intervene KT&G's action because KT&G was sacrificing the total supplier's surplus to increase its own, which makes the market inefficient. The after-contract tobacco market is shown in the Figure 3.



As market has less supplier surplus than before, the FTC's intervention was to stop KT&G's action and recover the market efficiency. So, in the aspect of economic efficiency, the FTC's intervention is legal.

FTC's implication on the publicness has two aspects. First, the aspect of customer's variety of choices has been increased. Since the contract between KT&G and convenience stores was limiting the variety of cigarettes displayed, there were less options for customers. Recovery of this raised the publicness on the market. However, the other aspect of cigarette's innate negative externality on society is still unchanged. As shown on the Figure 3, FTC's intervention made no change in the cigarette market's sales quantity, which means there is still same amount of negative externality in the society by consuming the cigarettes.

The finance question 2 is consistent with our theory in here because our team's opinion is "it is legal to intervene the tobacco market for FTC in the aspect of economic efficiency." However, as shown in the financial question 2, the penalty amount is too small for KT&G to be affected by FTC's intervention, resulting in no meaningful change in its cash flow.

Demand in Cigarette Market and the Structure Change

Factors of Influence for Demand

Our team chose mainly four factors that influence the demand for cigarettes: Price, income level, and two seasonality in terms of activity and the desire to quit smoking. KT&G 2016 Annual Business Report specifies that increase in price in relation to other products, income due to economic growth, and seasonality in terms of additional activity in summer seasons can influence purchase decision. Our team analyzed further seasonality where in the beginning of every year, New Year resolutions are made to attempt in quitting smoking.

In order to analyze the impact of each factors in the demand for cigarettes, multiple regression analysis was performed using data of 40 quarters from 2007 to 2016. Variables were set accordingly to perform the regression analysis:

Demand / Factor		Variable	Explanation
Y	Demand	Number of Cigarette Packs Sold	Standardized measure of dema nd
X_1	Price	Nominal Price / Price Index	The price in relation to other p roducts
X_2	Income Level	GNI per Capita	How each individuals earns ta king into account economic gr owth
X_3	Seasonality in beg. o f year	Dummy Variable for first quarter	0 for 2nd, 3rd, 4th quarter that d oes not apply to the factor, 1 f or 3rd quarter that does
X_4	Seasonality in summer	Dummy Variable for third quarter	0 for 1st, 2nd, 4th quarter that do es not apply to the factor, 1 for 3rd quarter that does

Before conducting the regression analysis, correlation analysis within each variable was conducted to guarantee the accuracy of the regression. Results show low correlation between variables, highest correlation being price and income level, suggesting mere 0.51 correlation. (Appendix 2)

Finally, the regression analysis was conducted for three different demands: One for the total cigarette demand in Korea, one for the demand of KT&G cigarettes, and one for the imported cigarettes. (Appendix 3)

According to our regression analysis, all three demands showed significant results regarding the factors we have chosen under 0.05 significance level except for seasonality in summer. However, for the second factor income level, demand of competitors showed different response. While the growth in income level led to decrease in demand for total and KT&G demand, the demand for competitors increased with respect to the increase in income level. The following table shows the regression equation for each demand.

Total	$Y^T = -109{,}268X^1 - 37X^2 - 160{,}011{,}751X^3 + 53{,}770{,}984X^{4*} + 1{,}706{,}598{,}139$
KT&G	$Y^K = -65{,}475X^1 - 50X^2 - 95{,}387{,}839X^3 + 41{,}615{,}367X^{4*} + 1{,}234{,}053{,}926$
Competitors	$Y^C = -53{,}026X^1 + 19X^2 - 64{,}120{,}328X^3 + 11{,}969{,}122X^{4*} + 465{,}126{,}762$

- Our team included the seasonality factor for summer despite its low significance for the factor may appropriately adjust the coefficients of other factors.

Structural Change in Demand

In 2015, the Korean government increased the tax rate for cigarettes, driving the price up to 4,500 won per pack. In order to analyze the structural change induced by the regulation, our team conducted a new regression analysis with an additional dummy variable X5, 0 referring to no regulation implemented, 1 meaning after regulation. (Appendix 4)

The regression shows the following results: The demand of both KT&G and the competitors shows significant changes with the implementation of regulation, implying a structural change in demand under 0.05 significance level. However, the noticeable part in the new regression is the difference in signs for the coefficient X5 for KT&G and competitors. For KT&G, the regulation alone led to the decrease of cigarette demands in total, while on the other hand, the regulation provoked an increase of demand for competitors.

Our team concluded that this was a result of price difference that existed between KT&G products and competitor products. From 2011 to 2012, competitors rose their price level from 2500 to 2700. Thus, as the price regulation in 2015 was established, the increase in price for KT&G and competitors varied by 200 won. This means that the lack of price competitiveness was recovered for competitors, thereby recovering the demand.

Impact of Cigarette Price Regulation

With the current stable price caused by regulation, competitors in the tobacco market are limited to do price competition. This regulation is affecting various parts in supply chain performance.

First, domestic farmers and KT&G are being protected by regulation. Currently, KT&G is using domestic and imported tobacco leaf. KT&G is the only company who buys the domestic tobacco leaf. As shown in appendix 5, the price of domestic tobacco leaves are higher than imported ones. Because of this, the foreign companies are importing all of their leaves required in production from abroad. However, KT&G is buying all South Korea tobacco leaves as a part of corporate social responsibility. This is possible because the regulation is prohibiting the price competition.

But if the regulation was not implemented, the price competition would be fierce. In short-run, the manufacturing cost of KT&G would be higher than other competitors in the business, resulting in loss of competitiveness in price. As a result, in the long run, KT&G will have to change their strategy on CSR and abandon domestic tobacco leaf purchase to match the lower manufacturing cost of other competitors. So, current regulation is benefiting KT&G in short-run, protecting farmers in the long-run.

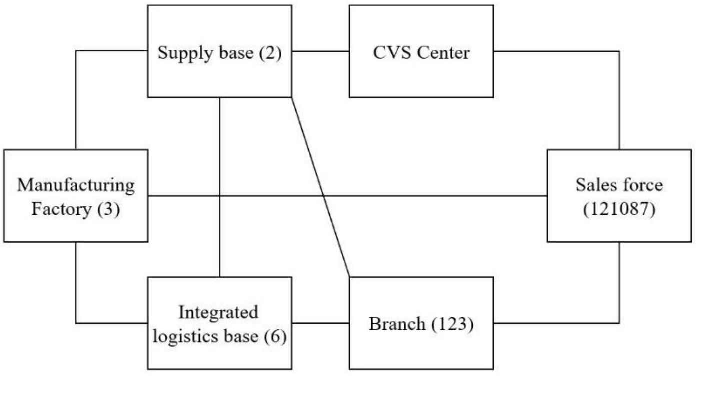
Second, stability in retail price means stability in demand of consumers. In stable demand market, manufacturer and supplier gain advantages in production, distribution and inventory positioning. These advantages enable companies to make efficient supply chain configuration.

In production, because the demand is expectable, tobacco companies are manufacturing stable amount of tobaccos including stable seasonal demand change. For example, except the market distortion caused by tax increase in 2015, the manufacturing amount of KT&G is very stable. In the long run, this allows companies to retain efficient plant size than unstable demand market, resulting in higher performance. (Appendix 6)

Also, companies can enjoy the economies of scale. According to FTC and KT&G's annual report, tobacco industry is highly capital-intensive equipment industry which have high fixed cost ratio in manufacturing cost. To be efficient, companies need to get economies of scale. As the demand is stable, companies can focus on efficiency rather than responsiveness like push strategy to minimize cost in the short-run.

In distribution, the effects comes in long run. In stable demand, companies can manage their supply chain with small numbers of warehouses. Because suppliers have larger cycle inventory, the lead time can be longer which means warehouse can be placed far apart. So with a few warehouses, companies can supply their retailer's demand. For example, the KT&G have only 8 supply base total. However, these bases are supplying all CVS centers and 123 branches, reaching 121,087 retailers in the end.

< KT&G Product Supply Chain >



In inventory positioning, the effects comes in short-run. The stable demand enables companies to minimize underage & overage costs. Also, the safety stock is smaller than without regulation resulting less holding cost.

Suggestion for improvement

Summarizing the previous analysis,

1. The KT&G's power in tobacco industry is strong enough to make FTC intervene in the market. Also, its bargaining power in tobacco supply chain is strong.

2. The price regulations in tobacco industry in Korea are making the retail price stable. This allows companies to enjoy stable demand, resulting in pursue of efficient supply chain.

3. Tobacco industry is capital-intensive equipment industry which means the fixed cost ratio in manufacturing cost is high and economies of scale is strongly effective in profit making.

With these inherited attributes in cigarette industry, our team suggests to reduce one of the factories, Gwangju plant, to improve overall profits while not undermining publicness.

In 2016, Gwangju factory produced 66 million packs of 84mm cigarettes and 147 million packs of slim cigarette. According to the annual report, however, Shintanjin and Youngju factory reported enough excess capacity to manage the whole amount of Gwangju factory. Youngju factory reported excess capacity for 560 million packs of 84mm cigarette, and Shintanjin factory reported excess capacity for 741 million packs of slim cigarette. Thus, we suggest to concentrate the production of 84mm cigarette to Youngju factory and the production of slim cigarette to Shintanjin factory. (Appendix 7)

From the reduction, two positive effects for improving the supply chain network would be generated: Improvement of transportation and reducing manufacturing cost.

First, shutting down the Gwangju factory helps to save transportation cost of KT&G. To produce cigarettes, KT&G firstly processes the tobacco leaves in Gimcheon factory and produces cigarette packages in Cheonan factory. And then, those base materials are transported to cigarette production factory in Shintanjin, Youngju and Gwangju. The problem is that the Gwangju factory is too far from the Gimcheon and Cheonan factory compared to the other factories. Transportation between far factories causes the higher transportation cost. Therefore, by shutting down the Gwangju factory and allocating the production to the other factory, KT&G can reduce their transportation cost. (Appendix 8)

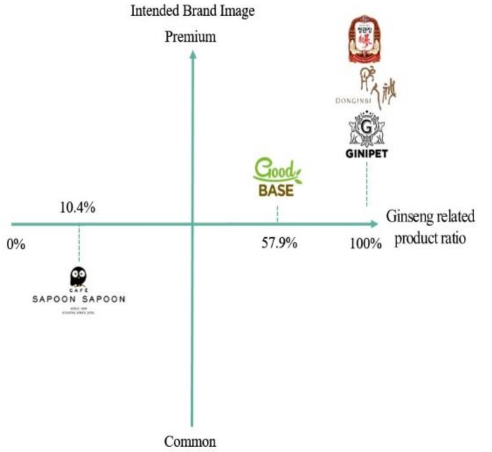
Second, shutting down the Gwangju factory helps to reduce the manufacturing cost. As stated above, cigarette industry is capital-intensive equipment industry, so KT&G should maximize the economies of scale to improve the profits. However, the operating ratio of the factories is under the 80% and it means KT&G didn't fully exploit the efficiency. Thus, as concentrate the production to the other factories, Shintanjin and Youngju factory, the economies of scale would be bigger, and the manufacturing cost per cigarette would be lower.

2. Ginseng Division : KGC

New brand strategy is effective when current brand equity cannot be transferred across product categories. Also, New brand strategy may face intra-firm competition, so delicate targeting and positioning is crucial to be successful.

The closer brands in the aspect of product’s characteristic and brand’s image, the easier to be benefitted from original brand equity. CheongKwanJang is the best Ginseng brand in the world. Since 1899, CheongKwanJang has been following on Corea Ginseng’s footstep. Also, CheongKwanJang recorded No.1 in KSCI survey for 4 straight years.

KGC made 4 different new brands with different product categories. Good BASE for healthy drinks, DONGINBI for cosmetics, GINIPET for supplements for pets and Sapoon Sapoon for café.



Our team analyzed these brands' characteristics in two axis, based on the KGC's homepage and its official blog information. One is the brand's intended image and the other is the ginseng product ratio that the brand produces. According to our analysis, among those four, Donginbi and GINIPET could have been more successful if they followed brand extension of CheongKwanJang, not new brand.

First, Good Base is currently selling 2 types of products. One is with ginseng products consisted of 11 kinds. And the other is without ginseng consisted of 8 kinds. The ginseng product ratio is 57.9%. Also, the KGC's intended image for Good BASE was healty drinks but unlike CheongKwanJang, it does not target premium brand image. So, the product it offers and the brand image it targets are far from CheongKwanJang, so the brand equity is hard to be transferred.

Second, GINIPET, launched in 2015 with the product 'supplements for pets', is named as Ginseng + I + Pet. As shown in the name, all GINIPET's products are containing ginseng. GINIPET's target segment is customers concerning their companion pets as their family member. So, KGC launched GINIPET as a premium supplements to satisfy their customer's high quality demand. GINIPET's products are aligned with original brand CheongKwanJang in the aspect of product category, Ginseng. Also, GINIPET pursues the premium brand image for pets which means the CheongKwanJang's brand equity is easy to be transferred.

Third, DONGINBI is a cosmetic products which are mostly functional cosmetics, all containing Ginseng extract. The intended brand image of Donginbi is healthy & premium. Considering the advertisement models are Han Ga-in(36) and Kim Hee-seon(41), its target segment is 30s to 40s women who are one of the most interested segment in those characteristics. As Donginbi and CheongKwanJang are very close in the axis of brand image and products, the brand equity can be transferred easily.

Lastly, Sapoon Sapoon is a café brand which is mainly serving normal coffees and drinks. It sells similar menus with other cafes at the same price. The one difference is Sapoon Sapoon sells Ginseng contained drinks. However, the ratio of Ginseng drinks is only 10.4% of its menu. Also the intended brand image is healthy and resting, not premium. So, the CheongKwanJang's brand equity is not easily transferable to Sapoon Sapoon café.

In conclusion, GINIPET and DONGINBI should have used CheongKwanJang brand to their brand extension strategy instead of making new brands.

3. CSR

Evaluation of current CSR

Since advertising tobacco products is highly regulated by the government, CSR is almost the only way for KT&G to promote itself. Managing brand image is very important for tobacco manufacturers, as the cigarette is one of the “convenience product” which people habitually buy with a brand impression. Thus, KT&G is trying to improve its image through various CSR, investing over 2% of its revenue each year. The company is taking “Sang-sang” as a keyword. for its CSR activities and the company’s CSR can be categorized by whether it proceeds in the company or out of the company.

KT&G is taking unique CSR policies inside the company. For example, a policy named “Sang-sang Fund” let KT&G donates the same amount of money to a charity when an employee donates his or her money to the charity. To facilitate this policy, KT&G has an internet board where employees share and discuss ideas of donation. Outside the company, KT&G focus on mainly two parts. One is supporting play writers and artists with its “Sang-sang Madang” project, and the other is supporting undergraduate students with its “Sang-sang Univ.” project. The company is offering places for planning projects, exhibiting works, and doing performances to artists while offering various programs and activities to undergraduate students.

Valuing the CSR activities is a hard thing to do because none of the activities are related to the value chain of KT&G. Therefore, we decided to evaluate KT&G’s CSR according to effectiveness and sincerity. First, effectiveness can be evaluated through how well it is accepted by participants and the society. The number of accumulated university students who participated in Sangsang university reached over 110 thousand and it has been increased annually. KT&G won many prizes from various organizations and it is from successful brand image. For instance, the “Sang-sang Madang” project won the first place in the “2016 consumer satisfaction evaluation” and more than 1.8million people are visiting the place in a year. “Sang-sang Editor” and “Sang-sang Marketer”, ones of the programs of “Sang-sang Univ.”, ranked as 3rd and 4th respectively in “the best activities ranking 2016”. Second, Sangsang CSR activities have sincerity. Even though CSR targeting university students is unrelated to its business, the company spend lots of money on society. However, the purchase of tobacco leaves from domestic farmer could seem less sincere because it is part of production process and directly related to their profit.

In conclusion, KT&G is carrying on CSR activities actively, and it is positively regarded in the society and the participants. The company is pursuing young and refined brand image by supporting art, culture and undergraduate students’ activities. However, even with the good results, it is uncertain that these CSR activities would actually help KT&G earn more profit. The company should think about how it can connect CSR to its value chain.

Suggestion for improvement

Non-price regulation has been intensified these days. Spaces where cigarettes coexist, such as restaurants, PC rooms, and even bars, have recently been banned from smoking in accordance with indoor smoking policy(2015.1.1). Warning pictures on cigarette case, smoking cessation phrases in toilets and a fine could be other examples.

However, it is pointed out that the policies are violating the rights of smokers. This is because although the number of non-smoking area is increasing, installing smoking booths for smokers is not able to keep up with the pace of the expansion of non-smoking area. Therefore, in fact, the number of smoking cases caught in the non-smoking area from January to March in 2015 was 9204, which is increased by 10.7% than last year. It leads to conflict between smokers and non-smokers and non-smokers will keep requiring regulations to ban smoking. In social aspect, there would be a widespread worse perception of smoking .

The State may restrict smoking rights by law so that the public can live in a comfortable environment but it is necessary to consider installing a place where smokers can smoke in a smoking area including the street. However, there might be limitation of government regulation so KT&G should come forward to improve awareness toward smoking through CSR strategy.

Our team suggest expanding installation of smoking booths especially in university and managing them. Smoking booths can eliminate friction with nonsmokers and protect smokers' right at the same time. However, according to EBS news, although there are smoking booths in some university campuses where tens of thousands of won of budget is invested, students don't use them. This is because students who smoke felt discomfort about smoking in the booths because booths are not managed and not ventilated despite of narrow area. In addition, the price of the smoking booth is 6 million won so student council of each university is practically impossible to install in all smoking areas. Therefore, KT&G should actively give financial support to university students so that they can establish more smoking booths and keep the booths clean which is to be considered more important.

Smoking booths business can create jobs for people who lost jobs through 'Public work projects.' The public works project, the state and the government provide temporary employment to the low-income unemployed people due to the economic crisis, by providing jobs in the public sector to secure a minimum living for low-income workers. Jobs for managing and cleaning the booths thoroughly can contribute to solve the unemployment problems.

When smoking booths successfully get settled, it can satisfy both smokers and non-smokers. A lot of positive effects are followed; In terms of social-economic costs, tobacco fire property damage and secondhand smoke cost will go down. Externalities occurred from smoking will be diminished. Lastly, negative image of the public about smoking will be decreased and complaints from secondhand smoking will also decrease.

As non-price regulations increased, it affected the sales of cigarettes. For example, according to Ministry of Strategy and Finance, since the introduction of the warning picture in December 2016, tobacco sales volume has continued to decline since the end of 2016. However, through KT&G's smoking booth business, all above decreases will be concluded to postponement of non-price regulation. Then it will prevent decreasing in cigarette consumptions and also sales. KT&G can not only improve corporate image from social business but also avoid diminishing of cigarette sales.

Part. 3 Financial Analysis

According to the valuation of our team, the closing price of KT&G at May 31st 2017, 111,000 won, is undervalued. Our valuation of KT&G stock price is 170,886 won. Our team used Discounted Cash Flow Method, specifically FCFF method in valuing KT&G.

Cost of Equity

① ***Risk-free Rate – 1.67%***

South Korean 10-Year Tresury Bond Rate (2.23%) – Default Spread of Korea (0.56%)

① ***Beta (Levered Beta for KT&G) – 0.69***

In order to identify the levered beta of KT&G, beta of cigarette and ginseng division was integrated using the following steps.

1) Cash excluded unlevered beta of each division: For cigarette business, the regression beta of KT&G's competitors PMI, BAT, JTI used, while for ginseng business, the regression beta of global health supplement companies Mead Johnson, Herbalife, and Nature's Sunshine was applied, taking account the similarity of business characteristics. MSCI index was used as a standard of comparison, as all six companies were global companies. Weekly data for five years was used. Hamada equation and cash exclusion was applied to each beta, then averaged to find the unlevered beta of each division. (Appendix 9)

2) Unlevered Beta of KT&G: With the assumption that MVAx = EV_x, and that our EV/Sales ratio would be similar to that of industry average, the weight of each division was obtained, with which divisional beta was integrated.(Appendix 10)

3) Levered Beta of KT&G: Cash inclusion, followed by hamada equation, led to the levered beta of <u>0.69</u>.

Division	Sales	EV/Sales	EV	Weight	Cash Excluded U Beta	KT&G Cash Excluded U Beta
Cigarette	2,937,751	6.51	19126451.8	0.874984165	0.67	0.718042701
Ginseng	1,183,617	2.31	2732745.9	0.125015835	1.05	
Total	4,121,368		21859197.7	1		

Company	Cash Excluded U Beta	Cash Amount	D/E	Tax Rate	Levered Beta
KT&G	0.718042701	850,786,228,000	0.017202	0.242	0.687482592

① ***Equity Risk Premium – 7.34%***

Our team used implied risk premium method in measuring the equity risk premium.

The ten year median KOSPI growth rate was used as g. (Appendix 11)

2016	PER	EPS	DPS	g	Rm	Rm – Rf
KOSPI	13.18	4858.18	1,036.04	7.28%	9.01%	7.34%

As a result, our cost of equity arrived at: $r_e = 1.67\% + 0.68 * 7.34\% = 6.72\%$

Cost of Debt

r_d = Risk-free rate 1.67% + Default Spread 0.60%[1] = 2.27%

[1] Synthetic rating method using interest coverage ratio (EBIT / Interest Expense = 218.64)

WACC

With the weighted average of MVD(1.69%) & MVE (98.31%), WACC equals:

1.69% * 2.27% * (1 – 24.2%[2]) + 98.31% * 6.72% = 6.63%

	MVD	MVE	Total
Value	262,148,030,000	15,239,467,167,000	15,501,615,197,000
Weight	0.0169	0.9831	

After Tax Cost of Debt	Wd	Cost of Equity	We	WACC
1.721%	0.0169	0.067184329	0.983089	0.0663

FCFF

In order to estimate the free-cash flow to firm, our team used two-stage growth model. Our team assumed that KT&G would reach stable growth in three years. For first stage, the cash flow was calculated using top-down method, while for the second stage the cash flow was discounted to reach the terminal value.

Stable Growth – 2.82%

For stable growth period, 5-year compounded GDP growth rate of South Korea is used.

EBIT Projection for Each Division

Sales for domestic cigarettes, exported cigarettes, ginseng is calculated separately.

① Domestic cigarette: Quarterly sales for domestic KT&G cigarettes from 2017 to 2019 were calculated using the regression formula obtained in <Operation Management Q2>. The wholesale price of KT&G cigarettes was obtained by dividing the sales in 2016 by the number of cigarette packs sold in the period.(Appendix 12)

② Exported cigarette: Using the historic growth rate of cigarette exports from last three years, future sales of 2017 to 2019 were forecasted.(Appendix 13)

③ Ginseng: Using the historic growth rate of ginseng division from last three years, future sales were forecasted.(Appendix 13)

④ Three-year average EBIT/Sales ratio of cigarette and ginseng division was applied to the corresponding sales. The sales for domestic and exported cigarettes were summed before multiplying by the divisional EBIT/Sales ratio.

	2017(F)	2018(F)	2019(F)
Domestic	1,701,565,386,429	1,659,787,236,765	1,614,575,142,379
Foreign	1,037,458,460,607	1,295,293,270,794	1,617,206,588,089
Total	2,739,023,847,036	2,955,080,507,558	3,231,781,730,467
EBIT	1,152,864,445,223	1,243,803,427,861	1,360,267,912,895

	2017(F)	2018(F)	2019(F)
Ginseng	1,293,037,033,502	1,509,457,687,752	1,762,101,511,464
EBIT	199,672,651,224	233,092,642,062	272,106,267,186

Total	2017(F)	2018(F)	2019(F)
Sales	4,032,060,880,538	4,464,538,195,310	4,993,883,241,931
EBIT	1,352,537,096,447	1,476,896,069,923	1,632,374,180,081

Net CAPEX, Change in Non-Cash Working Capital

For net CAPEX and change in non-cash working capital, our team assumed that KT&G would maintain a constant ratio of each items to sales. The ratio, derived from the five-year historic average, is multiplied by sales projection to obtain top-down estimation.(Appendix 14)

FCFF for 2017 to 2019 and Terminal Value

The items above leads to our estimation of FCFF for 2017 to 2019, and the terminal value assuming 2.82% stable growth rate.

Firm Valuation to Equity Valuation

Each items were discounted using WACC to reach the present value. The sum of cash flows, added to cash amount (Firm Value) is subtracted by BVD to reach our final destination equity valuation. The equity value, considering the macroeconomic crisis, is divided by the number of shares to reach our value of 170,886 won.

	2017	2018	2019	Terminal Value
Sales	4,032,060,880,538	4,464,538,195,310	4,993,883,241,931	
EBIT	1,352,537,096,447	1,476,896,069,923	1,632,374,180,081	
EBIT(1-T)	1,025,223,119,107	1,119,487,221,002	1,237,339,628,501	
NET CAPEX	40,275,151,965	44,595,049,429	49,882,532,140	
ΔWC	201,525,805,160	223,141,386,287	249,598,498,392	
FCFF	783,422,161,982	851,750,785,285	937,858,597,970	25,283,890,218,324
Discount Rate	1.0663	1.1371	1.2125	1.2125
Present Value	734,683,855,731	749,069,009,453	773,483,929,561	20,852,485,441,816
Cash	850,786,228,000			
Firm Value	23,960,508,464,561			
BVD	262,148,030,000			
Equity Value	23,698,360,434,561			

We have taken into account some circumstantial issues related to the cigarette industry in our valuation of KT&G.

1. The price regulation has been modified two years ago. The probability of regulation change is extremely low, guaranteeing demand stability. Therefore, we assumed that our regression analysis could be applied directly, without any adjustments.

2. The stableness of the cigarette business in terms of industry environment (e.g. low threat of new entrants) implies relatively low swings in the business. Thus, we assumed that the historical growth rate could be applied to appropriately project the future changes

Political risk, on the other hand, is not considered in the valuation. The election of president Moon has brought hopes to smokers, as he announced to lower the price regulation of cigarettes. However, many experts insist that consider the lowering of cigarette prices is not included in the election pledges, along with the relatively low price level of existing regulation, it will not be easy to lower the price.

Price vs Valuation

The difference in KT&G's market price and our valuation is almost half of its market price. The difference may derive from inefficiency of the market that drove the price down, or some misjudgment we may have conceived in the course of our valuation.

Market Inefficiency

The market inefficiency may have affected the low price of KT&G. Most of the investors of KT&G are those who seek for stable dividend payout. These investors may overlook DCF valuation and prefer DDM model in valuing the firm. Therefore, the fast growth of KT&G's cigarette exports and ginseng division may not have been taken into account.

Misjudgment in Valuation

The misjudgment in valuation may have occurred due to both external and internal factors.

External Factors: Inappropriate use of data

1. The companies from which we derived our beta may be inappropriate to represent KT&G's businesses. Health Supplement companies we considered as the standard of our ginseng division beta may show different characteristics of business compared to our ginseng division.

2. The growth rate we used for the stable stage was the historic GDP growth rate. In financial sense, the stable growth rate cannot exceed the growth of GDP, which in other words, GDP growth rate is the highest growth a firm can achieve in the stable stage. This growth rate may be overrated for a stable company like KT&G, even though it is showing rapid growth in both foreign tobacco and ginseng division.

3. We used the regression equation of KT&G cigarette sales in order to project the sales in the domestic market. There may be some omitted variables in the regression, thereby incorrectly project the future sales.

Internal Factors: Bias of the Valuer

1. Our team's position was the consultant valuing the firm of the consultee. The power difference may have forced us to value the target generously.

2. As an outsider, we were limited from sources of information, and therefore forced to refer to information disclosed by KT&G. Data disclosed by KT&G may have subconsciously affected our mindset in a positive way, thus forcing an overvaluation.

Capital Structure

KT&G currently uses 1.7% of debt relative to its equity level. This is considerably low compared to the D/E level of competitors, which is 7% ~ 19%. According to our analysis, the current capital structure of KT&G in terms of debt and equity ratio is not at its optimal level.

Trade-off Theory

Our team used "Trade-off Theory" in analyzing the capital structure for KT&G. In order to use the trade-off theory, the following assumptions were made.

1. The default spread(0.6%) is the probability of bankruptcy after five years.
2. The cost of bankruptcy for KT&G is 20% of firm vault at default. This is higher than average due to the capital-intensive characteristics of the tobacco industry.
3. In changing capital structure, we held MVD + MVE constant, and changed the values within.
4. The tax rate would be same for the future, therefore PV(ITS) = DT.
5. Interest expense is proportional to the increase of debt (until change in default spread)

To begin with, we solved for the Value of Unlevered Firm (V_U). As D/E ratio decreased, cost of equity increased, which eventually led to the VU of 22,991 billion won.

WACC: 0.066339 → 0.066535, VU: 23,960,508,464,561 → 22,991,210,270,960 (Appendix 15)

Subsequently, we used the equation Value of Levered Firm(V_L) = V_U + ITS – E(BC) to compare the V_L under our current D/E ratio and the D/E ratio of our competitors. One thing to notice here is that the cost of debt is constant, as the interest coverage ratio does not decrease enough to trigger a change in default spread. The following table shows the result. (Cost of Debt, VL)

	D/E	Vu	Tax Rate	ITS
As-Is	1.72%	22,991,210,270,960	0.242	63,439,823,260
Leveling with BAT	18.95%	22,991,210,270,960	0.242	597,724,331,731
Leveling with PMI	15.64%	22,991,210,270,960	0.242	507,351,069,007
Leveling with JTI	7.64%	22,991,210,270,960	0.242	266,366,134,079

	Prob. of Bankruptcy	Cost of Debt	Cost of Bankruptcy	∴ VL
As-Is	0.60%	2.27%	20%	23,029,948,048,308
Leveling with BAT	0.60%	2.27%	20%	23,563,660,094,373
Leveling with PMI	0.60%	2.27%	20%	23,473,383,662,634
Leveling with JTI	0.60%	2.27%	20%	23,232,656,932,489

As the result shows, the value of levered firm increases as the debt level increases. This shows that the increase in ITS offsets the cost of bankruptcy. The main reason for this is because the cost of debt is significantly low, especially due to its current high interest coverage ratio. Even though KT&G raise its level of debt to the level of its competitors, its cost of debt remains the same, as long as the assumption 5 holds. Until the debt level reaches a point where it is meaningful enough to cause a change in default spread (probability of bankruptcy), thereby increasing the bankruptcy cost, it would be beneficial for KT&G to increase its debt level.

Impact on Target Price

For all of the strategies, our team believe that it would be implausible for them to generate cash flow right away. Thus, we estimated cash flows from 2018 to add to our current valuation.

For the estimation of impact on target price from our strategic suggestions, we have made several assumptions to appropriately calculate the valuation. Assumptions are specified in the beginning of each valuation.

Divesting of Gwangju Factory

Our team believed that divesting of Gwangju Factory would create two cost reductions:

1. Reduction of transportation costs: The inefficient movement from Gwangju to Cheonan
2. Manufacturing efficiency through economies of sales: The production taken place in Gwangju factory would now be processed in Sintanjin and Youngju factory.

For the valuation of each value additions, we assumed that the manufacturing efficiency would reduce the cost of goods sold by 0.5%.

Transportation costs is a part of the manufacturing process, therefore counted in costs of goods sold. In order to avoid double counting, transportation amount is separated from the cost of goods sold, and the cost reductions are taken into account separately.

For transportation cost savings, we estimated the total cost savings by estimating the average truck cost incurred in the past three years, then applying it to future cash flow. (Appendix 16)

For reduction in costs of goods sold, 0.5% of future potential COGS (transportation costs subtracted) is estimated.

The calculations are shown in the Appendix 17.

The divesting of Gwangju Factory will increase the stock price by 1,073.39 won.

New Brand "Compact"

For the estimation of Brand Compact's impact on valuation, following assumptions were used.

1. The new product will be a completely new addition to the cash flow. (The cash flows are not included in the original cash flow)
2. The estimated market share of Compact in KT&G will be 4.65% (The average of similar products Bohem Cigar Mini and Esse Su)
3. The cannibalization that occurs from the product will be equal to the ratio of KT&G products and competitor products.
4. The tax amount will be proportional to the number of cigarettes in a pack.
5. The costs of goods sold of Compact is the same level as This (263.08 per pack). As the length of Compact is shorter than This, the COGS of Compact will be proportionally smaller (231.52)
6. Compact will enter the market in 2018, and will show no growth, generating cash flow in perpetuity.

The calculations are shown in the Appendix. 18

The total amount added to our valuation through new brand Compact is 1018.24 won / share.

Brand Name Changes of Donginbi and Ginipet to CheongKwanJang

Assumptions

1. 2% of CheongGwanJang Members will be added as the new customer of Donginbi and Ginipet.

2. The totals sales generated from a number of customers is proportional to the percentage of the number to population.

3. The growth rate of additional sales from Donginbi and Ginipet will be the same as the growth rate of KCG. (16.74% of high growth in the 1st stage, 2.82% of stable growth in the second stage)

Our team predicted that the biggest addition to the cash flow of Donginbi and Ginipet through the changing of brand name is from the inflow of new customers from the CheongGwanJang Members Website. This additional channel of sales will create significant cash flow.

Currently, there are 4,000,000 members in CheongGwanJang Members. 3% of the members in CheongGwanJang totals 80,000 people, which is 0.155% of the total population.

The Sales Projection is shown in the Appendix 19.

Therefore, we believe that the change in brand names for Donginbi and Ginipet would add 582.33 won per share to our valuation.

CSR – Smoking Booth Installation

For CSR strategy, we assumed the following to reach the impact on our valuation.

1. The installment cost of smoking booth is 6,000,000 won.

2. The smoking booth would take 1 hours to clean and manage each booth.

3. The minimum wage in 2018 would be 6942.31. (Same growth of minimum wage last year)

4. Each smoking booth generates 20 additional KT&G cigarette pack consumption every day.

5. From 2018, the same cash flow will be generated every year for perpetuity.

The following shows the calculation for the cash flow of the strategy.

2017: Installment cost (6,000,000 won) * 200 booths = -1,200,000,000 won.

2018: Management cost: Minimum wage (6942.31) * 200 booths * 365 = -506,788,360 won.

Additional Cash flow: Additional booths (20) * 200 booths * 365 * Operating Margin (813.76 * 0.4209) = 500,074,371 won.

Cash flow in 2018 = - 6,714,259 * (1 – 24.2%) = -5,089,408 won

Therefore, a cash flow of -1,200,000,000 won in 2017, and -5,089,408 won of cash flow from 2018 to perpetuity add up to <u>-1,276,718,012 won of negative cash flow to firm in present value.</u>

However, our team believe that this CSR activity will not undermine our valuation, because the activity will build a positive brand image that will potentially increase customers. Especially, as the CSR activity is target towards college students, the increase in positive brand image will be more effective.

Corporate Governance

According to our analysis, corporate governance of KT&G is very strong. KT&G has no leading stockholder who controls the firm on his/her own. Also, 90% of board of directors are outsider directors, therefore enabling objective decision making. The dividend payout ratio is very high(40%), and all of these factors led KT&G to be awarded as the 2nd place in best corporate governance corporations of 2011.

FTC Intervention

The impact of FTC's intervention with KT&G's illegal contracts with retailers on the market return of KT&G stocks shows that the decision of FTC was not very meaningful. The following table and graph shows the stock return of KT&G relative to the stock return of KOSPI index.

Date	KT&G		KOSPI Index		Difference
	Daily	Cumulative	Daily	Cumulative	Cumulative
Feb 16th , 2015	-0.121%	- 0.121%	+0.037%	+0.037%	-0.159%
Feb 17th, 2015	-0.486%	- 0.607%	+0.164%	+0.202%	-0.809%
Feb 23th, 2015	+1.587%	+ 0.980%	+0.354%	+0.556%	+0.424%

On the day of FTC's announcement, KT&G's stock price fell 0.12%, and the cumulative return for KT&G stocks for the first two days was -0.61%. This is a significant loss compared to the KOSPI index. However, the situation changed just within a period of week. In February 23rd, KT&G's cumulative rate of return overtook the rate of KOSPI.

The reason for this becomes clear as we look at compare the penalty amount of FTC and the cash flow amount KT&G generates. FCFE of the fiscal year 2015 and the penalty amount disclosed by the FTC statement is provided in the Appendix 20.

The FCFE amount in 2015 alone sums 634 billion won, which is incomparably higher than the penalty amount of 2.465 billion won.

The market reaction to FTC regulation can be interpreted as a typical reaction of weak market inefficiency, where the discounted cash flow outweighed by the irrational market atmosphere. Even though the penalty amount was not big enough to harm KT&G's fundamentals, investors reacted in an irrational way, responding to a bias formed in the sentiment of the market. However, the recovery of the market proves that in the long-term, market rights itself from inefficiency, converging to the true value of KT&G.

In conclusion, the market has overreacted on FTC's announcement in short time, but it soon came back considering the penalty was not big enough to harm KT&G's fundamentals.

Appendix 1)

Study 1

Consumer Questionnaire Results

Gender:	%
Male	
Female	
Total	100

Job:	%
Student	
Office job	
Sales job	
Self-employed	
Etc.	
Total	100

Age:	%
20~30	
31~40	
41~50	
51~60	
61~	
Total	100

Length of unfinished cigarettes:	%
0~5mm	
6~10mm	
11~15mm	
16~20mm	
Total	100

Reason of unfinished cigarettes:	%
For the health	
Get tired to finish	
Not delicious to finish	
Limited time to smoke	
Etc.	
Total	100

Frequency of unfinished cigarettes	%
0~1 times a week	
2~3 times a week	
4~5 times a week	
6~7 times a week	
8~ times a week	
Total	100

Appendix 1)

Study 2

Competitor's Market Share of Estimates for 2012-2016		
Market share(%)		
Year	Dunhill Pocket Pack	Bohem Cigar Mini
2012		
2013		
2014		
2015		
2016		

Study 3

Intention to Buy the 'Compact'	
	Percentage
22 cigarettes at 4700 won:	%
Certainly will	
Maybe will	
Not sure	
Maybe will not	
Certainly will not	
Total	100.0
20 cigarettes at 4300 won:	%
Certainly will	
Maybe will	
Not sure	
Maybe will not	
Certainly will not	
Total	100.0

Appendix 1)

Study 4

Perception about the 'Compact' Compared to the Common Cigarettes			
Healthier	%	Cheaper	%
Extremely		Extremely	
Very		Very	
Somewhat		Somewhat	
Not much		Not much	
Not at all		Not at all	
Total	100.0	Total	100.0
More convenient	%	Newer	%
Extremely		Extremely	
Very		Very	
Somewhat		Somewhat	
Not much		Not much	
Not at all		Not at all	
Total	100.0	Total	100.0

Appendix

Appendix 2)

KT&G Correlation

	Column 1	Column 2	Column 3	Column 4
Column 1	1			
Column 2	0.506167	1		
Column 3	0.019062	-0.07999	1	
Column 4	-0.00959	0.035996	-0.33333	1

Competitor Correlation

	Column 1	Column 2	Column 3	Column 4
Column 1	1			
Column 2	0.586831	1		
Column 3	0.012435	-0.07999	1	
Column 4	-0.0077	0.035996	-0.33333	1

Appendix

Appendix 3)

Total Demand Regression

Regression Statistics	
Multiple R	0.865
R Square	0.748
Adjusted R Square	0.720
Standard Error	77,981,498
Observations	40.000

ANOVA					
	df	SS	MS	F	Significance F
Regression	4	6.33E+17	1.58E+17	26.01886	4.61E-10
Residual	35	2.13E+17	6.08E+15		
Total	39	8.46E+17			

	Coefficient	Standard Error	t Stat	P-Value
Intercept	1,706,598,139	99418723	17.16576	0.00000
X 1	- 109,268	19946.41	-5.47807	0.00000
X 2	- 37	17.06197	-2.13931	0.03946
X 3	- 160,011,751	30339650	-5.27401	0.00001
X 4	53,770,984	30205063	1.780198	0.08373
X 4	1,706,598,139	99418723	17.16576	0.00000

Appendix

Appendix 3)

KT&G Demand Regression

Regression Statistics	
Multiple R	0.761
R Square	0.579
Adjusted R Square	0.531
Standard Error	82969433
Observations	40

ANOVA					
	df	SS	MS	F	Significance F
Regression	4	3.31E+17	8.27E+16	12.02069	2.99E-06
Residual	35	2.41E+17	6.88E+15		
Total	39	5.72E+17			

	Coefficient	Standard Error	t Stat	P-Value
Intercept	1,234,053,926	1.06E+08	11.66647	0.00000
X 1	- 65,475	21222.24	-3.0852	0.00396
X 2	- 50	18.1533	-2.75239	0.00931
X 3	- 95,387,839	32280266	-2.95499	0.00556
X 4	41,615,367	32137071	1.294933	0.20382
X 4	1,234,053,926	1.06E+08	11.66647	0.00000

Appendix

Appendix 3)

Competitor Demand Regression

Regression Statistics	
Multiple R	0.827
R Square	0.684
Adjusted R Square	0.648
Standard Error	31,281,768
Observations	40.000

ANOVA					
	df	SS	MS	F	Significance F
Regression	4	7.42E+16	1.85E+16	18.94946	2.26E-08
Residual	35	3.42E+16	9.79E+14		
Total	39	1.08E+17			

	Coefficient	Standard Error	t Stat	P-Value
Intercept	465,126,762	39858820	11.66936	0.00000
X 1	- 53,026	9109.503	-5.82096	0.00000
X 2	19	7.293143	2.662667	0.01163
X 3	- 64,120,328	12173190	-5.26734	0.00001
X 4	11,969,122	12116835	0.987809	0.33003
X 4	465,126,762	39858820	11.66936	0.00000

Appendix

Appendix 4)

KT&G Demand with Structural Change

Regression Statistics	
Multiple R	0.797
R Square	0.635
Adjusted R Square	0.581
Standard Error	78,374,911
Observations	40.000

ANOVA					
	df	SS	MS	F	Significance F
Regression	5	3.63E+17	7.26E+16	11.82186	1.14E-06
Residual	34	2.09E+17	6.14E+15		
Total	39	5.72E+17			

	Coefficient	Standard Error	t Stat	P-Value
Intercept	- 2,961,503,596	1.84E+09	-1.61092	0.11644
X 1	902,881	424155.8	2.128654	0.04061
X 2	195	108.5516	1.796587	0.08129
X 3	- 87,602,823	30682362	-2.85515	0.00728
X 4	42,456,670	30359678	1.398456	0.17103
X 4	- 2,050,763,103	8.97E+08	-2.28557	0.02864

Appendix

Appendix 4)

Competitor Demand with Structural Change

Regression Statistics	
Multiple R	0.945
R Square	0.893
Adjusted R Square	0.877
Standard Error	18,457,920
Observations	40.000

ANOVA					
	df	SS	MS	F	Significance F
Regression	5	9.68E+16	1.94E+16	56.84707	1.54E-15
Residual	34	1.16E+16	3.41E+14		
Total	39	1.08E+17			

	Coefficient	Standard Error	t Stat	P-Value
Intercept	2,169,500,343	2.1E+08	10.31721	0.00000
X 1	- 517,544	57204.11	-9.04732	0.00000
X 2	- 43	8.800489	-4.90818	0.00002
X 3	- 65,431,301	7184633	-9.10712	0.00000
X 4	10,364,156	7152289	1.449068	0.15648
X 4	866,947,308	1.06E+08	8.156443	0.00000

Appendix 5)

***Main raw material price**

(Unit : won)

Item		2016	2015	2014	2013	2012
Tobacco leaf (kg)	Domestic	9,107	8,961	9,212	9,123	8,670
	Imported	6,337	6,921	7,056	7,126	6,702
Tobacco sheet (kg)	Domestic	1,443	1,625	1,704	1,695	1,723
	Imported	-	-	-	-	-

Source : KT&G annual report in 2016

Appendix 6)

KT&G's manufacturing amount

(Unit : million pack)

Production Amount	2016	2015	2014	2013
First quarter	1,112	894	1,073	1,077
Second quarter	1,181	1,231	1,052	991
Third quarter	1,063	827	1,225	1,001
Fourth quarter	1,100	1,022	1,146	1,172

(Source : KT&G's annual report in 2016)

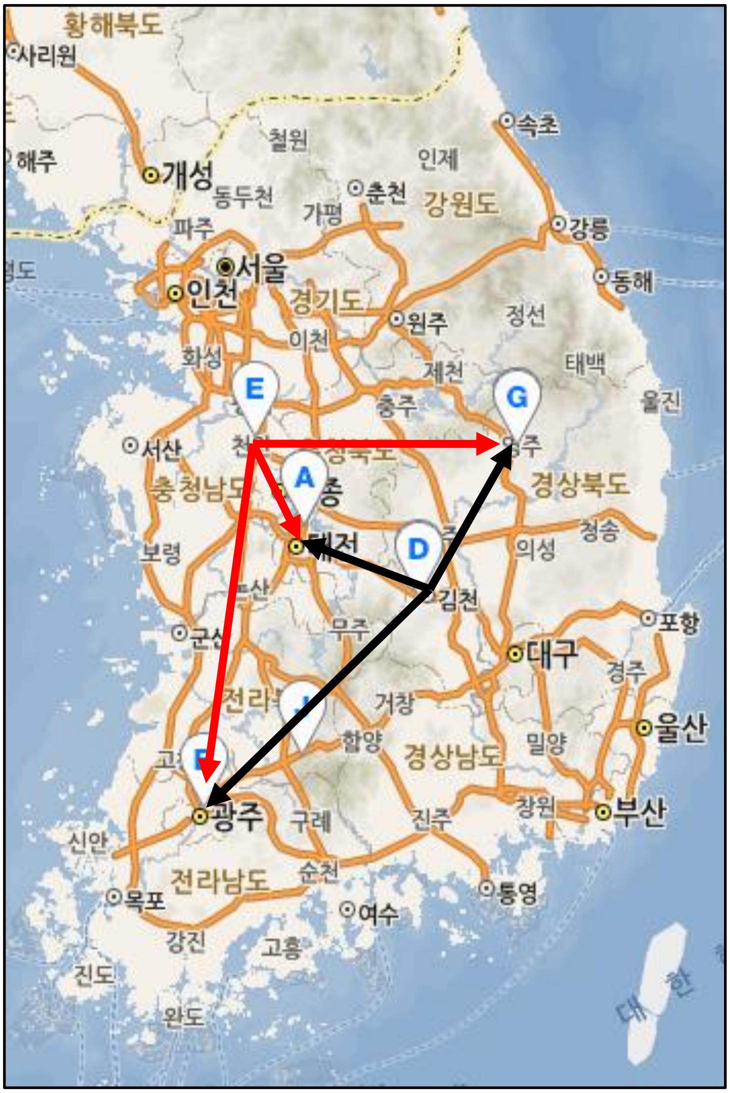
Appendix 7)

Production Capacity (Actual production) all numbers in million packs

Division	Type	Factory	30th annual	29th annual	28th annual	27th annual	26th annual
Cigarette	84mm cigarette (TheOne, etc)	Shintanjin factory	168 (112)	190 (122)	362 (228)	239 (146)	282 (203)
		Wonju factory	-	-	-	-	123 (103)
		Gwangju factory	88 (66)	96 (69)	147 (107)	161 (118)	159 (120)
		Youngju factory	1,888 (1,328)	1,746 (1,222)	2,177 (1,515)	2,006 (1,357)	2,346 (1,647)
		Total	2,144 (1,506)	2,032 (1,413)	2,686 (1,850)	2,406 (1,621)	2,910 (2,073)
	100mm cigarette (Hanlasan, etc)	Shintanjin factory	203 (148)	233 (164)	208 (154)	230 (166)	144 (101)
		Wonju factory	-	-	-	-	33 (25)
		Total	203 (148)	233 (164)	208 (154)	230 (166)	177 (126)
	Slim cigarette (ESSE L, etc)	Shintanjin factory	3,396 (2,655)	2,951 (2,260)	2,942 (2,297)	2,822 (2,250)	3,095 (2,489)
		Gwangju factory	195 (147)	184 (137)	261 (195)	279 (204)	288 (211)
		Total	3,591 (2,802)	3,135 (2,397)	3,203 (2,492)	3,101 (2,454)	3,380 (2,700)
Total			5,938 (4,456)	5,400 (3,974)	6,097 (4,496)	5,737 (4,241)	6,470 (4,899)

Source: 2016 kt&g annual report

Appendix 8)



(A) Shintanjin factory

(B) Gwangju factory

(D) Gim-cheon factory

(E) Cheon-an factory

(G) Young-ju factory

(D) to **(B)**: 195km

(D) to (G): 116km

(D) to (A): 81km

(E) to **(B)**: 208km

(E) to (G): 178km

(E) to (A): 63km

Appendix

Appendix 9)

Company	Regression Beta	D/E	Tax Rate	Cash Amount	Cash Excluded Unlevered Beta
British American	0.7755	0.190	0.19	2,204,000,000	0.633254
Phillip Morris	0.7222	0.156	0.35	4,239,000,000	0.63227
Japan Tobacco	0.854387427	0.076	0.30	294,157,000,000	0.745502
					Average: 0.67

Company	Regression Beta	D/E	Tax Rate	Cash Amount	Cash Excluded Unlevered Beta
Mead Johnson	0.8036	0.182	0.35	1,795,400,000	0.79213542
Herbalife	1.3550	0.217	0.35	844,000,000	1.325305357
Nature’s Sunshine	0.8977	0	0.35	32,280,000	1.038252782
					Average: 1.05

Appendix

Appendix 10)

Division	Sales	EV/Sales	EV	Weight	Cash Excluded U Beta	KT&G Cash Excluded U Beta
Cigarette	2,937,751	6.51	19126451.8	0.8750	0.67	0.718042701
Ginseng	1,183,617	2.31	2732745.9	0.1250	1.05	
Total	4,121,368		21859197.7	1		

Appendix 11)

Date	KOSPI Index Price	Yearly Return
07-May	1,700.91	
08-May	1,852.02	0.0888
09-May	1,395.89	-0.2463
10-May	1,641.25	0.1758
11-May	2,142.47	0.3054
12-May	1,843.47	-0.1396
13-May	2,001.05	0.0855
14-May	1,994.96	-0.0030
15-May	2,114.80	0.0601
16-May	1,983.40	-0.0621
17-May	2,347.38	0.1835
	Median	0.0728

Appendix

Appendix 12)

	Coefficient
Y Int.	1,234,053,926
X 1	- 65,475
X 2	- 50
X 3	- 95,387,839
X 4	41,615,367

	Q	X1	X2	X3	X4
2017 Q1	445,387,584.74	4406.370586	8101115.06	1	0
2017 Q2	537,759,082.54	4381.135491	8194552.689	0	0
2017 Q3	576,294,799.28	4356.044916	8289068.021	0	1
2017 Q4	531,535,904.38	4331.098034	8384673.485	0	0
2017 Total	2,090,977,371				
2018 Q1	432,940,087.19	4306.294022	8481381.655	1	0
2018 Q2	525,054,914.55	4281.632061	8579205.249	0	0
2018 Q3	563,331,648.17	4257.111338	8678157.134	0	1
2018 Q4	518,311,427.07	4232.731044	8778250.321	0	0
2018 Total	2,039,638,077				
2019 Q1	419,451,909.90	4208.490375	8879497.976	1	0
2019 Q2	511,300,632.46	4184.388532	8981913.413	0	0
2019 Q3	549,308,825.06	4160.424718	9085510.101	0	1
2019 Q4	504,017,595.00	4136.598145	9190301.666	0	0
2019 Total	1,984,078,962				

Appendix

Appendix 13)

	2014	2015	2016	2017(F)	2018(F)	2019(F)
Sales (Million)	533,063	681,046	830,947	1,037,458.46	1,295,293.27	1,617,206.59
G	1.2485					

	2014	2015	2016	2017(F)	2018(F)	2019(F)
Sales (Million)	812,795	917,785	1,107,646	1,293,037.03	1,509,457.69	1,762,101.51
G	1.1674					

Appendix 14)

	Capex	Depreciation	NET CAPEX	Sales	NET CAPEX / Sales
2012	227,660	178,384	49,276	3,984,662	0.012366315
2013	147,430	177,337	-29,907	3,821,696	-0.007825553
2014	318,915	162,047	156,868	4,112,855	0.038140883
2015	199,933	161,852	38,081	4,169,839	0.009132504
2016	149,766	158,189	-8,423	4,503,280	-0.001870518
				Average	0.009988726

Appendix

Appendix 14)

	AR	INV	AP	Working Capital	△WC	Sales	△WC / Sales
2011	753,097	1,572,299	81,938	2,243,458			
2012	784,356	1,706,796	48,190	2,442,963	199,504	3,984,662	0.050
2013	805,666	1,893,853	83,073	2,616,446	173,483	3,821,696	0.045
2014	898,654	1,982,503	95,936	2,785,221	168,776	4,112,855	0.041
2015	1,031,618	2,119,114	103,591	3,047,141	261,919	4,169,839	0.063
2016	1,113,447	2,265,355	103,826	3,274,975	227,834	4,503,280	0.051
						Average	0.050

Appendix

Appendix 15)

	MVD	MVE	Total	
		15,501,615,197,000	15,501,615,197,000	
Weight	0	1		

After Tax Cost of Debt	Wd	Cost of Equity	We	WACC
1.721%	0	0.066534534	1	0.066535

	2017	2018	2019	Terminal Value
Sales	4,032,060,880,538	4,464,538,195,310	4,993,883,241,931	
EBIT	1,352,537,096,447	1,476,896,069,923	1,632,374,180,081	
EBIT(1-T)	1,025,223,119,107	1,119,487,221,002	1,237,339,628,501	
NET CAPEX	40,275,151,965	44,595,049,429	49,882,532,140	
△WC	201,525,805,160	223,141,386,287	249,598,498,392	
FCFF	783,422,161,982	851,750,785,285	937,858,597,970	25,155,026,233,799
Discount Rate	1.0665	1.1375	1.2132	1.2132
Present Value	734,549,268,635	748,794,589,952	773,058,922,725	20,734,807,489,648
Firm Value	22,991,210,270,960	← Value of Unlevered Firm		

Appendix

Divesting Gwangju Factory

Appendix 16)

Production of Gwang-ju fatory(in million pack)

Products	2016	2015	2014	Average
84mm	66	69	107	80.66667
Slim	147	137	195	159.6667
				240.3333

Calculations

Products	weight(kg)	truck needs	benefit per truck	total benefit a year
84mm	1634307	1634.3067	40000	65,372,267
Slim	3234847	3234.8467	130000	420,530,067
				485,902,333

Amount of transportation incurred for Gwangju factory in the last 3 years.

Appendix

Divesting Gwangju Factory

Appendix 17)

	Transportation	COGS	Sales	Transportation / Sales	COGS/Sales
2,014	27,415,000,000	1,063,793,874,215	2,742,560,783,069	0.010	0.388
2,015	28,401,000,000	946,644,597,044	2,821,671,433,073	0.010	0.335
2,016	23,794,000,000	1,048,118,804,970	2,968,174,762,491	0.008	0.353
			Average	0.009	0.359

	2,018	2,019	Terminal(value at 2019)
Estimated Sales	2,955,080,507,558	3,231,781,730,467	87,114,447,697,731
COGS	1,060,374,610,880	1,159,663,598,379	31,259,367,838,977
Transportation Cost	27,657,403,534	30,247,125,661	815,327,848,907
COGS w/o T.C	1,032,717,207,347	1,129,416,472,718	30,444,039,990,070

Trasportation Cost amount is separated from the total COGS.

Appendix

Divesting Gwangju Factory

Appendix 17)

	2018	2019	Terminal Value
Transportation Cost Savings	513,688,695.24	528,172,178	14,237,170,505
2016 = 485,902,333			
COGS w/o T.C Savings	5,163,586,037	5,647,082,364	152,220,199,950
Total Cost Savings	5,677,274,732	6,175,254,541	166,457,370,456
Discount Rate	1.137	1.213	1.213
PV of Additional Cash flows	4,992,857,809	5,092,942,752	137,283,063,015
PV of Additional Cash Flow to Firm	147,368,863,576		
Number of Shares	137,292,497		
Price Adjustment	1,073.39		

For transportation costs, the average amount calculated is used to project the cost savings.

For COGS without COGS, 0.5% cost efficiency was considered.

Appendix

New Brand Compact

Appendix 18)

Brand	Market Share
Esse Su	7.50%
Bohem Cigar Mini	1.80%
Average	4.65%

Total Number of KT&G cigarette sold	2,039,638,077
Number of Compact sold	94843171
Ratio of KT&G to Competitors	60%
Total Cannibalization	56905902
Revenue from Competitor Users	37937268

	Compact	Normal	This (Low Price)
Retail Price	4,700	4500	4000
Number of Cigarettes	22	20	20
Tax Amount	3649.8	3318	3250
Retail Margin (9.6%)	451.20	432	300
Wholesale Price	599	750	450
COGS + SG&A	280.59	434.32	260.5934708
EBIT	318.41	315.68	189.4065292
Cannibalization Revenue		2.73	

Total EBIT (in Year 2018)	12,234,769,004.88
Total EBIT(1-t) (in Year 2018)	9273954906
WACC	0.066339155
Total Addition to Cash Flow to Firm	139,796,096,174
# of Shares	137,292,497
Price Adjustment	1018.24

Appendix

Changing Brand Names for Donginbi & Ginipet

Appendix 19)

	Total Sales in Market	Percentage of CGJ Members	Total Additional Sales
Cosmetic	12,670,000,000,000	0.1550%	19,636,054,943
Pet Food	2,200,000,000,000	0.1550%	3,409,575,444
			23,045,630,387

	2018	2019	Terminal Value
EBIT / Sales	0.154421448		
Sales	23,045,630,387		
EBIT	3,558,739,618		
EBIT(1-T)	2,697,524,630	3,149,019,854.54	84,883,555,975.13
Discount Rate	1.066339155	1.137079194	1.137079194
Present Value	2,529,706,067	2,769,393,611	74,650,522,537
Total Add. Cash Flow	79,949,622,216		
Number of Shares	137,292,497		
Price Adjustment	582.33		

WACC	0.066339155	
g = 1st Stage	1.167373902	0.167373902
2nd Stage	1.028195057	0.028195057

Appendix

FCFE for FTC Regulations

Appendix 20)

2015	
Net Income	987,924,326,514
CAPEX	199,933,074,190
Depreciation	54,170,000,000
Net CAPEX	145,763,074,190
△WC	261,919,396,850
Net Debt	- 54,044,117,540
FCFE	634,285,973,014
Penalty Amount	2,500,000,000

Reference

#100 애물단지로 전락한 대학가 흡연부스. (2015, April 15). Retrieved June 10, 2017, from http://m.post.naver.com/viewer/postView.nhn?volumeNo=1110675&memberNo=10234477&vType=VERTICAL

흡연.음주의 사회경제적 비용. (2009, July 8). Retrieved June 10, 2017, from http://www.yonhapnews.co.kr/bulletin/2009/07/08/0200000000AKR20090708098200002.HTML?did=1179r

흡연 부스 시험 및 평가 방법 (Vol. 28, Ser. 2, pp. 42-51, Rep. No. 102115972). (n.d.). Kim Sangcheol.

Seo, S. (Ed.). (2015, March 11). 흡연자와 비흡연자의 공존을 위한 대학교 흡연 부스. Retrieved June 10, 2017, from http://www.lgchallengers.com/social/trend_150311/

MINISTRY OF STRATGY AND FINANCE. (2016, October 10). 2016년 3/4분기 담배시장 동향. Retrieved June 10, 2017, from http://mosf.go.kr/nw/nes/detailNesDtaView.do;jsessionid=HADK3W6C24ztZI5vFxyIWp5J.node40?searchBbsId=MOSFBBS_000000000028&searchNttId=MOSF_000000000005697&menuNo=4010100

Yu, J. (2017, May 17). '전자담배계 아이폰' 필립모리스 아이코스 6월 국내 출시. Retrieved June 10, 2017, from http://biz.chosun.com/site/data/html_dir/2017/05/17/2017051701949.html

Y. (n.d.). II- 93 1 CVS당 인구. Retrieved June 10, 2017, from https://www.yumpu.com/nl/document/view/34675273/1saksdu/159

Herald. (2015, June 22). 전세계 전자 담배 판매 급증. Retrieved June 10, 2017, from http://biz.heraldcorp.com/view.php?ud=20150623000254

Kim, D. (2017, June 7). 궐련형 전자담배 ‘아이코스’ 정식 출시…BAT-KT＆G도 ‘맞불’. Retrieved June 10, 2017, from http://health.chosun.com/news/dailynews_view.jsp?mn_idx=188338

Kim, Y. (2017, May 31). ‘덜 해로워보이는 담배’ 규제 옥죈다. Retrieved June 10, 2017, from http://bizn.donga.com/health/List/3/0120/20170531/84644190/2

Yun, J. (2010, March 31). "아가씨 담배" 에쎄가 "아저씨 담배"된 사연. Retrieved June 10, 2017, from http://www.nocutnews.co.kr/news/699181

국내 최초 초슬림형 에쎄순 출시. (2007, May 3). Retrieved June 10, 2017, from http://www.najunews.kr/news/articleView.html?idxno=101799

Kim, J. (2016, February 26). KT&G, 담배 하나도 '명품처럼' . Retrieved June 10, 2017, from http://www.asiae.co.kr/news/view.htm?idxno=2016022316571582776

경기침체...강한 맛 '고타르 담배' 새 트렌드. (2008, July 08). Retrieved June 10, 2017, from http://news.kbs.co.kr/news/view.do?ncd=1593118

Choi, Y. (2011, May 2). 구운 잎으로 만든 '시가' 피워봤나? Retrieved June 10, 2017, from http://www.jejusori.net/news/articleView.html?idxno=99055

Jung, H. (2017, March 3). "보헴 넘버6 주세요"… 'K시가렛' 대만서 담배 한류 - 머니투데이 뉴스. Retrieved June 10, 2017, from http://news.mt.co.kr/mtview.php?no=2017030104311317179

Lee, G. (2016, November 01). [KT&G 에쎄 출시 20주년] 초슬림담배 세계 NO.1 에쎄의 성공비결. Retrieved June 10, 2017, from http://www.ggilbo.com/news/articleView.html?idxno=316170

Lim, J. (2017, January 20). [이슈]박수만 받을 수 없는 KT&G '담배수출 기록 경신' Retrieved June 10, 2017, from http://www.weeklytoday.com/news/articleView.html?idxno=53745

An, J. (2016, September 19). KT&G 원료 투입부터 유통까지 총 42회 검증 한국 필립모리스 말보로 등 주력 담배 가격 내려. Retrieved June 10, 2017, from http://biz.chosun.com/site/data/html_dir/2016/09/18/2016091801369.html

Herald. (2017, January 31). 건강기능식품 시장 지난해 2조4982억원...전년 比 20% 늘었다. Retrieved June 10, 2017, from http://news.heraldcorp.com/view.php?ud=20170201000055

Ko, S. (2017, May 12). 국내 건강기능식품 시장규모 팽창…연평균 성장세 8.4%. Retrieved June 10, 2017, from http://www.agrinet.co.kr/news/articleView.html?idxno=152595

Kim, B. (2016, May 09). OECD 대표 흡연국 오명 벗나...비가격 금연정책 '기대' Retrieved June 10, 2017, from http://www.yonhapnews.co.kr/bulletin/2016/05/10/0200000000AKR20160510092100017.HTML?input=1195m

Kim, S. (2016, November 28). [시장분석] 건강기능식품 산업의 특성과 시장환경. Retrieved June 10, 2017, from http://www.futurekorea.co.kr/news/articleView.html?idxno=34266

Bae, M. (2017, March 17). [사회공헌 특집(38)] KT&G, 상상플랫폼의 공익화로 대표 '문화공헌사' 발돋움. Retrieved June 10, 2017, from http://www.econotalking.kr/news/articleView.html?idxno=146688

KT&G 상상마당, 2016 대한민국 소비자만족도평가 대상. (2016, December 18). Retrieved June 10, 2017, from http://news.joins.com/article/21017481

Kim, B. (2017, June 8). 대학들, "흡연자・비흡연자 모두를 위한 제대로 된 흡연구역 필요"Retrieved June 10, 2017, from http://www.hankookilbo.com/v/53cdd6feadbf49e49fd993252ec3e3de

Kang, M. 세계 최초 시가엽 함유 궐련지 '보헴시가 미니' 5억개비 판매 Retrieved June 10, 2017, from http://www.fnnews.com/news/201309261717035989?t=y

Lee, S. (2017, April 17). '수출 효자' 담배...'세계를 품은' KT&G, 1분기 수출 사상최대 '해외 매출 1조' 목표Retrieved June 10, 2017, from http://view.asiae.co.kr/news/view.htm?idxno=2017042716184458851

Korea Association of Convenience Store Industry Homepage, Retrieved June 11, 2017, from http://www.cvs.or.kr/

Korea financial Investment Association, Retrieve June 11, 2017, from http://www.kofia.or.kr/index.do/

No Smoke Guide, Retrieved June 11,2017, from http://www.nosmokeguide.or.kr/mbs/nosmokeguide/

KGC Homepage, Retrieved June 11,2017, from https://www.kgc.co.kr/front/main/main.do

삼삶스토리. (n.d.). Retrieved June 12, 2017, from http://www.samsamstory.com/

전자공시시스템 - 대한민국 기업정보의 창, DART. (n.d.). Retrieved June 12, 2017, from http://dart.fss.or.kr

(n.d.). Retrieved June 12, 2017, from http://www.ftc.go.kr/search/search.jsp
Fair trade commission

공정거래위원회, Retrieved June 12, 2017, from http://www.ftc.go.kr/
Hong, S. (2015). KT&G. *COMPANY REPORT*.