

**DISCOUNTED CASH FLOW VALUATION OF
THAI OPTICAL GROUP PUBLIC
COMPANY LIMITED**



**A THEMATIC PAPER SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
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Thematic paper
entitled
**DISCOUNTED CASH FLOW VALUATION OF
THAI OPTICAL GROUP PUBLIC
COMPANY LIMITED**

was submitted to the College of Management, Mahidol University
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DISCOUNTED CASH FLOW VALUATION OF THAI OPTICAL GROUP PUBLIC COMPANY LIMITED

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M.M. (FINANCIAL MANAGEMENT)

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ABSTRACT

This thematic paper demonstrated how to value the stock price specifically Thai Optical Group Public Company Limited (TOG) in which the framework of discounted cash flow to firm model is applied. The process starts with creating a forecast, calculating a reasonable valuation and recommending to buy/hold/sell the company stock.

TOG is a well-recognized independent manufacturer and distributor of qualified optical lenses and optical related products in which approximately 95% of TOG products are for exportation to different geographic locations. TOG is unique in term of its peer's valuation as there are non-other similar firms listed under the same consumer products industry: personal product & pharmaceuticals sector. Thus, TOG is valued in comparison with other international peers such as leading Essilor and Hoya which are operating in similar business model and industry.

The result from this paper illustrates the fair value of TOG share price which is expected to be valued higher than the current share price as of Dec 2016 by 30%. The result obtained has the recommendation of "BUY" as the current share price is still undervalued.

KEY WORDS: TOG/ Discount Cash Flow/ Firm Valuation/ Optical Lenses

55 pages

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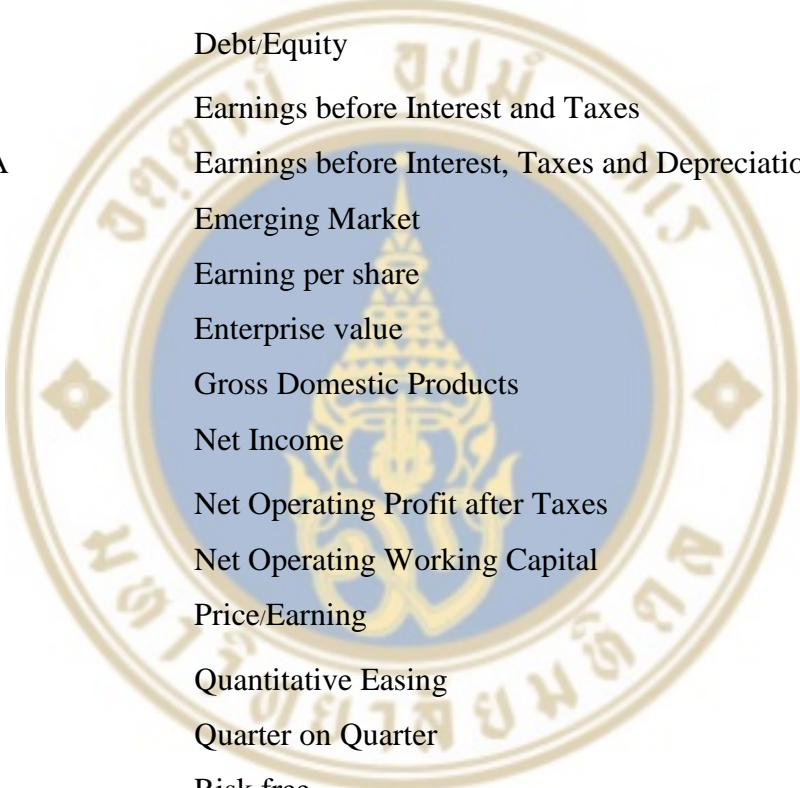
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LIST OF ABBREVIATIONS



BV	Book value
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CCI	Consumer Confidence Index
COGS	Cost of Goods Sold
D/E	Debt/Equity
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes and Depreciation
EM	Emerging Market
EPS	Earning per share
EV	Enterprise value
GDP	Gross Domestic Products
NI	Net Income
NOPAT	Net Operating Profit after Taxes
NOWC	Net Operating Working Capital
P/E	Price/Earning
QE	Quantitative Easing
QoQ	Quarter on Quarter
Rf	Risk free
ROA	Return on Assets
ROE	Return on Equity
SET	Stock Exchange of Thailand
SG&A	Selling, General and Administrative Expense
SSSG	Same Store Sales Growth
SWOT	Strength, Weakness, Opportunity and Threats
WACC	Weighted Average Cost of Capital
YoY	Year on Year

CHAPTER I VALUATIONS

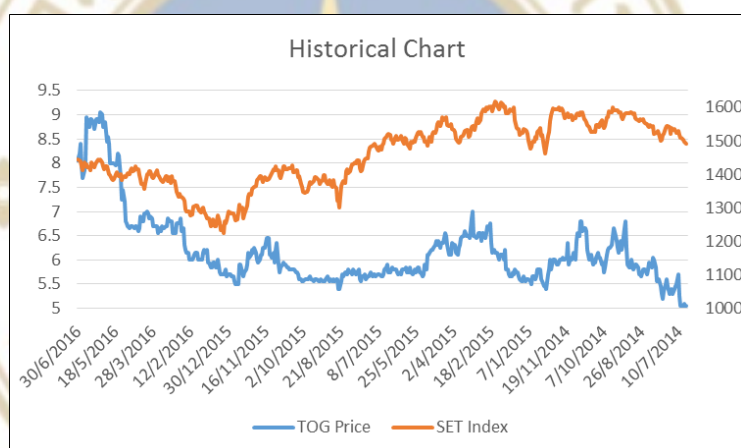
1.1 Highlights

Share outstanding: 474,318,000

Free float: 21.85%

52 weeks price range: 5.25 – 11.80

Dividend Yield: 6.14%



Source: SET

Figure 1.1: Thai Optical Group stock performance

Date 15th Dec 2016

Ticker: SET: TOG

Recommendation: BUY

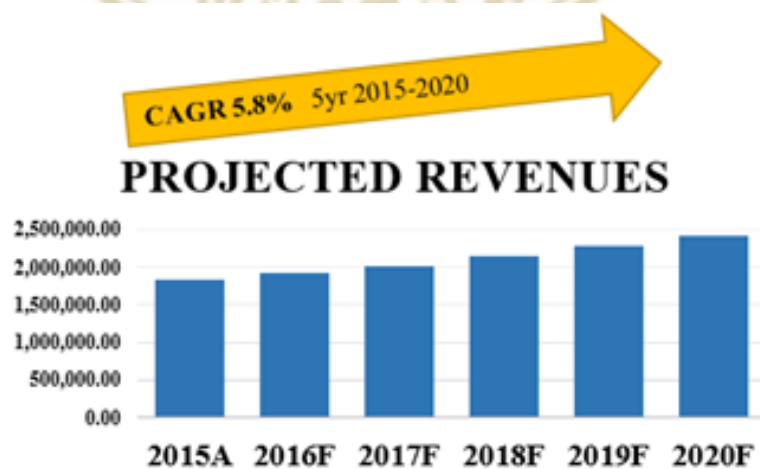
Price: THB 8.15

Target Price: THB 10.57 adjusted to THB 11

Upside: 29.72% approximately 30%

• **Fundamental and valuation are indicative of Buy:** With the target price at THB 10.57 there is largely 30% upside gain. FY15 net profit is THBm 229.64 which has increased 12.96% y-y from FY14 net profit of 203.28. However, the actual revenue of sale and service from FY14 to FY 2015 has decreased slightly by 0.39% from THBm 1,830.96 to THBm 1,823.80 still TOG is able to maintain its increment in net profit demonstrating its operational efficiency ability in managing selling and administrative expense. The recent drop in sale is the result of Europe's lesser order on high margin lenses 20% to 30% and more order in term of unit pieces on lower margin lenses 10% to 20%. The selling and administrative expense has reduced by 6.20% y-y from FY14 to FY15. The 4yr combined annual growth rate (CAGR) from 2011 to 2015 on sale and service revenue is found to be at 12.64%. The industry has estimated global eyewear market growth to remain positive at CAGR 3.5% during 2014 to 2022. TOG prospect is on the rise.

• **Expected combined annual growth rate is rising:** Global CAGR on vision care market is expected at 3.5% during 2014 to 2022 while the American vision care CAGR is expected at 5.04% during 2014 to 2019. Two factor that aid in accelerating the growth rate is ageing population and rising of digital era.



Source: Team

Figure 1.2: Thai Optical Group projected revenue

• **Inorganic growth readily for coming of AEC:** For several years the company has been adopting inorganic growth strategic move where in 2008 TOG increased its registered capital to 475 million Baht and offered part of its shares to Specsavers group (UK based high street optical store chain: Australia and New Zealand approximately 30% market share). In 2010, TOG acquired 33% in MVsion Optical Pte Ltd in Singapore and 33% in Mvsion Optical Industry SDN BHD in Malaysia to run prescription lenses and finished lenses business. Finally in 2013, TOG processed a joint venture with Vina Vista in Vietnam. All of these inorganic growths facilitate more production capacity for TOG and allows more legs and arms in Singapore, Malaysia and Vietnam.

• **Thai Optical Group's revamping new look & brand building:** The fifty year-old manufacture of internationally accepted quality optical lenses and related products is transitioning into a new era through corporate identity rebranding. This revamping period includes updating corporate logo, remarketing product mix and pursuing TOG at full stream as the house brand in replacement of TOG's only brand Excelite. The company will maintain Excelite as one of its product line while adding in other six more distinctive lines under TOG umbrella serving different life styles and eye care needs. TOG is introducing ONE, DISCOVERY, FREEDOM, MAXIMA, SHADE and ZAPHIRE. The new product lines will provide clear category for products' distinctive purpose such as for correction or protection and for outdoor or office usage. This movement is adding the plus sign on the TOG's value as the company is moving toward building to represent TOG brand as being of high quality, reliable, advanced and reputable instate of just a Thailand's based OEM manufacture.

• **Fully automation project of high margined Rx/prescription lenses:** TOG will implement Rx automation project at the beginning FY2016 which will be running at full capacity by the end of FY2017. TOG is injecting in approximately THB 400 million which will be paid in two cash installment, one time at beginning of 2016

and another at beginning FY2017. With this newly automation project, TOG is able to increase over 100 million unit per year in its Rx/prescription product category which is high value added at 20% to 30% margin. This automation plant will allow TOG to be less dependent on Thailand's increasing labor wages, human error; and allow ability to run factory 24/7. When fully finished, TOG will also enjoy a benefit of 5yr corporate tax exemption and addition 2yr for specific filling with BOI.

Market Profile (as of 15 Dec 2016)	
Market Cap. (M THB)	3,866
Shares Outstanding	474,318,000
52 Week Price Range	THB 5.25-11.80
Main Shareholders	
SPEC SAVERS	25.04%
Prachartam Family	53.30%
Free Float Approximate	21.85%
Dvd Yield	6.14%

Source: Team

Figure 1.3: Market profile as of 15 Dec 2016

1.2 Financial Summary

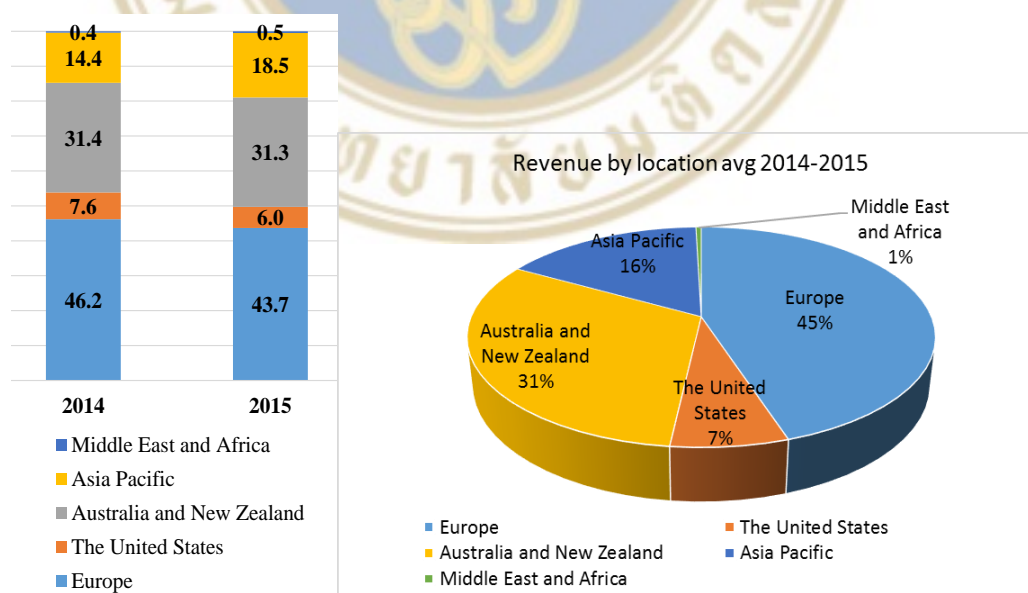
Table 1.1: TOG Key financial indicators

FY Ended 31 Dec	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F
Total Revenue	1,579,112	1,690,855	1,869,695	1,893,042	2,002,895	2,113,055	2,241,951	2,380,952	2,528,571
EBITDA	351,827	359,652	412,987	435,222	469,149	539,982	583,332	628,462	675,049
Net Profit	166,394	154,208	203,282	229,636	237,687	269,618	304,665	341,131	378,765
Gross Profit Margin (%)	21%	27%	32%	31%	27%	27%	27%	27%	27%
Net Margin (%)	11%	9%	11%	12%	12%	13%	14%	14%	15%
EPS (THB)	0.35	0.33	0.43	0.48	0.50	0.57	0.64	0.72	0.80
Dividend Yield (%)	1.46%	6.89%	4.95%	6.14%					
Dividend (THB)	0.10	0.23	0.32	0.31	0.30	0.34	0.38	0.43	0.47
ROA	8%	8%	9%	10%	9%	10%	11%	11%	12%
ROE	10%	9%	12%	13%	14%	15%	16%	16%	17%

1.3 Business Description

Thai Optical Group Public Company Limited was initially established in 1951 operating in the retail business of optical lenses. For over 50 years in the vision care industry, currently **Thai Optical Group is a well-recognized independent manufacturer and distributor of qualified optical lenses and optical related products.** The company offers a wide range of optical products such as standard plastic organic lenses made from CR-39 monomer, glasses mineral lenses, valued added lenses such as photochromic, high index lenses, high resistance lenses and optical related products such as glass molds used in the making of plastic lenses and lenses coating service.

Currently, approximately **95% of TOG optical products are for exportation** to market in Europe, Australia and New Zealand, America, Asia Pacific and Middle East and Africa; and only about 5% of TOG optical products are for domestic sales. Revenue breakdown by geographic region of FY15 is Europe 43.70%, Australia and New Zealand 31.30%, Asia Pacific 18.48%, America 6.03%, Middle East and Africa 0.49% where domestic sale of Thailand is included in Asia Pacific figures.



Source: Company date

Figure 1.4: Sales breakdown by location in (%)

Revenue breakdown by product category in term of product value data 2015:
 Standard Lenses (Plastics lens) 34.64%, Value-added Lenses (High index lenses, Photochromic lenses, high impact resistant lenses) 33.52%, Rx prescription lenses 26.08%, Mineral lenses & other products and service 5.77%

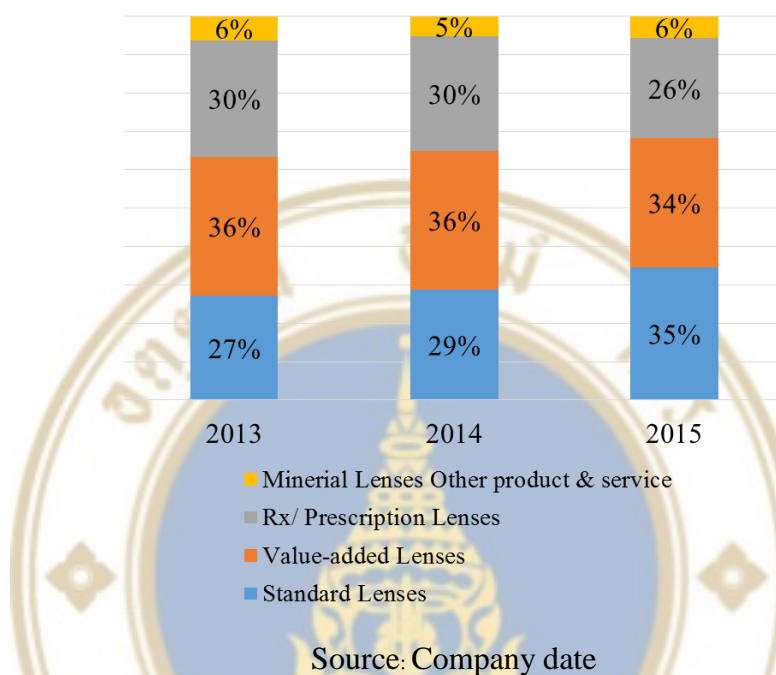


Figure 1.5: Revenue contribution by product in (%)

Although Thai Optical Group operates mainly as an original equipment manufacturer, the company is well accepted by all international industry players of the vision care market. Approximately about 95% of TOG's revenue constitutes from exportation to the international market in Europe, Australia and New Zealand, America, Asia Pacific and Middle East and Africa. TOG is producing optical lenses for a well know optical store chain such as Specsavers Group (UK firm) in Australia and New Zealand regions who is an important strategic partner that dominates more than 30% of the Aussies and Kiwis's vision market share. Nevertheless, TOG operates as an OEM as well as suppling its own house brand known as 'Excelite'.

To further understand the nature of TOG business, TOG's products categories are explained as follow. TOG's products can be grouped into 4 main types.

a) **Organic Lenses (Plastics Lenses)**. This category is the lenses made from various kind of plastic materials. It may be made from basic plastic material known as the CR-39 monomer or many more. This general organic CR-39 category is highly competitive especially from the cheaper version offering from China. It is the lowest margin of all product category and is **margin ed approximately at 10% to 20% (standard lenses)**.

b) **Value-added Lenses**. This category composes of High index Lenses (the higher the index, the thinner the lenses), Photochromic Lenses (tinted plastic lenses with changing color property) and High Impact Resistant Lenses (Withstanding pressure). This category of Value-added Lenses is higher in **margin at 20% to 30%**. This category have high prospect to it as the world is moving toward multi focal lenses and progressive lenses.

c) **Rx/Prescription Lenses**. This category is also another high margin product of approximately 20-30%. The Rx/Prescription lenses can be made from both the organic material (plastic) and mineral material (glasses). This type is made to order pair by pair according to associates' prescription orders sent in. Furthermore, lenses can be finished lenses as described above or semi-finish lenses where buyers purchase the semi-finish lenses and preform the grinding on lenses according to prescription by themselves.

d) **Mineral Lenses (Glasses Lenses)** and Other Products and Services. TOG manufactures optical glasses lenses for eye sight correction as well as glasses mold to be used in the production of casting organic lenses. Other Products and Services includes surfacing treatment of hard coating and anti-reflection coating service for organic lenses (plastic).

In the early years, the company started off very small in optical retail business. Later in year 1962, it opened Thailand's first mineral lenses factory know as TOC (mineral lenses is lenses make out of glasses) which operated to export lenses and

related product to Asia and Europe market. Soon after in year 1991, the company registered under the name TPL to expand standard plastic optical lenses business. In year 2003, TPL registered more capital and strategically purchased 99.99% of TOC's ordinary shares. A year later in 2004, TPL changed its name to Thai Optical Group Public Company Limited with more registered capital. Finally in 2006, TOG registered and traded under The Stock Exchange of Thailand under ticker TOG.

1.3.1 Thai Optical Group's current plan and strategies

1.3.1.1 The Company is implementing a 300-350 MB investment in Prescription lens/Rx lens production automation factory that will allow more production capacity by 1 million units monthly. The newly installed machine will start working in the 4th quarter of year 2016. The business direction for increasing production capacity in Prescription lens/Rx lens is that this product category generates a good profit for the company.

1.3.1.2 TOG is putting more resources in media and advertising department in order to support marketing and sales promotion. A noticeable trend for TOG's sale revenue is higher sales volume of value-added organic lenses or premium lenses (high index lenses, photochromic lenses and high impact resistant lenses). The expanding of premium/value-added/high margin lenses sales volume is increasing especially in the US expanding market.

1.3.1.3 TOG targets revenue from geographical locations with growth potential such as the US and AEC while maintaining TOG position in Europe. Vision care market in the US estimates to grow at CAGR period 2014 to 2019. North American vision care market estimates to grow year on year at 7.20% in year 2016.

1.3.1.4 TOG has a new 3-years strategic direction toward flagging/rebranding itself as the leader in optical lenses manufacturers internationally. The plan includes total rebranding and improving of TOG corporate identity to become

more modern. This plan is undertaking using ‘TOG 360 WORLDSIGHT’ theme reflecting wide products and service directing toward the future. The plan includes 4 major aspects which are a) modernizing and improving brand identity, logo and packaging, b) developing quality of optical lenses further, c) improving plants and machines to be more effective and efficient and d) reorganizing corporate structure that allows flexibility and fit in decision making.

1.4 Macro-Economic Analysis

Macro-economic Analysis: Factors suggest Positive Prospect in Global Vision Care Growth.

1.4.1 IMF projects global growth at 3.1% 2015, 3.4% 2016 and 3.6% 2017.

According to the World Bank estimates, the general global growth in 2016 is projected at 2.4%, 2.8% and 3% in year 2017 and 2018 representatively. While the UN estimates claimed that growth of world gross product will be at 3.3% in year 2016. These estimates suggest positive direction in the overall growth of economy. IMF reports similar projection in **global growth** where it estimates the growth of **2016 at 3.4%** and 3.6% in 2017 from currently estimate of 2015 at 3.1%.



Source: UN/DESA

Figure 1.6: Growth of world gross product 3.3% in 2016

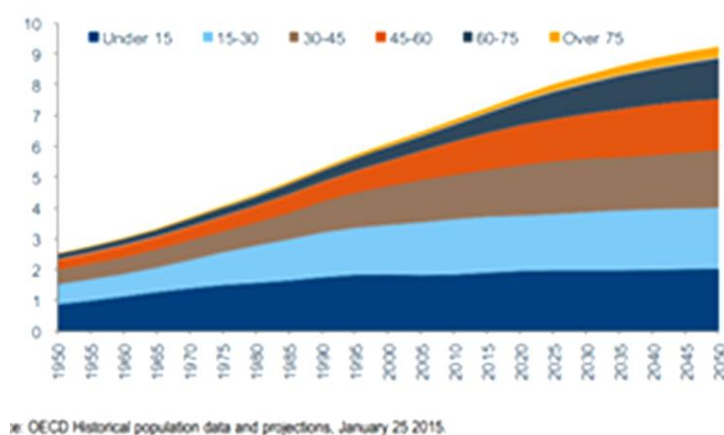
1.4.2 Approximate 4.5 in 7.2 billion people globally require vision correction. At the moment, global population is accounted for **7.2 billion people** where approximately **4.5 billion people require some kind of vision correction**; and yet only 1.9 billion people actually receiving it. This figure leaves out about 2.6 billion people or about 58% of those in need of sight correction without any kind of visual correction. (Essilor, 2014).

	(in Billion)
Global Population	7.2
Require Vision Correction	4.5
Get Sight Correction	1.9
Without any Correction	2.5

Source: Essilor, 2014

Figure 1.7: Global population and vision care industry

1.4.3 Mounting to the shocking figures is the global ageing demographic trend. Ageing society is the occurrence resulting from two major factors namely a) the declining trend in death rate and b) falling fertility rate. The key trend during this twenty-first century is the shifting in age demographic where by the elders live healthier longer life expectancy and the younger groups have been delaying in having descendants. Study have shown that people of age 40+ and over usually need glasses for Presbyopia (long sighted, unable to see closely, loss of flexibility within the eye lens). According to Thunhoo news, there are currently 12% or equivalent to 900 million people of the world population aged 60+ at year ended 2015; and it is estimated that this figure will reach 18% or equivalent to 1500 million people in year 2030. Thus, it is likely the number of eye problems is expected to increase. Just for fact, 2 out of every 3 Americans are affected by eye problems (The National Eye Institute); and nearly 25% of school aged children in American have vision problems (American Optometric Associations, 2014).



Source: OECD

Figure 1.8: World ageing population estimation

1.4.4 Era of digital age. Another key indicators supporting positive growth in eyewear market is the **rapidly rising era of digital devices** and changing life style on digital dependency. Extensive research by industry leader, Essilor, suggests prolong multiple electronic devices usage is harmful to retinal cells as devices emitting blue violet light. The average time spent on computer for Americans has increased by 65% and average UK pick up their smartphone devices approximately 221 times a day. Plus, 70% of American adults are experiencing some form of digital eye strain due to uses of electronic devices (Voluntary Benefits Magazine, July 2014). These being said, there is a market need for preventive eye care segment as well as more opportunities in lenses coating line which add more value to existing lenses products.

1.4.5 The rise of middle class 5% in 2005 and estimated 25% in 2030.

Another key condition supporting the growth and expansion in global eye care industry is the **emerging of middle class** with higher disposable income where this group can effort the correction and prevention of eyesight problems. According to the World Bank on The Rise of the Middle Class, it is projecting that the number of middling class in developing countries may achieve 25% in year 2030 compare to 5% of year 2005.

1.4.6 AEC potential growth with an annual real growth rate of 5.2% during 2007-2015 better than word growth.

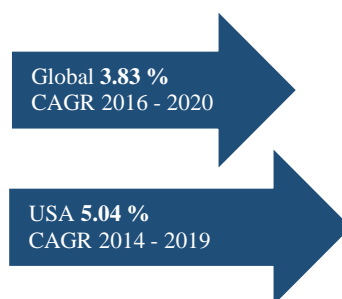
Considering all mentioned factors such as global GDP estimate, population who need eye correction, ageing demographic trend, life style dependency on electronic device and rising of middle class; the macroeconomics are pointing to positive and expansion in the vision care market industry.

1.5 Industry Analysis

Industry Analysis: Eye care industry has a bright future — the demand for corrective and protective eyewear is on the upsurge and will continue to thrive.

1.5.1 Currently, the global vision care industry is worth \$50.91 billion and will definitely be expecting a steady expansion rate. The eyewear industry is possibly be segmented into spectacles and contact lenses where the spectacles are further subdivided into category such optical frames, optical lenses (TOG business), reading glasses and sunglasses. These can also be segmented according to distribution channel such retail stores, e-commerce, clinics and hospitals. The vision care industry is very fragmented (150-200 small optical lenses manufactures globally) and slightly somewhat oligopolistic (3-4 mainly players accounted for approx. 40% of market share but are not price setter). Key industry players in the optical lenses segment are Carl Zeiss Vision (Germany), Essilor (France) and Hoya (Japan).

In fact, **globally it is estimated an expansion of CAGR of 3.83% during 2016 to 2020** (mentioned earlier CAGR on global vision care market is expected at 3.5% during 2014 to 2022). Looking at America data, the vision care market is worth \$36 billion with an estimate of CAGR of 5.04% from 2014 to 2019.



Source: NewsRx LLC

Figure 1.9: Vision care market CAGR estimation rate

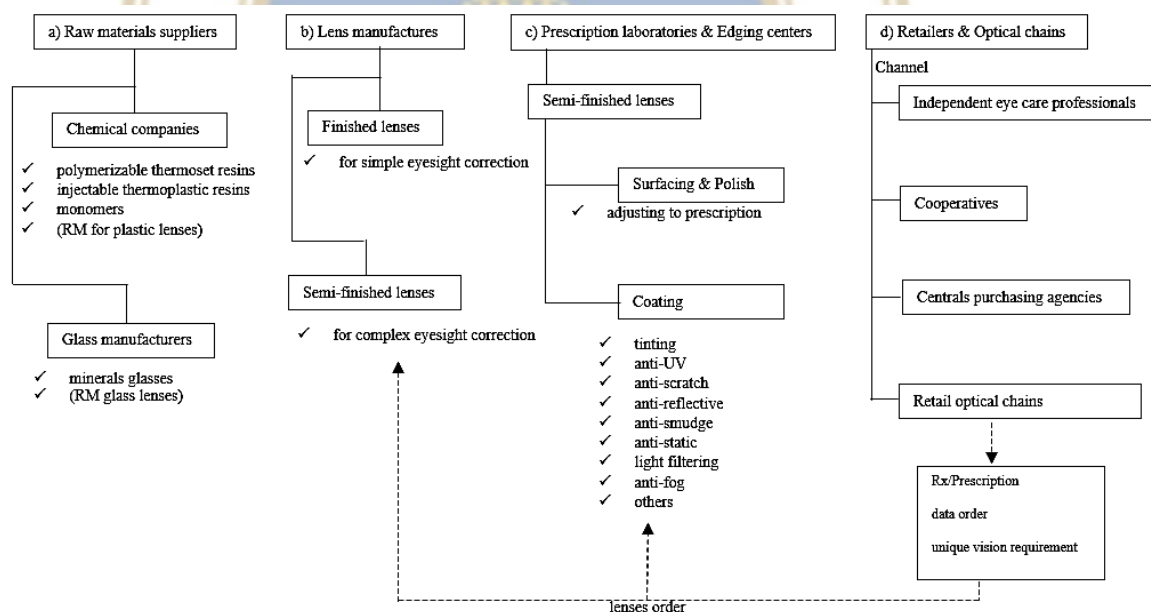
As mentioned earlier, according to World Health Organization, myopia (nearsightedness) have roughly double among American youth over the past decade and approximately the rate of myopia among China youth/school aged children has increased to surprising rate at 90%. However, youngster are not the only group accelerating the demand for medical eye care device. Global ageing population as mentioned is also industry's driver as elders are looking for solution to treat their age related vision problem one of which is Presbyopia (farsightedness). It is estimated that by year 2050, people who aged 65 and older will triple to about 1.5 billion representing 16% of total population in comparison to year 2010 with 8% ratio or about 524 million people. Therefore, the demand for corrective and protective eyewear is on the upsurge.

1.5.2 The industry is slowly moving toward particular trend as follow.

The market can expect high growth rate in Asia and Latin Americas; and rising demand among growing middle class in developing countries as quoted by key players. The overall long term **tread** in the industry is **a)** slowly replacement of mineral lenses (glasses lenses) with organic lenses (**plastic lenses**), **b)** expectation of growth in **new organic materials** that allows very thin lenses, **c)** replacement of bifocal lenses with **progressive lenses** and **d)** development of **surface coatings** and multi-layer lenses such anti-reflective, anti-smudge and tinted lenses.

1.5.3 Ophthalmic Optics Industry. Giant players of the optical industry has estimated the long term growth rate for global vision care market at approximately 3% to 4%. According to research and markets, the vision care market in the US is expecting at a CAGR of 5.04% over the period of 2014 to 2019. Recalling that approximately 95% of TOG revenue is resulted from overseas markets such as Europe, Australia & New Zealand, Asia Pacific, America, Middle East and Africa; therefore, facts, figures and estimated rates of certain geographical regions must be used in combination to justify the outlook and trend of TOG.

A typical ophthalmic optics industry can be briefly categorized into 4 different business components according to phases in transforming of optical products namely **a) Raw materials suppliers, b) Lens manufactures, c) Prescription laboratories & Edging centers** and lastly **d) Retailer & Optical chain**



Source: Essilor and Team

Figure 1.10: Ophthalmic optics industry and flow

The optical industry as illustrated through the diagram begins with **a) Raw Material Suppliers**. For raw material suppliers there are mainly two categories one is chemical companies providing monomer and thermoset resins for the making of plastic optical lenses while another is class manufacturers supplying minerals for making optical glasses. PPG is the supplier of raw materials for Thai Optical Groups in this initial stage of lens making.

The next stage is **b) Lens Manufactures** which is where TOG is operating its business. Lens manufactures produce various kind of lenses with different attributes. There are mainly 2 categories namely the single vision finished lenses made for simple eyesight corrections and semi finished lenses made to be feed later in the production process for the correction of more complex eyesight problems.

The third stage in the optical lenses producing industry is **c) Prescription lab and edging center**. TOG also operates in this area where the company has recently announced to implement its new Rx automation project which cost total THBm 400. The newly Rx/automation project will increase TOG total capacity of high valued added optical lenses like Rx/prescription lenses by 100,000,000 units per year. In this phase, the semi-finished lenses are put through grinding, surfacing and polishing according to its assigned prescription. Lastly, hard coating of the lenses are applied according to specifications.

The final phase is the **d) Retailer & Optical Chain** which includes various channels that optical lenses are market and reach its consumers. Lenses can be channeled through independent eye care professionals, cooperatives, central purchasing agency and retail optical chains. Specesaver Group is the last phase of the whole optical lenses journey. The Australian big store chain such as Specesaver Group is TOG's business consumers.

In conclusion, the fundamental macroeconomic trend in ageing, rising digital era, emerging middle class couple with industry directions toward plastic lenses, new organic material for thinner lenses, preference for progressive lenses and surface

coating are **pronouncing growth and expansion opportunity for lenses manufacture such as Thai Optical Group** where TOG is in the b) and c) business phase.

1.6 Competition Analysis

1.6.1 TOG international peers group.

For Thai Optical Group it is quite challenge to find peers to assert its value. TOG is listing under the Stock Exchange of Thailand under consumer products industry in the personal product & pharmaceuticals sector. Upon close examination, there are other 6 companies listed in the same sector and none are similar in nature of TOG lenses manufacturing business.

These other companies are 1. DSGT: producer of baby and adult diaper 2. JCT: first aid dressing, sport medical bandages and surgical adhesive tape 3. OCC: distributor in hair styling and treatment product etc 4. S & J: manufactures a diverse range of beauty care product 5. STHAI: rubber gloves producer 6. TNR: manufacture and distributor of condom and lubricant gel. Therefore for the purpose of firm valuation, the team assigned TOG's peer group to be international lenses manufacturers namely Essilor and Hoya. Please acknowledge that these two international firms are not exact to TOG as Essilor and Hoya have brand value, larger in term of size, may operate in more than just optical lenses and may be partially or fully integrated in the value chain however, they are the closest approximation in term of similarity in business industry. Peers are not TOG's direct competitor as most direct competitor would be other lenses OEM. Key international players are **Essilor International SA, Hoya and Carl Zeiss**.

Symbol	Period	Financial Data					Key Financial Ratios			
		Total As... (M.Baht)	Total Liabilities (M.Baht)	Equity (M.Baht)	Revenue (M.Baht)	Net Profit (M.Baht)	D/E (Times)	Net Profit Margin (%)	Return... Asset* (%)	Return... Equity* (%)
DSGT *	Q4/2015 (31/12/2015)	6,892.74	4,550.55	2,342.19	7,556.85	0.07	1.94	0.00	2.20	0.00
JCI *	Q4/2015 (31/12/2015)	1,040.18	110.73	929.45	847.25	97.38	0.12	11.49	11.21	10.65
OCC	Q4/2015 (31/12/2015)	1,080.76	271.75	809.01	1,455.45	82.88	0.34	5.69	9.46	10.44
S & J *	Q4/2015 (31/12/2015)	5,309.76	1,828.43	3,202.97	5,292.86	253.08	0.57	4.78	5.63	7.91
STHAI	Q4/2015 (31/12/2015)	1,470.61	148.91	1,321.70	775.64	46.05	0.11	5.94	6.57	8.41
TOG *	Q4/2015 (31/12/2015)	2,250.12	450.62	1,799.50	1,893.04	229.64	0.25	12.13	12.94	13.06

Symbol
DSGT
JCI
OCC
S & J
STHAI <SP, NC>
TNR
TOG

Source: SET

Figure 1.11: Stocks listing under personal product & pharmaceuticals sector

Profitability Analysis	2015		
	Essilor	Hoya	TOG
ROE Tot Equity %	14.25	16.48	13.06
ROA Tot Assets %	7.14	12.93	10.31
Income Aft Tax Margin %	12.11	18.97	12.59
Revenue/ Tot Assets	0.59	0.68	0.82
Long Term Debt/ Equity %	33.38	6.13	0.00
Total Debt/ Equity %	45.19	6.97	4.60

Source: Thomson Reuters

Figure 1.12: TOG and peers profitability analysis 2015

	2015		
	TOG	Essilor	Hoya
GROSS PROFIT	26.40%	57.09%	81.35%
NETPROFIT(LOSS)	12.13%	12.63%	18.94%

Source: SET and Team

Figure 1.13: Peers 2015

- **Essilor** is an ophthalmic optics company that designs, manufactures and markets range of lenses. The company operates under 3 segments namely lenses & optical instruments, equipment and sunglasses & readers. Essilor: Mkt cap (EURm) 115.75. France's largest health care equipment & service company with revenue breakdown by product type amounted to 96.8% in corrective lenses.

- Another key player is **Hoya**, a Japanese company. Hoya, a Tokyo based leading manufacturer of optical lenses and healthcare & medical products. The company operates a much wider range of product category not just optical for eye but also in household products and health care related as well. Hoya: Mkt cap (JPYm) 1,701,000.

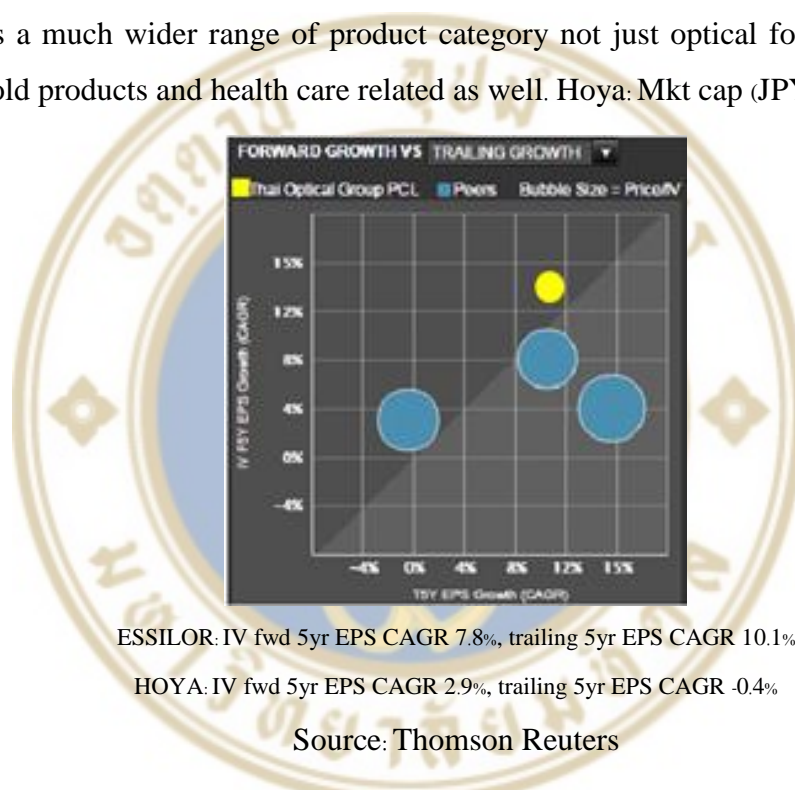


Figure 1.14: Forward growth vs trailing growth

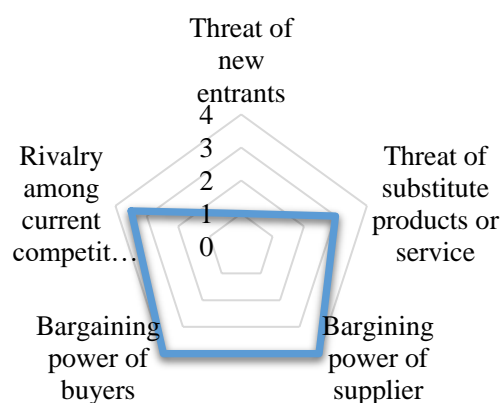
According to TOG's management, China is the leader in term of lowest cost. However, the competition where TOG stands in Europe, Australia, New Zealand and America market is not threatening by lower cheaper standard plastic optical lenses offering from China. The reason being is optical lenses in those markets are consider medical equipment and is highly regulated. Therefore, the cheaper versions compensate with lower quality are difficult to gain revenue stream from such markets. Moreover, since Specsavers owns about 25% stake in TOG, we can admit that partial sale order is

secured. For competition in other market, AEC poses opportunities for TOG. The competition does exist and TOG has already make a move through, as mentioned, acquiring some stake in companies in Vietnam, Singapore and Malaysia. Vietnam consumers perceived TOG as being quality optical lenses.

1.6.2 Five Force Analysis

From the Porter's Five Force analysis, the competitive environment for the industry of manufacturing and distributing optical lenses and related products is composing of only a few leading players such as is Essilor, Carl Zeiss Meditec, Hoya Corporation and many other small medium manufactures such as TOG. The industry is considered aggressive on the price competition aspect from China. However, China products are inferior in term of quality; and TOG's having its market/ buyers in highly health regulated counties such as American and Europe has no direct threat as long as TOG is able to maintain quality and remain price competitive.

The threat of potential new entrants is low to moderate as the optical lenses industry requires high capital investment in machineries, plants and factory; and it also requires economy of scale to remain price competitive. The threat of substitute product is low to moderate if we assert optical lenses products based on quality. Moreover, TOG has many internationally accepted certifications that ensure buyers on quality. Bargaining power of supplier is moderate to high as there are only a few supplier such PPG and some suppliers are the sole provider of certain chemical. However, TOG has formed a close length relationship with the suppliers. Bargaining power of buyers is moderate to high for TOG as an OEM. The business buyers such as chain stores and distributors can always switch sources for plastic lenses and regular glasses lenses but for high value added lenses such that of high index and high resistance that TOG is currently carrying are harder for buyers to switch source. In all, the rivalry among current competitor is consider moderate. The industry remains fragmented as there are about 180 to 200 lenses manufacturers around the world with only few leading key players.



Source: Team

Figure 1.15: TOG five force analysis

1.7 Investment Summary

A stable defensive stock with steady growth supported by macro-economic factors which pays regular stream of dividend at 6.14% dividend yield.

With the team analysis and fundamental assumptions, we may expect an **upside gain of 30% at the target price of 10.57 THB** under the Discounted Cash Flow Model (11.81% WACC, **5% growth in 2016, 5.5% growth in 2017, 6.1% growth in 2018, 6.2% in 2019 and 2020, 3% terminal growth or equivalent to CAGR 5.8% from 2015 to 2020**). The team are positive in TOG position in regards to its updated strategy, strengthen vision care market and steadily recovering/expanding global economy. The team recommend a BUY investment move.

1.7.1 Operational efficiency at TOG: Supporting by fact figures when observing TOG's average 4yr gross profit margin, it is found to be at 28% compare to other Thai manufacturers' average gross profit margin at 30% or higher to 50%. However, further investigation shows TOG's average 4yr net margin to be at 11% while the other

Thai manufacturer peers' net margins are generally found between range of 7% to 10%. This figures alone can demonstrates TOG's excellent operational efficiency. Moreover, if compare TOG to its international selected peers such as Essilor and Hoya, TOG's figures are at comparable where Essilor average 5yr gross profit margin is at 57% and net is at 13%; and Hoya average 5yr gross profit is at 80% and net is at 18%.

1.7.2 Expertise in the field: In comparison with peers such as Essilor and Hoya, TOG maybe very small in term of its revenue and market cap but it has gained expertise in its field of lenses manufacturing where TOG only operates in b) lenses producing phase and c) lenses edging & polishing phase of the value chain. This allows TOG to truly gain expertise in its operation.

1.7.3 TOG rebranding and brand building: To represent quality optical lenses producer. The management is focusing it effort on building TOG brand image as an umbrella brand which represents TOG's excellent reputation and quality. Moreover, the company is rearranging more distinctive line of lenses and improving product mix such as ONE, DISCOVERY, FREEDOM, MAXIMA, SHADE and SAHIRE to suit each category of lenses usages and lifestyle.

1.7.4 Increase high value-added lenses capacity through Rx automation plant: TOG is implementing Rx/prescription automation project which requires about THBm 400 paying in two installments one in beginning of year 2016 and another in 2017 where the project completion is expected at the end of 2017. The automation project will increase Rx lenses capacity by 1 million pieces yearly from current Rx existing capacity of 1 million pieces yearly and all category capacity of 30 million pieces yearly. With the new automation project, TOG can be less reliance on Thailand's increasing basic wages which is on an increasing tread from current THB 300 to THB 310 in 2017. As discussed earlier, the global market is moving toward more of organic plastic lenses as oppose to mineral glasses lenses thus, TOG is preparing itself for that

direction. This project would be the only major investment plan taken by the company at the current stage.

1.7.5 Possible benefit from corporate tax holiday: TOG may be eligible for 5yr corporate tax holiday after automation project completion and additional 3yr with BOI if applicable.

1.7.6 Expanding through inorganic growths: Currently TOG has three associates in 3 ASEAN Economic Community (AEC) such as Singapore, Malaysia and Vietnam to respond to growth opportunity of the region. During 2007 to 2015, ASEAN has consistently outperformed global growth at an average annual real growth rate of 5.2%. Vietnam market still have growth opportunity for TOG as the country view TOG as a reliable and trustable optical brand. Moreover, TOG is negotiating more deals with Indonesia, Philippines and Myanmar to grasp more growth opportunity within the region.

1.7.7 Factors promoting slow steady growth and expansion of vision care market:

a). Global ageing population: According to statistic, people of age 40+ usually experience some form of eyesight problem mostly Presbyopia (inability to see clearly on items/objects close-up). According to UN, it is expected that 16% of global population or 1.4 billion people are aged 60+ and 34% of global population or 2.8 billion people are aged 45+ by the end of year 2030. This is the indicative of vision care market expansion.

b). Lenses renewal rate: According to Essilor 2014 report, it is approximated globally that 1.2 billion lenses are purchased every year. On average, people usually renew their optical lenses about every 3 years but the rate may vary by locations. The renewal pattern keeps demand existing.

c). **Digital devices dependency:** Higher dependency and usage of digital device rise the demand for protection/prevention category of optical lenses. National Eye Institute has estimated the number of people experiencing myopia (nearsightedness) in 2020 will increase over 24% from the current 1.6 billion people 2014 data.

1.8 Valuation

The valuation of TOG is derived from discounted cash flow model: Free Cash Flow to Firm model. The team has employed DCF: FCFF to determine the appropriated intrinsic stock value of Thai Optical Group (TOG).

1.8.1 Discounted Cash Flow Model: FCFF

The team are convinced that this combination yields a well-rounded valuation of TOG. The Discount Cash Flow shows company growth potential under the situation in the economy and its respective industry. This method is suitable under the assumed length of timeframe where TOG is forecasted for five years from 2016 to 2020; and TOG is discounted four year from 2020 to the beginning of 2017 or ending of 2016. The Free Cash Flow to Firm (DCF) method to arrive at the value per common share of THB 10.57 and adjusted to THB 11.00. Therefore, the appropriated target price for TOG is THB 11.00 with the recommendation of “BUY”.

For clarification, the year zero is the end of year 2016 ending at Dec 2016 which it is assumed to be rear-end. For example, a one year period from 2016 to 2017 is the end of 2016 (Dec, 2016) or beginning of 2017 (Jan, 2017) to the end of 2017 or beginning of 2018. The report is specified at Dec 2016 where the current price is THB 8.15 thus, discounting back from 2020 composing of a four years period, 2019 discounting back a three years period, 2018 discounting back a two years period and 2017 discounting back a one year period. The reason for each specific period being a

rear-end is because the actual free cash flow needed to occur (1 business year) before it can be discounted back.

1.8.2 Projected Cash Flow and Assumptions

The team sourced that Thai GDP at approximately 3% and have modeled the projected revenue growth rate assumption for TOG as follow 2016 5%, 2017 5.5%, 2018 6.10%, 2019 6.20% , 2020 6.20%. In year 2016, the actual growth for first 3Q is approximately 5% so we would like to keep this rate until the end of year 2016. In year 2017, the team suspect that the automated Rx/prescription plant will commences in the third quarter of year 2017 and thus, growth rate may pick up a little due to higher capacity. In year 2018, TOG will focus on two geographical location namely the fast growing American market and the evolving Asia pacific region. Therefore it is the team confident that the growth during year 2018 will be at 6.10%. For the last two consecutive year of 2019 to 2020 the growth rate is set at 6.20% for the reason of maintain industry growth rate and sale growth rate. In all, if calculated from year 2015 to year 2020 for the period of 5 year, CAGR is found to be at 5.8% which is in line with the industry estimations and is still considered to be on the conservative side given TOG's own management targeting growth at 10%. For the terminal value is expecting a constant growth at 3% or approximately close to Thai GDP data.

The actual projected CAGR of TOG for 5 year from 2015 to 2020 is at 5.8% which is approximately similar to industry estimated. The explanation behind the projected revenue growth is discussed here as follow. Historically, CAGR of TOG for the past 4 year from 2011 to 2015 is found to be 12.64%. The industry estimate on global eye care market is CAGR 3.50% for period 2014 to 2022 while the industry leader like Essilor states long term growth to be at 3% to 4% range. The American figures is projected at CAGR 5.04% from 2014 to 2019. It is difficult to base TOG revenue on a single rate as TOG revenue are sourced from various geographical location and thus, the team use all rates in reasonable combination.

1.8.3 Discounted Cash Flow, WACC, CAPM and Assumptions

The risk free is at 2.88% sourced from 10 years zero coupon Thai bond, market risk premium is at 8.76% sourced from stern.nyu and TOG beta is at 1.02 sourced from SET and team estimate. From this assumption, the team is able to get the cost of equity (Ke) at 11.81%. For the cost of debt (Kd) at 3.53%, the team calculate the cost of debt from averaging last two period 2015 and 2016's interest expense and able to derived to after tax cost of debt where tax rate is compute from past data at 18.8%. The weight of equity obtained are capital structure expressed in terms of market value. In detail, the weight average cost of capital is obtained employing market value of equity and book value of debt. The market value of equity method is preferred over book value method as it is considered more conservative approach and perceived the longer term in view. With the **Ke at 11.81%** and **Kd at 3.53%**; and **Wd at 0.02%** and **We at 99.98%**, the team derived **WACC at 11.81%**. The terminal growth of TOG is modeled at Thai GDP of 3%.

Table 1.2: Summary of data used in computing WACC

Weighted Average Cost of Capital	
Risk Free Rate	2.88%
TOG Beta	1.02
Mkt. Risk Premium	8.76%
Cost of Equity (Ke)	11.81%
Cost of Dept	4.34%
TaxRate	18.8%
After-Tax Cost of Debt (Kd)	3.53%
Weight of Debt (Wd)	0.02%
Weight of Equity (We)	99.98%
WACC	11.81%
Terminal Growth	3.00%

With all figures explained, the estimated FCFF is discounted using WACC rate as illustrated in the table following this paragraph. The team arrived at TOG's enterprise value of THB 5,101,310,208 and subtracting out market value of debt THB 86,869,367 to obtain Value of Equity at THB 5,014,440,841. There are 474,318,000 shares of TOG outstanding. The team able to derive to value per share at **10.57 THB adjusted to be 11.00 THB**. The team also employed a dividend discount model and obtained the price at **THB 4.76**.

Table 1.3: Illustrating free cash flow to firm estimation

FCFF estimation										
			Debt 2016	777,870.28	Wd	0.02%	D/V			
market value method			Equity 2016	3,936,839,400	We	99.98%	E/V			
			Total	3,937,617,270.28						
Items	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F	
EBIT	206,990.82	200,527.61	255,904.01	288,311.59	296,079.32	335,565.73	378,915.70	424,045.40	470,632.17	
EBIT * (1-t)	168,115.25	162,865.91	207,841.90	234,162.92	240,471.76	272,542.11	307,750.39	344,404.15	382,241.31	
Add: Depreciation	144,836.44	159,124.87	157,083.15	146,909.92	173,069.72	204,416.58	204,416.58	204,416.58	204,416.58	
Operating Cash Flow	312,951.69	321,990.78	364,925.05	381,072.84	413,541.48	476,958.69	512,166.97	548,820.73	586,657.89	
-Increase in CA		-48,027.78	199,741.52	-37,249.89	113,021.39	69,640.32	81,485.51	87,873.44	93,321.59	
+Increase in CL		39,716.74	111,026.01	-65,161.04	7,520.51	17,656.81	20,399.74	21,849.44	23,081.27	
-Increase in Fixed Asset		-54,738.02	17,868.08	-5,709.87	200,000.00	200,000.00	0.00	0.00	0.00	
FCFF estimation		464,473.32	258,341.46	358,871.56	108,040.60	224,975.17	451,081.20	482,796.73	516,417.57	

Table 1.4: Illustrating enterprise value and intrinsic value per share of TOG

				2016F	2017F	2018F	2019F	2020F
WACC	11.81%							
Constant Growth (GDP)	3.00%	http://www.tradingeconomics.com/thailand/inflation-cpi-forecast			current 3.2% but keep at 3% to remain conservative			
Discounted FCFF				0	1	2	3	4
Terminal Value								6,037,925.89
Net FCFF					224,975.17	451,081.20	482,796.73	6,554,343.46
Present Value					201,212.96	360,825.68	345,404.82	4,193,866.75
Enterprise Value	5,101,310.21			5,101,310.21				
Market Value of Debt				86,869.37				
Value of Equity				5,014,440.84				
Number of Shares				474,318				
Value per Share				10.57				

Table 1.5: Illustrating dividend discount model

Dividend Discount Model										
					0	1	2	3	4	
Dividend Discount Model	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F	
Dividend	47,228.30	108,760.06	151,781.33	147,034.89	141,190.06	160,157.68	180,976.46	202,637.64	224,993.01	
Dividend per share	0.10	0.23	0.32	0.31	0.30	0.34	0.38	0.43	0.47	
Terminal Value									5,545,050.79	
Present Value						0.301990417	0.305198572	0.305629671	0.303500512	
Price	4.76								3,547,852,348	

1.8.4 Sensitivity Analysis

In this section, the sensitivity analysis between WACC and the constant growth rate is provided. This allows observation on possible price range in case WACC and constant growth rate change. The WACC that is used in the calculation is 11.81% and the constant growth rate is 3.00%; and if these two factors change, the sensitivity analysis table will illustrate the change in target price of TOG. The range for WACC is from 10.50% to 12.00% while the range for the constant growth rate is from 1.0% to 5.0%. Thus, the major trend observed from the analysis is that keeping the growth rate constant at 3.0%, any increase in WACC will result in the lower value of TOG stock price and

likewise any decrease in WACC will result in the higher value of TOG stock price. On the other hand, if we keep WACC constant at 11.81% and allow growth rate to increase, the stock value should increase and likewise if we allow a decrease in growth rate, the stock value should decrease.

Table 1.6: Illustrating sensitivity analysis between WACC and constant growth rate

Value per Share		WACC																
TOG	10.57	10.50%	11.00%	11.50%	11.60%	11.70%	11.80%	11.81%	11.82%	11.83%	11.84%	11.85%	11.86%	11.87%	11.88%	11.89%	11.90%	12.00%
	1.0%	10.27	9.72	9.22	9.13	9.04	8.94	8.94	8.93	8.92	8.91	8.90	8.89	8.88	8.87	8.86	8.86	8.77
	1.2%	10.46	9.88	9.37	9.27	9.17	9.08	9.07	9.06	9.05	9.04	9.03	9.03	9.02	9.01	9.00	8.99	8.90
	1.4%	10.65	10.05	9.52	9.42	9.32	9.22	9.21	9.20	9.19	9.18	9.17	9.16	9.16	9.15	9.14	9.13	9.03
	1.6%	10.85	10.23	9.68	9.57	9.47	9.37	9.36	9.35	9.34	9.33	9.32	9.31	9.30	9.29	9.28	9.27	9.17
	1.8%	11.05	10.41	9.84	9.73	9.63	9.52	9.51	9.50	9.49	9.48	9.47	9.46	9.45	9.44	9.43	9.42	9.32
	2.0%	11.27	10.61	10.01	9.90	9.79	9.68	9.67	9.66	9.65	9.64	9.63	9.62	9.61	9.60	9.59	9.58	9.47
	2.2%	11.50	10.81	10.19	10.07	9.96	9.85	9.84	9.82	9.81	9.80	9.79	9.78	9.77	9.76	9.75	9.74	9.63
	2.4%	11.74	11.02	10.37	10.25	10.13	10.02	10.01	10.00	9.98	9.97	9.96	9.95	9.94	9.93	9.92	9.91	9.80
	2.6%	11.99	11.24	10.57	10.44	10.32	10.20	10.19	10.18	10.16	10.15	10.14	10.13	10.12	10.11	10.09	10.08	9.97
	2.8%	12.26	11.47	10.77	10.64	10.51	10.39	10.37	10.36	10.35	10.34	10.33	10.31	10.30	10.29	10.28	10.27	10.15
GROWTH	3.0%	12.54	11.71	10.98	10.85	10.71	10.58	10.57	10.56	10.55	10.53	10.52	10.51	10.50	10.48	10.47	10.46	10.33
	3.2%	12.83	11.97	11.20	11.06	10.92	10.79	10.78	10.76	10.75	10.74	10.72	10.71	10.70	10.68	10.67	10.66	10.53
	3.4%	13.14	12.24	11.44	11.29	11.15	11.01	10.99	10.98	10.96	10.95	10.94	10.92	10.91	10.90	10.88	10.87	10.73
	3.6%	13.47	12.52	11.68	11.53	11.38	11.23	11.22	11.20	11.19	11.17	11.16	11.15	11.13	11.12	11.10	11.09	10.95
	3.8%	13.82	12.82	11.94	11.78	11.62	11.47	11.45	11.44	11.42	11.41	11.39	11.38	11.36	11.35	11.33	11.32	11.17
	4.0%	14.19	13.13	12.21	12.04	11.88	11.72	11.70	11.69	11.67	11.66	11.64	11.62	11.61	11.59	11.58	11.56	11.41
	4.2%	14.59	13.47	12.50	12.32	12.15	11.98	11.97	11.95	11.93	11.92	11.90	11.88	11.87	11.85	11.83	11.82	11.66
	4.4%	15.01	13.82	12.80	12.62	12.44	12.26	12.24	12.22	12.21	12.19	12.17	12.16	12.14	12.12	12.10	12.09	11.92
	4.6%	15.46	14.20	13.12	12.93	12.74	12.55	12.53	12.52	12.50	12.48	12.46	12.44	12.42	12.41	12.39	12.37	12.20
	4.8%	15.94	14.60	13.46	13.26	13.06	12.86	12.84	12.82	12.80	12.78	12.77	12.75	12.73	12.71	12.69	12.67	12.49
	5.0%	16.45	15.03	13.83	13.61	13.39	13.19	13.17	13.15	13.13	13.11	13.09	13.07	13.05	13.03	13.01	12.99	12.79

Table 1.7: Illustrating sensitivity analysis for beta, growth and WACC

Sensitivity Analysis					
WACC	10.57	GROWTH	10.57	BETA	10.57
7.00%	24.1404494	1.00%	8.935946427	0.1	131.0810367
7.50%	21.37608416	1.20%	9.071785989	0.15	82.71091501
8.00%	19.16521899	1.40%	9.21284539	0.2	60.30503193
8.50%	17.3568897	1.60%	9.359431393	0.25	47.38211495
9.00%	15.85045368	1.80%	9.511875281	0.3	38.97389778
9.50%	14.57623545	2.00%	9.670535353	0.35	33.06671594
10.00%	13.484467	2.20%	9.835799737	0.4	28.68942542
10.11%	13.2649395	2.40%	10.00808956	0.45	25.31604784
10.50%	12.53865189	2.60%	10.18786253	0.5	22.63692035
11.00%	11.71141796	2.80%	10.375617	0.55	20.45785995
11.50%	10.98183367	3.00%	10.57189658	0.6	18.65092314
12.00%	10.33361902	3.20%	10.77729538	0.65	17.12838093
12.50%	9.753921522	3.40%	10.99246405	0.7	15.82806997
		3.60%	11.21811663	0.75	14.7047122
		3.80%	11.45503847	0.8	13.72454627
		4.00%	11.7040954	0.85	12.86188484
		4.20%	11.96624425	0.9	12.09683715
		4.40%	12.24254517	0.95	11.41376125
		4.60%	12.53417596	1	10.80018713
		4.80%	12.84244881	1.05	10.24605142
		5.00%	13.1688301	1.1	9.74314361
				1.15	9.284698352
				1.2	8.865090928
				1.25	8.479606592
				1.3	8.124263708
				1.35	7.795676604
				1.4	7.490948089
				1.45	7.207584436
				1.5	6.943427513

1.9 Financial Analysis

1.9.1 Income statement common size analysis

Table 1.8: Income statement common size analysis

Annual Common Size (As % of Sales)	Common Size as % of sale														
	TOG					Essilor					Hoya				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
TOTAL REVENUES	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
COST OF SALE OF GOODS AND RENDERING OF SERVICES	77.70%	74.95%	76.13%	74.21%	73.60%	44.59%	44.20%	43.97%	41.53%	40.26%	21.60%	20.21%	20.94%	21.32%	18.65%
GROSS PROFIT	22.30%	25.05%	23.87%	25.79%	26.40%	55.41%	55.80%	56.03%	58.47%	59.74%	78.40%	79.79%	79.06%	78.68%	81.35%
SG&A	25.40%	11.59%	11.69%	12.05%	11.17%	23.46%	23.41%	23.24%	24.80%	25.71%	42.06%	42.90%	44.46%	42.27%	41.45%
OTHER EXPENSES															
OPERATING INCOME (EBIT)	-3.69%	13.11%	11.86%	13.69%	15.23%	16.30%	16.66%	16.64%	21.55%	17.61%	26.10%	15.17%	23.96%	17.79%	21.36%
INTEREST EXPENSE	0.45%	0.55%	0.43%	0.17%	0.21%	0.58%	0.22%	0.28%	-0.41%	-0.71%	1.40%	-0.05%	0.00%	2.05%	2.65%
NET INCOME BEFORE TAX	-4.15%	12.56%	11.43%	13.52%	15.02%	16.65%	16.78%	16.68%	20.79%	16.69%	27.53%	14.90%	24.48%	19.99%	24.13%
INCOME TAX EXPENSES	1.50%	2.02%	2.31%	2.65%	2.89%	4.28%	4.15%	3.93%	3.40%	4.59%	3.66%	3.93%	5.05%	5.93%	5.17%
NET PROFIT (LOSS)	-5.64%	10.54%	9.12%	10.87%	12.13%	12.07%	11.71%	11.71%	16.38%	11.27%	26.59%	11.92%	19.40%	13.66%	18.94%

• **Income statement common size analysis: Operational Efficiency and lowering SG&A is the key to TOGAs** illustrated, the team have displayed the income statement common size analysis of TOG, Essilor and Hoya. Looking at **cost of goods sold (COGS)**, TOG seem to possess highest COGS as high as about 70% while peers Essilor's COGS about 40% and Hoya's COGS about 20%. TOG seems to be below the industry on this item partially maybe because of less bargaining power of TOG due to smaller purchasing volume with supplier. Another explanation on this one might be the nature of each businesses where TOG only operating in producing lenses thus, its materials are mainly thermoset resin and chemical while Essilor and Hoya still operate in other line of businesses which may have lower cost of materials structure. Therefore, **gross profit margin** of TOG is lowest at about 30% while Hoya is the leader at about 80% and Essilor at 60%. Moving on to the next item, **selling and administrative expense (SG&A)**, Hoya ranks highest at around 40% follows by Essilor at around 24% while TOG is performing the best at lowest SG&A at about 11%. We do not want to give out fault alarm but due to nature of TOG as an OEM, less selling and marketing resources are needed in the business therefore, TOG's SG&A is lowest among the peers. Essilor and Hoya do require larger marketing and advertising campaign as they need brand building and brand recognition. However, we expect that this item for TOG will be at a slightly increasing trend as the company is strategically moving toward rebranding, brand building and advertising. Interest expense is very little and seems standard for all 3 firms. Looking at the bottom line which is the **net profit** margin, the item is about the same

around 10% for both TOG and Essilor while Hoya is higher at about 18%. This is a positive indication about TOG ability to control and manage cost as its COGS is as high at 70% and still able to manage around 10% profit comparing to its peers. However, the team would like to comment that we would expect a higher net margin for Essilor as it does operate in the retail business and most of the margin is at the retail end of the value chain. This Essilor's figures are a bit disappointing.

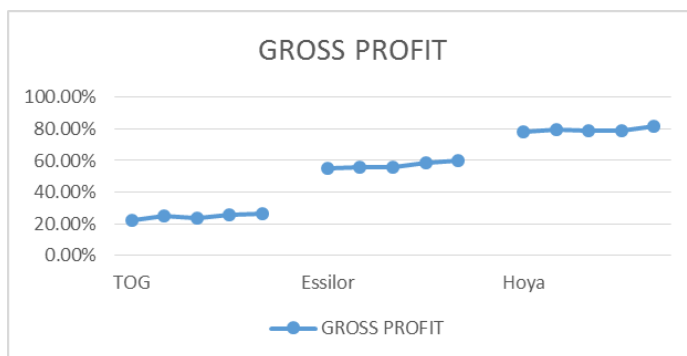
1.9.2 Income statement trend analysis

Table 1.9: Income statement trend analysis

Arrow telling direction	Trend Analysis														
	TOG				↑↓	Essilor				↑↓	Hoya				↑↓
Trend Analysis with 2011 as a base year	2012	2013	2014	2015		2012	2013	2014	2015		2012	2013	2014	2015	
TOTAL REVENUES	100%	114%	128%	127%	↑	100%	102%	114%	135%	↑	100%	103%	118%	135%	↑
COST OF SALE OF GOODS AND RENDERING OF SERVICES	100%	109%	117%	118%	↑	100%	101%	107%	123%	↑	100%	106%	124%	125%	↑
GROSS PROFIT	100%	102%	122%	126%	↑	100%	102%	119%	144%	↑	100%	102%	116%	138%	↑
SG&A	100%	108%	123%	116%	↑↓	100%	101%	120%	148%	↑	100%	106%	116%	131%	↑
OTHER EXPENSES															
OPERATING INCOME (EBIT)	100%	97%	124%	139%	↑	100%	101%	147%	142%	↑	100%	162%	138%	190%	↑↑
INTEREST EXPENSE	100%	84%	36%	45%	↓	100%	108%	204%	296%	↑	100%	91%	74%	64%	↓
NET INCOME BEFORE TAX	100%	97%	127%	143%	↑	100%	101%	141%	134%	↑	100%	169%	158%	219%	↑
INCOME TAX EXPENSES	100%	122%	155%	172%	↑	100%	96%	93%	149%	↑	100%	132%	178%	178%	↑
NET PROFIT (LOSS)	100%	93%	122%	138%	↑	100%	103%	157%	129%	↑	100%	167%	135%	215%	↑

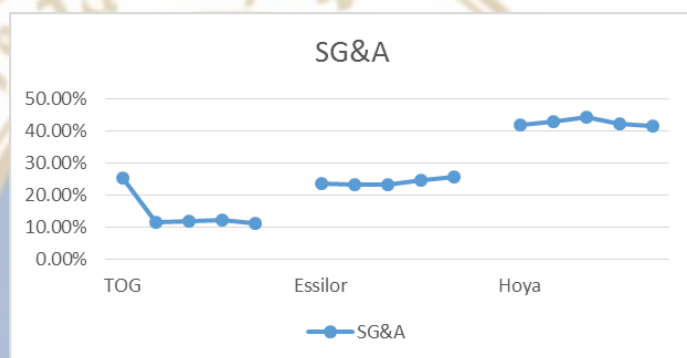
- Income statement trend analysis:** Moving along to the trend analysis, the team has placed arrows beside each company summary figures for easy interpretation. Please note that the team has excluded TOG's year 2011 financial data from calculation as that year net loss was reported due to irregular occurrence of Thailand flood. Therefore, TOG's calculation is based on the base year of 2012. The highlighted rows are what TOG is different from its peers.

For example, the first item is TOG revenues trend. Although TOG revenue is not on the increase trend it demonstrates a small increment with steady pattern. SG&A of both peers seem to be in the increasing trend while TOG does not develop any pattern. TOG SG&A shows some fluctuation but most recent year seem to be on the decreasing side. The next item is operating income where Hoya perform better among the group. The last item is interest expense where TOG and Hoya pose a decreasing trend but Essilor poses an increasing trend. TOG lowering interest expense trend is indicating strong equity structure.



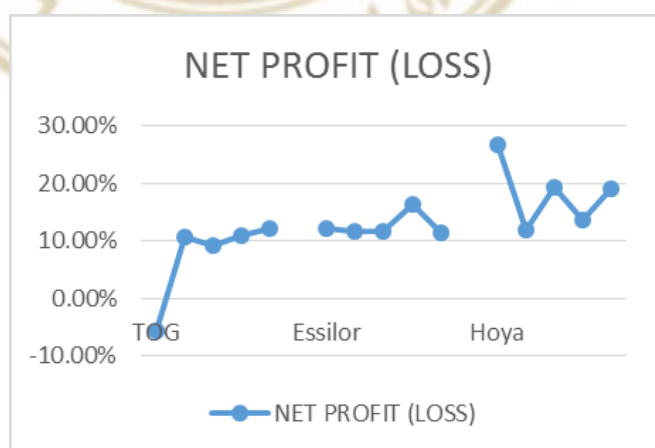
Source: Team

Figure 1.16: TOG and peers gross profit trend



Source: Team

Figure 1.17: TOG and peers SG&A trend



Source: Team

Figure 1.18: TOG and peers net profit trend

1.9.3 Financial Ratio Analysis

1.9.3.1 Profitability & Return Ratio: GROSS, NET, ROA, ROE

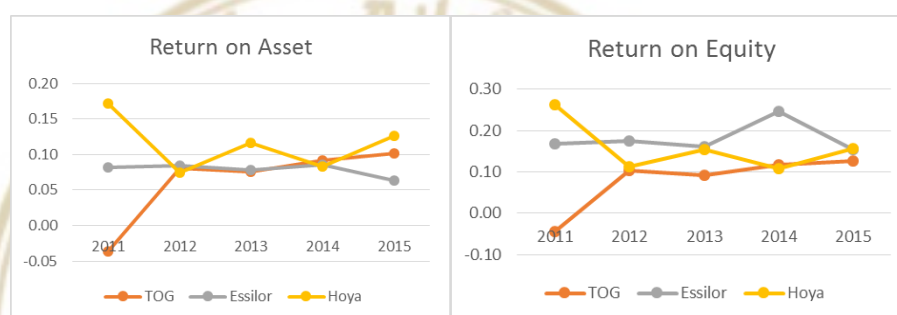
Asserting TOG from the financial ratio analysis perspective, it can be observed that TOG is an effective and efficient manufacturer and distributor of optical lenses. Looking at TOG's gross profit margin, it is on average about 25% while its peers are Essilor 57% and Hoya 79%. In fact, the industry average internationally is approximately 20% to 50% on their gross profit margin. We can interpret these differences as TOG bearing a higher cost of goods sold or it is sourcing with high supply costs. However, when looking further at the net profit margin, we can see that TOG's net profit margin is almost on par with its peers. TOG's net profit margin in 2015 is 12% while Essilor is 11% and Hoya is 19%. This is an interesting figure to be observed. These figures could be interpreted as TOG's ability in managing its operations very well as it starts with a 26% gross profit margin and still ends up with a 12% net profit margin. Its peers, on the other hand, Essilor starts with a 60% gross profit margin and ends with an 11% net profit margin; and Hoya starts with an 81% gross profit margin and ends with a 19% net profit margin.

Table 1.10: Gross and net profit margin ratio

Gross Profit Margin	2011	2012	2013	2014	2015	avg
TOG	22%	25%	24%	26%	26%	25%
Essilor	55%	56%	56%	58%	60%	57%
Hoya	78%	80%	79%	79%	81%	79%
Net Profit Margin	2011	2012	2013	2014	2015	avg
TOG	-6%	11%	9%	11%	12%	7%
Essilor	12%	12%	12%	16%	11%	13%
Hoya	27%	12%	19%	14%	19%	18%

Table 1.11: ROA and ROE

Net Income/Total Asset	measures the operating efficacy of a company without regards to financial structure									
ROA	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TOG	-0.04	0.08	0.08	0.09	0.10	0.09	0.10	0.11	0.11	0.14
Essilor	0.08	0.08	0.08	0.09	0.06					
Hoya	0.17	0.08	0.12	0.08	0.13					
Net Income/Shareholder's Equity	measures the return accruing to common stockholders and excludes preferred stock									
ROE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TOG	-0.04	0.10	0.09	0.12	0.13	0.14	0.15	0.16	0.16	0.17
Essilor	0.17	0.18	0.16	0.25	0.15					
Hoya	0.26	0.11	0.15	0.11	0.16					



Source: Team

Figure 1.19: ROA and ROE

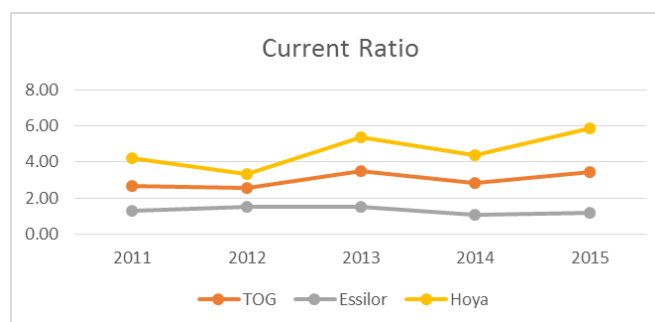
1.9.3.2 Risk Ratio

Table 1.12: TOG and peers current ratio

Current Asset/Current Liability	measures a company's ability to pay short-term and long term obligations				
Current Ratio	2011	2012	2013	2014	2015
TOG	2.64	2.54	3.49	2.82	3.45
Essilor	1.26	1.51	1.49	1.07	1.15
Hoya	4.20	3.34	5.36	4.40	5.90

Table 1.13: TOG and peers debt equity ratio

Debt/Equity	measures the proportion of debt used given the total capital				
D/E	2011	2012	2013	2014	2015
TOG	0.25	0.29	0.21	0.28	0.25
Essilor	0.27	0.25	0.31	0.49	0.45
Hoya	0.27	0.27	0.13	0.12	0.07



Source: Team

Figure 1.20: TOG and peers current ratio graph

As observed from the illustration above, TOG has average ability to pay its short term obligation as its figures is between the two leader peers. TOG debt to equity is consider about the same or on average as the industry on the international level.

1.10 Investment Risks

1.10.1 Investment risks: There is one to two factors that we have not discussed until now is the exchange rate risk and possibility of slow growth rate not reaching expectation of approximately 5% to 6% yearly or CAGR of 5.8%. Upon study TOG financial structure, there is one irregular item under income statement which is the loss and gain from foreign exchange rate. There seem to be no pattern in this item. The team choose to ignore it effect as currency item is account for approximately 1% total revenue.

The factor that would really affect TOG is growth rate is not as expected and this may be cause by many reason such as slowdown in Europe economy and the US market does not respond to TOG marketing move. At this moment moving into Q4 of 2016, TOG is performing slower and the management has accepted that they are moving full stream in promoting their TOG brand image to in American region and have

tried to promote sale revenue. However, the American market has not yet pick up TOG's signal. Therefore, the team see that these could also be the downside possibility for TOG where market does not pick up growth as anticipated.

Other related risk are such as: a) growing popularity of Lasik eye treatment surgery. However, the procedure cost and inferior technology are still a barrier to some eye care segment consumers. b) Growing popularity of contact lenses especially in Japan and Korean. From the optical vendor perspective, contact lenses are only viewed as complement product in optical store and are not immediate threat. c) Intense price competition from China on standard plastic CR-39 lenses. (China's products are consider inferior on quality aspect and TOG aims to combat price aspect by implement lean manufacturing to reduce company's product cost) d) Unstable economic policy in the United State with the newly elected president. TOG has recently focuses more in expanding market in the United State. Thus, the company should be aware of any changing policy that might relate to TOG's exportation.

1.10.2 Risk matrix: This section assesses TOG's investment risk into a risk matrix. All various risks exposed to TOG that have been mentioned earlier in investment risk and TOG's threat section will be re-discussed here. Risks exposing to TOG may be summarized as follow:

a) Exchange rate risk: exchange rate fluctuation may affect TOG performance as an exporter of optical lenses and optical related products. However, TOG is performing with financial tools that allows TOG to manage its currency exchanges risk. The loss and gain from foreign exchange rate item on income statement as it is accounted for minor percentage of approximately 1% of total revenue. Therefore, this exchange rate risk possibility of occurrence is viewed as less likely to happen and its impact if occur is medium. Probability (Unlikely), Severity (Moderate).

b) Growth rate is not as anticipated due to slowdown in Europe economy and US market does not respond to TOG marketing move. In short, approximately 45% of

TOG revenue is generated from Europe sale; and slowdown in Europe economy could potentially affect company earning. Therefore, the probability of smaller growth rate due to slowdown of Europe economy is little to moderate; and the impact of the occurrence is considered high. Probability (Unlikely), Severity (Major).

c) Growing popularity of Lasik eye treatment surgery which is viewed as a partial risk in traditional optical lenses industry. In general, lasik treatments help to correct some eye sight problem. The treatment can only correct short sighted eye problem but cannot correct eye sight problem that is related to aging such as long sighted. Moreover, the traditional optical lenses industry is expanding through multiple uses such as protective use of blue lenses that are used in office with electronic device such as computer screen. Therefore, the growing popularity of lasik possibility of occurrence is very high but its impact is considered to be minimal. Probability (certain), Severity (minor).

d) On the surface, widely uses of contact lenses may be perceived as a risk to optical lenses industry. However, not all contact lenses users wear their contact lenses all the time. In fact, contact lenses user wear contact lenses and traditional glasses in alternation. Contact lenses can be perceived as both partial risk and complementary product. Therefore, the widely acceptance and uses of contact lenses probability of occurrence is high and its impact on traditional optical lenses industry is little. Probability (certain), Severity (minor).

e) China price competition on standard plastic the CR-39 lenses. This risk occurrence is managed by TOG with the implantation of lean manufacturing to reduce company's production cost. Therefore, the price competition from China is most likely happening and the severity of it impact is moderate. Probability (certain), Severity (moderate).

f) Instability of the United State economic policy during transferring of governing regime. TOG has recently focuses more in expanding marketing in the US and any changes in the related economic policy could impact the company. Therefore,

the probability of the instability of the US economic policy is little and the impact is high. Probability (rare), Severity (major).

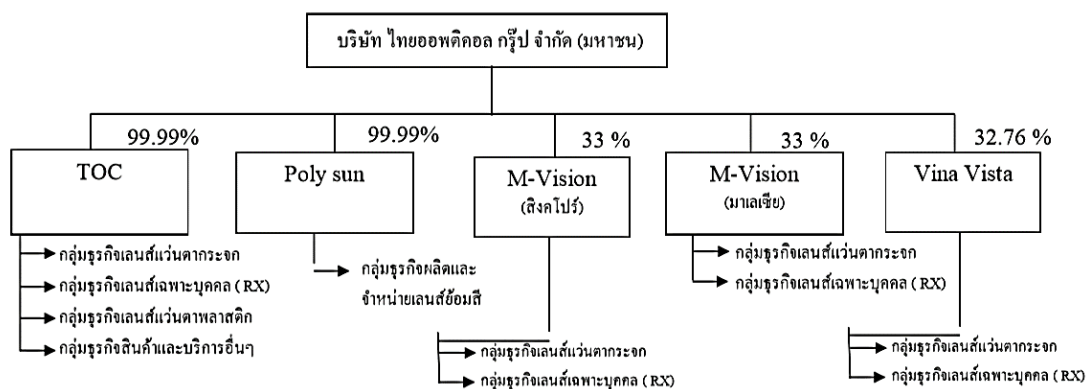
Table 1.14: TOG Risk Matrix Table

Risk Matrix Table (TOG)					
Severity	Insignificant	Minor	Mode rate	Major	Catastrophic
Probabilities					
Certain <90%		e) The popularity of Lasik treatment d) Acceptance of contact lenses	e) China price competition		
Likely 50%-90% chance					
Moderate 10%-50% chance					
Unlikely 3%-10% chance			a) Exchange rate risk	b) Growth rate not as anticipated due to slowdown in Europe economy	
Rare <3%		f) Instability of US economic policy			



CHAPTER II DATA

2.1 Business Structure of Thai Optical Group



TOG THAI OPTICAL GROUP	Thai Optical Co., Ltd.	Poly Sun Co., Ltd.
The Company	The Subsidiary company (TOC)	The Subsidiary company (Poly Sun)
Organic Lenses (CR-39)	Organic Lenses (CR-39)	Sunglass Lenses
Photochromic Lenses	Mineral Lenses	Polarized Lenses
High Index Lenses	Prescription / Rx Lenses	
High Impact Resistant Lenses	Glass Mold	
Hard Coating and Anti - reflection Coating Service	Hard Coating and Anti - reflection Coating Service	

MVISION	VINA-VISTA
The Associated Company (MVision)	The Associated Company (Vina Vista)
Organic Lenses (CR-39)	Organic Lenses (CR-39)
Prescription / RX Lenses	Prescription / RX Lenses

Source: Company

Figure 2.1: Business structure of TOG and its associates

2.2 Major Shareholders and Free-Float

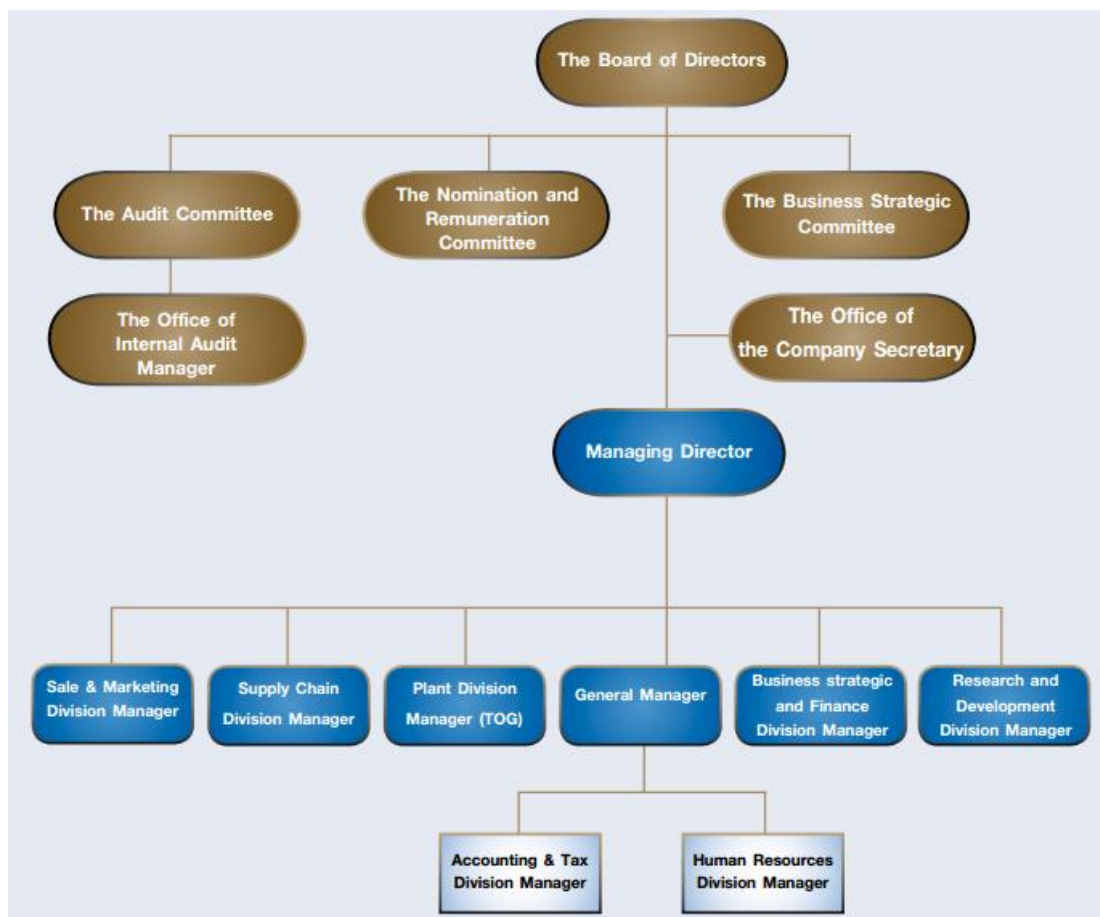
Table 2.1: TOG Major Shareholders

Rank	Major Shareholders	# Shares	% Shares
1.	SPECSAVERS ASIA PACIFIC HOLDINGS LIMITED	118,767,600	25.04
2.	นายคำรณ ประจักษ์ธรรม	26,001,300	5.48
3.	นายประทีป ประจักษ์ธรรม	24,000,000	5.06
4.	SKANDINAVISKA ENSKILDA BANKEN AB	22,455,200	4.73
5.	นายชรัตน์ ประจักษ์ธรรม	22,100,000	4.66
6.	นายภาคิ ประจักษ์ธรรม	22,000,000	4.64
7.	นายศนันท์ ประจักษ์ธรรม	20,109,800	4.24
8.	นายสัมฤทธิ์ ประจักษ์ธรรม	14,840,000	3.13
9.	นายวิรัช ประจักษ์ธรรม	12,010,000	2.53
10.	นายสว่าง ประจักษ์ธรรม	11,992,200	2.53

Free Float As of 30 Dec 2016	
Minor Shareholders (Individual)	1,351
% Shares in Minor Shareholders (% Free Float)	21.85

Source: Company Data

2.3 Management and Organization Chart



Source: Company Data

Figure 2.2: TOG management and organization chart

2.4 Corporate Governance (CG)

2.4.1 Corporate Governance (CG) Overview

The corporate governance measure was initiated in year 2001. The corporate governance has been implemented continuously with an objectives to evaluate and baseline the corporate governance practices in Thailand of all listed companies with those of the international standards. Currently corporate governance is brought into line with the tougher ASEAN corporate governance standards which can be broadly defined into five main sections namely: 1. Rights of Shareholders (สิทธิของผู้ถือหุ้น) 2. Equitable Treatment of Shareholders (การปฏิบัติต่อผู้ถือหุ้นอย่างเท่าเทียมกัน) 3. Information Disclosure and Transparency (การเปิดเผยข้อมูลและความโปร่งใส) 4. Roles of Stakeholders (บทบาทของผู้มีส่วนได้เสีย) and 5. The Board of Directors responsibilities (ความรับผิดชอบของคณะกรรมการ).

The corporate governance score is assessed by Thai Institute of Directors Association (IOD) where IOD has been assessing companies utilizing only publicly available corporate news and information. Thus, listed companies are encouraged to disclose the related corporate governance information via all possible communication channels such as press conferences, annual reports, companies' website or 56-1. The publicly released information is beneficial to the listed companies themselves as they are the source of means to information used in evaluation and assessment; and they help to increase the confidence level of investors, analysts and related parties.

As mentioned earlier, there are 5 broad categories in CG score whereby each categories are quantitatively evaluated and assessed; importantly, criteria that involve abstract or non-measurable criteria are strictly avoided. The assessment criteria has been periodically revised. In year 2016, the 5 main categories are composed of 241 questions where the weighting scheme is dedicated as follow: 15% for 1. Rights of Shareholders, 10% for 2. Equitable Treatment of Shareholders, 20% for 3. Information Disclosure and Transparency, 20% for 4. Role of Stakeholders and 35% for 5. The Board of Directors

responsibilities. Specific questions used in an assessment may be observed in detailed via the Thai Institute of Directors Association website.

ช่วงคะแนน Score Range	สัญลักษณ์ Number of Logo	ความหมาย Description
90 - 100		ดีเลิศ Excellent
80 - 89		ดีมาก Very Good
70 - 79		ดี Good
60 - 69		ดีพอใช้ Satisfactory
50 - 59		ผ่าน Pass
ต่ำกว่า 50	No logo given	N/A N/A

Source: IOD

Figure 2.3: CG scoring and logo

2.4.2 Corporate Governance at TOG

The Board of Directors of Thai Optical Group (TOG) recognizes the importance of maintaining good corporate governance to all stakeholders. According to information released, the Board of Directors and the Management Team has strong intention to conduct business under the principles of good corporate governance, constancy, transparency, ethics with environmental and corporate social responsibility in conformity with the guideline and framework of the Stock Exchange of Thailand and the Securities and Exchange Commission. Moreover, the management aims to develop the good corporate governance policy of the company in order to bring out the best practice for the whole organization.

TOG had been awarded by various institutes such as SD Awards 2015, SET Awards 2015 for best company performance and rated as excellent from the quality evaluation for conduction the annual general meeting of shareholders project for five consecutive years since 2011 to 2015. TOG has been certified from Private Sector on Collective Action Coalition Against Corruption Council (CAC) which organized by IOD and the company has been included in ESG 100 securities group.

Thai Optical Group (TOG) is ranked at a 4-stars or a description of a 'Very Good' rating on the corporate governance score by Thai Institute of Directors Association (IOD). (Please referred to the related figure). A scoring of a 4 for TOG has a score range of 80 – 89 points is considered a 'Top Quartile'. The scores are publicly announced only for those publicly listed companies with scoring of the top 3 tiers name the good, very good and excellent.

Section 1: Rights of Shareholders

The company recognizes the rights of their shareholders and encourages their shareholder to exercise their rights such as the right to exercise their ownership to control the company through the appointment the Board of Directors to act as their representatives, the right to obtain adequate information of the company, the right to attend and vote in the shareholders' meetings, the right to have proxy holders to attend shareholders' meeting and act on their behalf, the right to express opinions and ask questions, the right to appoint or remove the members of the board of directors, the right to vote for the increases or decreases of the capital of the company and more. All related information such any transactions of the company, good corporate governance policy and the code of business ethics are disclosed and reported through the company's website. If the issues involve shareholders, information might be disclosed on the stock exchange of Thailand website urgently. In addition for good rights of shareholders practice, the company has set the shareholders ordinary meeting within 4 months after the accounting period and extraordinary meeting if necessary. The company make it mandatory that all directors and executives of the company to attend the shareholders' meetings in order to provide information to any shareholders.

Section 2: Equitable Treatment of Shareholders

The company has set the policy enabling shareholders to take part of the business as well as express their opinions. The company facilities shareholders in many ways such as providing opportunities to shareholders for voting or specify votes through proxy. The company also has disclosed information completely, transparency and

sufficiently for shareholders in a manner that encourages and provides opportunities for the shareholders equally to express opinion and recommendation. The company also has procedures set up and follow-up check to prevent the use of inside information by directors and management team. For example, all directors and executives are prohibited to sell-buy TOG shares during 20 days after the closing date of each quarter of financial statements and during 2 days after the disclosure of financial statements to the public. All directors and management are responsible to regularly submit a report on their TOG stock ownership to the board of directors.

Section 3: Information Disclosure and Transparency

The Company has set the strictly control to disclose the financial information and other related information about the Company's performance correctly, adequately, regularly, and timely. Information disclosed such as: The Board of Directors reports the Company's performance in accordance with the corporate governance in the annual statement (form 56-1), and the annual report (form 56-2), The Board of Directors and Executives have reported on the holding and having transaction of the Company's assets in accordance with the regulations of The Securities and Exchange Commission (SEC.) and The Company has set up Investor Relations Section to communicate with Investors, Institutional investors, Shareholders, Analysts and Governmental Agency.

Section 4: Roles of Stakeholders

The Company's stakeholders are customers, employees, business partners/creditors, shareholders, competitors, the communities surrounding the Company, society or government sectors. The company allowed channel of communication, suggestions or complaints for related stakeholders via the company secretary through information relation.

Section 5: The Board of Directors responsibilities

According to TOG released information it is said that the Board of Directors is responsible to perform their duties for shareholders and is independently from the management. The Board of Directors and Management Team have encouraged the importance of Good Corporate Governance, the Code of Business Ethics, the CSR Policy and Anti-Corruption Policy among directors, executives and employees of the Company, therefore the Boards and Management Team provide communication channels for such information through Orientation of new directors and employees, as well as add content in the training of employees, including with disseminate the said information on the Company's website and Internal communication. More detailed information beyond the scope of this thematic paper may be obtained via TOG website.

2.5 Income Statement

Table 2.2: Projected Income Statement

Items	2011A	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F	Assumption	Input
THAI OPTICAL GROUP												
Income Statement						5.00%	5.50%	6.10%	6.20%	6.20%		
(Thousands of ฿)					Historical CAGR 12.64%	1	2	3	4	5		
Items	2011A	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F	Assumption	Input
REVENUES FROM SALE OF GOODS AND RENDERING OF SERVICES	1,132,965.22	1,432,092.74	1,629,688.22	1,830,960.81	1,823,795.84	1,914,985.63	2,020,309.84	2,143,548.74	2,276,448.76	2,417,588.59	Trend, see assumption sheet	
REVENUES FROM SALES	1,092,585.05	1,362,878.44	1,556,967.99	1,757,403.19	1,732,590.60	1,831,194.67	1,931,910.38	2,049,756.91	2,176,841.84	2,311,806.04	% of sale	95.62%
REVENUES FROM RENDERING OF SERVICES	40,380.17	69,214.30	72,720.23	73,557.62	91,205.24	83,790.96	88,399.46	93,791.83	99,606.92	105,782.55	% of sale	4.38%
OTHER INCOME	34,232.14	147,019.31	61,166.60	38,734.22	69,246.29	87,909.78	92,744.82	98,402.25	104,503.19	110,982.39	% of sale	4.59%
GAIN ON FOREIGN CURRENCY EXCHANGE	9,482.37	7,189.73	20,613.63	7,248.37	17,719.31	15,210.03	16,046.58	17,025.42	18,081.00	19,202.02	% of sale	0.79%
OTHER INCOMES - OTHERS	24,749.76	139,829.58	40,552.98	31,485.85	51,526.98	72,699.75	76,698.23	81,376.83	86,422.19	91,780.36	% of sale	3.80%
TOTAL REVENUES	1,167,197.36	1,579,112.05	1,690,854.82	1,869,695.02	1,893,042.13	2,002,895.41	2,113,054.66	2,241,950.99	2,380,951.95	2,528,570.97		
COST OF SALE OF GOODS AND RENDERING OF SERVICES	906,919.16	1,183,523.38	1,287,289.40	1,387,485.11	1,393,257.90	1,508,447.60	1,591,412.21	1,688,488.36	1,793,174.64	1,904,351.46	% of sale	78.77%
COST OF GOODS SOLD	880,683.87	1,150,229.93	1,252,741.39	1,349,419.37	1,349,586.95	1,465,422.20	1,546,020.42	1,640,327.67	1,742,027.98	1,850,033.72	% of sale	76.52%
COST OF RENDERING OF SERVICES	26,235.29	33,293.45	34,548.01	38,065.74	43,670.94	43,025.39	45,391.79	48,160.69	51,146.65	54,317.75	% of sale	2.25%
SELLING AND ADMINISTRATIVE EXPENSES	296,463.36	182,960.61	197,711.61	225,352.51	211,382.32	198,278.18	185,986.40	174,456.62	163,641.59	153,497.02	Recent Trend	-6.20%
SELLING EXPENSES	30,401.05	29,244.21	24,874.05	24,907.42	21,216.04	23,255.50	21,813.83	20,461.53	19,193.07	18,003.24	proportion	11.73%
ADMINISTRATIVE EXPENSES	266,062.30	153,716.40	172,837.56	200,445.09	190,166.29	175,022.68	164,172.57	153,995.08	144,448.53	135,493.78	proportion	88.27%
SHARES OF LOSSES FROM INVESTMENTS ACCOUNTED FOR USING THE EQUITY METHOD	6,931.05	5,637.25	5,326.20	953.39	90.32	90.32	90.32	90.32	90.32	90.32	Very small in proportion to revenue so keep constant/omit	constant
TOTAL EXPENSES	1,210,313.57	1,372,121.23	1,490,327.21	1,613,791.01	1,604,730.54	1,706,816.09	1,777,488.93	1,863,035.29	1,956,906.55	2,057,938.81		
PROFIT (LOSS) BEFORE FINANCE COSTS AND INCOME TAX EXPENSES	-43,116.21	206,990.82	200,527.61	255,904.01	288,311.59	296,079.32	335,565.73	378,915.70	424,045.40	470,632.17		
FINANCE COSTS	5,275.44	8,698.29	7,275.33	3,108.98	3,938.49	3,428.87	3,600.31	3,798.33	4,090.03	4,279.89		
INCOME TAX EXPENSES	17,481.52	31,898.23	39,044.60	49,513.41	54,737.34	54,963.57	62,347.43	70,451.93	78,884.36	87,587.04	Tax rate is average last four yr excluding 1st irregular rate	18.78%
NET PROFIT (LOSS)	-65,873.17	166,394.30	154,207.69	203,281.63	229,637.76	237,686.88	269,617.99	304,665.44	341,131.02	378,765.24		
Dividend	94,068.98	47,228.30	108,760.06	151,781.33	147,034.89	141,190.06	160,157.68	180,976.46	202,637.64	224,993.01	specified by TOG >40%, historical avg.	59.40%

2.7 Statement of Free Cash Flow

Table 2.4: Cash Flow Projection

Cash Flow										
(Thousands of \$)						1	2	3	4	5
Items	2011A	2012A	2013A	2014A	2015A	2016F	2017F	2018F	2019F	2020F
PROFIT (LOSS) BEFORE FINANCIAL COSTS AND/OR INCOME TAX EXPENSES	-48,391.65	198,292.53	193,252.29	252,795.04	284,373.10	292,650.45	331,965.42	375,117.37	420,015.38	466,352.28
PERIOD NET PROFIT (LOSS)/ATTRIBUTABLE TO EQUITY HOLDERS OF PARENT	-	-	-	-	-	-	-	-	-	-
DEPRECIATION AND AMORTISATION	124,167.81	144,836.44	159,124.87	157,083.15	146,909.92	173,069.72	204,416.58	204,416.58	204,416.58	204,416.58
DEPRECIATION	-	-	-	-	-	-	-	-	-	-
BAD DEBT AND DOUBTFUL ACCOUNTS (REVERSAL)	359.61	2,532.89	1,894.68	1,420.15	-3,629.06	-	-	-	-	-
LOSS ON OBSOLESCENCE (REVERSAL)	66,437.80	-72,658.31	1,042.20	14,238.31	2,972.82	-	-	-	-	-
SHARE OF (PROFIT) LOSS FROM INVESTMENTS ACCOUNTED FOR USING THE EQUITY METHOD	6,931.05	5,637.25	5,326.20	953.39	90.32	-	-	-	-	-
UNREALISED (GAIN) LOSS ON FOREIGN CURRENCY EXCHANGE	-1,263.73	-199.15	-5,082.35	1,799.12	-544.79	-	-	-	-	-
IMPAIRMENT LOSS OF FIXED ASSETS (REVERSAL)	-	-13,197.96	-	-	-	-	-	-	-	-
IMPAIRMENT LOSS OF OTHER ASSETS (REVERSAL)	13,197.96	-	-	-	-	-	-	-	-	-
(GAIN) LOSS ON DISPOSAL OF FIXED ASSETS	-931.2	31.09	-390.85	-944.76	22.8	-	-	-	-	-
FINANCE COSTS	4,863.11	8,101.99	6,317.17	2,346.87	3,230.30	2946.52	3093.85	3264.01	3463.11	3677.83
OTHER RECONCILIATION ITEMS	4,671.15	4,775.35	4,780.85	6,894.85	-5,679.49	-	-	-	-	-
CASH FLOWS FROM (USED IN) OPERATIONS BEFORE CHANGES IN OPERATING ASSETS AND LIABILITIES	170,041.90	278,152.12	366,265.04	436,586.12	427,745.92	468,666.69	539,475.84	582,797.96	627,895.07	674,446.69
(INCREASE) DECREASE IN OPERATING ASSETS	118,926.17	-181,407.38	39,415.27	-208,713.81	86,585.68	-113,021.39	-69,640.32	-81,485.51	-87,873.44	-93,321.59
(INCREASE) DECREASE IN TRADE ACCOUNT AND OTHER RECEIVABLES - OTHER PARTIES	-	-154,320.22	16,136.65	-43,558.47	-4,332.92	9,353.61	-19,022.16	-22,257.65	-24,002.51	-25,490.66
(INCREASE) DECREASE IN TRADE ACCOUNT AND OTHER RECEIVABLES - RELATED PARTIES	-	-	-	-	-	-	-	-	-	-
INCREASE (DECREASE) IN OTHER RECEIVABLES - OTHER PARTIES	73,882.79	-	-	-	-	-	-	-	-	-
(INCREASE) DECREASE IN INVENTORIES	17,169.82	-21,831.86	19,375.15	-159,207.96	82,151.68	-118,108.79	-49,049.26	-57,392.10	-61,891.26	-65,728.52
(INCREASE) DECREASE IN OTHER CURRENT ASSETS	27,874.56	-5,258.85	3,903.48	-5,967.28	8,769.12	-4,266.22	-1,568.91	-1,835.76	-1,979.67	-2,102.41
(INCREASE) DECREASE IN OTHER NON-CURRENT ASSETS	-1	3.55	-	19.9	-2.2	-	-	-	-	-
INCREASE (DECREASE) IN OPERATING LIABILITIES	-43,088.16	36,332.15	25,357.36	110,644.91	-89,166.89	7,520.51	17,656.81	20,399.74	21,849.44	23,081.27
INCREASE (DECREASE) IN TRADE ACCOUNT AND OTHER PAYABLES - OTHER PARTIES	-	45,346.50	27,823.68	114,293.01	-79,500.02	9,633.93	14,065.78	16,458.24	17,748.46	18,848.86
INCREASE (DECREASE) IN TRADE ACCOUNT AND OTHER PAYABLES - RELATED PARTIES	-	-	-	-	-	-	-	-	-	-
INCREASE (DECREASE) IN OTHER PAYABLES - OTHER PARTIES	-40,497.29	-	-	-	-	-	-	-	-	-
INCREASE (DECREASE) IN OTHER PAYABLES - RELATED PARTIES	-	-	-	-	-	-	-	-	-	-
INCREASE (DECREASE) IN OTHER CURRENT LIABILITIES	-2,590.87	-9,014.35	-2,466.32	-3,648.10	-9,666.87	-2,113.42	3,591.03	3,941.50	4,100.98	4,232.41
CASH GENERATED FROM OPERATIONS	245,879.91	133,076.88	431,037.67	338,517.22	425,164.71	363,165.81	487,492.33	521,712.19	561,871.07	604,206.37
INCOME TAX PAID	-63,986.81	-24,539.77	-31,999.29	-52,903.70	-47,453.02	-54,963.57	-62,347.43	-70,451.93	-78,884.36	-87,587.04

Table 2.4: Cash Flow Projection (cont.)

NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES	181,893.10	108,537.11	399,038.38	285,613.52	377,711.70	308,202.24	425,144.89	451,260.26	482,986.71	516,619.33
(INCREASE) DECREASE IN SHORT-TERM INVESTMENTS	-	-8,191.51	-3,915.00	-	-	-	-	-	-	-
(INCREASE) DECREASE IN INVESTMENT IN SUBSIDIARIES AND ASSOCIATES	-	-	-11,188.73	-	-29,800.84	-	-	-	-	-
(INCREASE) DECREASE IN PROPERTY, PLANT AND EQUIPMENTS	-227,007.12	-132,497.92	-72,700.31	-154,331.45	-93,230.32	-93,230.32	-93,230.32	-93,230.32	-93,230.32	-93,230.32
PROCEEDS FROM DISPOSAL OF PROPERTY, PLANT AND EQUIPMENTS	1,327.87	1,980.02	1,257.41	3,912.50	411.22	-	-	-	-	-
PURCHASES OF PROPERTY, PLANT AND EQUIPMENTS	-228,334.99	-134,477.94	-73,957.72	-158,243.95	-93,641.53	-	-	-	-	-
(INCREASE) DECREASE IN INTANGIBLE ASSETS	-3,874.38	-9,397.76	-6,854.42	-5,696.06	-6,060.54	-	-	-	-	-
INTEREST RECEIVED	398.56	247.23	175.11	213.58	639.99	-	-	-	-	-
OTHER ITEMS	-	-	-	-	-	-	-	-	-	-
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES	-230,482.93	-149,839.96	-94,483.35	-159,813.94	-128,451.72	-93,230.32	-93,230.32	-93,230.32	-93,230.32	-93,230.32
INCREASE (DECREASE) IN SHORT-TERM BORROWINGS FROM FINANCIAL INSTITUTIONS	131,545.98	32,615.14	-121,299.96	47,496.68	-7,560.83	-	-	-	-	-
INCREASE (DECREASE) IN LONG-TERM BORROWINGS FROM FINANCIAL INSTITUTIONS	-15,030.00	16,786.93	-38,000.00	-17,356.93	-	-	-	-	-	-
INCREASE IN LONG-TERM BORROWINGS FROM FINANCIAL INSTITUTIONS	-15,030.00	16,786.93	-38,000.00	-17,356.93	-	-	-	-	-	-
INCREASE (DECREASE) IN OTHER LOAN FROM FINANCIAL INSTITUTIONS	-	-	-	-	-	-	-	-	-	-
INCREASE IN OTHER LOAN FROM FINANCIAL INSTITUTIONS	-	-	-	-	-	-	-	-	-	-
INCREASE (DECREASE) LIABILITIES UNDER TRUST RECEIPTS	-102.98	2,650.74	7,783.44	-15,037.00	-	-	-	-	-	-
INCREASE (DECREASE) IN FINANCE LEASE CONTRACT LIABILITIES	-1,225.39	-1,096.02	-945.22	-667.37	-	-	-	-	-	-
INCREASE IN FINANCE LEASE CONTRACT LIABILITIES	-1,225.39	-1,096.02	-945.22	-	-	-	-	-	-	-
(DECREASE) IN FINANCE LEASE CONTRACT LIABILITIES	-	-	-	-667.37	-	-	-	-	-	-
PROCEEDS FROM ISSUANCE OF SHARE CAPITAL	3,052.40	2,369.40	2,001.20	2,068.60	-	-	-	-	-	-
DIVIDEND PAID	-94,068.98	-47,228.30	-108,760.06	-151,781.33	-147,034.89	-141,190.06	-160,157.68	-180,976.46	-202,637.64	-224,993.01
INTEREST PAID	-4,778.90	-8,161.24	-6,359.47	-2,356.14	-3,230.30	-2946.52	-3093.85	-3264.01	-3463.11	-3677.83
OTHER ITEMS	-	-	-	-	-	-	-	-	-	-
NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES	19,392.13	-2,063.35	-265,580.06	-137,633.48	-157,826.02	-	-	-	-	-
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENT	-29,197.71	-43,366.20	38,974.97	-11,833.90	91,433.96	-	-	-	-	-
CASH AND CASH EQUIVALENTS, BEGINNING BALANCE	88,425.69	59,227.98	15,861.78	54,836.75	43,002.86	-	-	-	-	-
CASH AND CASH EQUIVALENTS, ENDING BALANCE	59,227.98	15,861.78	54,836.75	43,002.86	134,436.82	-	-	-	-	-

2.8 SWOT Analysis

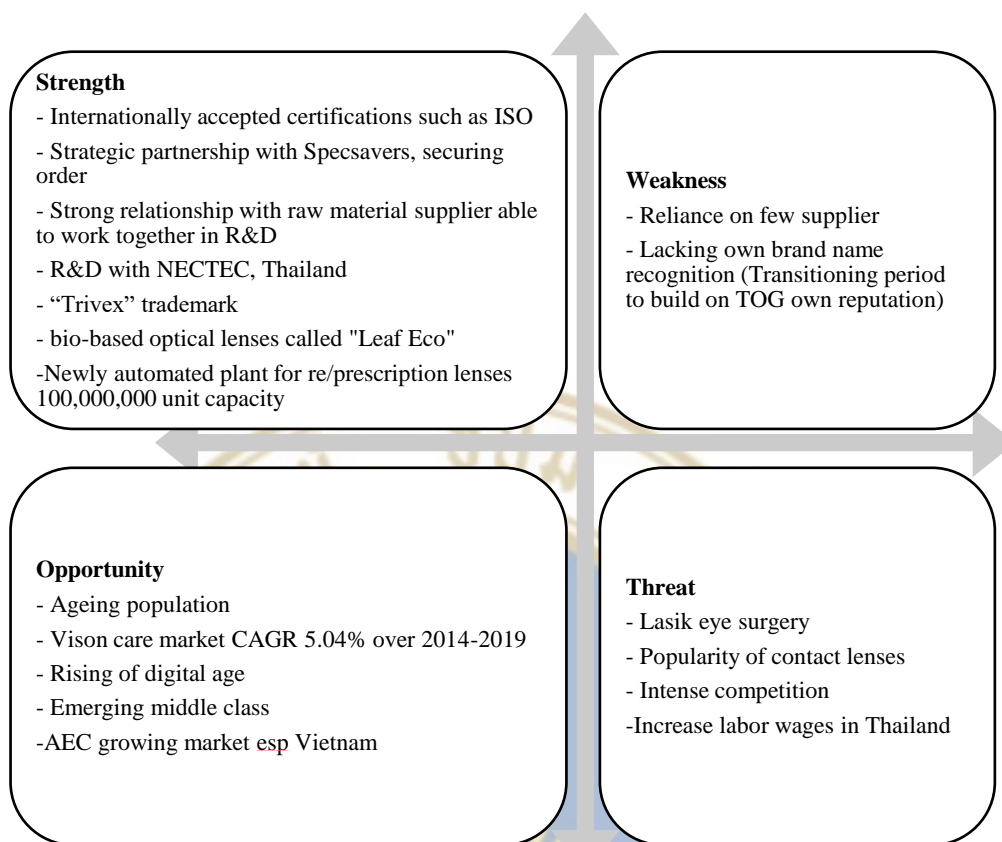


Figure 2.4: TOG SWOT

Strength

- Established presence and acceptance in the international market by other vision care industry players for over fifty years.
- Certified with various internationally accepted standards such as ISO 9001:2008 for supplier or manufacturer by Bureau Veritas, ISO 13485:2012 by Bureau Veritas, ISO 14001:2004 Environmental Management System by Bureau Veritas, Carbon footprint label for Excelite 1.50 by Ministry of Natural Resources and Environment. Be accepted on a global level by other players within the vision care industry
- Secured product purchase order from optical retail chain strategic partner like Specsavers Optical Group.

- Strong research and development capability. TOG's research team has been working closely with a statutory government organization The National Electronics and Computer Technology Center (NECTEC) in developing new optical products to the market.
- Developed a close relationship with raw material supplier, PPG, where PPG can aid TOG in research and development department.
- Through relationship with supplier, TOG holds latest technology in "Trivex" trademark. TOG might be small in term of scale-size compare to the big three global players but TOG is the only company in the industry to own the Trivex trademark. (Trivex lenses: clarity, durability, light weight). Tribrid is also another alternative choice. (Tribrid: combining Trivex lenses and high index lenses: clarity, durability, light weight, thin)
- Offering Alternative Bio-based optical lenses called "Leaf Eco". This type of lenses are plant based and are bio degradable unlike regular plastic lenses. This is the joint cooperation between TOG and Mitsui Chemical to bring awareness to society because this Leaf Eco lenses reduce CO2 gas emission. TOG gains awareness.
- Offering complete range of optical lens products such as plastic lenses, glasses lenses, valued add lenses such as photochromic lenses, high resistance lenses and sun glasses lenses.
- Implementing Rx/prescription automated machinery with estimated 100,000,000 unit of output capacity. Allowing less reliance on human labor and able to produce quality product at more competitive price.

Weakness

- Reliance on only a few supplier of monomer (organic/plastic optical lenses raw material) as particular optical lenses are made from specific monomer in which that monomer is exclusively available at certain suppliers. (TOG has been able to maintain close relationship with suppliers and have never encountered problem)
- Lacking its own brand name recognition under its initial excelite brand. TOG is currently on a transitioning period to build on TOG own reputation as a house brand as well as restructuring lenses products into distinctive categories and brands. This will promote brand recognition and match between brand and customer life style.

Opportunity

- Ageing global population trend especially in US and Europe.
- The growing vision care market of the US which expected to increase at a CAGR of 5.04% over the period 2014-2019.
- The rising of digital age is an opportunity. According to source, the average time usage on computers has increased by 65% over the past five year in the US. Moreover, the intense and constant usage of television, tablet PCs and smartphones creates visual stress where the blue light emitting for digital devices is harmful to retinal cells of the eyes. In the UK, average users pick up their smartphone approx. 221 times in one day. (Increased digital exposure on the eyes). Changing life style on being more electronic device dependency and heavier user of smartphone or devices. This open up more growth in subsector of protective eyewear (such as blue light cut lenses) as oppose to corrective eyewear (such as prescription lenses).
- Emerging middle class with higher purchasing power.
- AEC growing market especially Vietnam market where TOG is perceived by local consumers as premium quality lenses. (Vietnam, Malaysian and Singapore).

Threat

- Growing popularity of Lasik eye treatment surgery. However, the procedure cost and inferior technology are still a barrier to some eye care segment consumers.
- Growing popularity of contact lenses especially in Japan and Korean. From the optical vendor perspective, contact lenses are only viewed as complement product in optical store and are not immediate threat.
- Intense price competition from China on standard plastic CR-39 lenses. (China's products are consider inferior on quality aspect and TOG aims to combat price aspect by implement lean manufacturing to reduce company's product cost)
- Unstable economic policy in the United State with the newly elected president. TOG has recently focuses more in expanding market in the United State. Thus, the company should be aware of any changing policy that might relate to TOG's exportation.

2.9 Five Force Analysis

Threat of potential new entrants: low to moderate

Lenses manufacturing business is a business that require certain level capital for startup in related machineries, plants and factory. The nature of lenses manufacturing business is that it requires economy of scale by producing large volume to get costs structure down in order to be price competitive and survive the industry. It is not hard to run machinery and produce lenses but which players is going to purchase your product unless they know your reputation and quality of the lenses produced. If the business is already established, it is not all easy to get in.

Threat of substitute products or services: low to moderate

The threat of substitute products or services for qualified optical lenses produced from finest imported raw material by TOG consider to be low. Strategic business partners who value quality over price will not easily switch to lower price product by other company and risk quality of the optical lenses. Although TOG is a Thailand based OEM, the company is certified with various internationally accepted protocols which require management and internal control to maintain such certification.

Bargaining power of supplier: moderate to high

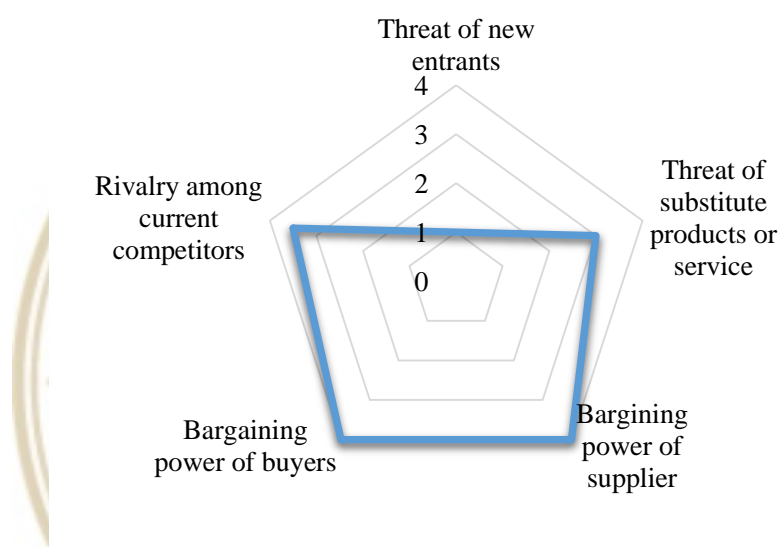
There are few suppliers of monomer, thermoset resin and mineral raw material in the industry. For TOG, the bargaining power of supplier namely PPG is high as TOG is sourcing its raw material only from this supplier. It is worth mentioning that certain thermoset resin is trademark by certain supplier or it is the supplier's blend marking it is almost impossible to switch to other supplier if that raw material is needed in the company production input. TOG states that it develops close relationship with its supplier. In sum, the bargaining power of the supplier seem to be high.

Bargaining power of buyers: moderate to high

The bargaining power of buyer for TOG as an OEM is very high. The business buyers such as chain stores and distributors can always change to other lenses manufactures for standard plastic lenses, regular glasses lenses but not for high value added lenses (high index, high resistance) such as lenses made from trivex trademark raw material. This highly depend on the buyers, if quality is their factors existing buyers will find it very hard to switch from qualified TOG's lenses. Therefore, the bargaining power of buyers is considered to be moderate to high.

Rivalry among current competitors: moderate

The competition of vision care industry is very competitive but remains fragmented as there are approximately 180 to 200 lenses manufacturers around the world. Key players according to Essilor 2014 annual report, is Essilor, Carl Zeiss Meditec, Hoya Corporation and many other small medium manufactures such as TOG.



Source: Team

Figure 2.5: TOG Five Force Analysis

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