Analytical paper
EE 460 Thai economy
Thammasat University
May, 2016

A slowdown in the electronics sector of Thailand

By
Onnalin Kajornklam
5504640896

Present to
Assoc. Prof. Dr. Bhanupong Nidhiprabha

A slowdown in the electronics sector of Thailand

By Onnalin Kajornklam

Export-oriented growth path

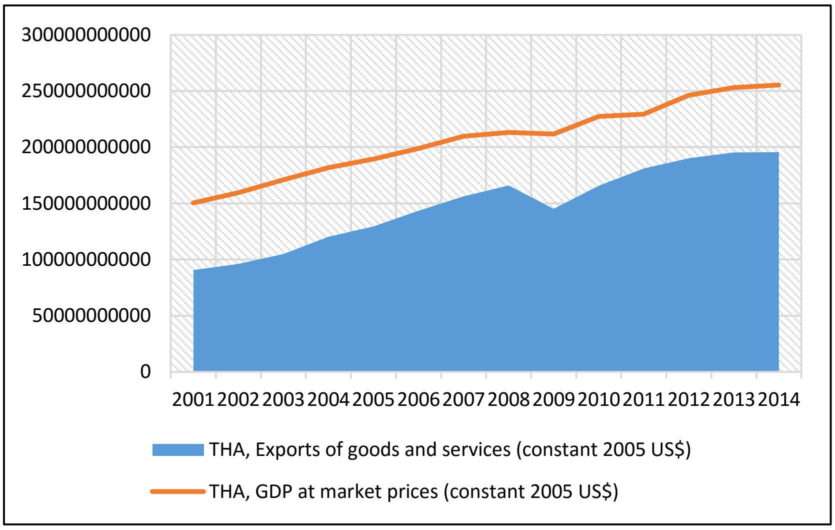
Economic growth of Thailand has shown a significant increasing trend from 1960s onwards. There have been many shifts in degrees and sources of growth, which can be divided into five episodes[1]. From 1960s to 1970s, Thailand started to face with increasing in growth due to import substitution policies, which focused mainly on tariff management and investment incentives. However, after it was crashed by oil price shock in 1970s, Thailand was set in motion to change to 'export-oriented policy' instead. From then, export has slowly increase its share in GDP of Thailand.

From 1987 until 1996 was the boom period, which eventually ended up with Asian financial crisis in 1997 due to unready economy that was exposed with capital inflow and financial liberalization along with bad currency scheme. This resulted in consumption and investment slowdown as they originally were key components of Thai economic growth. While investment was pulled back from aboard, import declined accordingly. Nevertheless, Thailand still showed numbers of export during such period of crisis which was an impact of major decline in Thai Baht.

After being brutally hit by Asian financial crisis in 1997, Macroeconomic policy has become more supportive, while global demand slowly recovered from the crisis. From 1980 onwards, international trade component has become a major contributor to Thai economy, while role of consumption became relatively small.

Over the last fourteen years of 2001 to 2014, export accounts for 66.82% of total Gross Domestic Product on average in real terms, with share of export at 67.71% in 2013 and at 69.19% in 2014 respectively (see Figure 1).

Figure 1: Export values and GDP of Thailand, unit: USD



Source: World Bank Indicator

[1] Kaspar Richter, Thailand's growth path: from recovery to prosperity: World Bank Publications, 2006

After Global Financial crisis in 2008, Thailand was able to catch up with world's GDP growth in 2009. Moreover, Thailand's economic growth out-ragingly surpassed global trend after 2012 until the present. This suggests Thai economy's recovery status from the 2008 performs better than average (see Figure 2).

As the export component becomes a driver of Thailand's economic growth, it is left with no doubts that export is a source that pushes economic growth of Thailand over to the world standard (see Figure 3).

Figure 2: World GDP and GDP of Thailand, unit: USD

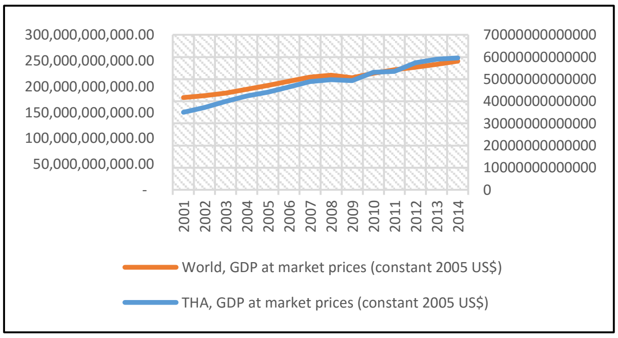
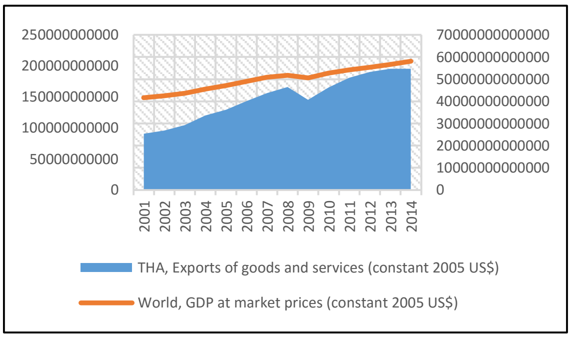


Figure 3: World GDP and Exports of Thailand, unit: USD



Source: World Bank Indicator

Industrialization to Electronics limelight phase

Under export-led growth scheme, it is crucial to analyze the sectors which majorly share parts in the country's total export.

Thailand started off its export having an 'agriculture' sector as a leading pilot to global market stage due to its comparative advantage in the sector in the early time. However, the policies which guarded 'manufacturing' sector as Thailand was welcoming Industrialization in 1960s to 1970s were accompanied by high export tax on rice and other commodity products, these altogether compressed the growth in agriculture sector while let manufacturing industry grow. Began with a clear path and protected, industrialization in Thailand continued to expand even after the policies, which obstructed agriculture sector, were abandoned. Capital investment which began to be introduced in Thai economy by foreign direct investment slowly guided the intensity of the industry focus to '*electronics*' manufacturing activities[2].

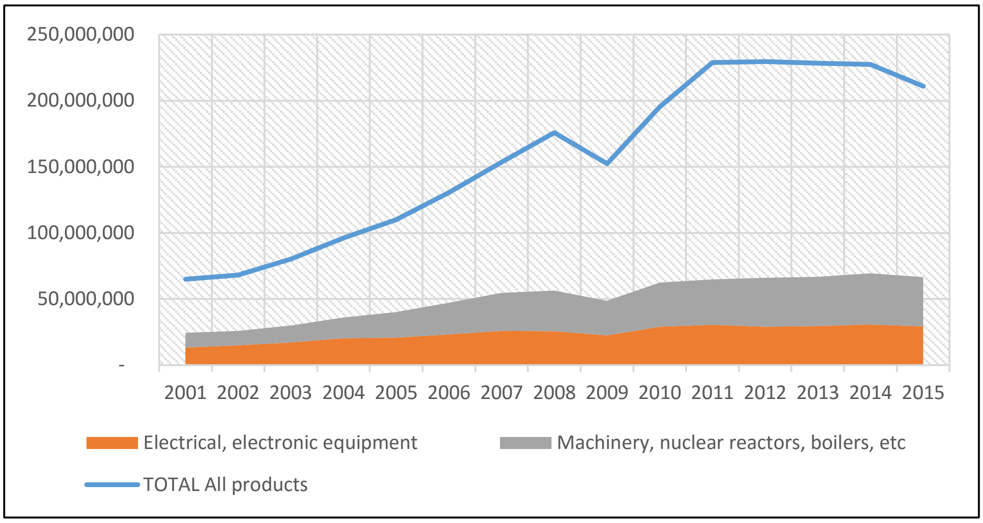
Slowdown in Electronics sector: A fallen rising star

In 2015, total export value of electronics sector was $66.4 billion. Thailand has grown its expertise of becoming a world-class producer of electronics parts of the world, while also has a great of reputation of being one of the biggest electronics manufacturing hub in South East Asia. It is ranked number 21 of electronics products exporter of the world by total volume of all product categories. Unfortunately, Thailand is currently confronting a challenge of slowdown in its highest-exported-volume industry, an electronics sector.

Total value of electronics sector increased from 2001 and dropped in 2009 along with total export due to Global financial crisis. However, the volume shows moderate, even close-to-zero growth after 2009 onwards (see Figure 4).

[2] Considering only product sectors, not including service and other sectors.

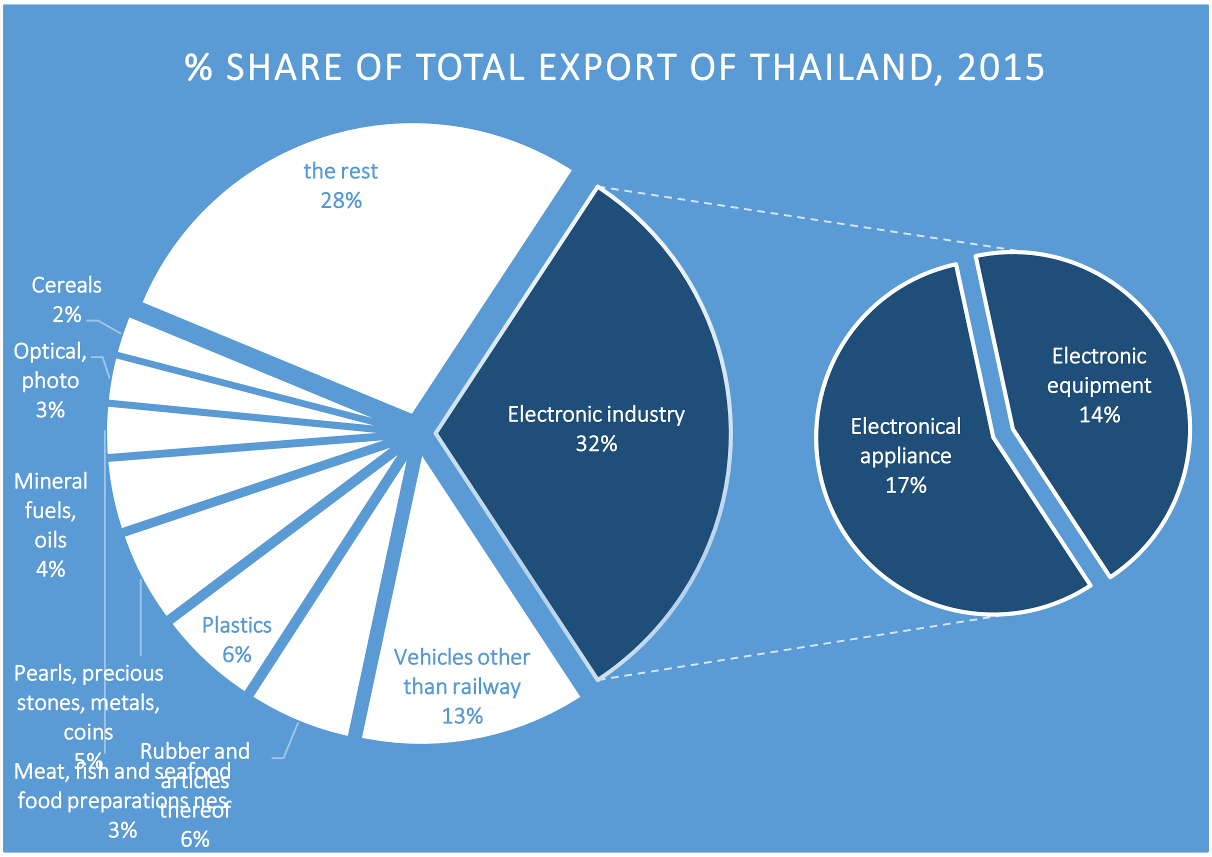
Figure 4: Export value and Electronics export value of Thailand, unit: Thousand USD



Source: Trademap

Furthermore, even the share of electronics product in total export value of Thailand has an average over fifteen years is at 33.5% and still remains the highest portion of total export until now: share of electronics sector in total export is 31.5% in 2015 (see Figure 5). Nevertheless, its share has annual growth of -1.19%, which means as other sectors outperform electronics sector in terms of growth and contribute more in total export value.

Figure 5: Percentage share of Thailand total export in 2015



Source: Trademap

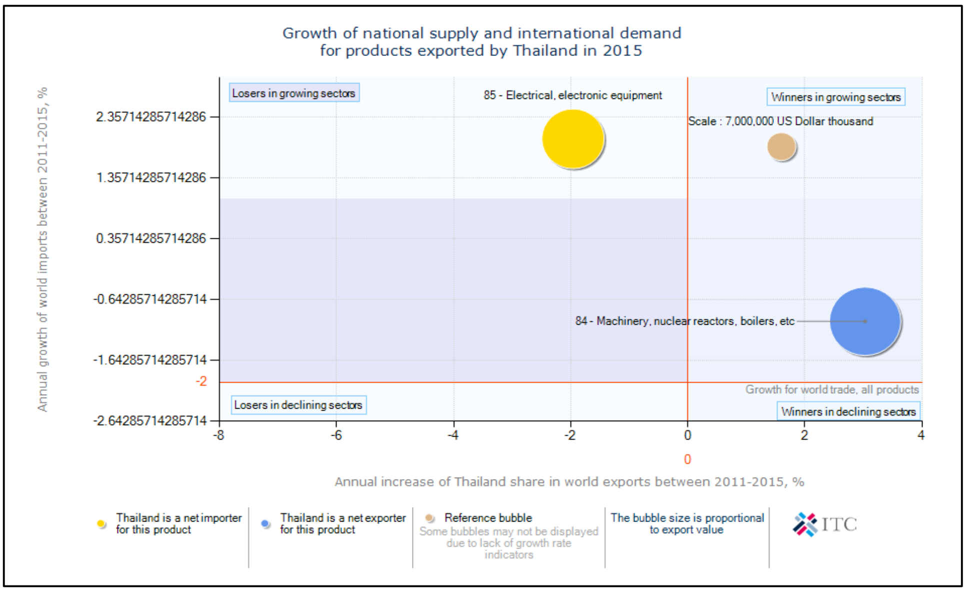
Electronics sector of Thailand can be classified into two categories; Machinery or Electrical appliance industry, and electronics equipment industry.

Electrical appliance product (84) is a net exporter, who gains growth in world market share more than average of 0% and the market is a growing sector as it has higher than average growth of -2%, thus it is a winner in growing sector.

Electronics equipment product (85) is in very high demand market, however it fails to capture such demand as it has annual increase in market share lower than average, thus it is a loser in a growing sector which represents the loss in opportunity. Moreover, it is also a net importer.

Even both sectors are in markets which performs above world average, note that electrical appliance world's demand is still dipped in negative while electronics equipment world imported growth is around 2% (see Figure 6).

Figure 6: BCG matrix analysis on Electronics sector



Source: Trademap

Over the last five years from 2011 to 2015, Electrical appliance has an annual export growth of 2%, while Electronics equipment shows 0% in an annual export growth according to International Trade Center[3].

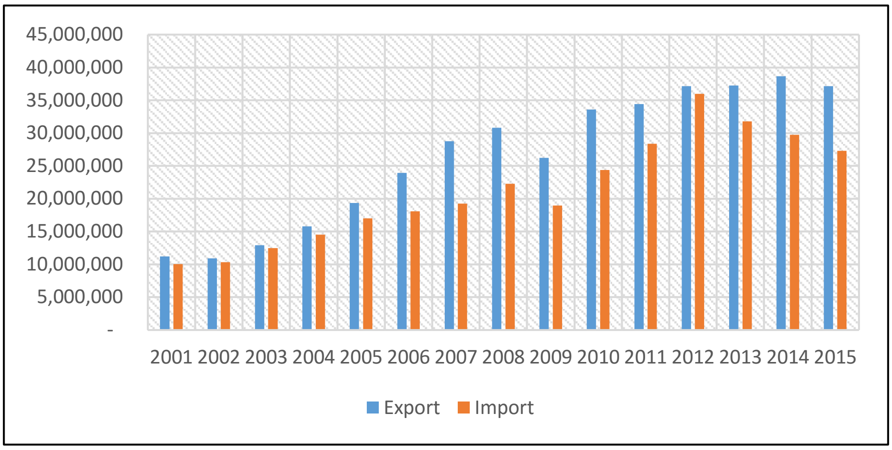
As a result, Electronics sector of Thailand is a volume-leader in total export, nevertheless its declining growth in export and in market demand can be problematic to Thai economy.

Electrical appliance industry

Export value of Electrical appliance industry in 2015 was $37,131,792,000. Thailand is a net exporter in this sector. (see Figure 7)

[3] http://www.intracen.org/ (categorize industries using Harmonized system code (HS code) at 2 digit level: Electrical appliance falls into 84 HS code, and Electronics equipment falls into 85 HS code.)

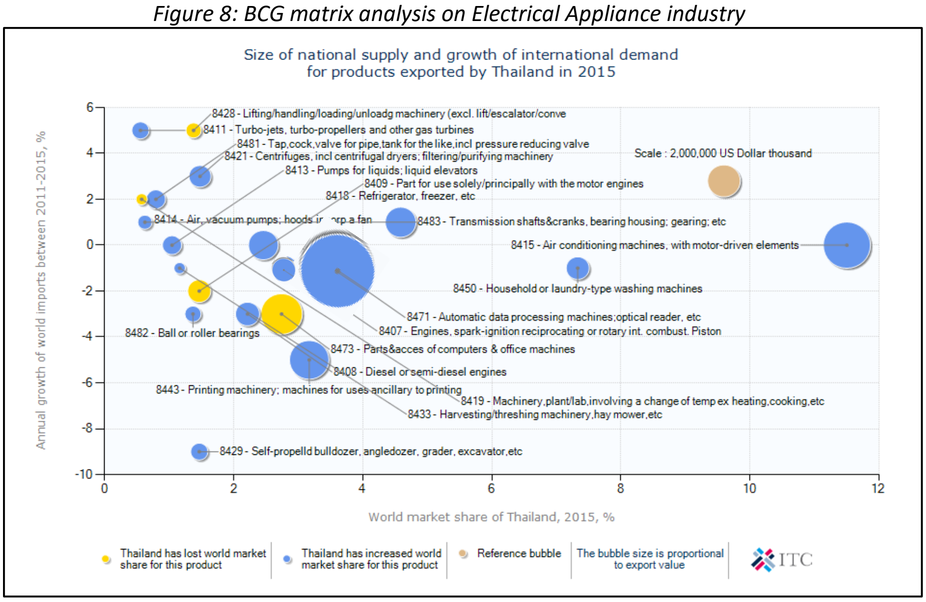
Figure 7: Electrical Appliance volume, unit: Thousand USD



Source: Trademap

Its biggest product in volume is also a net exporter. (Automatic data processing machines, 8471 HS code). Majority product has a clustered above world market share of total Thai export which is around 0%, while all products are in a growing market. However, average annual growth of world import is around -2%, therefore growing sector is not necessarily a prospering sector with a positive demand. The products with the big volume face with lower than average of world annual import growth, while the small volume products are the ones whose market performs better than average and even has positive annual growth (see Figure 8).

Figure 8: BCG matrix analysis on Electrical Appliance industry



Source: Trademap

Automatic data processing machines includes Hard Disk Drives (HDD) which is one of the most important electronics manufacturing products of Thailand. It accounts of 30% of export value in this industry, which is the highest share. Thailand is ranked at 7th biggest exporter of automatic data processing machines in the world.

The competitiveness of automatic data processing machines industry in Thailand is its huge industrial clusters in northeast region near Bangkok, which are composed of other related industries that produce the parts used in the production of HDD. Therefore, this clustering system allows cost efficiency as well as cost saving, while it also adds synergies effect in productions. For these, Thailand is trusted to be a base HDDs assembler for world-class data storage producers such as Seagate and Western Digital as well.

The other star exported products in this industry includes air-conditioning machines (8415 HS code), printing machinery (8443 HS code) and refrigerator (8418 HS code).

Air-conditioning product has the 2nd highest volume considering the total export product under electrical appliance industry, it accounts for 12% of total electrical appliance export in 2015. Moreover, Thailand is the 2nd biggest producer of Air-conditioning products in the world. It also has the most impressive world market share which far outperforms any other products in the industry.

Printing machinery has the highest annual growth in export value over the last five years at 22%, whereas it is a 3rd largest in volume which accounts of 5% of total export value in its industry. Thailand is ranked at 8th biggest exporter in this activity.

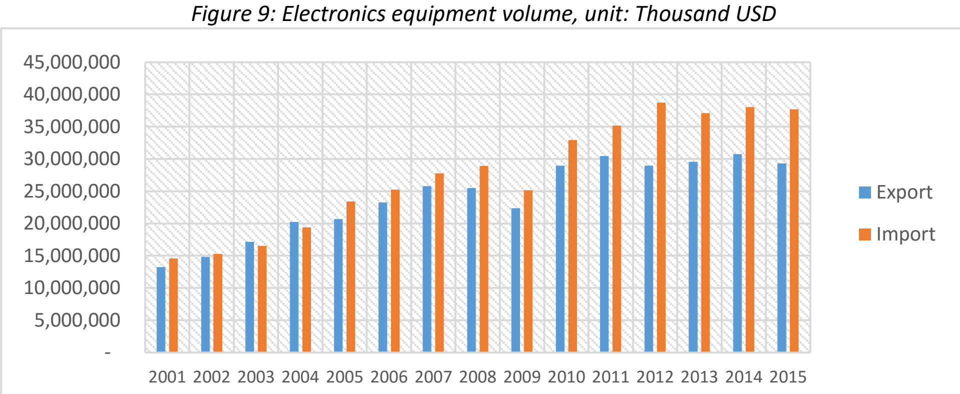
Thailand's expertise is a refrigerator producer is 'world-class' according to Thailand Board of Investment (BOI)[4], while it is ranked as 7th biggest exporter of this product as well.

However, the problems Thailand faces with are that the HDDs technology is being replaced by Solid State Drives (SSD) and Solid State Hybrid Drives (SSHD) innovation which improves the performance of the drives better and faster[5], while Thailand has not yet been invested in these next-generation products from any producers. Moreover, other promising products which have high shares in the global stage, have outperformed the world demand. These products earn high annual growth in export, whereas the demand from the world market has slowdown. This means Thailand is currently oversupplying and overproducing these products, and it is focusing in the right products at the wrong time.

Electronics industry

Thailand's overall export in electronics industry worth $29,305,131,000 in 2015. However, Thailand has become a net importer in this sector since 2005. (see Figure 9)

Figure 9: Electronics equipment volume, unit: Thousand USD



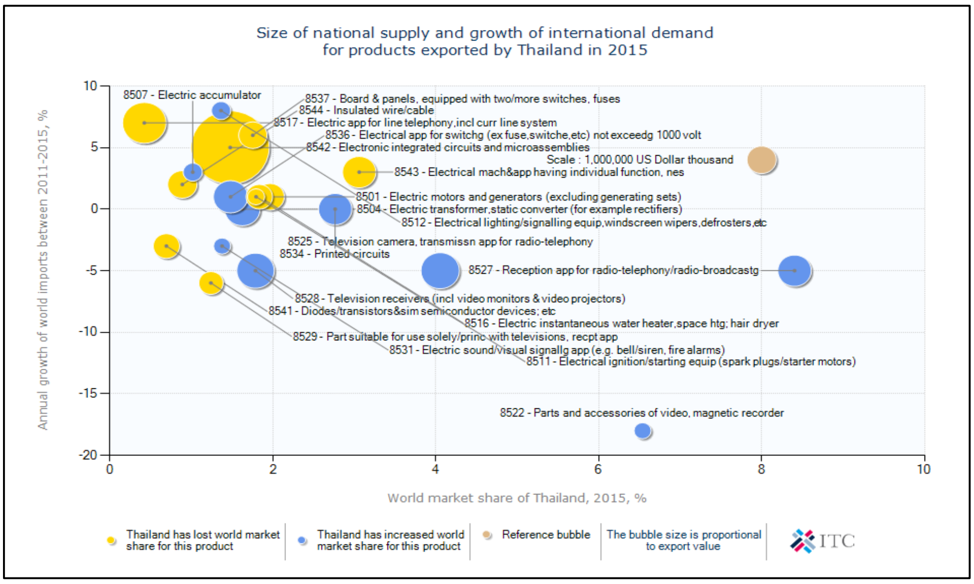
Source: Trademap

[4] Thailand Board of Investment, Thailand electrical and electronics industry 2010-2014 review, 2015
[5] According to Seagate website: http://www.seagate.com/as/en/solutions/solid-state-hybrid/

It is apparent how majority of the products are net importers, including the biggest-in-volume product, an electronic integrated circuits (8542 HS code) that accounts up to 26% of total export of Electronics equipment. It shows zero annual growth over the last five years, while the world demand is high at 5%.

The products with high annual growth and also have high ranks are first a Reception app for radio-telephony/radio-broadcast (8527 HS code), which is also called radio-frequency identification (RFID), with 8% five years annual growth and 4th ranked in the world market. Second is a Printed circuited (8534 HS code) with 14% five years annual growth and 8th ranked largest world exporter (see Figure 10).

Figure 10: BCG matrix analysis on Electronics equipment industry



Source: Trademap

The problem with high growth products in this industry is similar to electrical appliance industry, which is that they oversupply as their growths exceed the world demand. At the same time, the problems with Integrated circuits is that this product's export value, which is huge, is stuck in negative zone. This is because integrated circuits are still mostly imported from other countries, such as China, USA and Korea.

Conclusions

As Thailand expands its production in an electronics sector, it has not only developed expertise in producing these products. But it has also become a one of the biggest manufacturing hub in South East Asia for electronics products as well. However, Thailand's electronics sector has fallen in share of total export, while it is also stuck in dangerously small growth.

This is due to lack of responsive to serve the high demands. Electronical appliance has relatively high market share, while it is in a slower market compared to electronics equipment. Moreover, Electronical appliance industry is led by an outdated product as a leader in volume, Hard Disk Drives. On the other hand, the leading product of Electronics equipment such as Integrated circuits is a net importer. While, other products with high exporting growth and high market share oversupply and overproduce more than the world's demand.

Moreover, electronics sector of Thailand is sensitive to the world movement. This is because Thailand is an 'assembler' of parts for other foreign companies rather than being a 'producer'. This means Thailand relies on imported part as raw materials and needs to export products which are not finished goods to other production base of vertical integrated multinational firms.

For this, Thailand's electronic industry is not only sensitive to the world market since it is connected globally, but it is also immensely influenced by foreign direct investment. As Thailand as an assembler not a producer, it also lacks of capitals and ability to initiate and develop the design of its own product. Here is a waste of expertise, which has been built over decades.

As a result, the opportunity and room for this sector to grow is smaller and limited than other sectors due to high dependency on foreign companies.

Recommendations

On average, electronics sector accounts for 33.5% of total export, while export contributes 66.8% of real GDP. This suggests electronics sector will have an impact on Thai economy by 22.4% on average, which is almost one-fourth. Correspondingly, Thailand should stabilize and promote growth in electronics sector.

- For data storage product, Board of Investment should provide an incentive to foreign companies, who are currently looking for a new production base for SSD and SSHD, which are replacing HDD.
- Due to shortage in local supply of integrated circuits (IC), the support of local IC producers should be made. Not only to shift the trade balance of this product to positive, but also to encourage the opportunity taking in high-demand market.
- Location is one of the main reasons why multinational firms invest in Thailand, since it gives a good logistic to access other markets in Asia. Nevertheless, Thailand is facing with the lack of competitiveness in labor cost due to minimum wage regime. Therefore, the minimum wage regime could be reconsidered by comparing it costs and benefits that it gives to the economy. Minimum wage regime might increases income of people in the economy, however it also drives out jobs as FDIs are looking for shifting its production base to Thailand's neighbor countries with lower wage such as Viet Nam.
- The government support for research and development on Electronics industry should be more seriously implemented. This will not only help develop numbers of skilled workforce to serve and attract FDIs in this sector, but it will also encourage and enhance the development of Thailand's owned products in electronics industry as well. This will utilized the expertise and resource that Thailand already has by being an electronics manufacturing hub.
- Ministry of Industry, Ministry of Finance, BOI and other related governmental bodies should support Thai export to be more diversified. The fact that it is baring with high share of Electronics export increases the risk that it is exposed by the slowdown of the industry. Moreover, diversification will also provide the ease of switching to the demanding industry at the right time, as responsive to world market.

Appendix

The supported information extracted from Trademap explaining numbers and figures claimed in the paper.

Table1: Export Value, unit: thousand USD

Export Value	2001	2002	2003	2004	2005	2006	2007
All products	64,919,226	68,107,865	80,323,274	96,247,901	110,110,034	130,580,046	153,571,126
Electrical appliance	11,201,402	10,931,531	12,888,599	15,805,591	19,345,488	23,925,765	28,756,034
Electronics equipment	13,249,455	14,822,886	17,142,603	20,227,084	20,673,441	23,256,001	25,800,600

Table1: Export Value, unit: thousand USD

Export Value	2008	2009	2010	2011	2012	2013	2014	2015
All products	175,907,915	152,497,203	195,311,520	228,823,973	229,544,513	228,527,440	227,572,764	210,883,579
Electrical appliance	30,792,607	26,235,912	33,582,562	34,410,918	37,158,316	37,238,859	38,672,183	37,131,792
Electronics equipment	25,496,148	22,380,763	28,944,528	30,471,077	28,975,855	29,532,114	30,735,313	29,305,131

Table2: Percentage share in total export

Percentage Share	2001	2002	2003	2004	2005	2006	2007
Total Electronics sector	37.7%	37.8%	37.4%	37.4%	36.3%	36.1%	35.5%
% of electrical appliance	17.3%	16.1%	16.0%	16.4%	17.6%	18.3%	18.7%
% of electronics equipment	20.4%	21.8%	21.3%	21.0%	18.8%	17.8%	16.8%

Table2: Percentage share in total export

Percentage Share	2008	2009	2010	2011	2012	2013	2014	2015
Total Electronics sector	32.0%	31.9%	32.0%	28.4%	28.8%	29.2%	30.5%	31.5%
% of electrical appliance	17.5%	17.2%	17.2%	15.0%	16.2%	16.3%	17.0%	17.6%
% of electronics equipment	14.5%	14.7%	14.8%	13.3%	12.6%	12.9%	13.5%	13.9%

Table3: Trade indicators of Electrical Appliance

Code	Product label	Trade Indicators						
		Exported value 2015 (USD thousand)	Trade balance 2015 (USD thousand)	Annual growth in value between 2011-2015 (%, p.a.)	Annual growth in value between 2014-2015 (%, p.a.)	Annual growth of world imports between 2011-2015 (%, p.a.)	Share in world exports (%)	Ranking in world exports
TOTAL	All products	210883579	8853516	-2	-7	-2	1.3	21
'8471	Automatic data processing	11413334	7988060	-1	-6	-1	3.6	7
'8415	Air conditioning	4525889	4183283	4	-2	0	11.5	2
'8473	Parts&acces of computers &	3325296	634666	-3	-9	-3	2.7	9
'8443	Printing machinery;	2977260	1698336	22	17	-5	3.2	8
'8418	Refrigerator, freezer, etc	1816616	1521671	2	-6	1	4.6	7

Table4: Trade indicators of Electronics equipments

Code	Product label	Trade Indicators						
		Exported value 2015 (USD thousand)	Trade balance 2015 (USD thousand)	Annual growth in value between 2011-2015 (%, p.a.)	Annual growth in value between 2014-2015 (%, p.a.)	Annual growth of world imports between 2011-2015 (%, p.a.)	Share in world exports (%)	Ranking in world exports
TOTAL	All products	210883579	8853516	-2	-7	-2	1.3	21
'8542	Electronic integrated	7610633	-1745633	0	1	5	1.5	12
'8517	Electric app for line	2237145	-3871553	3	-2	7	0.4	21
'8525	Television camera,	1732686	1376584	-4	-9	-5	4.1	8
'8528	Television receivers (incl	1644207	631163	-1	-5	-5	1.8	12
'8504	Electric transformer,st	1489308	242409	1	5	0	1.6	14
'8536	Electrical app for switchg (ex	1372451	-483813	9	-12	1	1.5	16
'8527	Reception app for radio-	1308189	1236540	8	-8	-5	8.4	4