EIAS
European Institute for Asian Studies

A Survey on 10 Leading Taiwanese Enterprises Investing in the EU and its Member States

September 2015
EIAS Report

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This research report was prepared as a result of the survey on '10 Leading Taiwanese Enterprises Investing in the EU and its Member States', conducted by the European Institute for Asian Studies (EIAS) asbl with support from the Taipei Representative Office in the European Union. The report is researched, drafted and prepared by an EIAS team comprising – Jim Stoopman (Programme Coordinator), Robert Zielonka (Project Coordinator), Antoine Duquennoy (Junior Researcher), Ambra Savoldi (Junior Researcher), Dr Andrea Mogni (Senior Associate) and Prof Sylvain Plasschaert (Senior Associate). Sylvia Sisombat (Junior Researcher) and Hannes Dekeyser (Junior Researcher) also provided invaluable support.

We would also like to acknowledge all the experts consulted, and the companies and agencies that contributed to this report.

List of abbreviations

3C – Computers, Communications, Consumer products

ACH – Automated Clearing House

API – Active Pharmaceutical Ingredient

ASEAN – Association of South East Asian Nations

ATM – Automated Teller Machine

BIA – Bilateral Investment Agreement

BIT – Bilateral Investment Treaty

BNHI – Taiwan Bureau of National Health Insurance

CCCTB - Common Consolidated Corporate Tax Base

CHIPS – Clearing House Interbank Payment System

CMOS - Complementary metal–oxide–semiconductor

CO_2 – Carbon Dioxide

CSR - Corporate Social Responsibility

CSSTA – Cross-Strait Service Trade Agreement

CT3 – Certification of Taiwan Technical Textiles

CTB – Chiao Tung Bank

DTA – Double Taxation Agreement

EBF – European Banking Federation

ECB – European Central Bank

ECFA – Economic Cooperation Framework Agreement

EFSI - European Fund for Strategic Investment

EIAS – European Institute for Asian Studies

EMA – European Medicines Agency

EMC – Evergreen Maritime Corporation

EP – European Parliament

EPIA – European Photovoltaic Industry Association

ETRMA – European Tyre and Rubber Manufacturers' Association

ETRTO – European Tyre and Rim Technical Organization

EU – European Union

EU-28 – European Union 28 Members

EUR – Euro

FDA – United States Food and Drugs Administration

FDI – Foreign Direct Investment

FTA – Free Trade Agreement

GDP – Gross Domestic Product

HR – Human Resources

ICBC – International Commercial Bank of China

ICT – Information Communication Technologies

IDP – Investment Development Path

IP – Intellectual property

IPR – Intellectual Property Rights

IT – Information Technology

LCD – Liquid Crystal Display

LSCI – Liner Shipping Connectivity Index

MENA – Middle East and North Africa

Mercosur - Mercado Común del Sur

MNCs – Multi National Corporations

MOU – Memorandum of understanding

NAFTA – North American Free Trade Agreement

NFIA – Netherlands Foreign Investment Agency

NTD – New Taiwan Dollar

OECD - Organisation for Economic Co-operation and Development

OFDI – Outgoing Foreign Direct Investment

PC – Personal Computer

PCAs - Partnership and Cooperation Agreements

PEST - Political Economic Social Technological

R&D – Research and Development

RCEP – Regional Comprehensive Economic Partnership in Asia

RP – Reference pricing

RVO - Netherlands Enterprise Agency

SICA – Société du Marché Aux Fleurs D'Hyères

SMEs – Small Medium Enterprises

SPS – Sanitary and Phytosanitary Measures

SWF – Sovereign Wealth Funds

T/C – Textile and Clothing

T/T – Technical Textiles

TAITRA - Taiwan Trade Development Councils

TBT – Technical Barriers to Trade

TFT – Taiwan Functional Textiles

TLC – Tiong Liong Corporation

TLC (Bio) – Taiwan Liposome Company

TPP – Trans-Pacific Partnership

TRIA – Taiwan Rubber an Elastometer Industries Association

TSMC – Taiwan Semiconductor Manufacturing Company

UK – United Kingdom

UNCTAD – United Nations Conference on Trade and Development

USA – United States of America

USD – US Dollars

WTO – World Trade Organization

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1 Introduction

1.1 The research

Drawing on the 2014 report "Taiwan's Outward Foreign Direct Investment (OFDI) Into The European Union And Its Member States – Quantitative & Qualitative Research", the European Institute for Asian Studies (EIAS), with the support of the Taipei Representative Office in the European Union (EU), has conducted research on 10 leading Taiwanese enterprises doing business in the EU in order to identify the key factors that drive their activities in Europe.

This new report collects a selection of 10 Taiwanese companies as case studies. Using the information and data collected through a questionnaire and interviews, the report aims to understand the reasons and motives behind the decision to invest in Europe and identify a set of common hurdles and issues that Taiwanese firms face when entering the European market and invest in EU-28.

The 2014 report concluded that Taiwanese OFDI towards Europe, although under-explored in terms of volumes, focused mainly on ICT and technology sectors, contributing to European competitiveness in those fields. Size and entry forms were investigated, as well as reasons and levels of attractiveness. Trends identified included: the presence of primarily small and medium enterprises (SMEs) focusing on the service sector, the preference for setting up wholly owned foreign subsidiaries, the inclination to favour investment in North-Western European countries.

Moreover, the 2014 report drew attention to the potential for further cooperation between European and Taiwanese businesses. The report advocated for a Bilateral Investment Agreement between the two partners to further strengthen an already positive relationship and address such issues as taxation, intellectual property rights mechanisms, arbitration, procurement, competition, transparency and ease of doing business.

The EU has demonstrated its interest in the fast-growing Asia-Pacific region by either starting or concluding trade negotiations with South Korea, Japan, mainland China, Vietnam, Malaysia, Thailand, Singapore and ASEAN as a whole. Taiwan is one of the top investors in nearly all these markets. By concluding an EU-Taiwan BIA, Taiwan would become a crucial and much-needed link in the strategies for EU companies to expand their presence in the Asia-Pacific.

The research identifies the following major hurdles: cultural problems, language problems, cumbersome labour laws, double taxation issues, visa and migration law, inefficient and burdensome bureaucracy, access to credit, tariffs and the ease of opening a bank account. Each of these hurdles will be discussed at length in the qualitative analysis and the conclusion.

The report will argue that for the future success and spread of Taiwan investment it is important to move away from Taiwan as a mere ICT and computer technology hub. Consequently, this survey opted to include companies that represent a diverse selection of industries and sectors. Among them, the pharmaceutical, transportation, agriculture, textiles, high-end fashion, and financial services industries, while safeguarding a wide geographical coverage in the EU. The Taiwanese companies selected are trendsetters in their sectors thanks to a wide variety of reasons: some are global leaders in terms of size and revenues with activities and subsidiaries around the world, other companies are R&D innovators or among the first Taiwanese companies to invest in the EU-28 for their sector of reference.

For each company, a brief introduction including quantitative elements such as size of business and ranking, market share, geographical distribution of investment, operating revenue, total assets and employment data, is presented. The report then proceeds to summarise the present-day state of each industry in Taiwan and the EU, thus portraying the potentials for EU-Taiwan cooperation and mutual reinforcement, and the *status quo* of each company within the specific sector.

The report has a clear policy-oriented objective, as it describes and lists the hurdles that must be cleared to improve the effectiveness of Taiwanese investment in the EU and the EU's attractiveness and competitiveness. Therefore, the outcomes of this research and report are to be read in light of improving current EU and Taiwan trade and investment relations.

1.2 EU trade and investment relations with Taiwan

The relevance of Taiwan as a trade and investment partner of Europe has become increasingly evident over the last few years.[1] This is despite the fact that EU does not have a formal bilateral trade or investment agreement with this Asian "Tiger".

In 2014 (latest figures available) Taiwan was the EU's sixth largest trading partner in Asia. At the same time, the EU is the fifth largest trading partner of Taiwan, after mainland China, the ASEAN bloc, the US and Japan. Trade in goods between Taiwan and the EU 28 reached the amount of EUR 40.2 billion in 2014 and this was generally seen a positive result, especially seen the general impact of the economic slowdown and financial crisis in Europe.[2]

Taiwanese exports to Europe focus on electrical items, telecom and office equipment, metals, transport materials (especially bicycles), property management services, ICT equipment and other high-tech devices such as the photovoltaic.[3] Taiwanese ICT-products are well known all over Europe, and some of its brands such as HTC, ASUS and ACER are among Europeans' most favourites. Taiwan's imports from Europe include more diversified items such as mechanical and chemical products, machinery, pharmaceuticals and vehicles.[4] Trade in services is also expanding fast: by the end of 2014, it amounted to about EUR 8 billion, showing steadier growth rates of +5.3% after a decline between 2011 and 2012. The largest share of Taiwan trade with Europe is still concentrated in the EU-15.[5] Germany is Taiwan's largest trading partner (31% of the total EU-Taiwan trade, accounting for EUR 21.5 billion). The Netherlands and the UK are Taiwan's second and third largest EU trading partners (15% and 13% of the total EU-Taiwan figure, respectively). Taiwan's trade with the new EU member states is also expanding fast as a result of their accession to the EU since 2004. Within this group of countries, Latvia, the Czech Republic and Slovakia show the highest growth rate in trade with Taiwan since their accession to the EU.

The EU is the first major world investor in Taiwan, with FDI flows amounting to about EUR 1.24 billion in 2014, this shows a 169% annual increase since 2010. Among EU-28 countries, Germany accounted for 40.5% of FDI inflow to Taiwan, followed by the Netherlands (36.1%) and the UK (19.4%). Considering the FDI stock, the EU accounted for 24.4% as of the end of

[1] European Commission, DG Trade, (2015) "European Union, Trade in goods with Taiwan" – Retrieved from http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113452.pdf
[2] Taiwanese Bureau of Foreign Trade (2015), "Time for an EU-Taiwan Bilateral Investment Agreement (BIA) and Economic Cooperation Agreement (ECA)", July 2015
[3] European Commission Trade, Taiwan Country Profile – Retrieved at http://ec.europa.eu/trade/policy/countries-and-regions/countries/taiwan/
[4] Ibid.
[5] EU-15 stands for the 15 EU member states until 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom

2014.[6] This favourably compares with the US FDI stock in Taiwan (amounting during the same period to 17.6% of the total), which ceded the second position to the Caribbean (18.8% FDI stock share to Taiwan).[7]

In 2014 Taiwan's investment into the EU accounted for EUR 670 million, only 2% of the total country's FDI outbound flow. In the same year, within Europe, the UK received 87.2% of the outbound FDIs from Taiwan, followed by the Netherlands (8.0%) and Germany (4.4%).[8]

Taiwanese investment in Central and Eastern Europe is expanding fast, as the new EU member states are potential "springboards" for the Taiwanese investors to tap the EU market as a whole. One of the countries which attracts most Taiwanese investment in Central Europe, apart from Germany, is the Czech Republic. In fact, considering the FDI stock into the EU-28, as of December 2014, the Czech Republic had a 3.4% share, in fourth position after the Netherlands (45%), the UK (35%) and Germany (7%).[9] For 2014, FDI flows into the EU amounted to the following numbers: UK (USD 651,487,000), Netherlands (USD 60,105,000), Germany (USD 32,828,000) and France (USD 2,713,000). Most of the Taiwanese investment is concentrated in the manufacturing or assembling of computers, electronics and optical products. However, there are signs of expansion in new sectors and fields, such as real estate and financial services, showing the willingness to diversify the country's investment portfolio abroad and test more companies and domestic sectors on the international market.

1.3 Methodology

For this report, the information is divided in two distinctive sections: a descriptive part for each company and each industry sector, followed by a qualitative and analytical part where the answers of all respondents are presented, pooled together and analysed in order to provide a more general picture of the hurdles, current investment climate, and future scenarios. This qualitative part of the survey will identify: ex-ante strategy & motivation for FDI, the reasoning behind specific geographic investment locations, and the ex-post benefits, risks and hurdles (from both company and EU perspective).

This paper focuses on 10 successful Taiwanese enterprises, and it unveils their experience and strategy of investment in Europe. In fact, the 10 Taiwanese industrial sectors in which they operate have been defined with the purpose of providing a sample of the numerous and various distinctive features of the Taiwanese economy. For each sector, one leading company that is investing in the European Union was selected.

The main selection criteria of companies were the following:

- Being part of one of the 10 selected trendsetting industries
- Geographical spread of EU-28 activities
- Market share
- R&D activities
- Innovative capacity

[6] Data from the Taiwan's Ministry of Economic Affairs, Investment Commission (2015, as found in European External Action Service – 2015 EU-Taiwan Factfile 2015 – Retrieved at http://eeas.europa.eu/delegations/taiwan/documents/more_info/eufactfile2015.pdf

[7] Many Caribbean countries are considered major tax havens by the EU. This might influence the size of FDI stocks. For more info, refer to: http://ec.europa.eu/taxation_customs/taxation/gen_info/good_governance_matters/lists_of_countries/index_en.htm

[8] Data from the Taiwan's Ministry of Economic Affairs, Investment Commission (2015, as found in European External Action Service – 2015 EU-Taiwan Factfile 2015 – Retrieved at http://eeas.europa.eu/delegations/taiwan/documents/more_info/eufactfile2015.pdf

[9] Ibid.

- Complementarity and cooperation potential with European companies
- Trendsetting potential for other Taiwanese companies
- Willingness to participate

Annual reports and the Orbis database of Bureau van Dijk have been used in parallel as the main sources during this exercise. Companies with research and development activities in the European Union were usually preferred because of their real contribution to the European economy, especially in terms of knowledge transfer. Of all companies, contacts were sought with the European headquarters, their main subsidiaries and agents, as well as with the global headquarters in Taiwan. An online questionnaire was sent out to all of these actors, asking for quantitative data and descriptions of the rationale and problems while investing in Europe. Subsequently, interviews – either face-to-face or via phone – were taken with those people working for the companies who showed their availability. Open source data completed our data collection.

The interviews provided many personal experiences and information that cannot be captured in statistics, but that truly depict the main features of Taiwanese investment in the European Union. Questionnaires were also sent to companies falling out of the core selection of 10 companies in order to collect more data. Furthermore, interviews were arranged with the directors of several Taiwan External Trade Development Councils (TAITRA) offices in the European Union. Their insights have proven invaluable for mapping Taiwanese investment in specific countries, as well as for gathering contact details of crucial people in the Taiwanese business communities in the different countries. In addition, lawyers assisting Taiwanese clients and investment consultants have also been interviewed and provided valuable technical insights. Finally, Taiwanese industry associations were approached, and helped to further understand the rationale for investment, benefits and hurdles. This broad selection of interviewees aided in gathering a vast pool of information, as well as cross-checking statements from the different respondents before ascertaining their validity.

A profile has been drawn for each company. This has been divided in a box containing main data and a brief history of the company and its activities in the EU-28. Subsequently, an industry analysis follows for each section. These analyses contain a value chain analysis – where the main research and development activities, production and distribution modes, and marketing and sales strategies are described – and a PEST analysis, which describes the main political, economic, social and technological factors influencing the industry in the framework of Taiwanese investment in the European Union.

A final note must be made on the currency use in this report. Revenues and assets are referred to in USD, EUR, GBP or NTD indistinctly, sticking to the currency of the initial source. However, the figures mentioned in the company profiles were standardized into EUR for the convenience of the reader. These data were converted from the original currency into EUR using the exchange rate that was in place the day that the data refer to.

Company and industry profiles

AU Optronics Corporation

600
Employees
(EU)

11.5
Global Assets
(bill EUR)

10.6
Global Revenues
(bill EUR)

1,111th
Forbes 2000

Manufacturing

Actual chip manufacturing for the solar-modules is executed in a Europe-based plant in the Czech Republic.

LED-TV

As an optoelectronics company, AUO specializes in LED panels for flat screen TVs and HD solutions of all sizes.

Semiconductors

Chips are the fundamental building blocks of contemporary life. AUO is part of the top world producers and enjoys synergies with other Taiwanese leaders in research and development projects.

2.1 AU OPTRONICS

AU Optronics (AUO) is the result of a merger between Acer Display Technology, Inc. and Unipac Optoelectronics Corporation in 2001, and its business within the ICT/Electronics industry focuses on the sector of optoelectronics and solar panels. It is one of global key players in this sector, being placed among the world's 2000 biggest companies,[10] and accounting for over EUR 10 billion of revenues as well as assets. The key products offered by AUO are LCD panels for HD screens (particularly, TFT-LCD, thin-film-transistor liquid crystal displays). In 2008, AUO entered the green energy industry, using its expertise and excellence in optoelectronics to provide solar panels.

Global operations are conducted in Taiwan, mainland China, Japan, Singapore, South Korea, the United States, and Europe. Since 2002, it has been listed on the New York Stock Exchange as ADR. In 2004, it established an advertising agency in the Netherlands, alongside the office supervising all European activities in the green energy sector. In addition, it has set up to centres for manufacturing electronics components in the Czech Republic in 2008 and in Slovakia in 2010.[11]

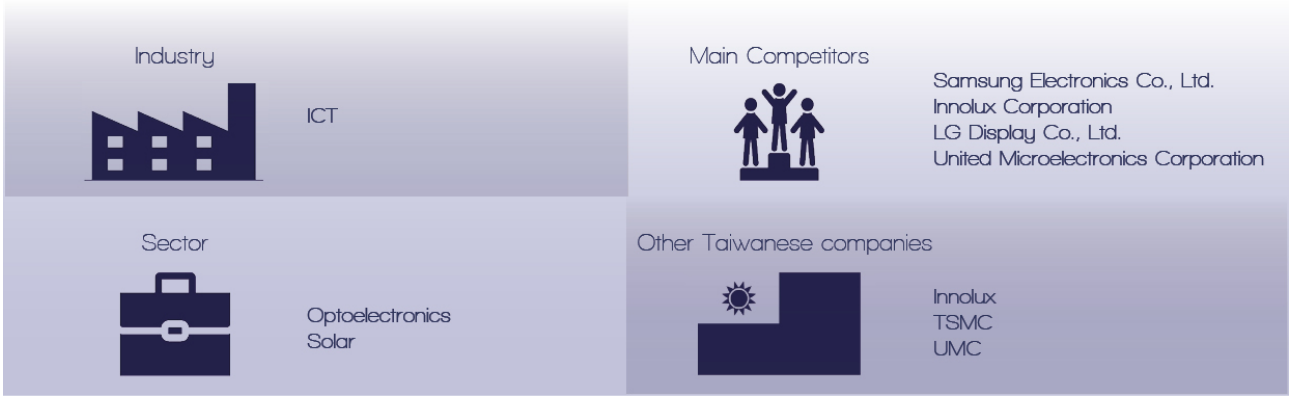
AUO is extremely active in Europe, setting up joint ventures (JV) and partnerships to expand its presence and tap into the benefits of shared knowledge and research. BenQ Solar is one of AUO's solar product brands, set up as a total photovoltaic solution provider to residential, commercial and utility customers.[12] In 2014, BenQ Solar has set up a partnership with French company ADB Solaire on a project developed across four regions in France, while in the UK it completed a project in Port of Milford Haven (Wales) project in 2013 using components produced in the Czech Republic by AUO.[13]

In 2010 a JV focused of TFT-LCD module production and TV-set was proposed by AUO and TPV Technology Limited (whose focus is on PC monitors) in Gorzow, Poland. The JV "BriVictory Display Technology (Labuan) Co., Ltd" had an approved initial capital of USD 40 million, with AUO and TPV owning respectively 51% and 49% of the shareholding.[14] As of 2014 this joint venture is no longer active.

AUO relies on a strong commitment to R&D, having secured, as of April 2015, more than 14,500 patents worldwide, and submitted over 21,400 patent applications. At the same time, the company forward thinking in favour of green energies and sustainable product development and business management puts AUO on the forefront of corporate environmental responsibility. Among the most important initiatives, the company has pledged to reduce carbon emissions from its plants by 25% by the end of 2015.[15]

[10] Forbes Website, AUO Profile – Retrieved from http://www.forbes.com/companies/au-optronics/
[11] AUO Website – Retrieved from http://auo.com/?sn=135&lang=en-US
[12] AUO Website, Solar Product – Retrieved from http://www.auo.com/?sn=446&lang=en-US
[13] Di Frangia, M., "BenQ Solar Sees Success In Europe", Solar Power World Online, 11 June 2014 – Retrieved from http://www.solarpowerworldonline.com/2014/06/benq-solar-sees-success-europe/
[14] AUO Website, News Centre, "AUO and TPV to Establish Joint Venture for TFT-LCD Module Production and TV set ODM in Poland", 12 March 2010 – Retrieved from http://www.auo.com/?sn=107&lang=en-US&c=11&n=166
[15] AUO Website – Retrieved from http://auo.com/?sn=135&lang=en-US

2.1.1 Industry Analysis



2.1.1.1 Value chain and PEST

The optoelectronics business value chain is structured as follows:

- **R&D (or Innovation and Research):** is the key part of the value chain, and includes technical R&D, material costs and raw material procurement (among them, sapphire).[16] According to Acer's founder Stan Shih's 'smiling curve model'[17] of value-adding in the electronics industry, development of components is the highest value added activity together with customer support and branding. In the optoelectronics industry, the core focus is on LED production being one of the most prominent products of the sector together with solar panels. R&D focuses on improving epitaxial wafer and chips.
- **Production:** is divided in upstream activities and downstream activities, where the first poses more barriers to entry than the latter, given the high costs.[18] Tendency to outsource and form partnerships is common for large companies, as they usually own patents and can license them. At the same time, the trend is balanced by a vertically integrated approach to business for small and medium enterprises, which cannot afford the high production costs.[19] New projects for founding new plants are testing public-private partnership, to capture cost-effectiveness and volume production.[20]
- **Distribution:** is both global and regional, relying on agents and personal contacts for commercial products and on wholesale distribution for products targeted at household consumption. It is usually integrated within the company's value chain.[21] Once can see increased efforts in reducing time between order and delivery by mechanization and computerization of communications.
- **Marketing and Sales:** following the 'smiling curve' model, investments are centred on customer-led demand and satisfaction, as they represent the other high value-added activity.[22] Strategies vary according to the specific sub-segments and to the type of customer (e.g. solar panels for household consumption will have a different marketing strategy from optical fibres for commercial/industry use or other B2B transactions).

[16]UNCTAD (2015) "Tracing The Value Added In Global Value Chains: Product-Level Case Studies In China", UNCTAD/DITC/TNCD/2015/1
[17] Brookings (2010), "Stan Shih's "Smile" Curve", – Retrieved from http://www.brookings.edu/~/media/events/2010/6/09%20china%20global/20100609_china_global_steinfield
[18] UNCTAD (2015)
[19] European Commission, Research & Innovation "A Photonics Private Public Partnership in Horizon2020", 2013 – Retrieved from https://ec.europa.eu/research/industrial_technologies/pdf/photonics-ppp-roadmap_en.pdf
[20] Ibid.
[21] UNCTAD (2015)
[22] European Commission (2013)

Conducting a PEST analysis of the industry (using the EU and Taiwan as references) it can be inferred that:

- **Political factors**: the industry has always been subsidised by governments and related institutions. They encourage clusters and investment in innovation and R&D, through the linking of private companies with public research centres, universities, laboratories and science parks.[23]
- **Economic factors**: the industry is segmented by product type and function (LEDs, optical fibres, Internet) and has now become a cornerstone of the global economy. The digitalization of the economy creates a self-sustaining momentum for the industry itself. Intellectual Property Rights and related disputes can play an important role in determining trade across regions. Improvements in technology and consequent applications reinforce the role and need of electronic devices at all levels of human life, making the industry vital for life as we know it.[24]
- **Social factors**: represent a strong pull, as consumption of electronic devices that benefit from developments in optoelectronics can range from the entertainment industry (e.g. optical fibres and Internet connectivity), to medical equipment and technologies (e.g. hospitals purchasing new machinery for X-rays), security (e.g. sensors and alarms) and others, including green energies and climate monitoring or action.[25] Spending and consumption are on the rise in Asian countries, while they suffered the contraption caused by the 2008 economic crisis in other parts of the world.
- **Technological factors**: industry trends show fast advancement and exponential growth of chips and wafers, usually explained by the 'More than Moore's' law.[26] Technology licensing and patent registration are drivers of partnerships and collaborations within the industry and across sectors.

2.1.1.2 In the EU

In the EU-28, the optoelectronics industry is at the heart of research and science clusters as well as of innovative policies for a sustainable future and progress in life sciences, energy and lighting. In this respect, optoelectronics is heavily featured in Horizon2020, recognised as a Key Enabling Technology (KET) since 2012.[27] The stated focus of the industry and related programmes is on capturing the whole value chain, from production to sales and after-sales

[23] Ibid.
[24] The debate whether this is a positive or negative factor is beyond the scope of our research: however, the sheer amount of views and opinions on the topic shows an acute sense of acknowledgment regarding the centrality of electronic devices and technology to modern life, which is capable of moving economies, policies and our daily lives alike. For the economy, think of the role of Internet and fast, reliable communication systems. See: W. Michael Blumenthal "The World Economy and Technological Change", Foreign Affairs, 01 February 1988, or Jonathan Eaton, "Technology and the Global Economy", The National Bureau of Economic Research, Summer 1999
[25] European Commission (2013)
[26] Moore's Law is attributed to Intel Co-founder Gordon Moore, who observed in 1965 that the pace of growth in semiconductors' size is exponential and grows on an annual basis (i.e. the number of transistors per square inch on integrated circuits doubles every year, making chips smaller and more powerful at the same time). This comment concluded that the trend would continue in the future and it was thus turned into law. Since then, it has often been modified to accept longer cycles (improvement occurs every 18-24 months instead of 12, because of diminishing returns in technological improvements). More than Moore's means therefore that the producer is trying to accelerate innovation beyond that point, pioneering in engineering and R&D advancements. From Intel Moore's Law 40th Anniversary Press Kit – Retrieved from http://www.intel.com/pressroom/kits/events/moores_law_40th/index.htm
[27] KETs are 'knowledge intensive technologies associated with high R&D intensity, rapid innovation cycles, high capital expenditure and highly skilled employment. They enable process, goods and service innovation throughout the economy and are of systemic relevance. They are multidisciplinary, cutting across many technology areas with a trend towards convergence and integration [...] .' Source: European Commission (2014) "Study on methodology, work plan and roadmap for crosscutting KETs activities in Horizon 2020", November 2014 – Retrieved from http://ec.europa.eu/growth/industry/key-enabling-technologies/eu-actions/ro-ckets/downloads/ro-ckets-final-report_en.pdf

customer service in order to become a node of excellence in a high-tech world. The industry was valued at EUR 350 billion, and projected to reach EUR 600 billion by 2020.[28]

The European optoelectronics industry is structured in 1100 organizations comprising 2000 members from business and science sectors, under an umbrella called 'Photonics21 European Technology Platform'.[29] Among the policy activities carried out by Photonics21, two Strategic Research Agendas (in April 2006 and January 2010) and an Economic Impact study (in December 2007) have been published,[30] while a Public-Private Partnership was signed in 2013 with the European Commission to cement the commitment of all stakeholders. Support of the European Commission was given by the Photonics Unit of DG Connect, which created a Multiannual Strategic Roadmap. Coordination at national level started to take place in 15 member states and associate states (such as Israel, Norway, Switzerland) and three regions that can act as clusters, in Catalonia (Spain), Flanders (Belgium) and Tuscany (Italy),[31] to create joint funds and plans.

In terms of employment, the industry attracts high-skilled workers, particularly linked to universities and renowned laboratories across Europe where currently 300,000 people are employed in a 5000 SMEs.[32] As part of Horizon2020, job creation is an important aspect of all investments in the photonics and optoelectronics industry, with projections showing at least a 10% increase in the number of people directly employed by 2020.[33]

2.1.1.3 In Taiwan[34]

Taiwan has been developing its optoelectronics industry for decades as a cutting-edge part of its ICT sector, and its excellence and competitiveness is well known around the world. In the past years, the Ministry of Economic Affairs and the Industrial Development Bureau have been pushing for further developments and investments in optoelectronics R&D to develop environmentally friendly optoelectronics materials, following the 'green energies' and 'energy-savings' trend set for the future of the industry at a global level.[35]

Regarding the size of the Taiwanese industry, in 2007 production reached a value of nearly 43 EUR billion, with Taiwanese firms capturing nearly 17% of the worldwide market. Considering LCD screens alone at the product end of the industry value chain, production reached 25 billion EUR, accounting for 30% or more of the worldwide production.[36] Between 2007 and 2009, a three-year plan, "Increase Localization in Flat Panel Displays"[37] was carried out, resulting in Taiwan ranking second in the world for flat panel displays at the end of 2009.[38]

In 2009, a new four-year plan, "Environmental Compatibility of Photoelectric Materials Plan", was approved by the Ministry of Economic Affairs to focus the industry's efforts on

[28] European Commission (2013)
[29] Ibid.
[30] Photonics21 Website - http://www.photonics21.org/downloads.php
[31] European Commission (2013)
[32] Ibid.
[33] Ibid.
[34] European Commission, "ICT Industry development in Taiwan and worldwide penetration", 2010 – Retrieved from http://www.ec.europa.eu/digital-agenda/events/cf/ict2010/document.cfm%3Fdoc_id%3D12034+&cd=2&hl=en&ct=clnk&gl=be
[35] Taiwan Today, "MOEA to continue promoting green optoelectronics", 15 December 2011 – Retrieved from http://taiwantoday.tw/ct.asp?xItem=182426&ctNode=2183
[36] European Economic and Trade Office, "A practical guide to the Taiwanese market How to export or invest in Taiwan", 2009 – Retrieved from http://eeas.europa.eu/delegations/taiwan/documents/more_info/practical_guide_2009_en.pdf
[37] German Trade Office in Taipei Website – Retrieved from http://www.taiwan.ahk.de/country-info/industries/
[38] Taiwan Today, "MOEA to continue promoting green optoelectronics", 15 December 2011 – Retrieved from http://taiwantoday.tw/ct.asp?xItem=182426&ctNode=2183

sustainability.[39] In 2011, 11 enterprises received technical guidance and support by the Industrial Development Bureau, leading to NTD 700 million investments in the sector and the creation of more than 200 new jobs.[40] By the end of 2015, the industry is expected to grow to a production value of USD 52.6 billion.[41]

Research is carried out in Taiwan's three principal science parks, the Hsinchu Science Park, the Taichung and Yunling Science Park and the Tainan and Kaohsiung Science Park, which focus on high tech electronics. The Hsinchu one in particular, hosts some among the Taiwanese industry leaders, such as TSMC, UMC and AUO.[42]

[39] German Trade Office in Taipei Website – Retrieved from http://www.taiwan.ahk.de/country-info/industries/
[40] Taiwan Today, "MOEA to continue promoting green optoelectronics", 15 December 2011 – Retrieved from http://taiwantoday.tw/ct.asp?xItem=182426&ctNode=2183
[41] German Trade Office in Taipei Website – Retrieved from http://www.taiwan.ahk.de/country-info/industries/
[42] Taiwan Today, "MOEA to continue promoting green optoelectronics", 15 December 2011 – Retrieved from http://taiwantoday.tw/ct.asp?xItem=182426&ctNode=2183

Evergreen Marine Corporation

944
Employees
(EU)

5.6
Global Assets
(bill EUR)

3.7
Global Revenues
(bill EUR)

4th
Shipping
Company
Worldwide

Storage

A storage and hauling service is offered in most container terminals to third companies which trade via maritime transportation.

Shipping

Evergreen is a truly global company, offering shipping services for commercial purposes around the whole world, linking main commercial hubs in Asia, America and Europe.

Environmental

Evergreen is proactive in implementing eco-design solutions in its shipbuilding activities, while further controls on emissions and waste management are enforced on shipboard and in port operations.

2.2 EVERGREEN MARINE CORPORATION

Evergreen Marine Corporation is the world's fourth largest shipping company in terms of TEU,[43] owning assets worth NTD 191 billion,[44] accounting for a global revenue of NTD 144 billion,[45] of which NTD 31.8 billion in Europe alone, and employing close to a thousand people in the EU. Active in corporate social responsibility, Evergreen has won the 'Environmental Award' at the 2013 Lloyd List Global Awards Ceremony, and the 'Training Award' at the 2014 Lloyd List Asia Awards.

Evergreen was founded in 1968 by Dr Yung-fa Chang, and it first opened its service to Europe in 1979, when vessels arrived from Asia every fortnight. In the mid-1980s Evergreen implemented some revolutionary innovations such as the launch of a two-way Round-the-World container service, as a result of which Evergreen became the world's largest shipping company in 1985. Evergreen became a pioneer in providing training for seafarers – including partnerships with British training centres – and in setting the standard for more stringent environmental policies. Meanwhile, it increased its presence in Europe, and it established bases in over ten European countries. In 2007, Evergreen Marine Corporation (EMC) and sister shipping companies Evergreen Marine (UK) Ltd, Italia Marittima SpA, Evergreen Marine (Hong Kong) Ltd and Evergreen Marine (Singapore) Pte Ltd adopted the unified common trading name 'Evergreen Line'.

At present, Evergreen's European headquarters are based in London, UK, but the company also has subsidiaries in Austria, Belgium, France, Germany, Ireland, Italy, the Netherlands, Poland and Spain. In fact, Evergreen has bought most of its agents and turned them into subsidiaries in the past years. The Port of Rotterdam serves as the main port for Evergreen's activities in Europe, while the Port of Hamburg ranks second. Additionally, Evergreen agents Greencarrier and Greeniberica are based in Sweden and Portugal respectively. Almost all EU-28 countries, including those without direct sea access, are served by Evergreen, its daughter companies or other more indirect agents. Furthermore, Evergreen has currently agents in over 110 countries worldwide, in all continents. Evergreen can therefore be considered as a truly global company with a widespread presence in Europe.

The biggest European subsidiaries of Evergreen – in the United Kingdom, Italy, Netherlands, Germany and France – all count over 100 employees.[46] Of these, the overwhelming majority are EU nationals. In fact, Evergreen only imports a small share of their workers from Taiwan, namely the top management, while most of the employees are local hire.

The Evergreen Group is not limited to shipping activities only. Evergreen also owns a hotel in Paris, and it includes EVA Air, one of Taiwan's biggest airline companies, part of German-based Star Alliance and offering daily flights between Europe and Asia.

[43] Twenty-foot equivalent unit, is the unit usually used to describe the capacity of container ships
[44] Ibid.
[45] Evergreen annual report, retrieved at http://www.evergreen-marine.com/tbf1/pdf/2014AR.pdf
[46] Data retrieved from Orbis Database

2.2.1 Industry Analysis

2.2.1.1 Value chain and PEST

The shipping industry value chain is structured as follows:

- **R&D (or Innovation and Research)**: focused on innovative materials of containers and fleets, as well as engine technology. IT is used to improve logistics capabilities, as the sector is at the core of global supply chains. Innovation in 'containerisation'[47] is being pushed forward, although it is reaching maturity.
- **Production**: enterprises expand their business through direct investment or by establishing parent companies. Synergies with the shipbuilding industry are crucial. Global leaders are to be found especially in South Korea and Japan (other Asian countries are emerging players in shipbuilding).
- **Distribution**: linked to port terminal facilities, which are usually a destination of investment for shipping companies. Business is polarised in the countries that are high on the United Nations Conference on Trade and Development (UNCTAD)'s Liner Shipping Connectivity Index (LSCI) which indicates a country's level of integration into the existing liner shipping network by measuring liner shipping connectivity (factors that contribute to this are: volumes and types of traded goods, distances to be covered).
- **Marketing and Sales**: goes through B2B, where brand loyalty is strong. However, since switching costs are low for consumers, shipping companies must build brand awareness and provide extensive customer services covering all steps of logistics and transport. Marketing relevance is given to compliance with international safety and quality standards, and reduced emissions and fuel consumption.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**:[48] at present, the growth is slow due to the still ongoing recovery from the global recession. Agreements between single countries for ports and canals access are crucial. Increasing importance of international agreements over sustainability and fuel usage (CO_2 emissions and green alternatives)
- **Economic factors**:[49] strong dependence on global economic trends and levels of regional and trans-regional trade. Intercontinental maritime transportation of large

[47] The word refers to the standardisation of shipping containers along size guides and weight capacity, which helped the spread of globalised trade as it simplified transportation from one country to the other. – Retrieved from http://www.worldshipping.org/about-the-industry/history-of-containerization
[48] BIMCO (2015), THE SHIPPING MARKET IN 2014 AND LOOKING FORWARD – Retrieved from https://www.bimco.org/en/Reports/Market_Analysis/2015/0102_ReflectThe_shipping_market.aspx
[49] Financial Times – Retrieved from http://www.ft.com/intl/companies/shipping

volumes is still the most efficient means of transportation. Demand and supply in 2014 have grown at a matching rate, stabilising at 6%.[50] Falling oil prices have increased competition; it is a highly competitive market which only returns a positive margin if the cost base is low. In fact, it is an exceptionally volatile industry, which has been unprofitable in the years after 2008. It is saturated by big companies and economies of scale, with almost no differentiation in products, services and transportation hubs. Operational improvements in the industry are essential to promote growth.

- **Social factors**:[51] the shipping sector is aimed at a specific customer segment, while there is no direct access to the market. Customers' loyalty to specific carriers is particularly strong. Crews and workforce are usually low-skilled, while office personnel are usually well trained. Employability is at risk due to IT improvements and mechanisation.
- **Technological factors**:[52] mature and conservative industry. Improvement in freights, vessels and tankers, fleet renewal, with particular attention to those transporting crude oil. There is increased focus on expanding container capacity. One can witness the importance of IT and communications advancements (computerisation, simulators, e-commerce, databases etc).

2.2.1.2 In the EU[53]

Shipping services are highly standardised and there is little diversification worldwide. Subsectors are divided in transport of goods and people by sea, service and offshore vessels and towage and dredging activities by sea. In 2012, the EU shipping industry contributed to the EU economy with 56 EUR billion and employed 590,000 people. The industry has a significant direct and indirect impact on economic growth, contributing to supply and production chains worldwide.

It is important to differentiate between controlled fleets (ultimate ownership is in one country but flag can be of another country), operated fleets (companies wholly operative in one country, for example, the EU and subject to that country's taxation and laws) and flags (country's jurisdiction of every ship). Following these distinctions, the registration of fleets plays an important role in the industry's dynamics. For example, there are distinct advantages of selecting one flag for the shipping fleet over the other, sometimes distorting the market through practices such as that of 'flags of convenience', which raises issues under international maritime law.[54]

Between 2005 and 2014, the EU controlled fleet expanded by more than 70% (gross and deadweight tonnage), while the number of vessels grew at a much lower rate; this is explained by a preference for ultra-large vessels and the achievement of economies of scale.[55]

During the same period, the EU went from controlling 41% of the world tonnage to 39% due to competition from Asian enterprises. The largest EU-28 fleets are those controlled by Greek and German enterprises, followed by Italian and Danish ones. EU-28 fleets use three different

[50] BIMCO (2015)
[51] Glave, T., Joerss, M., and Saxon, S. (2014), "The hidden opportunity in container shipping - By taking advantage of savings and revenue opportunities, container lines can return to profit", *McKinsey and Company, Insights and publications*, November 2014 – Retrieved from http://www.mckinsey.com/insights/corporate_finance/the_hidden_opportunity_in_container_shipping
[52] Ibid.
[53] Oxford Economics (2014), "The economic value of the EU shipping industry", April 2014 – Retrieved from http://www.safety4sea.com/images/media/pdf/Oxford-Economics-ECSA-Report-FINAL.pdf
[54] International Chamber of Shipping (2015), "SHIPPING INDUSTRY FLAG STATE PERFORMANCE TABLE 2014/2015" – Retrieved from http://www.ics-shipping.org/docs/default-source/resources/policy-tools/ics-shipping-industry-flag-state-performance-table-2014-15.pdf?
[55] Glave, Joerss, and Saxon (2014)

types of vessels: bulkers (28% of total fleet), oil tankers (25%) and container ships (25%, the business in which the EU controls 60% of the world's tonnage). The strongest growth was registered in the subsector of off-shore vessels.[56]

Future trends see the growth of vessel-size, and increased spending in research and improvements for green and alternatives sources of energy and specialisation of container shipping to reflect different trade needs.

Europe's shipping industry for commercial purposes is polarised in the North Sea, with Rotterdam, Antwerp and Hamburg;[57] 63% seaborne transport of goods that goes to or from European ports follows extra-EU-28 routes. In the coming years, the Mediterranean Sea and European ports in general will gain further importance within global trade routes as the New Suez canal has been opened in August 2015. The new canal will revamp traditional routes from and to Asia, since, thanks to its size, it will halve navigation time from 22 to 11 hours.[58] However, inward connections with terrestrial transportation links will need to be improved in order to make the Southern European ports as competitive and attractive as the Northern European ones.

2.2.1.3 In Taiwan

Taiwanese fleets operate not only in intra-Asia trades, but also on EU/US routes. Focus is often on sustainability and the environmental-friendliness of fleets. According to UNCTAD,[59] the Taiwanese container ship operator Evergreen Corp is 4th in the top 50 list of liner companies, while others ranked in 12th (Yang Ming Lines), 22nd (Wan Hai Lines) and 35th position (TS Lines).

Moreover, UNCTAD 2014 also ranked Taiwan as the 8th ship-owning nation. The ports of Kaohsiung, Keelung and Taichung are among the busiest worldwide for cargo volume and container traffic, showing how connected and essential this industry is not only to the Taiwanese economy, but also for the world's economy.[60]

For these global players, forming strategic alliances with European and American counterparts is crucial, and a commitment to constant fleet upgrade and renewal, combined with eco-friendly fuel choices. Employment opportunities are especially interesting in terms of crew on fleets crossing the Strait with mainland China, as this specific route is being boosted domestically to strengthen trade partnerships.[61]

56 Oxford Economics (2014)
57 European Commission, Eurostat Explained, "Top 20 container ports in 2013 - on the basis of volume of containers handled in (1000 TEUs(1))" – Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Top_20_container_ports_in_2013_-_on_the_basis_of_volume_of_containers_handled_in_(1000_TEUs(1)).png
58 Yusri M., "Ships cross Egypt's New Suez Canal in first test-run", Reuters, 25 July 2015 – Retrieved from http://www.reuters.com/article/2015/07/25/us-egypt-suezcanal-idUSKCN0PZ0AR20150725
59 UNCTAD (2014), "Review of Maritime Transport 2014" – Retrieved from http://unctad.org/en/PublicationsLibrary/rmt2014_en.pdf
60 American Association of Port Authorities, "World Port Rankings 2013" – Retrieved from http://www.aapa-ports.org/Industry/content.cfm?ItemNumber=900
61 Guo, Liang, Ye and Wu (2007), Impact of special shipping across the Taiwan Straits on the employment of Taiwanese ship officers, Maritime Policy & Management: The flagship journal of international shipping and port research, 34 (1)

Maxxis

Cheng Shin Rubber Industry Co. LTD

10-15
Employees
(EU)

4.4
Global Assets
(bill EUR)

3.5
Global Revenues
(bill EUR)

9th
Tire
Company
Worldwide

Tires

Maxxis rubber tyres are produced for all vehicles, including trucks, tractors and motorcycles, often in agreement with large car manufacturers such as General Motors, Toyota and Volkswagen.

Sponsorships

Maxxis is sponsor to important baseball teams, football teams and basketball teams playing in European or Northern American leagues.

Testing

Testing of tyres is completed in R&D and testing centres or on testing circuits throughout Europe.

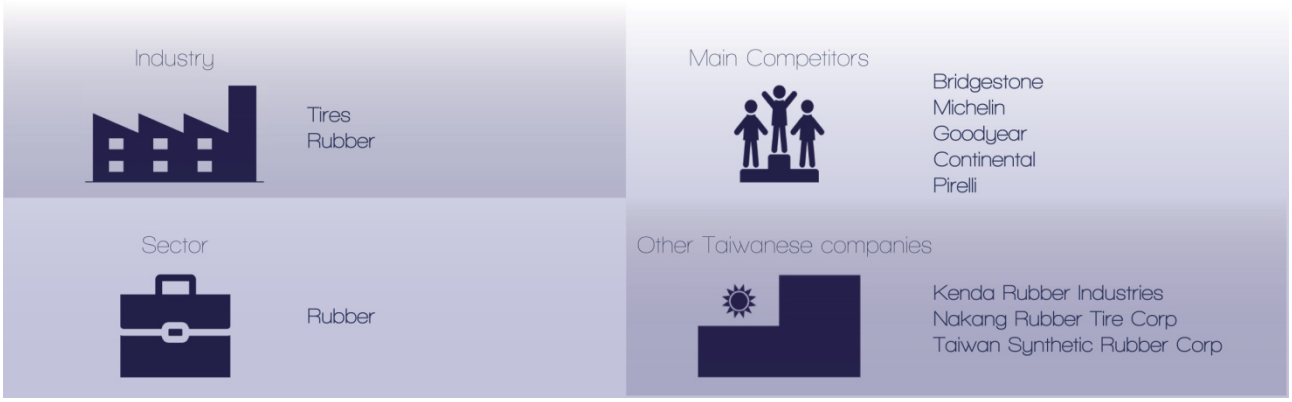
2.3 MAXXIS (CHENG SHIN RUBBER INDUSTRY CO. LTD)

Cheng Shin Tire was founded in 1967 by Luo Jye. It is globally known for its brand name Maxxis, and is currently the 9th largest global tire company. Distributed in more than 150 countries, the Cheng Shin brand covers a wide range of market segments. Amongst others, Cheng Shin products include tires and tubes for bicycles, motorcycles, all-terrain vehicles, autos, trucks, forklifts, agricultural and lawn and garden equipment. As of today Cheng Shin expands the production of Original Equipment tires for car manufacturers to such companies as General Motors, Volkswagen, Kawasaki, Ford and Toyota. Cheng Shin produces more than 170.000 car tires per day. Its 18 production sites are merely situated in Asia (e.g.: Taiwan, China, Thailand, Vietnam, Indonesia, India) but it is aiming for expansion outside the Asian continent. Maxxis has a total number of five R&D Centres worldwide located in China, Taiwan, United States and the Netherlands.[62]

In Europe, Cheng Shin has a wholly owned subsidiary in the Netherlands mainly focused on testing and R&D, and joint ventures in the UK, Germany and Greece that are emphasizing on the sales and distribution in their respective markets. The company expects to expand its European presence in the upcoming years, targeting also new markets such as Central and Eastern Europe while keeping the South of the Netherlands as its strategic hub.[63]

To enhance its passion for winning, linking quality to achievement, and strengthening its global brand awareness, Maxxis sponsors such global sports teams as New York Yankees, Los Angeles Lakers, Liverpool FC and AFC Ajax. Furthermore, in a highly competitive market, Cheng Shin emphasizes on 'greener' production methods and products, cleaner factories, the use of sustainable raw materials and corporate social responsibility.[64]

2.3.1 Industry Analysis



2.3.1.1 Value chain and PEST

The tires business value chain is thus structured:

- **R&D (or Innovation and Research)**:[65] importance of developing and testing new raw material (i.e. rubber) to improve longevity and resistance of tires and characteristics such as grip, safety and design.

[62] Cheng Shin website – Retrieved from http://www.csttires.com/int/about-cst/
[63] Information obtained through interview
[64] Cheng Shin website – Retrieved from http://www.csttires.com/int/about-cst/
[65] Research Triangle Institute Center for Economics Research (2000), "Economic Analysis of the Rubber Tire Manufacturing MACT" – Retrieved from http://www.epa.gov/ttnecas1/regdata/IPs/Rubber%20Tire%20Manufacturing_IP.pdf

- **Production**:[66] access to raw materials is increasingly limited. Because of the variety of products for commercial, passenger or other vehicles, of different size and weight, different standards are used. Production plants are expensive to set up. The product is quite homogeneous across brands.
- **Distribution**:[67] transport and shipping costs follow economies of scale. Distribution networks are highly structured.
- **Marketing and Sales**:[68] branding is important, and key players are globally recognised. Competition of cheaper brands is strong and drives prices down, therefore sales and promotion must be competitive due to the low costs for customers to switch of tire company. Online sales are growing, while sales vary seasonally, being higher in summer and lower in winter.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**: the tire industry is closely linked to performance and political sensitivity of the automotive industry.[69] Road infrastructure must be developed and renewed, and new infrastructure project might inject new capital into the market for this means. Rubber and tire industries pose serious questions about solid waste management.[70]
- **Economic factors**:[71] agreements in terms of trade liberalisation (FTA) are under way with the major world producers of raw materials for the tire and rubber industry.[72] Among them, the main producers are Malaysia,[73] Thailand and Indonesia, which are represented in the ASEAN community[74]. Rising oil prices can affect transport and shipping via road; top 4 players control around 75% of the global market for tires.[75] Growing demand for sustainable and "green tires", while vehicle-wise, there is an increasing demand for lighter-passenger vehicles and heavier truck/commercial vehicles.
- **Social factors**: increasing demand in the automotive industry, as car ownership grows especially in developing countries, both for commercial and non-commercial vehicles (Asia, Africa, Latin America and the Middle East).[76] Growing reliance on cars and public transport on road.

[66] Krammer, S. S. M. (2009), "International Alliances and Technology diffusion: An analysis of the global tyre industry", University of Groningen, Available at http://dx.doi.org/10.2139/ssrn.1515731, pp. 1-30
[67] Research Triangle Institute Center for Economics Research, (2000) "Economic Analysis of the Rubber Tire Manufacturing MACT" – Retrieved from http://www.epa.gov/ttnecas1/regdata/IPs/Rubber%20Tire%20Manufacturing_IP.pdf
[68] Daisuke Harashima, Masanobu Matsumoto, "China's tire market turns to brands, quality", Nikkei Asian Review, 16 May 2015 – Retrieved from http://asia.nikkei.com/Business/Trends/China-s-tire-market-turns-to-brands-quality
[69] Pattanayak, S.K., Depro,B.M. and Bingham, T.H. (2000), "Economic Analysis of the Rubber Tire Manufacturing MACT" – Retrieved from http://www3.epa.gov/ttnecas1/regdata/IPs/Rubber%20Tire%20Manufacturing_IP.pdf
[70] European Rubber Journal (2015), "Top 10: ERJ Global Tire Industry Reports", February 2015 – Retrieved from http://www.european-rubber-journal.com/2015/02/02/top-10-erj-global-tire-industry-reports/
[71] Kohei Fujimura, "Midtier Asian brands taking more of the global tire market", Nikkei Asian Review, 26 May 2015 – Retrieved from http://asia.nikkei.com/Business/Trends/Midtier-Asian-brands-taking-more-of-the-global-tire-market
[72] Euractiv, "EU and ASEAN to jumpstart trade agreement talks", 27 April 2015 – Retrieved from http://www.euractiv.com/sections/trade-society/eu-and-asean-kick-start-free-trade-agreement-talks-314100
[73] Malaysian Rubber Promotion Council Website – Retrieved from http://www.mrepc.com/industry/industry.php
[74] Shiino, K. (2012), "Overview of Free Trade Agreements in Asia", Cap 1 in "Cause and Consequence of Firms' FTA Utilization in Asia", Kazunobu Hayakawa (Ed.), BRC Research Report No.9, Bangkok Research Center, IDE-JETRO, Bangkok, Thailand
[75] European Tyres and Rubber Manufacturers' Association, "2014 Statistics" – Retrieved from http://www.etrma.org/uploads/documents/20150408%20-%20Statistics%20booklet%202014%20FINAL%20(modified).pdf
[76] In this respect, a deal with Iran to lift the export ban could open vast opportunities for this industry and the automotive sector!

- **Technological factors**: wear life must be improved, although this in return reduces replacement volumes over time. There is a niche of R&D opportunities for competitive racing and other special vehicles (i.e. army/police forces, government-related).[77]

2.3.1.2 In the EU

Many global players in the rubber and tire industry are located in Europe. According to the European Tyre and Rubber Manufacturers' Association (ETRMA) (which includes brands such as Apollo Vredestein, Brisa, Cooper Tires, Continental, Hankook, Marangoni, Michelin, Mitas, Nokian Tyres, Pirelli and Trelleborg Wheel Systems), the industry provides direct employment for more than 360,000 people and supports another 800,000 jobs in related sectors.

The world top six producers (Bridgestone, Goodyear, Michelin, Continental, Pirelli and Hankook) are strongly positioned in Europe, with twelve Headquarters, 77 plants and 12 R&D centres in Europe.[78] Moreover, EU-28 member states can count on national associations to promote this industry and its related enterprises, especially in Belgium, Finland, France, Germany, Hungary, Italy, the Netherlands, Poland, Spain and the UK. At the European level, another organisation, the European Tyre and Rim Technical Organisation (ETRTO) is responsible for standardisation, tire technical performance and technical regulations, while the European Tyre Recycling Association is active in developing sustainable options for solid waste management.

The biggest export markets are those of Asia-Oceania, although the internal European demand and the US and South American market are showing growth trends as well. The automotive tire market size is also projected to grow at a +5.9% between 2014 and 2019[79].

In Europe, growth in the industry has experienced mixed trends after a sharp drop in 2012 and 2013 because of the slow recovery from the financial crisis. However, in 2014-2015, some positive signs of a more steady recovery have been registered in EU-28, with growth in the industry stabilising around +3%, in line with other areas of the world.[80] Imports and tariffs in the EU are between 0 and 4.5%. However, when exporting abroad, European tires and rubber products can face tariffs as high as 40% as a result of protectionist policies (i.e. export to Malaysia, Argentina and Vietnam are subject to high tariffs).

2.3.1.3 In Taiwan

Asian markets have been traditionally dominated by Japanese companies such as Bridgestone. However, in recent years players from China, South Korea and Taiwan have gained ground at the expense of bigger players.[81]

The biggest and most famous Taiwanese brand, Maxxis, currently ranks as 9th globally. Smaller brands are gaining ground. All players outsource production mostly to mainland China, where prices for raw materials are lower, and to Vietnam and Thailand. However, most chemical

[77] Romanian Department of Economy, Commerce and Tourism, "Export Strategy of the Tyre Industry in Romania" – Retrieved from http://www.dce.gov.ro/sne/Tire_industry.htm
[78] European Tyres and Rubber Manufacturers' Association, "2014 Statistics" – Retrieved from http://www.etrma.org/uploads/documents/20150408%20-%20Statistics%20booklet%202014%20FINAL%20(modified).pdf
[79] Research and Markets (2015), "Global Automotive Tire Market 2015-2019 - Type, Section Width, Aspect Ratio, and Aftermarket Trends and Forecasts" – Retrieved from http://www.researchandmarkets.com/research/m94qn6/automotive_tire
[80] European Tyres and Rubber Manufacturers' Association (2015), "First Quarter 2015 Report" – Retrieved from http://www.etrma.org/uploads/Modules/Newsroom/20150415---eu-tyre-market-1q-2015.pdf
[81] Kohei Fujimura, "Midtier Asian brands taking more of the global tire market", Nikkei Asian Review, 26 May 2015 – Retrieved from http://asia.nikkei.com/Business/Trends/Midtier-Asian-brands-taking-more-of-the-global-tire-market

testing is conducted in Taiwan, while tire testing is done all over the world, including Europe. All companies are promoted and represented by the Taiwan Rubber and Elastometer Industries Association (TRIA).

Taiwan complies with the majority of the safety and quality standards of export markets, making Taiwan a top destination for international buyers of rubber products and tires. Joint Ventures have been set up with European as well as American partners to lower the cost of R&D and gain knowledge and access to the market, especially since the drop in domestic consumption demand in 2012.

Mega International Commercial Bank

50
Employees
(EU)

77
Global Assets
(bill EUR)

1.3
Global Revenues
(bill EUR)

273rd
In Banking 500

Foreign Exchange

MEGA has a strong international reputation in the foreign exchange business, with a high share of foreign deposit balance over domestic ones.

Lending

As commercial bank, MEGA offers loans to its international clients to start or grow their businesses.

Services & Consulting

Consulting is specifically tailored for investment, business administration and enterprise and venture capital management.

2.4 MEGA INTERNATIONAL COMMERCIAL BANK

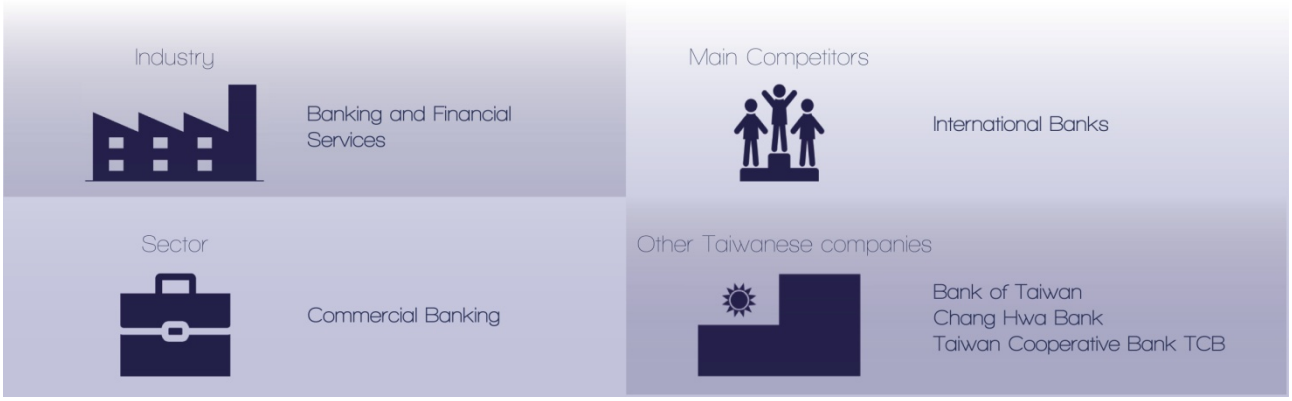
Created in 2006 as a merger of the International Commercial Bank of China (ICBC) and Chiao Tung Bank (CTB) to increase the business scale and to capture a larger market share, today Mega International Commercial Bank Co., Ltd (MICB) counts 108 branches in Taiwan, and 21 branches and two representative offices abroad, including two wholly-owned bank subsidiaries in Thailand and Canada.[82] It is one Taiwan's biggest banks, and the one with the most widespread presence in the European Union.

ICBC resulted from the privatisation and commercialisation of the Bank of China in 1971, which had previously served as a ministerial agent for international trade and foreign exchange, making it one of the most powerful banks of the Republic of China. CTB had a more varied heritage, going from being a state-owned bank for industries in 1928, an industrial bank in 1975, a development bank in 1979, and finally to a privately–owned bank in 1999.[83]

According to the MICB Annual Report 2014, the bank's competitive edge lies in the foreign exchange business, being the only Taiwanese bank participating in the Clearing House Interbank Payment System (CHIPS), Federal Reserve Wire Network (Fedwire), and Automated Clearing House (ACH) as a member bank, proof of the high degree of internationalisation of the bank. In this respect, it must also be noted that MICB maintains the highest foreign deposit balance among Taiwanese domestic banks.[84]

In Europe MEGA opened its first offices 25 years ago to increase its international outlook. Although it maintains branches in Amsterdam and Paris too, the London office now is their major subsidiary in the EU-28, reflecting the primacy of the British capital as the European financial hub. Taiwanese companies investing in Europe are among the major clients of MEGA: they often open both a bank account with a local European bank and with a Taiwanese bank in Europe.

2.4.1 Industry Analysis



2.4.1.1 Value chain and PEST

Conducting a PEST analysis of the industry it can be inferred that:

[82] Mega International Commercial Bank Website – Retrieved from https://www.megabank.com.tw/en/about_service03.asp
[83] MEGA Bank Historical Overview – Retrieved from https://www.megabank.com.tw/en/about.asp
[84] MEGA ICBC Annual Report 2014 – Retrieved from https://www.megabank.com.tw/en/dload01.asp

- **Political factors**:[85] national and international monetary policies are well-studied and have significant effects on the banking sector. Government regulations are strong, especially after the global financial crisis.[86] Countries and currencies are strongly interconnected. Financial regulations have been tightened following Basel III, which is aimed at increasing bank liquidity and hereby strengthening its resilience in case of a banking crisis.[87] The European banking union shifted the responsibility for banking policy from the national to the European level.
- **Economic factors**: for each country where the bank has operations, it is important to consider the health of the market, interest rates, and inflation. Savings and investment trends tend to follow global economic trends.
- **Social factors**: customers' loyalty to banking brand is high. Increasing perception of the risks associated with the banking sector, and more calls for transparency of the banking institutions. The country of origin of the bank might be relevant to create brand awareness.
- **Technological factors**:[88] heavy reliance on the latest technical resources, such as use of internet, e-commerce and access to databases, which brings in the need to constantly upgrade the soft infrastructure and tools such as ATM machines, credit cards and security-related mechanisms[89]. Rising potential in mobile banking solutions, both in developed and developing economies.

2.4.1.2 In the EU[90]

According to the European Banking Federation (EBF), '2014 will go into the history books as the year of the biggest-ever health check for the industry'.[91] Transparency and internal processes have been constantly monitored and assessed to ensure the quality of banking services and the recovery from the 2012 shocks that contracted the EU economy and cut annual economic growth rates to +0.2/0.3% in 2013.[92] After the crisis, bank liquidity was lower, and EU banks had to improve their capital base, basing it especially on deposits.

Unemployment and a depressed economic environment with a weaker currency have shaped the EU as an area of stagnation and low inflation. At risk of deflation, the European Central Bank has repeatedly cut its main interest rates – introducing negative deposit rates, and it launched a quantitative easing programme in October 2014. Bank attractiveness to internal and external investors remained mixed in the EU-28: return on equity in 2013 was 1.3% in Germany, 6% in France, 2.2% in the United Kingdom, -11.5% in Italy, 5.8% in Spain and 5% in the Netherlands.[93]

EU-28 governments have actively tried to rekindle economic growth with domestic and supranational measures, by promoting consumption expenditure and encouraging businesses. Moreover, the EU Commission prioritized the achievement of long-term financing and a capital

[85] Ernst & Young, "Building the bank of 2030: top eight global trends" – Retrieved from http://www.ey.com/GL/en/Industries/Financial-Services/Banking---Capital-Markets/8-trends-shaping-the-bank-of-2030
[86] Deloitte (2015), "2015 Banking Industry Outlook Boosting profitability amidst new challenges" – Retrieved from http://www2.deloitte.com/iq/en/pages/financial-services/articles/2015-banking-outlook.html
[87] KPMG, "Banking Outlook 2014: An Industry at a Pivot Point" – Retrieved from https://www.kpmg.com/US/en/industry/Banking-Capital-Markets/Documents/look-ahead-2014-industry-brochure.pdf
[88] Jun, Minjoon and Cai, Shaohan (2001), "The key determinants of Internet banking service quality: a content analysis", *International Journal of Bank Marketing*, 19:7, pp. 276-291
[89] Deloitte (2015)
[90] ING Europe, "ING guide to commercial banking in CEE" – Retrieved from https://www.ingcb.com/media/649733/insightcee_2014vv.pdf
[91] European Banking Federation (2014), "EUROPEAN BANKING SECTOR Facts and Figures 2014" – Retrieved from http://enews.ebf-fbe.eu/2014/12/ebf-facts-figures-2014/
[92] Ibid.
[93] Ibid.

markets union. European banks play a major role in granting access to loans and capital to business, covering 80% of all investment. However, after the crisis, loan access has tightened, and both due to higher funding costs and a slower economy, businesses have refrained from asking loans. In 2013, the volume of loans provided by EU banks was EUR 23.2 trillion, with a contraction of EUR 900 billion vis-à-vis 2012. According to the EBF, 32% of loans provided by EU banks go to households, usually for the purchase of real estate, 27% go to financial institutions, 22% to non-financial ones and 5% to governments.[94]

Although coordination has improved after achieving the monetary union, national banking practices still vary slightly across countries, highlighting the importance of local markets; the usual mode of growth is that of mergers and acquisitions within the national boundaries.

2.4.1.3 In Taiwan

In the aftermath of the Global Recession, Taiwan suffered less than the EU and US. Partially shielded by its peculiar position within the global political economy, its growth rate registered a promising +3.7% in 2013-2014. This shows how the economy is recovering steadily through capital investment and private expenditure.

The Taiwanese economy is however taking a cautious approach to growth especially because of China's slowdown and Taiwan's economic and trade exposure to it.[95] Chinese RMB deposits and foreign-currency loans are indeed growing at the expenses of domestic lending. Moreover, it must be noted that the EU debt crisis has affected negatively those SMEs doing business in Europe, meaning that banks have to put in place tighter risk management strategies and access to credit. Another risk that might arise in the future concerns the real estate sector in Taiwan, as the housing boom in Taipei and other cities is leading to larger than ever credit risks in mortgage loans and construction loans.[96]

Overall, the Taiwanese banking sector has recently received positive ratings from rating agencies such as Moody's and Finch,[97] [98] while banks appear to be in a healthy state, with a low rate of non-performing loans (0.25%) and a high capital coverage ratio.[99]

International exposure of Taiwanese banks is being achieved through setting up new branches and mergers and acquisitions, focused in China (more than 13 Taiwanese banks have opened sub-branches in mainland China) and South East Asia, while historically the main area of expansion outside of Asia had been the US. Improvement in financial services and system support is encouraged and sustained by constant digitalisation.

[94] Ibid.
[95] Moody's Website, "Moody's: Outlook for Taiwan's banking system remains stable", 4 August 2014 – Retrieved from https://www.moodys.com/research/Moodys-Outlook-for-Taiwans-banking-system-remains-stable--PR_305554?WT.mc_id=NLTITLE_YYYYMMDD_PR_305554
[96] Central Bank of the Republic of China (Taiwan), Press Release, "Revision to Targeted Prudential Measures on Real Estate Lending", 13 August 2015 – Retrieved from http://www.cbc.gov.tw/ct.asp?xItem=50737&ctNode=928&mp=21
[97] Fitch Ratings, "Taiwan Banks' Profitability to Rise in 2014-2015", September 2014 – Retrieved from https://www.fitchratings.com/gws/en/fitchwire/fitchwirearticle/Taiwan-Banks'-Profitability?pr_id=867734
[98] Hsu , C., "Banking sector receives stable rating: Moody's", Taipei Times, 5 August 2014 – Retrieved from http://www.taipeitimes.com/News/biz/archives/2014/08/05/2003596656
[99] Mega ICBC (2014)

Okidland Biotechnology

15
Employees
(EU)

5,4
EU Assets
(mill EUR)

578,4
EU Revenues
(thousand EUR)

Greenhouse Solar

Okidland uses high-tech solar panels to power their greenhouses, achieving a truly eco-friendly production.

Orchids

Okidland is specialized in growing orchids and breeding new varieties which participate in world-famous shows and competitions.

Distribution

A wide and efficient network of distributors cover Southern European markets as well as extra-European neighbors for potential growth.

2.5 OKIDLAND BIOTECHNOLOGY

Okidland Biotechnology was established in 2009 in Taiwan by founder Lien-Chuan Yang. It grows a number of diverse orchid crops, including Phalaenopsis, Cattleya, Paphiopedilum, Oncidium, Cycnoches, Pachira and Japanese Serissa. As blooming orchids are easily damaged during transportation, Okidland only exports orchid seedlings and young orchid shoots from Taiwan, which are then grown in Southern France (Hyères). Using high tech solar energy technologies to heat its greenhouses, Okidland prides itself on high quality products and eco-friendly production. When they settled in Hyères, Okidland sought the French know-how. Besides the ideal climate, the city is equipped with suitable infrastructures including research laboratories and educational institutions (Lycée agricole et horticole d'Hyères). Hyères is seen by Okidland as a gateway to the national and European market: since the 1980s, the city is considered as the main horticultural centre of the South-East thanks to the big flower market of the SICA.[100] Var, the *département* where it is located, represents more than 50% of the regional production and more than 25% of the national production.

Okidland completely renovated the greenhouses in Hyères since buying them six years ago; the company is investing in solar panels and in green technologies, for saving both energy and cutting costs. Okidland also has an office in Rungis, Île-de-France, which deals with distribution in the whole of France.

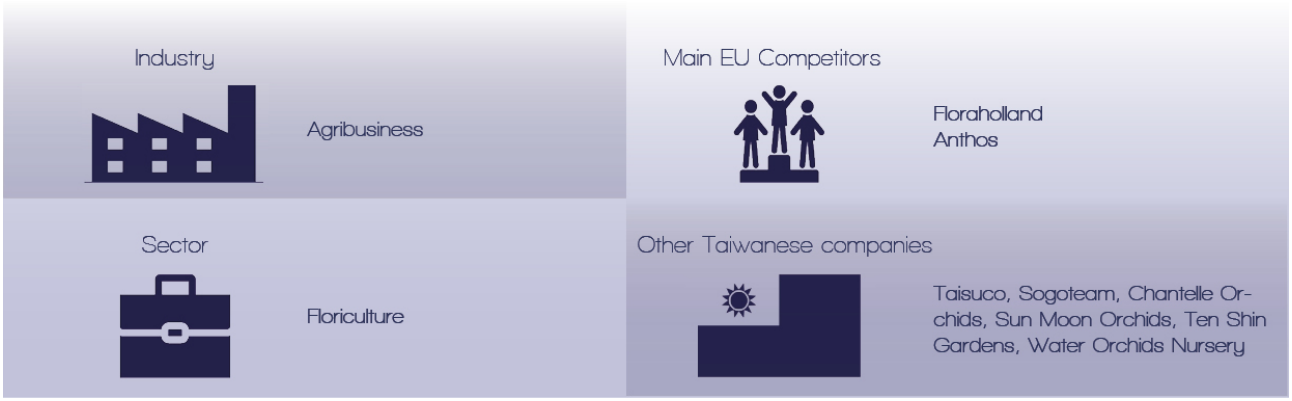
The main market for Okidland is France. However, the company is targeting Southern Europe more broadly, as well as the MENA region, as potential markets for their products. Northern Europe, on the contrary, is considered as a more saturated market because of the strong Dutch competition.

Okidland has 15 employees in France, of which two-thirds in Hyères. Some of the employees are from Asia, while many others have French citizenship, but often are second or third generation immigrants from Southeast Asia.

Okidland has ambitious plans. Once the renovation works of the plant in Hyères are finished, the company expects to grow further both in terms of output and of employees. Meanwhile, it is planning to create a lab for hybrid orchid creation, which would make prices more competitive while maintaining high quality. In fact, despite its attention to prices, Okidland is a high-end orchid producer, focusing on the quality of its products more than on price competitiveness. Although Okidland is not yet cooperating with any European research institutes, the possibility of such collaborations is received with much enthusiasm by the company, and could contribute to a knowledge transfer between Taiwan and Europe. Okidland is a frontrunner among Taiwan's many high-quality flower producers. It is strengthening its current market share, and it is studying ways to penetrate into other countries in the highly competitive European market.[101]

[100] For more information, please visit: http://www.marcheauxfleurs.fr/
[101] Information obtained through interview

2.5.1 Industry Analysis



2.5.1.1 Value chain and PEST

The floricultural business value chain is structured as follows:

- **R&D (or Innovation and Research)**: is highly sophisticated, often in conjunction with biotech laboratories and higher education institutions. Focus and priority is given to breeding new species in response to rapidly changing tastes and demands for durability and quality of the final product, and other requirements dictated by the distribution modes.[102]
- **Production**: is location sensitive (weather, temperature, latitude, soil and water supplies). Other factors that affect the business include regulations over the use of chemicals and fertilizers.[103]
- **Distribution**: wholesale distribution through auctions dominate domestic markets (i.e. in Taiwan), while after exports, products are sold either through chain or local retailers, down to floricultural shops.[104]
- **Marketing and Sales**: main sales points are floriculture shops, stands in traditional markets, or farmers' markets, although e-commerce in this field is growing. Price is a big determinant of consumers' willingness to purchase the final product.[105] [106]

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**: an EU-Taiwan agreement over mutual recognition and protection of plant species is in place.[107] EU agricultural policies and subsidies prevent faster growth of the market. Crucial attention is given to patents, royalties and IP protection. Business associations are particularly powerful.

[102] Rabobank, "A flourishing industry looking and moving ahead" – Retrieved from https://www.rabobank.com/en/about-rabobank/background-stories/food-agribusiness/a-flourishing-industry-looking-and-moving-ahead.html
[103] USAID (2007), "A Value Chain Assessment of the Tropical Floriculture Sector in Indonesia" – Retrieved from http://pdf.usaid.gov/pdf_docs/pnaeb614.pdf
[104] Roebroek, C. (2012), "Shifting from local distribution to network distribution in a floriculture environment", TUE. School of Industrial Engineering. Series Master Theses Operations Management and Logistics – Retrieved from http://alexandria.tue.nl/extra2/afstversl/tm/Roebroek_2013.pdf
[105] Weddington, M. (2003), "Economic and cost analysis of the floriculture industry differentiated by market segment", North Carolina State University – Retrieved from http://repository.lib.ncsu.edu/ir/bitstream/1840.16/2019/1/etd.pdf
[106] Mariotti, M.G. and Roccotiello E. (ed.) (2013), "SUSTAINABLE FLORICULTURE Handbook and Guidelines", Del Gallo editori s.r.l. Green Printing – Retrieved from http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&rep=file&fil=SUMFLOWER_Handbook_Guidelines.pdf
[107] Community Plant Variety Office, "Announcement n◦ 4/2011 of the Community Plant Variety Office - "Protocol for the acquisition of the test reports from Naktuinbouw concerning Phalaenopsis and Doritaenopsis varieties already tested in Taiwan", 15 June 2011 – Retrieved from http://www.cpvo.europa.eu/documents/announcement/2011/gazette201103.pdf

- **Economic factors**: although it is within the primary industry, agriculture is compatible with later stages of globalisation and global division of labour. However, there are still traditional clusters of growers (i.e. the Netherlands). Labour costs are relatively low.[108]
- **Social factors**: consumption of floricultural products is tightly linked to lifestyle trends. It is often directly proportional to per capita incomes and it therefore tends to be higher in more developed countries.
- **Technological factors**: within the floriculture and agribusiness, R&D spending and advancing technical skills are gaining ever-increasing importance to speed up production and enhance competitiveness.[109]

2.5.1.2 In the EU

Global trends highlight a steady rise in profitability within the sector. In 2012, developing countries alone exported floricultural products for a total of USD 4 billion, growing +24% compared to 2010.[110] The EU seems to follow these trends. According to the latest documents provided by the EU Commission, the EU constitutes "one of the world's highest densities of flower production per hectare (10% of total world area and 44% of world flower and pot-plant production)".[111] In terms of trade, the EU is a net exporter of pot plants, conifers and hardy perennial plants, bulbs and corms, net importer of cut flowers and cut foliage and it has a net trade surplus for plants and floriculture products.[112]

As highlighted by the working document AGRI-C2,[113] based on data by the International Floricultural Trade Association, the EU holds a 42.6% share of the total global floricultural industry value, making it the largest player in the sector. Divided among Member States, the largest share is of the Netherlands (31%), Italy (13%) and Germany (11%). Producers are thus traditional 'grower' countries (Northern European countries such as the Netherlands) and Southern European countries, which can exploit a competitive advantage in terms of volumes due to weather conditions. The EU mainly exports to Russia (24.2%), Switzerland (21.9%) and the USA (10.5%). Overseas markets have the lion's share of consumption, and in a growing business, finding new markets abroad seems to be the key driver.

The EU total imports come mainly from Kenya (25.9%), Ethiopia (10%) and Ecuador (9.8%), with Taiwan at 2%. However, regarding bulbs and corms, the biggest partner is Taiwan, which represents 36.8% of EU imports. Taiwan is one of the sending countries of which the import of bulbs and corms into the EU-28 is growing most steadily.[114]

European enterprises within the sector range from small family-run businesses to large conglomerates of flower producers, often in association with laboratories and research centres and subsidized by local governments. The sector is sensitive to customer demand: consumption occurs in developed countries or rapidly developing countries (Asia, Latin America and Eastern Europe as possible future markets) and tastes tend to get more refined, leading to a variety in both demand and quality.

[108] Mariotti, M.G. and Roccotiello E. (2013)
[109] Weddington (2003)
[110] International Trade Centre, Floricultural Sector at a Glance – Retrieved from http://www.intracen.org/itc/market-insider/floriculture/at-a-glance/
[111] European Commission, Agriculture and Rural Development Live plants and flowers – Retrieved from http://ec.europa.eu/agriculture/flowers/index_en.htm
[112] Ibid.
[113] European Commission (2013), Agriculture and Rural Development Live plants and flowers, "Working Document Advisory Group FLOWERS AND ORNAMENTAL PLANTS" - Retrieved from http://ec.europa.eu/agriculture/fruit-and-vegetables/product-reports/flowers/statistics-2013_en.pdf
[114] Ibid.

Job creation in the floricultural sector is highly dependent on technological research and cutting edge technical skills. It could especially benefit countries such as Romania, Bulgaria, Poland, Greece and Portugal – where more than 10% of the total population works in agriculture – and thereby contribute to national and regional economic growth.[115]

2.5.1.3 In Taiwan

According to the Taiwan Council of Agriculture, annual flower exports have amounted to about USD 100 million over the past few years, 80% of which is constituted by orchid seedlings.[116] For Taiwan, the biggest markets are the USA, Japan and the EU, the latter being recognised as the most promising market.[117]

In this respect, in 2009 Taiwan and the EU signed an agreement[118] for the mutual recognition of plant species, especially benefitting Taiwan's export of orchid seedlings. In fact, while orchids now represent roughly 20% of the floriculture business export, they make up over 80% of its value. Taiwan is a world leader in the production of orchids: data from 2010 show that the country accounted for 16% of global orchid production. In this specific business, Taiwanese leadership is often linked to the production of *Phalaenopsis* orchids. In fact, half of the world production of this variety happens in Taiwan.

The Taiwan Orchid Growers Association was created in 2001 to protect and promote this important business, for example representing Taiwan at important fairs worldwide such as the renowned Royal Horticultural Society's annual Chelsea Flower Show.[119] Other business associations, such as the Taiwan Flowers Development Association, act as umbrellas, advocating and lobbying for Taiwanese flower producers. Exports appear to be highly concentrated in single foreign countries, incurring higher risks due to currency and demand fluctuations.[120]

The Taiwanese floricultural sector is split into two different business-models: the mass production for export, with high attention to quality and customisation to the tastes and strict regulations of developed markets, and production in mainland China for the Chinese market. Taiwanese floricultural enterprises are actively involved in R&D activities and in securing property rights and royalty recognition for their patented breeds of flowers, as competition from mainland China is becoming more and more aggressive.

[115] Employability data (2011) from the agricultural sector in the EU make a case for the expansion of business and job creation in Southern and Eastern European countries. In fact, agriculture represents more than 10% of total employment in five Member States: Romania (31.4%), Bulgaria (19.4%), Poland (12.7%), Greece (11%) and Portugal (10.3%). Trends, however, show a falling share of jobs in the primary sector due to progression towards later stages of economic development and high turnover in an industry often characterised by self-employment.
[116] Taipei Times, "Taiwan, Europe sign agreement on orchid trade", 07 March 2009 – Retrieved from http://www.taipeitimes.com/News/taiwan/archives/2009/03/07/2003437783
[117] Taiwan Council of Agriculture – Retrieved from http://eng.coa.gov.tw/suggest.php?issue=22495
[118] Community Plant Variety Office (2011)
[119] Taipei Economic and Cultural Office in Los Angeles, "Taiwan orchid growers count down to Chelsea Flower Show", 26 April 2011 – Retrieved from http://www.taiwanembassy.org/US/LAX/ct.asp?xItem=195893&ctNode=2825&mp=52
[120] Lee, H.-J. (2014), "The Development and Expansion Strategy for Taiwan's Floriculture Industry", Food and Fertilizer Technology Center Asia Pacific Region Website, 20 November 2014 - Retrieved from http://ap.fftc.agnet.org/ap_db.php?id=357&print=1

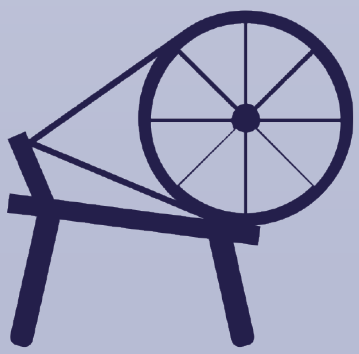
Sophie Hong

Chevalier de l'Ordre National du Mérite à Mme. Sophie Hong

Hong Silk won the Golden Pin Design Award in 2014 for its excellence and innovation

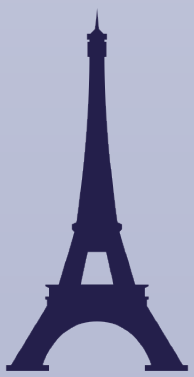
Haute Couture

Haute couture inspired from Chinese and Taiwanese dress-making traditions, married with an exquisite taste in other sectors of creative arts, such as jewellery and painting,



Hong Silk

For her creations, Sophie Hong created her own variety of silk, 'Hong Silk', from the ancient Asian silk-making tradition of 'mud silk', which was dyed with tea.



Paris

The brand has strong links with France: Sophie Hong owns a boutique in Paris and her work has been displayed in museums and galleries in the French capital.

2.6 SOPHIE HONG

The company is identified with the artistic and entrepreneurial vision of the founder, Sophie Hong, a self-starter who has become an icon in the high-end fashion industry. She graduated in 1977 in Fashion and Design from the Shih Chien College in Taipei and then continued her studies at the Bunka Fashion College in Tokyo. She gained work experience in the United States and France, through a scholarship from the Industrial Bureau of Taiwan. She completed internships at Dior and Chanel in Paris, establishing life-long connections with the French capital.

She founded her brand Sophie Hong in 1985 and developed the 'Hong Silk',[121] her own blend of silk that is now the fabric of choice for her creations. She participated in numerous fashion shows, and opened eleven shops around the world. Her business expanded into jewellery, furniture, drawings and fashion design, proving her adaptability and interest in all creative arts. The Taiwan Garment Industry Association is a supporter of her business, especially because of her commitment to reviving the traditional art of silk garments (also called Mud Silk), for which she acts as an ambassador of Taiwanese excellence, having conquered an international niche market.

Her second home is Paris, a global fashion capital, where she opened a boutique in June 2010, at the Palais Royal, in collaboration with the French Ministry of Culture. After that, she was awarded the title of 'Chevalier', or 'Knight in the National Order of Merit', in recognition of her performance to promote cultural exchanges between France and Taiwan. She believes that her role as a fashion designer is to promote people-to-people exchanges through art and excellence.[122] Sophie Hong also owns a French bookstore in Taipei, the 'Librairie Le Pigeonnier du Quercy'. Her works have been displayed in various museums, such as the Musée Galliera de la Mode et du Costume in Paris.

The close connection with France has been a constant of Sophie Hong, both personally and as a brand. In fact, having the European boutique in Paris was the only choice for a player in the high-end fashion industry who is often invited to fashion weeks and shows around Europe, allowing her to manage the logistics more closely and efficiently. Other shops have opened in Japan, USA and Brazil.

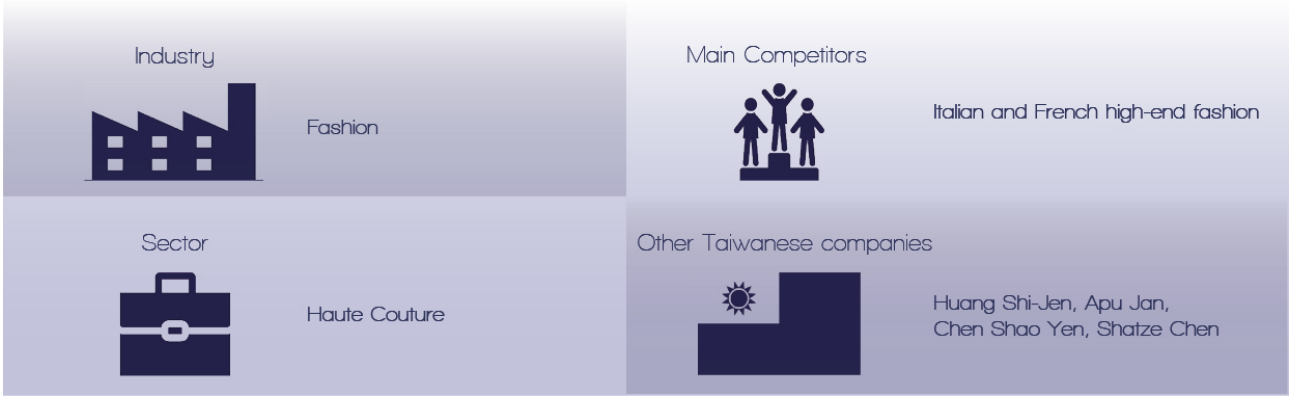
The brand's approach to fashion has been often captured by the slogan "Sophie Hong's material suits our bodies, it also suits our souls".[123] The philosophy behind Sophie HONG is that of blending the Chinese culture and traditional dress-making techniques of Taiwan with design elements, resulting in ambitious creations that can be regarded as objects of collection and sculptures to be admired.

[121] This traditional process of silk-making comes form the Guangdong Provinces and consists in « […] genuine silk dyed with tea, then lacquered according to an ancestral Chinese process which produces an incredible and unique range of color such as blue, green, brown and purple hues. » Sophie Hong Website – Retrieved from http://www.sophie-hong.com/technique/

[122] Simon, S. (2003), «Sweet and Sour: Life-Worlds of Taipei Women Entrepreneurs », Chapter 12, Rowman & Littlefield Publishers

[123] Taiwanese poet Du Shi-Shan, quoted on Sophie Hong Website – Retrieved from http://www.sophie-hong.com/about-sophie-hong/philosophy/

2.6.1 Industry Analysis



2.6.1.1 Value chain and PEST

The haute couture fashion business value chain is thus structured:[124]

- **R&D (or Innovation and Research)**: it is mainly focused on the design and on innovation in fabrics and other materials. R&D in this respect is closely linked to the textile and clothing industry.
- **Production**: supply of quality raw material. It is a relatively labour-intensive industry because of the absence of economies of scale. Therefore, outsourcing to reduce labour costs is rather limited.
- **Distribution**: high-end retailers are needed to enhance the brand image. In addition products are distributed to brand-only boutiques or shops.
- **Marketing and Sales**:[125] in world capitals one can find high-end fashion streets where sales are concentrated around a targeted and personal customer experience. There is much investment in marketing and advertising, as companies need to build brand loyalty and awareness. Volumes are relatively small, without real competition on the price margin. Made in Italy or Made in France increase the image among customers, just like Made in Taiwan increases the value of the product vis-à-vis products of competing Asian countries.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**:[126] world brands, although under umbrellas and multinational companies, are usually tied with countries of origin (i.e. French and Italian brands), resulting in protectionism. IPR regulations are a priority to fight counterfeit goods. Widespread attention to own and third-countries labour laws, and there is international pressure on brands if production is outsourced.
- **Economic factors**: globalisation trends remain strong. Aside traditional markets (EU, USA, Japan), emerging economies (higher incomes and new purchasing power) are becoming increasingly important.[127] Expanding opportunities in terms of employability, although employers need to invest in the human capital of their employees.

[124] Vi Nguyen (2004), "Analysis of the Luxury Goods & Apparel and Footwear Industries", University of Wisconsin-La Crosse, *Journal Of Undergraduate Research*, Volume VII
[125] S¸en, A. (2007), "The U.S. fashion industry: a supply chain review", *Fashion Review April 2007* – Retrieved from http://alpersen.bilkent.edu.tr/Papers/Fashion_Review_April_2007.pdf
[126] European Commission, Action Plan for Fashion and High-end Industries – Retrieved from http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu-support/index_en.htm
[127] European Commission (2012), Growth, "Commission Staff Working Document Policy Options For The Competitiveness Of The European Fashion Industries — 'Where Manufacturing Meets Creativity'" – Retrieved from http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu-support/index_en.htm

- **Social factors**:[128] extremely short product life-cycle due to seasonal trends and consumer preferences. Strong role of influencers (specialised magazines, bloggers and various trendsetters). High visibility and coverage in media/social interactions. Haute couture is not significantly affected by falls in demand and consumption, as it often appeals to niche markets that are well protected against reductions in purchasing power. Changing demographics in consumers' exposure to the industry (sooner and younger).
- **Technological factors**:[129] development of new materials to respond to consumer demands and trends (i.e. fake leather and fake fur in response to animal-rights activism, while recycling and "green" materials are an answer to higher environmental consciousness). Haute couture does not rely on e-commerce as much as lower segments, if not at all.

2.6.1.2 In the EU

Cultural heritage and creativity are at the heart of this industry in Europe. The industry is extremely developed, and it contributes to a number of related businesses such as that of 'fashion tourism', which help the spread and growth of European fashion and artisanship.

In 2009 the fashion industry, including the whole production chain from manufacturing to retail, over five million people in the EU-28. This is 3.7% of the total non-financial business economy. Two million people were employed in manufacturing alone (6% of total EU-28 manufacturing jobs)[130]. However, with the global recession hitting the industry, job losses were counted especially in the manufacturing side of the business.[131] Recent trends seem to be reverting the crisis, with job creation in retailing, distribution and marketing. Geographical spread is quite varied across Europe, although strong fashion clusters thrive in France and Italy, especially linked to subsectors (i.e. Italy and the leather industry). The European Cluster Alliance, a transnational cooperation between cluster organisations and the European Cluster Observatory, supports these centres of excellence.[132]

The fashion industry in EU is dominated by SMEs, and is therefore featured in the EU funding programme "Horizon 2020", which budgets EUR 70 billion for R&D and industry competitiveness for SMEs between 2014 and 2020. For example, centres for technological knowledge and skills transfer are to be established to create cooperation between industries and sectors, or even single SME-targeted projects to boost their activities and increase access to finance.

IPR protection is being achieved through Bilateral Agreements, as the world counterfeit goods market increases its share every year. In the EU, 50% of the goods that held at customs are fashion-related. In this respect, after the 2012 'Stop Fakes' campaign (funded by the European Commission), the EU has set up three specific IPR Helpdesks for non-EU countries (China, Mercosur, ASEAN).

[128] Latter, C., Phau, I. and Marchegian, C. (2010), "Luxury and Haute Couture in the Generation Y Market: Consumers' Need for Uniqueness and Status Consumption", *Journal of Global Fashion Marketing*, Volume 1 Issue 4, pp. 205-213
[129] Ibid.
[130] European Commission, Fashion and high-end industries in the EU – Retrieved from http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu/index_en.htm
[131] Industrie de la mode habillement statistiques France (FR) – Retrieved from https://fashionunited.fr/industrie-de-la-mode-habillement-statistiques-france#EU2
[132] European Commission, Action Plan for Fashion and High-end Industries – Retrieved from http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu-support/index_en.htm

2.6.1.3 In Taiwan

While the mid-range segment of the fashion industry is struggling in an overcrowded domestic market due to entry of large global brands such as Zara and Uniqlo, Taiwanese high-end fashion industry has received international acclaim in the past years.

In 2011, following the government decision to include the fashion industry in a long-term economic development plan, the Taiwan Textile Federation, which is funded both by the government and the private sector, launched the Fashion Institute Taipei.[133] As a designer hub, it focuses its efforts on all stages of the value chain, from the development of new fabrics and garments to the design and sales of finished branded products, including lectures and seminars about fashion trends and marketing strategies. Moreover, the Taiwan Fashion Design Award was created in 1987 by the governmental sponsors to further promote high-end brands.

Taiwanese high-end fashion is still produced locally, driving labour costs high, and brands refuse to outsource production abroad to curb the image of Taiwanese brands as driven by quantity over quality. At the same time, while volumes remain small, there is a push to expand to nearby markets of mainland China and Japan, and then to Europe.[134]

Sales of high-end fashion products have been growing steadily in Taiwan, especially through e-commerce (different from the European sales structure of this sector), outlets and malls in big cities. There are signs of a healthy fashion tourism trend that attracts consumers from mainland China and South Korea, as most brands are sponsored by celebrities starring on Chinese or Korean national televisions.

Presence in European markets is still crucial to build brand history and awareness in the high-fashion industry, and Taiwanese brands are extremely active in taking part to fashion events such as Fashion Weeks in various European cities (mainly Paris, Milan, Florence and London).[135]

[133] Chung, O., "Nurturing the Fashion Industry", Taiwan Today, 06 January 2012 – Retrieved from http://taiwantoday.tw/ct.asp?xItem=190961&ctNode=124&mp=9
[134] Ibid.
[135] Gao, P., "Cultivating Creativity in Fashion", Taiwan Review, 1 January 2015 – Retrieved from http://taiwanreview.nat.gov.tw/ct.asp?xItem=225188&ctNode=1206&mp=1

Taipec

15
Employees
(EU)

2.7
EU Assets
(mill EUR)

4.8
EU Revenues
(mill EUR)

Quality Asian Food

Taiwanese food specialties are becoming more and more popular in Europe, marketed as 'quality Asian food'.

Distribution

Controlling its operations from London, Taipec has a capillary network of distribution all over Europe.

Asian Supermarkets

At the end of the value chain, Asian supermarkets are the favoured selling points for Taiwanese specialties, such as bubble tea, sauces and sweets.

2.7 TAIPEC

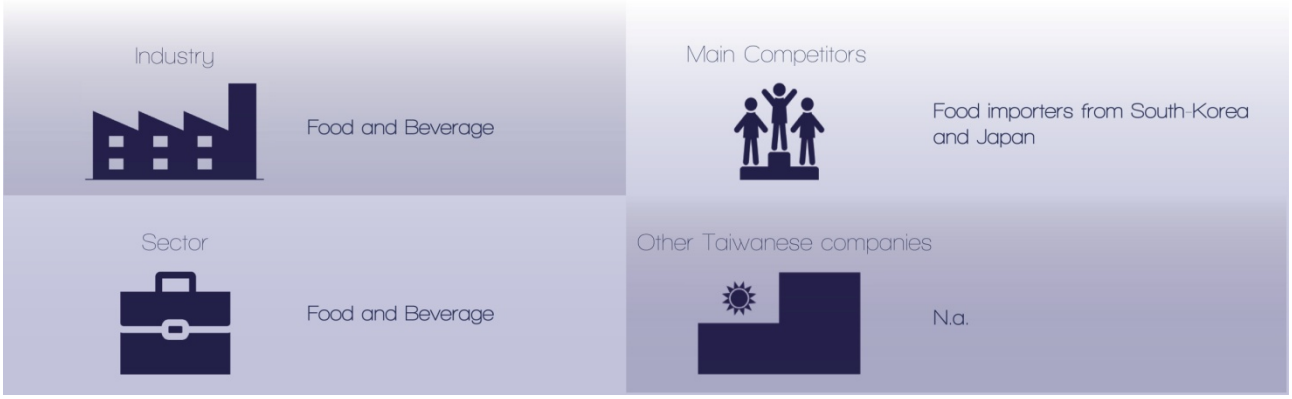
Taipec Ltd was created in 2009 by Sherman Lai, a Taiwanese businessman with lengthy experience in the UK.

The reason behind Taipec Ltd is to be found in the longing for original Taiwanese food by Taiwanese families abroad. Food from home was perceived to be qualitatively different from other 'Asian food' options in Western countries. Moreover, a clear intent to export Taiwanese food and get European customers to know Taiwanese specialties pushed the establishment of the new company.

Branding has been, and still is crucial to distinguish Taiwanese products from what is often perceived to be 'Chinese food'. The tagline adopted is that of 'Quality Asian food', and aims at separating Taiwanese flavors from those coming from traditional Chinese cuisine as it is known to Westerners.

Taipec market outreach covers Germany, Italy, France, Netherlands, Spain, Sweden and Ireland and captures an upper market compared to mainland China competitors, at a similar level as South Korean food businesses, and with often more competitive pricing than the Japanese counterparts. Since its founding, Taipec has been distributing to over 500 Asian stores in both UK and continental Europe. Main imported products include real Taiwanese specialties such as bubble tea and sweets, but Taipec imports all kinds of Asian food and beverages into Europe, ranging from instant noodles to rice products and cooking sauces, for which competition with countries that enjoy GSP+ entry into the EU is however very strong. Establishment in the UK was a natural consequence of the good relations between Taiwan and the UK, which also encouraged Taipec HR management to pursue a mix of UK and Taiwanese employees.

2.7.1 Industry Analysis



2.7.1.1 Value chain and PEST

The food and beverage business value chain is structured as follows:

- **R&D (or Innovation and Research)**: is tied to R&D in the agribusiness sector and in farming, to achieve maximum productivity and safety for the consumer. Other R&D activities include research on packaging and on improving preservability of products.[136]

[136] KPMG, "2014 Food and Beverage Industry Outlook Survey" – Retrieved at https://www.kpmg.com/US/en/industry/food-drink-consumer-goods/Documents/food-drink-consumer-goods-industry-outlook-survey.pdf

- **Production**: is extremely varied and complex and includes manufacturing of specialized products (e.g. frozen products, ready-made meals and other processed food, usually to reach long conservation dates, such as UHT milk). Organic and environmentally conscious production is seen as a value-adding choice over cost-cutting production methods, and it is generally pursued to remain competitive or create niches.[137] Producers have to be receptive of shifting trends and adapt very quickly. Labelling is becoming clearer and simpler in response to transparency requirements.[138]
- **Distribution**: is almost monopolised by mega-retailers, which have the largest share of bargaining power across the whole value chain, and are able to put pressure on suppliers.[139] Retail prices are demand-led, which creates a very competitive environment in the industry to lower prices. Private label products are gaining ground against branded consumer products.
- **Marketing and Sales**: there is ample room for promotions and discount selling, especially given the power of large suppliers, which are able to set up discount shops and grocers to explore the new opportunities of the food and beverage industry.[140] Online shopping is emerging even for food and beverages, with new delivery models such as 'click and collect'. There is growing interest for creating an encompassing food shopping experience, with careful planning of mega-stores and customer services. Marketing is at a high stage of development, and targeted to micro-segments of consumers (e.g. Millennials looking for 'green choices').[141]

Conducting a PEST analysis of the industry[142] it can be inferred that:

- **Political factors**: the industry is extremely internationalised and subject to mega-trends such as shifting demographics, customer sensitivity, health regulations and an overall growing demand for food in emerging markets.[143] In 2015, the major trends that reflected the influence of political factors on the food & beverage industry were the ban on partially hydrogenated oils in the US (for health reasons, i.e. checking cholesterol levels by listing "good fats" and "bad fats"), the debates over Genetically Modified Organisms (GMOs) and the call for transparency from consumers groups and producers associations.[144] Public concerns around the Transatlantic Trade and Investment Partnership (TTIP) and its effects on food safety in Europe have also moved the food & beverage sector up on the European agenda.
- **Economic factors**: food prices are on the rise because of growing production costs.[145] Globalization of food and beverage consumption is achieved through mass marketing. As a counter force, there is the tendency to create niche markets, focussing on healthy and organic food.
- **Social factors**: scientific publications from nutritionists influence consumer preferences, both in developed and in emerging countries.[146] The global rise of middle

[137] Ibid.
[138] Westonon, S. "Top 5 trends in food and beverage for 2015", FoodBev Media, 30 October 2014 – Retrieved at http://www.foodbev.com/news/top-5-trends-in-food-and-beverage-for-2015/
[139] Deloitte (2013), "The food value chain - A challenge for the next century"– Retrieved at http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Consumer-Business/dttl_cb_Food%20Value%20Chain_Global%20POV.pdf
[140] Ibid.
[141] Westonon (2014)
[142] Deloitte (2013)
[143] Ibid.
[144] Dusaro, D., "2015 Food and Beverage Industry Outlook - Processors are up against four very big and very real consumer-related issues in 2015", Food Processing, 13 January 2015 – Retrieved at http://www.foodprocessing.com/articles/2015/food-and-beverage-industry-outlook/?show=all
[145] Deloitte (2013)
[146] Ibid.

classes shifts consumption towards more processed foods, fats, and animal proteins.[147] Food and beverages are highly culturally sensitive, and the demand/offer can vary greatly depending on local taste. The influence of blogs, TV shows and traditional media channels is therefore extremely important.[148] Finally, shifts in lifestyles have replaced traditional meals with snacks and food on-the-go, moving even further away from take-away or fast-food trends of past decades. This creates vast opportunities for innovative food and beverages companies.[149]

- **Technological factors**: e-commerce is posing innovative opportunities to the food and beverage sector, causing a rise in M&A activities aimed at sharing the cost and burdens of setting up online sales channels.[150]

2.7.1.2 In the EU

According to the European Commission, "the food and beverage industry is the EU's biggest manufacturing sector in terms of jobs and value added",[151] representing one of the strongest trade assets that EU-28 has toward non-EU states. The centrality of this industry is well represented by this year's Expo 2015 event, held in Milan, with the theme 'Feeding the Planet, Energy for Life', at the crossroad between food security and sustainability.

Extensive monitoring and regulations are imposed on the food and beverage businesses and sub-sectors (especially in the agribusiness), including strict protectionist stances and preventive measures for IPR protection in case of export abroad. According to FoodDrinkEurope, the association of all businesses in the industry across EU-28, many initiatives promoted the industry transparency and worldwide leveraging power.[152] Among them, the EU Social Dialogue for the food and drink industry, in collaboration with the European Federation of Food, Agriculture and Tourism Trade Unions, the High Level Forum for a Better Functioning Food Supply Chain and the Supply Chain Initiative[153]. In the first quarter of 2015, sales and employment have registered small growth, while production has slightly decreased.[154]

According to Eurostat, 1.5 million businesses were listed in the food and beverages industry at all levels of the vertical and horizontal (which includes restaurants) value chains in 2010. In total the sector employs 7.8 million people, which is 5.9% of the total number of people employed in the non-financial business economy in Europe.[155] It generated EUR 132.3 billion of value added (2.2% of the non-financial business economy).[156] At EU-28 level, the biggest players are France, which shows the highest value-added (almost 20% of the whole European total for the industry), followed by The United Kingdom (18.1%), Germany (14.2%), Italy (13.1%) and Spain (12.7%).[157]

[147] Deloitte (2013)
[148] Westonon (2014)
[149] Ibid.
[150] Deloitte (2013)
[151] European Commission, Growth, Food and Drink Industry Webpage – Retrieved from http://ec.europa.eu/growth/sectors/food/index_en.htm
[152] FoodDrink Europe, "Annual report 2015", June 2015 – Retrieved from http://www.fooddrinkeurope.eu/uploads/publications_documents/FoodDrinkEurope_2015_Annual_Report1.pdf
[153] Ibid.
[154] FoodDrink Europe, "EUROPEAN FOOD AND DRINK INDUSTRY ECONOMIC BULLETIN – Q1 2015 HIGHLIGHTS", August 2015 – Retrieved from http://www.fooddrinkeurope.eu/uploads/publications_documents/ECO_Bulletin_Q1_2015_COMPLETE_final.pdf
[155] European Commission, Eurostat Website, Food and beverage services statistics - NACE Rev. 2 – Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Food_and_beverage_services_statistics_-_NACE_Rev._2#Main_statistical_findings
[156] Ibid.
[157] Ibid.

2.7.1.3 In Taiwan

The Taiwanese food industry is mainly composed by family-run SMEs, employing around 115,000 people working for 6,399 registered food and beverage companies in Taiwan.[158] Domestic production value in 2011 reached USD 19.6 billion, with a share of exports increasing every year. The value added of Taiwanese food and beverage exports went from USD 3.697 million in 2007 to USD 4.392 million in 2011.[159] Price competition is very important and it can easily push the weaker Taiwanese SMEs out of business, especially when they try to compete against South Korean or Japanese competitors on the higher end, and against mainland China and Southeast Asian competitors on the low end of the food and beverage market.[160]

On exports to Europe, Taiwanese food and beverage SMEs still pay the highest tariffs, showing how expanding the export business is a difficult strategy for this industry. The other key characteristic of the industry is that of food safety and label regulations, which vary across countries and regions and affect some products more than others. In this respect, Taiwan has enforced a number of Logos and Quality Guarantee labels to certify food and beverage products.[161]

There is room for growth for Taiwanese food and beverage industry in the marketing and promotion segments of the value chain, as they too often rely on pre-set strategies to enter different markets. In this respect, internationalization through strategic partnership has been the favourite entry-mode into external markets such as Japan, US, mainland China and Europe, through comprehensive supply chains and retailing businesses.[162] Support from the Trade Agencies abroad is strong as the sector is perceived to be one of potential growth, with untapped and underexplored potential. Some initiatives such as 'Gourmet Taiwan' have been launched to help small businesses in brand management and building.[163]

[158] Wu, Hsi-Wen (2012), "Food Industry Country Paper (Republic of China, Taiwan)"- Retrieved at report.nat.gov.tw/ReportFront/report_download.jspx%3FsysId%3DC10103555%26fileNo%3D003+&cd=4&hl=en&ct=clnk&gl=be
[159] Ibid.
[160] Information obtained through interview.
[161] Among them, Logo of Certified Agricultural Standards (CAS), Fresh Milk Logo, Logo of Health Food and Logo of Good Manufacturing Practice (GMP). Source: Wu, Hsi-Wen (2012), "Food Industry Country Paper (Republic of China, Taiwan)"- Retrieved at report.nat.gov.tw/ReportFront/report_download.jspx%3FsysId%3DC10103555%26fileNo%3D003+&cd=4&hl=en&ct=clnk&gl=be
[162] Digitimes Website, "Investment Opportunities in the Food and Beverage (F&B) Industry in Taiwan", September 2013 – Retrieved from http://www.digitimes.com.tw/seminar/dois_20130930/pdf-b/09_Food%20and%20Beverage%20Industry%20in%20Taiwan_E.pdf
[163] Ibid.

Tiong Liong Corporation

800
Employees
(Global)

Bluesign®
Standard Certification

Recycling

Production is environmentally conscious, with an eye to recycling materials: for the FIFA 2010 World Cup, TLC produced football jerseys made out of recycled plastic bottles.

Consumer Clothing

Because of their resistance and quality characteristics, TLC's textiles are widely used to make sport footwear and clothing.

Protective Clothing

High-quality functional textiles have an important public procurement market, for uniforms of police officers, firefighters, army members and others.

2.8 TIONG LIONG CORPORATION

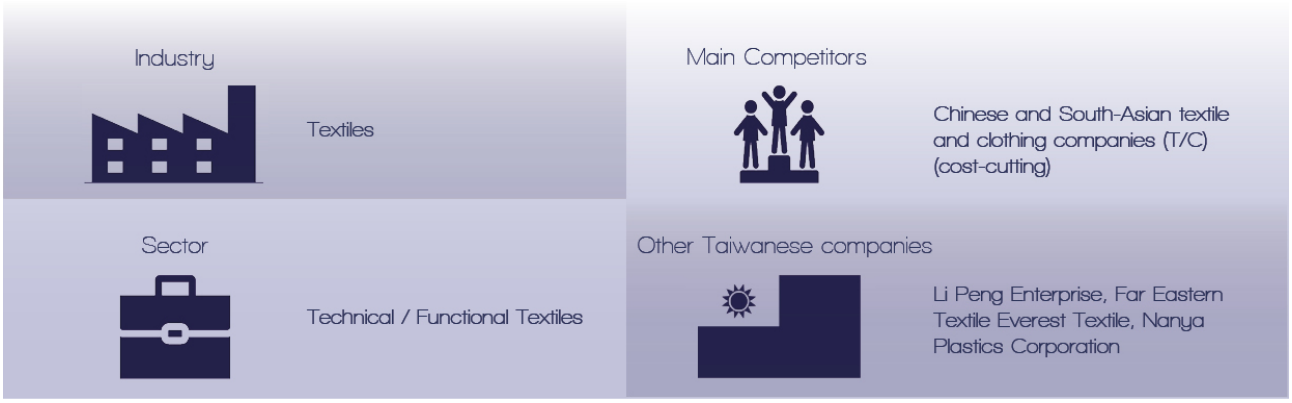
Tiong Liong Corporation (TLC) was founded in 1976, and is now part of the Nam-Liong Group. The company employs around 800 people worldwide, though it is only working through agents inside the European Union. Originally a footwear material manufacturer, in 1995 it formally expanded to the functional textile sector, and today its core business – operating on a vertically-integrated model – is in textile manufacturing, dyeing, hi-tech coating and lamination. TLC brands itself as a company dedicated to "functional textile technology with an eco-friendly concept".[164]

TLC has recently expanded its portfolio capacity: the company now produce and manufacture Computers/Communications/Consumer products (3C), stationary products and information technology products, personal health care and medical wear. The three core divisions are: Material Division, Finished Goods Division and Distribution Channel Division. Apart from the Headquarters in Taipei, in Taiwan TLC also produces, distributes and sells its products in Zhongqing, Hengshan and Qingquan. In Europe, it has agents in Höhfröschen, Germany, Montussan, France and Fristad, Sweden, which promote and sell TLC textiles to garment producers in Europe.

Within the functional textiles sector, TLC has obtained solid brand recognition, and growth has been achieved both on Asian and worldwide markets. Demand for functional textiles, especially in the footwear subsector, is linked to consumers' sensitivity and awareness towards environmentally conscious fabrics and garments, and a preference for quality over quantity. Enterprises have to constantly come up with new ideas and comply with international and regional standards for safety, quality and protection. In this respect, in 2012 TLC Passed the bluesign® standard certification, which certifies sustainable textile production.[165]

The production facilities of TLC are in Taiwan, mainland China and Vietnam. TLC's core brands include SOFILMTEX, SoftShell, NuFOAM, Outlast, O.R-TEX, TREK-DRY, X-STATIC, HyperFOAM, DURATEX, 3W, PRIMALOFT, eVENT, Thinsulate, Melco Tape, Eco-Smart, Ariaprene (and others).[166] Among its customers, TLC counts global brands such as Adidas, Puma, Nike, Reebok and Timberland. International expansion has occurred in line with new agreements and partnerships with Western laboratories and global brands, making TLC a strong player on the European and American markets.

2.8.1 Industry Analysis



[164] Tiong Liong Corporation Website - http://www.tioliong.com.tw
[165] Bluesign Website - http://www.bluesign.com/
[166] Tiong Liong Corporation Website – http://www.tioliong.com.tw/english/Product.php?id=1

2.8.1.1 Value chain and PEST

The functional textiles business value chain is structured as follows:

- **R&D (or Innovation and Research)**[167]: is essential to T/T (Technical and functional Textiles), and is usually carried out in traditional laboratories and testing centres. Because of counterfeiting and product life cycle issues there is a tendency to stress the importance of effective R&D. R&D is focused on the creation of new materials with general and specific properties. Testing on quality, durability and other elements is of paramount importance.
- **Production**:[168] the value chain goes from the raw material to the finished products with many stages of finishing activities. There is overall wide geographical spread of the production chain. The first stages are increasingly outsourced to Asian countries, while later stages often take place in the EU. A stable and reliable source of raw materials must be secured.
- **Distribution**: transportation cost is a major factor contributing to the final price. The bargaining power of vendors is crucial in establishing a distribution channel.
- **Marketing and Sales**:[169] export markets are highly price sensitive, mainly because of currency exchange rate fluctuations. Global brands tend to be strong, widely recognized, and influence consumer preferences. Retail happens through general and/or specific (apparel/footwear/outdoor) stores. In an industry where image can make or break a brand, investment in advertising and product placement are quintessential.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**:[170] The Multi-Fibre Agreement on Textile and Clothing expired in 2005.[171] The sector is now fully integrated within the WTO framework, [172] while it had previously been one of the most sheltered industries.[173] However, tariffs, technical barriers to trade and rules of origin are still present. The regulatory and standards framework for T/T is very strict where tariffs and other barriers exist in some subsectors (especially apparel). Continuing issues of procurement as T/T is often subject to public procurement for personal protection equipment (PPE) products. The Euro-Mediterranean Dialogue on the textile and clothing industry was launched in 2004, and provides a platform for an exchange of experiences and information on available instruments and initiatives to improve the competitiveness of the textile and clothing industry across the Euro-Mediterranean area.[174]
- **Economic factors**:[175] global trade has boosted the sector, which has always been a significant component of world economic production. In 2008, it accounted for 3.9% of merchandise exports. Access to capital investment is limited, as it is considered a uncertain business.

[167] European Economic and Social Committee (2013), "OPINION of the European Economic and Social Committee On Growth Driver Technical Textiles", CCMI/105, 2013 – Retrieved from http://www.eesc.europa.eu/?i=portal.en.ccmi-opinions.24262
[168] Ibid.
[169] Messe Frankfurt (2014) "Global Markets for Technical Textiles", Techtextil Middle East Symposium 2014 – Retrieved from http://www.intersecexpo.com/uploads/editor_images/file/Michael%20Janecke-TTMES2014_20140119-locked.pdf
[170] European Economic and Social Committee (2013)
[171] Ernst, C., Ferrer, A.H. and Zult, D. (2005), "The end of the Multi-Fibre Arrangement and its implication for trade and employment", International Labour Organization, Employment Strategy Papers – Retrieved from http://ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/documents/publication/wcms_114030.pdf
[172] World Trade Organization, "Agreement on Textile and Clothing" – Retrieved from https://www.wto.org/english/res_e/booksp_e/analytic_index_e/textiles_01_e.htm
[173] Ernst, Ferrer and Zult (2005)
[174] European Commission, Growth, "Euro-Mediterranean Dialogue on the textile and clothing industry" – Retrieved from http://ec.europa.eu/growth/sectors/fashion/textiles-clothing/international-trade/euromed-dialogue/index_en.htm
[175] Textile Innovation Knowledge Platform – Retrieved from http://www.tikp.co.uk/knowledge/market-sectors

- **Social factors**:[176] technical and functional textiles are developed as a result of customer-led demand for new ideas, design and improved technical qualities. The product life cycle of such products is rather short and producers have to quickly replace old designs with new proposals to catch interest of customers. In this light eco-friendliness and sustainability become increasingly important for consumers and producers. The sector is not very attractive in terms of employability.
- **Technological factors**:[177] much investment in machinery and R&D spending (design, technological change and safety/protection functions in the T/T).

2.8.1.2 In the EU[178]

The EU has reoriented its textile industry from more traditional sectors to more high-end sectors and technical/high-tech products, which are increasingly capital intensive. Traditionally, two thirds of the entire European production has been destined for the EU market, but foreign markets are growing in importance. In 2008, the EU's share in global exports in the textile industry was 9.7%, while it imported 10.6% of the global total.

The Technical Textiles (T/T) sector, defined as not (primarily) manufactured for aesthetic or decorative purposes, includes different categories of products. It is one of the most dynamic sectors in the EU: from representing 25% of the textile industry in 1998, it reached 33-36% in 2010, becoming the only sector of the industry where the EU has a significant export surplus (+49%). T/T products are usually exported to developed countries such as the USA, Switzerland and fast growing markets such as Russia, Turkey and China.

Employment data (2013) registered 1.6 million workers in 173,000 small and medium enterprises across the EU.[179] Restructuring caused job losses until 2009, and the industry has since been slowly recovering especially in response to growing demands from foreign markets. Textile and Clothing (T/C) enterprises are concentrated in Italy, Germany, France, Spain and the UK, while looking more specifically to the T/T sector, Italy, Germany, France and Belgium are the biggest producers.

A number of eco-friendly, pro-sustainability labels have been established even beyond the minimum standards, such as the bluesign label, which "eliminates harmful substances right from the beginning of the manufacturing process, sets and controls standards for an environmentally friendly and safe production".[180] Brands, manufacturers and suppliers are encouraged to become partners and develop products in line with the label requirements.

2.8.1.3 In Taiwan

Taiwanese T/C is a traditional industry, comprising 25% of the country's exports.[181] Fabrics represent around 60% of Taiwan's total export value of the national T/C industry, making it the world's sixth biggest exporter in textile industry according to the Taiwanese Textile Federation.[182] To promote this business, Taiwanese government has included the industry in its plan for economic growth. The T/T sector is one of the most promising, especially regarding

[176] Messe Frankfurt (2014)
[177] Ibid.
[178] European Economic and Social Committee (2013)
[179] Euratex (2014), "The EU-28 Textile and Clothing Industry in the year 2014" – Retrieved from http://euratex.eu/fileadmin/user_upload/documents/key_data/fact_and_figures_2014.pdf
[180] Blue Sign Website – Retrieved from http://www.bluesign.com/
[181] Kao, C., "Textile companies deliver '25% of nations exports", Taipei Times 15 October 2014 – Retrieved from http://www.taipeitimes.com/News/biz/archives/2014/10/15/2003602078
[182] Thomasson, S., "Taiwan: Innovating & Evolving", Textile World Asia, July 2013 – Retrieved from http://www.textileworldasia.com/Issues/2013/July-August-September/Features/Taiwan-Innovating_and_Evolving

functional fabrics for sportswear and footwear. In worldwide textile exhibitions that focus on outdoor sportswear, 90% of the companies present choose to use functional fabrics produced in Taiwan. This shows that Taiwan has truly established itself as a global frontrunner/leader in the manufacturing of functional fabrics in sportswear.[183]

The Taiwan Textiles Federation, backed by the Taiwanese Ministry of Economic Affairs, has developed a Taiwan Functional Textiles (TFT) certification system and label in 2000 to ensure the compliance of Taiwanese enterprises with the latest and most requested international standards. The main purpose being the access to and promotion in the US and European markets. In 2002, a "Certification of Taiwan Technical Textiles" (CT3) was added to further support Taiwanese companies abroad.

The focus of Taiwanese T/T forms is on eco-friendly business and development of environmentally sustainable materials, through a sustained investment in R&D to develop high-tech materials.

The footwear subsector within the T/C industry has specific characteristics: volumes are smaller and it is segmented functionally. It is subject to brand sensitivity and fashion trends, although product differentiation is essentially low. Technical and functional textiles are usually used for outdoor and sportswear and follow the same standards for durability, protection and quality of other subsectors for which T/T are required.

[183] Republic of China Diplomatic Missions Portal, "Investment Opportunities in the Textile Industry in Taiwan" - Retrieved from http://www.roc-taiwan.org/public/Attachment/481815425471.pdf

Taiwan Liposome Company

89.4
Global Assets
(mill EUR)

2.6
Global Revenues
(mill EUR)

Pharma

As a 'bio-design house', its specialization is in lipid-based formulations and Active Ingredients research, at a phase prior to the actual drug manufacturing.

R&D

Participations in science parks and laboratory collaborations are required for bio-pharma companies to remain competitive and develop new cutting-edge drugs for the benefit of global patients.

Market Access

The European presence is a great asset for gaining market entry not only in Europe, but also in the United States

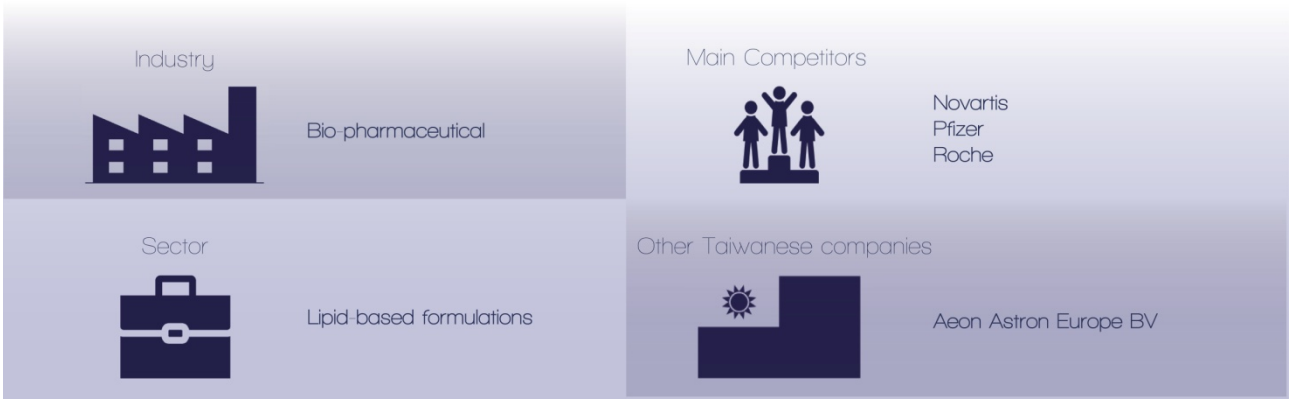
2.9 TAIWAN LIPOSOME COMPANY (TLC)

Taiwan Liposome Company (TLC) is a biopharmaceutical company focused on the research, development and commercialization of innovative pharmaceutical products based on its proprietary drug delivery technologies. TLC's strengths lie in lipid-based formulation and scale-up for parenteral drugs using micelles and nanoparticles to optimize the pharmacokinetics of drugs for better efficacy and lower toxicity, and thus prolong the product lifecycle of branded drugs.[184] TLC refers to itself as a 'bio-design house', as it does not engage in manufacturing, but delivers so called turnkey solutions for manufacturing. In practice this means that TLC builds the scale-up machine, and then transfers its technology out to the contract manufacturing plants, and has the specific firm do the production.[185]

In 2010 TLC branched out into the Netherlands and set up a subsidiary in the Leiden Bio Science Park. The main reason for its European presence, as was the case for setting up in the United States is market approval. TLC is furthermore engaged with Ablynx, a Belgian pharmaceutical company for R&D.[186] For TLC's core business, some of the diseases prevalent in Asia are considered to be 'orphan diseases' in Europe. For some of their drugs TLC can get an 'orphan drug' designation from the European Medicines Agency (EMA), after which the United States Food and Drug Administration (FDA) can similarly class it as an orphan drug. In this way the drug can get faster approval in Taiwan, and enter the market much faster.[187] In line with the abovementioned, TLC is dedicated to maximizing the benefits of medications for patients and improving their quality of life through constantly advancing their technology and know-how.[188] It is therefore that TLC strives to become a global leading biopharmaceutical company, to contribute more towards making a difference in the healthcare industry and make Taiwan's biotechnology industry visible in the global arena.[189]

[184] TLC Bio Website – Retrieved from http://www.tlcbio.com/en-global/Page/overview
[185] Biotech East, "Taiwan and the Netherlands: Taiwan biotech spreading roots on Dutch soil", 18 January 2013 – Retrieved from http://www.biotecheast.com/modules.php?op=modload&name=News&file=article&sid=2542
[186] Silver, D., "Taiwan Liposome and Ablynx agree to jointly develop targeted liposome drug delivery technology", BIOWORLD TODAY, 21 April 2014 - Retrieved from: http://www.tlcbio.com/upload/media/Media-Lindsey/%E6%96%B0%E8%81%9E%E5%A0%B1%E5%B0%8E/%E5%A0%B1%E7%B4%99/ADC-Ablynx/BioWorld-Ablynx.pdf
[187] Biotech East (2013)
[188] TLC Bio Website
[189] TLC Bio Website

2.9.1 Industry Analysis



2.9.1.1 Value chain and PEST[190]

The pharmaceutical business value chain is thus structured:

- **R&D (or Innovation and Research)**: it constitutes the core of the business, as the sector is highly knowledge-intensive. R&D activities receive the largest capital investment (17%, close second to ICT).[191] Testing and trial phases of components and final products tend to slow down the launch of new drugs.
- **Production**: Joint Ventures or other equity arrangements (especially Mergers & Acquisitions) exist between large Western multinational companies and Asian firms to fill gaps in the value chain and cut costs at both the R&D and production phases.
- **Distribution**: is usually vertically integrated, while distribution rights are agreed between companies. Wholesaling and transportation cover the need for stable supplies. The wholesale targets different levels of retailers, based on licenses, such as medical institutions (hospitals, pharmacies) but also towards retailers that are allowed to sell generics and over-the-counter drugs. Risk-managed distribution must be ensured in case of national and international emergencies.
- **Marketing and Sales**: the industry is extremely competitive and has high rates of entry of new enterprises. Depending on the country and its healthcare system, drugs prices are either market-led (generics) or covered by third-party payments such as insurance policies (private and/or public). Therapeutic reference pricing (RP), which collects drugs and biologicals according to their function, is becoming popular and tends to increase competition.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**:[192] extremely sensitive to government intervention, regulation and funding. Competition between MNCs often results in political tensions across regions and states (i.e. US, the EU, India and China). Regulatory frameworks are slow to give approval, while pricing policies vary across regions.

[190] PwC (2012), "Pharma 2020: From vision to decision" – Retrieved from http://www.pwc.com/gx/en/pharma-life-sciences/pharma2020/assets/pwc-pharma-success-strategies.pdf
[191] Ministry of Health, Labour and Welfare of Japan "New vision for the pharmaceutical industry – Aiming at the industry with international competitive power taking the mission of innovation", 30 August 2007, - Retrieved from http://www.mhlw.go.jp/bunya/iryou/shinkou/dl/01_0001.pdf
[192] Floyd, D. (2008), "The changing dynamics of the global pharmaceutical industry", *Management Services*, Spring 2008, pp. 14-18 – Retrieved from http://www.ims-productivity.com/user/custom/journal/2008/Spring/IMSspr08pg14_18.pdf

- **Economic factors**:[193] large MNCs traditionally seize the biggest shares of the market, under umbrellas of brands and laboratories across the world. IPR, patents and licences dominate the markets, but patent expirations pose new challenges, such as the increasing competition from generics.[194]
- **Social factors**:[195] increase in medical expenses is linked to globalisation and progress towards later stages of socio-economic development (namely, demographic shifts, including drop in infant mortality, in fertility rates and rise of life expectancy). Rise in sales of generics and over-the-counter drugs, shifting consumers' awareness and consciousness towards medical care (focus on prevention).
- **Technological factors**:[196] R&D, high turnover for patents and drug components. High technology transfer, considering the link between industry, academia and governments (public-private cooperation).

2.9.1.2 In the EU[197]

The industry is defined as the major source for medical innovation (biologicals and drugs for human and veterinary consumption).[198] In 2009, the world's pharmaceutical industry was estimated at USD 837 billion, while in 2013 it reached USD 1 trillion. The US accounted for 35.9% of the sales and the EU for 31.5%. Between 2009 and 2014 the market for generics rose from USD 88 billion to USD 130 billion.[199]

For the EU it represents the fifth largest sector in manufacturing (3.5% of the total value), and the EU pharmaceutical industry is therefore considered as having strategic importance.[200] In 2012, the EU pharmaceutical sector produced an output of EUR 220 billion, employed approximately 800,000 people, remaining the major exporter of final products, while being an importer of intermediates. Geographical spread of the bigger EU-28 enterprises is restricted to Western Europe, especially France and Germany, while markets are divided between traditional ones (US and Japan) and emerging ones.

All medicinal products for human use must be authorised at national or EU level before they are launched on the EU market. The EU has established the European Medicines Agency (EMA), a system of pharmacovigilance to help in this process by coordinating the scientific evaluation of the quality, safety, and efficacy of medicinal products.

Apart from large MNCs, the EU market is fragmented in small and medium enterprises, whose competitiveness is overseen by the Directorate-General for Internal Market, Industry, Entrepreneurship promoting corporate responsibility and regulating pricing and reimbursement systems across the EU.[201] The EU on the medium term plans for a solution to national constraints and problems with access to medical care.

The EU has given importance to IPR and policy consistency at national level, calling upon Member States to increase public scrutiny and ensuring transparency. Competitors have been

[193] Ibid.
[194] PwC (2012)
[195] US International Trade Association (2010), "2010 Pharmaceutical Industry Profile", Retrieved from http://www.ita.doc.gov/td/health/PharmaceuticalIndustryProfile2010.pdf
[196] Ibid.
[197] European Federation of Pharmaceutical Industries and Associations (2014), "The Pharmaceutical Industry in Figures" - Retrieved from http://www.efpia.eu/uploads/Figures_2014_Final.pdf
[198] PwC (2012)
[199] US International Trade Association (2010)
[200] European Commission (2014), Growth, "Staff Working Document Pharmaceutical Industry: A Strategic Sector For The European Economy" – Retrieved from http://ec.europa.eu/growth/sectors/healthcare/
[201] European Commission, Healthcare industries – Retrieved from http://ec.europa.eu/growth/sectors/healthcare/

identified in Asia, especially Chinese companies supported by mainland China's current Five Year Plan, which grants USD 300 billion to biomedical R&D.

2.9.1.3 In Taiwan[202]

The Taiwanese national healthcare system is based on a single-payer global budget system controlled by the Bureau of National Health Insurance (BNHI). Medical insurance is mandatory and achieved through universal enrolment. Taiwan's pharmaceutical market was worth USD 4.4 billion in 2012 and estimated to reach USD 5.5 billion by 2018.[203]

Given Taiwan's thriving and fast-growing economy, needs in healthcare closely match those of most advanced countries in the globe, resulting in similar business models, standards, and quality requirement in the pharmaceutical industry. Furthermore, the ageing population pushes up the costs for the whole sector.

Major MNCs are present in Taiwan (Sanofi, Pfizer, GSK and Novartis); however, Taiwanese firms, mostly small-medium sized, are being actively promoted by the Taiwanese government within the new framework for economic growth, while IPR issues are being reviewed to comply with international standards. In fact, new drugs approval follows marketing regulations of reference countries (export markets) thorough laws and regulations set by the Taiwanese government.[204] Focus, as in most Asian countries, is on Active Pharmaceutical Ingredient (API) manufacturing.[205]

Generics market represents an opportunity of growth in size and technology transfer, especially in order to exploit international markets and moving beyond the small Taiwanese domestic scene. Collaboration has been often set up with Chinese companies in an effort to boost both sides' R&D capabilities and access the Chinese market to precede marketing to US and EU.

202 Taiwan Judicial Yuan Website, "Role of Generics in the Taiwanese Health Care System, Regulations and Market Competition Issues" – Retrieved from http://www.judicial.gov.tw/work/work12/07
203 Global Business Intelligence Research (2013), "Taiwan Pharmaceutical Market Outlook 2013"- Retrieved from http://www.gbiresearch.com/report-store/market-reports/therapy-analysis/taiwan-pharmaceutical-market-outlook-2013
204 Ibid.
205 Silver, D., "Taiwan's pharmaceutical manufacturing industry - is the future rocky or rosy?", Biotech East 14 March 2006 – Retrieved from http://www.biotecheast.com/modules.php?op=modload&name=News&file=article&sid=1284&topic=5

Taiwan Semiconductor Manufacturing Company

40,000
Employees
(Worldwide)

38.7
Global Assets
(bill EUR)

19.8
Global Revenues
(bill EUR)

158th
Forbes 2000

Semiconductors

Chips are the fundamental building blocks of contemporary life. TSMC is a top company in the industry, capturing more than half of the world market share.

Science Parks (IMEC)

Important research collaborations and affiliation programmes are signed with fellow leaders in the industry to shape future technology.

Solar Panels

TSMC has long been expanding into the solar panel sector. TSMC Solar has been one of its main EU subsidiaries for many years.

2.10 TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY (TSMC)

Taiwan Semiconductors Manufacturing Company (TSMC) is a leading Taiwanese company specialised in semiconductor wafer foundry. Founded in 1987 by Morris Chang, it is now one of the world's top 200 companies as measured by a composite score of revenues, profits, assets and market value. TSMC has built its reputation by offering advanced and "More-than-Moore"[206] wafer production processes and unparalleled manufacturing efficiency.

TSMC's position of leadership in the semiconductors industry is recognised worldwide, and its TSMC COMPATIBLE® design services are requested by most chips and computer producers.[207] At the end of 2014 TSMC employed more than 43,000 people worldwide, and it owned 54% of the total market share of the semiconductor industry, which has a total value of USD 354 billion.[208] To maintain this position and its competitive edge, TSMC has launched the Open Innovation Platform®[209] and Grand Alliance initiatives, which promote fast innovation in semiconductors design through collaborative projects and sharing of knowledge and processes along the whole supply chain.

TSMC also expanded into the solar cells and panels subsector as part of a strategy to vary the company's portfolio and adapt to contemporary challenges, given the growing global demand for clean energies. Since its establishment in 1993, TSMC Solar Europe became one of the biggest branches of TSMC in Europe, as a wholly owned subsidiary with one office in the Netherlands and one in Germany[210]. In 2015, however, TSMC announced the closure of all its solar energy production plants, as the production of solar panels had become economically unsustainable.[211] As a consequence, it is also closing down its German TSMC Solar subsidiary by the end of the year.

Competition in the solar panels sector is extremely strong. In 2015, TSMC Solar and competitor Manz (Germany) have been under the spotlight for breaking world records of efficiency with their latest modules. New products roll out twice or three times a year to satisfy customer demands and to keep the R&D cycle moving forward at a steady pace.[212] Nonetheless, the required costs for innovation proved to be unsustainable even for a market leader such as TSMC Solar.

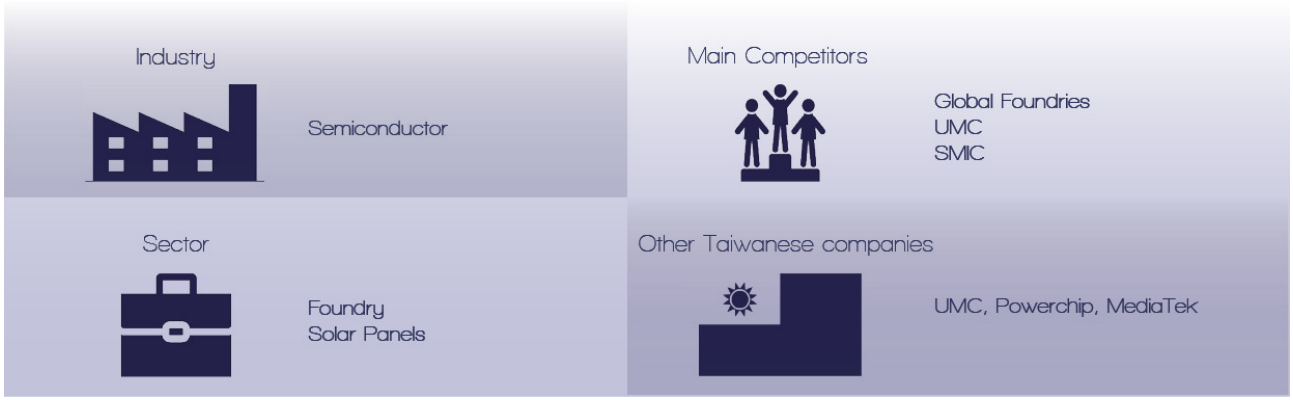
Since 2005, TSMC is one of the main partners in Belgium's Imec industrial affiliation program on advanced complementary metal–oxide–semiconductor (CMOS) technologies. This R&D setup combines the expertise and knowledge present in the complete value chain, from foundries, fab-lite companies, and assembly companies to equipment suppliers. Imec and its

[206] Moore's Law is attributed to Intel Co-founder Gordon Moore, who observed in 1965 that the pace of growth in semiconductors' size is exponential and grows on an annual basis (i.e. the number of transistors per square inch on integrated circuits doubles every year, making chips smaller and more powerful at the same time). This comment concluded that the trend would continue in the future and it was thus turned into law. Since then, it has often been modified to accept longer cycles (improvement occurs every 18-24 months instead of 12, because of diminishing returns in technological improvements). More than Moore's means therefore that the producer is trying to accelerate innovation beyond that point, pioneering in engineering and R&D advancements. From Intel Moore's Law 40th Anniversary Press Kit – Retrieved from http://www.intel.com/pressroom/kits/events/moores_law_40th/index.htm
[207] Taiwan Semiconductor Manufacturing Company (TSMC) Website – Retrieved from http://www.tsmc.com/english/aboutTSMC/company_profile.htm
[208] Taiwan Semiconductor Manufacturing Company (TSMC) (2014), "Annual Report 2014" – Retrieved from http://www.tsmc.com/download/ir/annualReports/2014/english/pdf/e_9_1.pdf
[209] TSMC Open Innovation Platform® - Retrieved from http://www.tsmc.com/english/dedicatedFoundry/services/oip.htm
[210] TSMC Solar Website – Retrieved from http://www.tsmc-solar.com/about-us/our-heritage
[211] TSMC website – Retrieved from http://www.tsmc.com/tsmcdotcom/PRListingNewsAction.do?action=detail&language=E&newsid=THWQISST
[212] Gifford, J., "Inside TSMC's 16.5% CIGS module world record", *pv magazine*, 12 May 2015 – Retrieved from http://www.pv-magazine.com/news/details/beitrag/inside-tsmcs-165-cigs-module-world-record_100019430/#axzz3ghOgnPQN

partners are benefitting from TSMC's broad-based technology roadmap and platform expertise, its customers, suppliers, and ecosystem partners.[213]

TSMC has been able to build its prestige and reliability over the years, and it is also listed in the New York Stock Exchange as an over USD 110 billion publicly traded company, backed up by an A+ credit rating by Standard and Poor's and Moody's A1 rating.[214]

2.10.1 Industry Analysis[215]



2.10.1.1 Value chain and PEST

The semiconductor/solar panels business value chain is structured as follows:

- **R&D**:[216] absorbs around 17% of the whole industry revenue. The product life cycle of semiconductors is extremely short, so there is a constant updating and progress thanks to capital-intensive R&D. The motto of the industry seems to be "faster, greener, smarter",[217] but cheaper too. Technological development in the sector development is so fast, that semiconductor integration has been doubling every 18-24 months for more than 45 years already. Semiconductors are to be used for management and conversion of power
- **Production**:[218] is capital-intensive, and there are high costs for setting up new plants. At present, manufacturing-capacity utilisation is greater than 92%, which limits further growth if capacity is not expanded.[219] Current shift from fragmented to a vertically-integrated model, in collaboration with other industries and sub-sectors. Manufacturing is concentrated in Asia

[213] Imec, "Imec to Honor TSMC Chairman Dr. Morris Chang with "Lifetime of Innovation Award" around its Annual Imec Technology Forum Brussels", 17 March 2015 – Retrieved from http://www2.imec.be/be_nl/pers/persberichten/morris-chang-tsmc-imec-awar.html
[214] Taiwan Semiconductor Manufacturing Company (TSMC) Website, Credit Ratings - http://www.tsmc.com/english/investorRelations/credit_rating.htm
[215] The industry profile that follows will follow on the solar panels industry, which is the main activity of TSMC Solar, but not of TSMC as a whole.
[216] PwC (2012), "Faster, greener, smarter – reaching beyond the horizon in the world of semiconductors" - Retrieved from http://www.pwc.com/en_GX/gx/technology/publications/assets/pwc-faster-greener-smarter.pdf
[217] Ibid.
[218] BlueGreen Alliance Foundation's Clean Energy Manufacturing Center (CEMC), "Overview of the Solar Energy Industry and Supply Chain", January 2011 – Retrieved from http://www.thecemc.org/body/Solar-Overview-for-BGA-Final-Jan-2011.pdf
[219] PwC (2012), "Faster, greener, smarter – reaching beyond the horizon in the world of semiconductors" - Retrieved from http://www.pwc.com/en_GX/gx/technology/publications/assets/pwc-faster-greener-smarter.pdf

- **Distribution**: is customer oriented for solar panels, usually through of wholesale distribution.[220] Distribution of semiconductors has become increasingly targeted to Mainland China in the past decade.[221]
- **Marketing and Sales**:[222] spending in 'customer education' about the product. Focus on product differentiation and long-term benefits. Reliance on sales agents is high. Most sales are supported by access to financing which is usually subsidised by governments.

Conducting a PEST analysis of the industry it can be inferred that:

- **Political factors**:[223] international agreements to fight climate change are stricter and stricter, and many agreements become binding on governments. They are therefore stimulated to proactively subsidise green energy and related industry sectors.
- **Economic factors**:[224] increasing demand for green/renewable energies boosts sales of wind and solar panels. Moreover, energy consumption is related to economic growth. Therefore developing countries are becoming vast emerging markets, while advanced economies are moving away from unsustainable options. Overall demand for semiconductors grew around 10% on an annual basis between 2010 and the end of 2014. Semiconductors are crucial for the technological development of smartphones, which will drive most of its growth in the upcoming years.
- **Social factors**:[225] there is an increasing demand in solar panels as energy supply, from households, private and public sector. Employment opportunities are present at all stages of the value chain from engineering to installation, and maintenance to sales. There are ample options for possibilities to cooperate with academic institutions and research institutes.
- **Technological factors**:[226] need to focus R&D on features such as smart metering (for balanced consumption on site), energy balancing, capacity utilisation, adaptability to extreme environments, reducing losses during energy transmission over long distances (sites can be in remote areas). Improvements are happening in chip design and size, reliance on nanotechnologies.

2.10.1.2 In the EU

Overall, at the core of the solar panels sector, the European semiconductors industry has shown signs of growth, with sales increasing 10.1% between 2013 and 2014,[227] with the latest documents showing positive sales data at USD 2.873 billion in May 2015.[228] The industry is also expanding thanks to the growth of semiconductor content in other products (e.g. automotive industry and other technology-heavy consumer and commercial products). The European Semiconductor Industry Association highlights how it is one of the most R&D intensive industries of the EU, which must be fostered though targeted funding schemes.[229]

[220] BlueGreen Alliance Foundation's Clean Energy Manufacturing Center (CEMC), "Overview of the Solar Energy Industry and Supply Chain", January 2011 – Retrieved from http://www.thecemc.org/body/Solar-Overview-for-BGA-Final-Jan-2011.pdf.
[221] PwC (2015), "China's impact on the semiconductor industry: 2015 update" – Retrieved from http://www.pwc.com/gx/en/technology/pdf/china-semicon-2015-report1-3.pdf
[222] Ibid.
[223] SolarPower Europe (2015), "Global Market Outlook For Solar Power / 2015 – 2019" – Retrieved from http://www.solarpowereurope.org/insights/global-market-outlook/
[224] Ibid.
[225] PwC (2012)
[226] Ibid.
[227] European Semiconductor Industry Association (2014), "European Semiconductor Market in May 2014" – Retrieved from http://www.eeca.eu/images/static_website/newsroom/PR/PR%20semi%20market%20May%202014.pdf
[228] European Semiconductor Industry Association (2015), " European Semiconductor Market in May 2015" – Retrieved from http://www.eeca.be/images/static_website/newsroom/PR/ESIA%20WSTS%200515.pdf
[229] European Semiconductor Industry Association (2011), "European semiconductor industry response to the EU Commission's Green Paper: From Challenges to Opportunities: Towards a Common Strategic Framework for EU

With the renewed attention on smart city development, for which strategy the development of smart grids is a core component, semiconductors will most likely face higher demand in upcoming years.

2.10.1.3 In Taiwan

Taiwan is an absolute leader in the production of semiconductors and a top market for semiconductor manufacturing equipment.[230] It furthermore offers leading technologies in semiconductors for solar panels, making it the second producer of solar cells in the world, capturing 17% of the market in 2012.[231]

Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Company (UMC) are global industrial leaders. They both serve as foundries (contract semiconductor manufacturing companies) for fabless IC design companies in Europe and the United States. In fact, Taiwan is the largest foundry semiconductor manufacturing economy in the world.[232]

Most Taiwan semiconductor production takes place in science parks, which offer favorable conditions for high tech manufacturing of all sorts. Leading science parks include Taiwan Hsinchu Science Park (HSP), Southern Taiwan Science Park (STSP), and Central Taiwan Science Park (CTSP), with total sales of USD 46.5 billion in semiconductor related business for 2014. Semiconductor Manufacturing Equipment Taiwan has consistently been the top global market for semiconductor manufacturing equipment in recent years, representing over a quarter of the total worldwide market.[233]

The Taiwanese Government, through the Renewable Energy Development Act of June 2009, committed itself to the development of Taiwan's green energy industry. Industry mechanisms have been simplified, including the acquisition mechanism, incentives for demonstration projects and the loosening of regulatory restrictions.[234] Engineering and R&D activities have been promoted by the Taiwanese government as a way of moving out of a low-cost brand image.[235] The solid semiconductor industry is key to further developments in the direction of renewable energies: in this sense, Taiwan can count on top players and innovators.[236]

Competition with mainland China is strong, although synergies have been established in the past to enter the US and Japanese market. For the biggest semiconductors companies, investment in the solar panel sector is a great strategy for portfolio diversification which helps exploiting a growing market that is expected to boom in Asia in the next decade. However, also Taiwanese solar panel companies often have their main manufacturing plants in mainland China.

Research and Innovation funding", Brussels, 9.2.2011 COM (2011) 48 – Retrieved from http://ec.europa.eu/research/csfri/pdf/contributions/post/european_organisations/esia_-_european_semiconductor_industry_association.pdf

[230] U.S. Department of Commerce, International Trade Administration (2015) "2015 Top Markets Report Semiconductors and Semiconductor Manufacturing Equipment" – Retrieved from http://trade.gov/topmarkets/pdf/Semiconductors_Top_Markets_Report.pdf

[231] Ministry of Foreign Affairs of Denmark, "Energy "Sector Analysis – Taiwan" 2012" – Retrieved from http://um.dk/~/media/UM/Markedsinformation%20Publications/Files/Publikationer/Markeder%20og%20sektorer/Taiwan/Taiwan%20Sektoranalyse%20Energy%202012.pdf

[232] U.S. Department of Commerce, International Trade Administration (2015) "2015 Top Markets Report Semiconductors and Semiconductor Manufacturing Equipment" – Retrieved from http://trade.gov/topmarkets/pdf/Semiconductors_Top_Markets_Report.pdf

[233] Ibid.

[234] European Commission Joint Research Centre Institute for Energy and Transport (2012), "PV Status Report 2012" – Retrieved from https://ec.europa.eu/jrc/sites/default/files/PVReport-2012-Part1.pdf

[235] Taiwan's Information Centre for Overseas PV Market – Retrieved from https://www.fpvme.org.tw/

[236] Taiwan Solar PV Industry – Retrieved from https://www.fpvme.org.tw/overviwe_pv_industry_chain.html

Qualitative Analysis

3.1 Country Selection and investment rationale

The interviews and research conducted focused primarily on investment decisions and country selection criteria. The host country selected for new investment often acts as an indicator of the degree of market attractiveness of this country. The main opportunities, characteristics, strengths, and constraints for a number of EU-28 countries are elaborated on below:

3.1.1 The Netherlands

Historically the Netherlands has played the role of 'bridgehead' for Taiwanese firms' entry into Europe. This is mainly due to its geographical position, excellent transport links, airports, highways, technical schools and universities, well trained, polyglot and skilled workforce, modern telecommunication and IT systems and networks, a clear and transparent legislation and labour market rules. The Netherlands attract the bulk of the Taiwanese investment in Europe and it is also the biggest European investor in Taiwan. The Netherlands has a very active Foreign Investment Agency (NFIA) which has proven to be successful in attracting Taiwanese investment. In addition to a good business climate, the country also provides good tax benefits to importers.

At present some 200 Taiwanese firms are active in the Netherlands, clustering in Noord Brabant and in the Randstad region.[237] Also the Leiden Bio Science Park has attracted some Taiwanese investment in the field of R&D. The Netherlands has become a "hub" for ICT technology. The Port of Rotterdam is often the entry port into the European market.[238] This justifies the choice of the Netherlands as the main continental distribution centre for Taiwan companies relying heavily on logistics.

The fast expansion of Netherlands-Taiwan relations is partly due to the signature of the Double Taxation Agreement in 2001 and Taiwan access to the WTO. A Memorandum of Understanding (MOU) was also finalized between the Netherlands Enterprise Agency (RVO) and the Department of Industrial Technology of the Taiwanese Ministry of Economic Affairs. This MOU, renewed in 2013, aims at strengthening practical cooperation among companies, knowledge institutions and other organizations of Taiwan and The Netherlands.[239]

The Netherlands is often characterised as a tax haven. As can be found in the documentation about the implantation of Taiwanese businesses in the EU, it appears that the Netherlands is nowadays a preferred location for specifically holding companies. This is naturally for larger companies, that have multiple foreign establishments, such as Hon Hai Precision (Foxconn), HTC Corporation and Lite-on Technology.

The Dutch specimen of holding companies exhibits some benefits. The legislation about Dutch holding companies is part of the overall tax legislation, thus inserting it in the circuit of the many bilateral agreements of the Netherlands to avoid international double taxation; the dividends, interests, and patent income, received by the Dutch holding companies from foreign subsidiaries, is exempted from tax, thanks to the EU Parent–Subsidiary directive and the specific arrangement within the holding set-up. Financial flows can enter or leave the holding without tax obstacles, and the Dutch holding can be availed of as an intra-group financing channel. Besides, the R&D financing of innovative activities gets favourable treatment. Overall,

[237] Okano-Heijmans, M., Wit, S. and van der Putten, F.P. (2015), "Cross-Strait Relations and Trade Diplomacy in East Asia – Towards Greater EU-Taiwan Economic Cooperation", *Clingendael Report*, Netherlands Institute of International Relations, March 2015, The Hague, Netherlands
[238] Ibid.
[239] Ibid.

the holding enjoys ample freedom in its operations, and is allowed to operate in another currency than the Euro.

3.1.2 Germany

Germany is another popular host country for Taiwanese investment, and its investments there are quite diversified. Nonetheless investment in the regions formerly part of the German Democratic Republic is still lagging behind the investment in many areas of former West Germany. Germany is perceived as a key European market for electronic goods, and setting up an office there is relatively easy and less expensive as compared to other locations in Europa. Setting up business in Germany may also help Taiwanese companies to penetrate neighbouring markets in Central Europe (Czech Republic, Slovakia, Hungary, Poland etc.)

Germany has also signed a Double Tax Agreement with Taiwan in 2013. Germany is Europe's biggest market, and its centrality and dynamism in the heart of Europe makes it particularly attractive for investors. Similarly to the Netherlands, also Germany is perceived to have high productivity, a well-regulated labour market, an organized and well trained working class particularly in high-tech niches and an efficient administration at central and local level. Governments are effectively implementing policies aimed at attracting FDI especially from surplus countries in Asia and Asian private investors and Sovereign Wealth Funds (SWF).

In addition, according to some interviews, both the Netherlands and Germany are attractive destinations because they seem to most resemble the United States investment climate. The United States model is very familiar to the Taiwanese investors whose interaction with the American business culture has always been intense.[240]

3.1.3 United Kingdom

The United Kingdom is Taiwan's third trading partner among the EU-28 member states, accounting for about 13% of Taiwan's total trade with the EU-28.[241] Furthermore, the UK is the second receiver of FDI stocks, second only to the Netherlands.[242] Nonetheless, despite hosting the European headquarters of some medium-big Taiwanese enterprises, relatively few Taiwanese companies choose the UK for their localization and business development, and the country does still not live up to its potential as an investment destination for Taiwanese companies. This happens despite the fact that Taiwanese managers are well versed in English.

Some of the hurdles that were being mentioned as reasons for deterring the Taiwanese investment in UK:

- The country is outside the Eurozone
- The UK is outside the Schengen area, which has relevant implications on the Taiwanese possibility to easily obtain visit or business visas
- The country is geographically more distant relative to the most dynamic markets in continental Europe. The UK is therefore not a convenient entry port into the EU

Yet, it appeared that the United Kingdom is still perceived as having a sound and liberal investment climate. With numerous students from Taiwan conducting their studies at UK

[240] Information obtained through interview
[241] Data from the Taiwan's Ministry of Economic Affairs, Investment Commission (2015, as found in European External Action Service – 2015 EU-Taiwan Factfile 2015 – Retrieved at http://eeas.europa.eu/delegations/taiwan/documents/more_info/eufactfile2015.pdf
[242] Ibid.

universities mutual familiarity and understanding are enhanced. In the long run this is likely to lead to more investment following the United States example. Moreover, Taiwan is part of the UK's Youth Mobility Scheme, with the core aim being the promotion of people-to-people exchanges. Numerous Taiwanese youngsters have used this scheme for incidental employment activities.[243]

3.1.4 France

The perception of France is somewhat ambiguous. On the one hand, it is considered as an important investment destination because France represents the centre of the European culture and is also a big potential market. In fact, Taiwanese firms located in France work essentially for the French market.

In terms of branding, it is very important that a foreign company has a place in France, preferably in the capital. This is especially true for those firms which have activities in fashion or luxury sectors, culture, high-tech services, art and other innovative, customized productions.

France is also a very important 'springboard' location to develop activities in other countries in Southern Europe and the Mediterranean region. France and Taiwan signed a Double Taxation Agreement in 2012.

On the other hand Taiwanese firms are concerned because it is very difficult and cumbersome to deal with local administrations for authorizations, visa and other bureaucratic matters. Local administration is perceived less efficient as compared to the one in Taiwan. There are also relevant language barriers. National legislation on social welfare, the strong influence of trade unions, wages and salaries, taxation and other aspects are difficult to understand, despite recent simplifications, adjustments and reforms. In France the labour force is also relatively expensive in comparison to other EU countries.[244]

To cope with all these bureaucratic requirements, Taiwanese firms are obliged to rely upon expensive services provided by local intermediaries, law firms and agents in order to understand legal provisions and texts (written exclusively in French) and deal with central and local bureaucracy.

3.1.5 Italy

About 40 Taiwanese firms are located in Italy, prevalently in its Northern regions. Italy is considered an attractive investment destination because of its considerable market, its renowned 'brand' and its global leadership, especially in the fields of (industrial) design and mechanic hardware. However, Taiwanese investors encounter hurdles such as a slow and cumbersome bureaucracy, high labour cost and political and regulatory volatility. There is a clear potential for more Taiwanese investment in Italy once these hurdles have been dealt with, in particular because of the interesting synergies that can arise from Taiwan's expertise in manufacturing that could be optimized by Italy's pre-eminence in design.[245]

[243] Taipei Representative Office in the UK, "Purpose of the Youth Mobility Scheme (YMS)", 25 November 2015 – Retrieved from http://www.taiwanembassy.org/ct.asp?xItem=232492&CtNode=11274&mp=132&xp1=132
[244] Information obtained through interview
[245] Information obtained through interview

3.1.6 Spain

Only 12 Taiwanese investment cases were recorded in Spain between 1952 and 2013. Spain is still not a major destination of Taiwanese investment for a variety of reasons: language barriers, cumbersome bureaucratic processes and limited preparedness by Spanish counterparts. However, recent developments following the economic crisis have unveiled a greater willingness by the Spanish private sector to engage with Taiwanese companies, and a more proactive marketing by Spanish investment agencies might also be able to attract more investment in the following years, especially in Catalonia.[246]

3.1.7 Belgium and Luxembourg

Belgium is an interesting investment destination as it can rely on a strong infrastructure network, as an access port into Europe, and Luxembourg is a primary investment destination for its financial sector. Belgium has recently overcome many hurdles in terms of labour costs and tax relief for foreign investors (through the 'notional interest deduction', which deducts taxes depending on the equity financing a foreign business is investing, creating an effective tax rate that is lower than the nominal corporate tax rate).[247]

The region of Flanders is particularly active in pursuing synergies with Taiwanese companies, attracting them in high-tech-driven projects around university, science and research hubs. The Flanders Investment and Trade is proactive in considering Taiwan as a focus country and has run seven projects over the past years in key sectors of technological excellence and logistics. Flanders Bike Valley is a project that is currently being carried out in cooperation with Taiwanese companies such as Velocite Tech.[248] The main issues that need to be resolved in order for Belgium to improve its attractiveness for Taiwanese investment are those of immigration, visa and work permits, and moving away from the image that Belgium is a country with a high corporate tax. On a positive note, in 2013, Belgium and Taiwan signed a working holiday agreement to boost people-to-people exchanges and mutual knowledge.[249]

Luxemburg maintains its attractiveness as a hub for financial services, providing a friendly environment for Taiwanese investors. In Taiwan, Luxembourgish banks are highly valued for their confidentiality and interest-exempt services to foreign investment.[250] A tax agreement between the two countries was ratified in the summer of 2014,[251] giving similar conditions to those granted by the Netherlands, following the OECD Model Convention, which regulates taxes on income and on capital.[252] As of September 2014, the Luxemburg Stock Exchange was trading 66 assets, for 52 Taiwanese companies.[253]

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[246] Information obtained through interview
[247] Flanders Investment and Trade Website, "Setting Up Your Business in Flanders" – Retrieved from http://www.investinflanders.com/appl/communicatie.nsf/A9A0194D8CEB0B36C1257CE00049D365/$file/Brochure_SettingUp_update%202015.pdf
[248] Velocite Tech joined the Flanders Bike Valley in July 2015 – Retrieved from http://www.flandersbikevalley.be/
[249] Flanders Investment and Trade Website, "Taiwan and Belgium (Flanders) launch working holiday program", 12 March 2013 – Retrieved from http://www.investinflanders.be/EN/news/2013/03/12/Taiwan-and-Belgium-(Flanders)-launch-working-holiday-program
[250] Taiwanese Representative Office in the EU and Belgium Website – Retrieved from http://www.taiwanembassy.org/ct.asp?xItem=608186&CtNode=460&mp=102&xp1=
[251] KPMG Newsletter, "Tax Agreement between Taiwan and Luxembourg", Luxembourg Tax News Issue 2014-15 – August 2014 – Retrieved from https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/taxnewsflash/Documents/luxembourg-aug21-2014.pdf
[252] Organization for Economic Co-operation and Development (OECD) Website, "MODEL CONVENTION WITH RESPECT TO TAXES ON INCOME AND ON CAPITAL" – Retrieved from http://www.oecd.org/ctp/treaties/2014-model-tax-convention-articles.pdf
[253] Luxembourg Chamber of Commerce, "7TH TAIWAN-LUXEMBOURG JOINT BUSINESS COUNCIL", 23 September 2014 – Retrieved from http://www.cc.lu/fr/actualites/detail/7th-taiwan-luxembourg-joint-business-council/

According to the Taiwanese Representative Office in the EU and Belgium, volume of trade between the two countries reached USD 34 million.[254] Moreover, China Airlines, a Taiwanese airline company dealing with cargo transit, set up its offices in Luxemburg to cover distribution in Europe, attracted by Luxemburg's central geographical position within the road transportation network of the EU.[255]

3.1.8 Ireland

The country is seen as highly compatible to Taiwan, as both countries show a similar developmental path in the second half of the 20th century, in particular regarding the tech sector-driven economic modernization, views on national emigration and immigration, communities abroad and cultural nation-building goals.[256] In 2008 trade between Ireland and Taiwan reached EUR 761 million.[257] In 2009 a visa-waiver scheme was enacted, boosting contacts for investment and tourism purposes between the two countries.[258] Similarities in terms of culture and ease of doing business, language, and a favourable tax regime with lowest corporate tax rate across the EU, at 12.5%[259] have brought synergies in the ICT and green energies sectors, but there still is vast room for growth.[260]

3.1.9 Scandinavia

There are relatively few Taiwanese firms active in Sweden, Denmark and Finland. Nonetheless, Scandinavian countries, which are made up primarily of SMEs, are global leaders in design, renewable energy and information technology. They consistently rank amongst the world's most competitive, productive and globalized countries in the world. The countries are considered as drivers of innovation, complemented by a highly skilled and polyglot labour force.[261] There is sufficient room for Taiwan and Scandinavia to strengthen cooperation in industries where they can complement each other. Taiwan, for instance, is well known throughout the world for its hardware manufacturing, while the three Scandinavian countries are leaders in software R&D and design. Scandinavian consumers tend to look at the environmental aspects of production, insisting on sustainability and eco-labels. To penetrate these markets, Taiwanese firms need to comply with these preferences, and find complementarity in their expertise and the services and knowledge on offer in Scandinavia.[262]

[254] Taiwanese Representative Office in the EU and Belgium Website – Retrieved from http://www.taiwanembassy.org/ct.asp?xItem=608186&CtNode=460&mp=102&xp1=
[255] Ibid.
[256] Fanning, B. (2012), "Developmental Immigration in the Republic of Ireland and Taiwan", *Taiwan in Comparative Perspective, Vol. 4, December 2012, pp. 154–175* – Retrieved from http://www.lse.ac.uk/asiaResearchCentre/countries/taiwan/TaiwanProgramme/Journal/JournalContents/TCP4Fanning.pdf
[257] Taipei Representative Office in Ireland, "Taiwan business delegation visits Ireland to explore investment opportunities", 15 October 2009 – Retrieved from http://www.roc-taiwan.org/IE/ct.asp?xItem=112928&ctNode=5355&mp=177
[258] Ibid.
[259] European External Action Service, European Economic and Trade Office in Taipei (2012), "Invest in the EU 2012" – Retrieved from http://eeas.europa.eu/delegations/taiwan/documents/eu_taiwan/trade_regulation_events/2012_invest.pdf
[260] University College Dublin, "Ireland-Taiwan Workshop on ICT and Energy" – Retrieved from http://www.ucd.ie/engscience/ireland_taiwan.html
[261] The Swedish Trade and Investment Council – Retrieved from http://www.business-sweden.se/en/Invest/
[262] Invest in Taiwan, "Department of Investment Services Boosts Cooperation with Scandinavia", 11 July 2012 – Retrieved from http://investtaiwan.org/eng/news_display.jsp?newsid=2165

3.1.10 Hungary, Slovakia, Czech Republic, Poland

The so called Visegrad Group[263] consisting of Hungary, Czech Republic, Slovakia and Poland are well known for their potential as production sites, and seem to possess a comparative advantage in the assembly of goods such as cars and consumer electronics. With regards to Taiwanese investments, especially investment in the latter industry is prevailing. Our data has shown that a large majority of Taiwanese investment into the Visegrad countries are ICT related. Nonetheless also a number of manufacturing centres for bicycles and logistic companies have found their way to these respective countries.

Despite taking a slight hit in 2008 as a result of the financial crisis, and another in 2011 due to the crisis in the Euro-zone, investment in the Visegrad countries has grown progressively since they joined the EU. The countries are strategically placed in the centre of Europe, and provide excellent export opportunities thanks to their geographical position at the core of the European continent, linking the countries to both Western and Southern Europe. The countries furthermore benefit from access to the single market that EU membership provides, while continuing to deliver much lower costs than members in Western Europe.[264] In Poland, Taiwanese investments started by the end of the 1990s, and currently around 28 companies are present in the country (total for the Visegrad area is around 80 companies). As reasons for the relatively small amount of investment in Poland, one can see that regulations are relatively strict and serious language barriers persist. Added to that is a lack of understanding of the larger Polish business environment. One can see that companies are often not sure whether to focus on a specific city or region in the country.

Despite the abovementioned strengths and hurdles, there is ample room for improvement in making the Visegrad countries more attractive destinations for Taiwanese investment. The respective investment agencies should take a leading role in this. The Polish government and investment agencies are clearly making a strong effort in ameliorating the general investment climate. It has significantly improved its infrastructure, and through incubators and top-notch industrial parks it is becoming a promising location for R&D activities.[265]

3.1.11 Other factors influencing investments in Europe

In addition to the abovementioned rationale and specific geographic considerations other factors are at play for Taiwanese companies when deciding whether or not to invest in the European Union. The Eurozone crisis, the current immigration crisis, and in particular the Greek crisis are followed by the Taiwanese investors with growing concern, as this may destabilize Europe as a market and a single currency area. Country and exchange rate risks may increase. A prolonged stagnation or weak growth may also undermine business development and profit perspectives of non-EU investors to the Eurozone, including Taiwan.

Furthermore, some Taiwanese firms participating in global supply chains mentioned a crucial decision they need to take in the current global setting: whether to produce locally or distribute items manufactured elsewhere.

This is particularly true for Taiwanese ICT companies which play a key role in the global supply chains for electronic products. Given Taiwan's leadership in the production of PCs, LCDs,

[263] The Visegrad Group, is an alliance of four Central European states – Czech Republic, Hungary, Poland and Slovakia. The core purpose is to enhance European integration as well as advancing their military, economic and energy cooperation with one another in a global context.
[264] Rostowska, M., "Investing in Visegrád: An Opportunity for the United States", Center for European Policy Analysis, 10 September 2013 – Retrieved from http://www.cepa.org/content/investing-visegr%C3%A1d-opportunity-united-states
[265] Information obtained through interview

semiconductors and mobile telephones, the country has found a 'niche' in the global ICT industry. The production phase takes place mainly in electronic 'clusters' in Taiwan or in near markets such as mainland China and in certain ASEAN countries. These components are then occasionally imported into Europe to be assembled there into final consumer electronic products. Decisions largely depend on business opportunities, profit prospects, production patterns and costs. They will depend also on managerial approaches and models (creator/originator vs. assembler/follower). Labour cost influences the country selection when most of the added value comes from labour.

Even electronics firms, which maintain that labour accounts for less than 5% of the total manufacturing costs,[266] are looking for low-cost European areas. Despite these cost considerations, the steady appreciation of the NTD relative to the USD, EUR/USD exchange rate, other pricing and financial considerations and a tight labour supply in Taiwan – where the average unemployment rate is below 2% – have reduced wage differentials between Taiwan and other advanced economies. A combination of the above factors allows Taiwanese firms to decide to produce also in relatively high-wage countries. This probably explains the Taiwanese preference to operate in the Netherlands and Germany where high unit labour costs and social benefits are compensated by higher efficiency, productivity high-income consumers and profitability.

Labour-intensive companies are choosing either to set up automated activities in Europe or ensure that their European (and American) plants do the final assembly while off-shore units in mainland China or Southeast Asia perform the more labour-intensive work. Even this type of arrangement and global business model still demands a large pool of relatively cheap but educated technicians in the European host country. Taiwanese localizations in Central and Eastern Europe respond to these labour cost requirements.

Moreover, what emerged from our interviews and questionnaires is the perception that future investment and business decisions with regards supply chains will depend very much on increasing pressure for global competition, new and more ambitious consumer expectations and a growing exposure to different regulatory and tax requirements in the EU. It will also depend on increasing global markets for labour and talent and other social and environmental and geopolitical concerns, CSR issues, including raising wage rates, and the volatility of commodity prices.

Economic actors in some sectors, such as the agricultural and floricultural, agree that production is likely to be localized near local or regional clients. This is less the case for other industries, such as the ICT and semiconductor producers, where transport costs are relatively low. On the other hand distribution would imply an assessment of other comparative advantages and opportunities such as efficient customs management, taxation, infrastructures, logistic and warehousing, air freight, shipping facilities and financial services to support import-export activities.

[266] International Labour Organization (2007), "The production of electronic components for the IT industries: Changing labour force requirements in a global economy", TMITI/2007, Geneva, Switzerland

Benefits of investing in the EU rather than in the US

When international investors need to decide whether to invest in the EU or in the US, different questions arise about the status quo, main expectations and possible future developments of both regions.

Although reports about economic and financial performance in 2014 have described the US economy and market as 'on an upswing', compared to the EU as a 'laggard', there are strong arguments, based on future outlooks and trends that suggest that it is wiser to invest in the EU rather than in the US. First, the EU offers a cheaper investment environment compared to the US, where the value of the dollar is on the rise, and investing in the EU will pay off on the long-term, therefore being better value thanks to the lower energy costs and wages.

Reforms and interventions by the ECB throughout 2015 have improved the competitiveness of the European economy, putting it to a stress test that should reassure investors of the soundness of Europe's economic recovery. Europe offers a unique blend of industries, cutting-edge technology and research hubs, and it hosts industry and knowledge clusters that grant a competitive edge to companies. This is especially true in the growing and promising sectors of ICT and pharmaceutical. Europe also offers a highly layered and cohesively connected environment, thanks to its mobility regimes for capital, employment and goods. The European Union is particularly compact and interconnected, and it revolves around a multiplicity of economic hubs spread all over the continent. In fact, every EU country has at least one strong economic capital, all of which are very well connected with each other. This increases its attractiveness compared to the more geographically fragmented environment of the US, which revolves around far-away poles such as California and New York.

Human capital in the European Union is also high. Europeans are among the world's best educated people, and six out the ten countries scoring best in the UNDP Education Index are EU-28 member states. Also, over half of Europeans are able to speak at least one other language than their mother tongue, making Europe one of the most multilingual regions in the world. These features make European employees very attractive in the eyes of potential Taiwanese investors.

Another advantage offered by the European environment is that of the size of businesses, usually small-medium or medium enterprises, compared to the giant-sized business of the US, which tend to cannibalize smaller realities. In this respect, Taiwanese investors, accustomed to the SME business approach, can find a similar environment, has a strong international outlook while holding a high reputation for innovation, with goods and products demanded by global customers.

3.2 Investment Hurdles

In addition to the abovementioned geographical considerations, a large part of the questionnaire and interviews focused on hurdles and other obstacles in Europe which may negatively affect investment decisions by Taiwanese firms**.** The main recurrent complaints and concerns were:

3.2.1 Linguistic and cultural hurdles

Taiwanese businessmen frequently mention a strong cultural affinity with the United States, often due to many of them spending some years there during their studies. European countries where the culture is relatively similar to the American one and where there is an English speaking workforce – such as the Netherlands, Germany and the UK – are therefore targeted more often as investment destinations.

Similarly, in countries where English fluency is not evident, one can see often less Taiwanese investment. In those countries investment requires significant commitments in terms of human resource management to find suitable employees that can bridge both the cultural and language divides.

3.2.2 Labour relations and ownership structures

In terms of ownership structures one can see that family ownership and such types of management are rather common.[267] Except few bigger firms, most companies have such an ownership structure. It can be an advantage if this type of ownership-management means cohesion among employees and a strong commitment to the business. In practice it may also create unnecessary risks for the company, due to uncontrolled management decisions by the owners.

The role of trade unions in most European Union member states is much stronger than it is in Taiwan. Some well-established labour rights, such as the 35 hour working week in France, or limitations to the dismissal of employees, are sometimes considered as serious hurdles for Taiwanese investors in the European Union.[268] In this respect, the strength of the trade unions worries the bigger Taiwanese firms operating in Europe as they are used to a harmonious, top-down type of management and relationship at home. As a result, they tend to shy away from areas where the risk of confrontations between the unions and the company is high. This could explain for instance why the Taiwanese investment in France, Italy and Spain is relatively small, despite their market size.

Taiwanese firms have also some difficulties to understand the EU social legislation and the ongoing reform of the national labour markets as a way to relaunch European growth, innovation and competitiveness.

3.2.3 Knowledge of investment incentives

Investment incentives such as tax holidays, compensating allowances for employment and training, and guaranteed loans can make a significant difference to an investment project but few companies interviewed have a systematic knowledge of existing possibilities and

[267] Chu, W. (2009), "Family ownership and firm performance: Influence of family management, family control, and firm size", *Asia Pacific Journal of Management,* December 2011, Volume 28, Issue 4, pp. 833-851
[268] Information obtained through interview

opportunities at country or EU level. Interviews have shown that European incentives and promotion tools are across the board hardly known.

It is often the case that Taiwanese SMEs have little knowledge of how incentive packages may fit with their own specific needs. In this respect our perception is that the Taiwanese companies, while operating in a given European country or economic zone, are *de facto* insulated from the overall economic and administrative context which could provide advice, support and incentives. In other words, they do not seem to be well integrated into the business and economic tissue of a country or a region. Especially for SMEs it is often difficult to have access to credit or even to open a bank account.

3.2.4 Bureaucracy and visa

In deciding on where to invest, issues referring to bureaucratic/administrative efficiency and visa policies are important determinants. Also the approval process and getting work permits for non-EU workers are often perceived as huge hurdles by the Taiwanese companies in Europe, as compared to more simple and efficient procedures in Taiwan and the United States (as alternative business locations to Europe).

3.2.5 Human resources

Few qualified managers have sufficient knowledge of European languages and business environment because of the strong political and commercial ties with the United States. The European Union with its 28 member states requires thorough understanding and studying. Unfortunately, over the last decades insufficient efforts were made by both Europe and Taiwan to attract Taiwanese students and businessmen to Europe or train them in joint Business Schools in Taiwan (as it is currently the case of the EU/China Business School and Training Centre in Shanghai). In fact, also very few Taiwanese students come to Europe as compared to the number of those going to the United States.

3.2.6 Rules and regulations – Perceived single market

Throughout our interviews and in response to our questionnaire it came to the fore that one of the main hurdles is the lack of regulatory convergence in the European Union. Whereas the European Union presents itself as a 'single market' and single entity, differences in fiscal regulations, laws, and customs remain. This is especially evident for foreign investors. One example is Double Taxation Agreements (DTA). As of today Taiwan has such an agreement with a total of 11 EU member states,[269] with the core purpose to eliminate double taxation. The fact that such an agreement is not present in all member states tends to incentivise Taiwanese companies to direct their investment towards those member states which do have a DTA. Moreover, labour laws, pension schemes, banking regulations, access to loans, environmental standards and tax conditions differ across member states of the European Union, leaving investors confused.

[269] Netherlands, United Kingdom, Sweden, Belgium, Denmark, Hungary, France, Germany, Slovakia, Luxembourg, Austria.
Taxation Administration, Ministry of Finance, R.O.C. – Retrieved from http://www.dot.gov.tw/en/home.jsp?mserno=200912160006&serno=200912160009&menudata=EnMenu&contlink=content/roc.jsp&level2=Y

3.3 Recommendations

There are a number of avenues that should be explored in order to improve both the quantity and quality of Taiwanese investment.

3.3.1 Bilateral Investment Agreement

A Bilateral Investment Agreement (BIA) will enhance the investment climate between Taiwan and the European Union. As the BIA covers both investment protection and investment promotion, it will address a number of issues that currently prohibit increased flows of OFDI. First of all, it will increase confidence, not only among MNCs and global enterprises, but especially among SMEs and family-owned companies that are the core of the economic tissue of both the EU and Taiwan. Second, visa and labour related issues could be tackled, and hereby provide continuity of labour both in the short and long term, thereby incentivising easier transfer of labour under transparent and efficient conditions. Third, both Taiwan and the EU are considered to be knowledge economies, and in order to remain ahead in terms of content and technological advancement, a BIA should promote the exchanges and collaborations between research centres, universities and private companies. Last but not least, an EU-Taiwan BIA will strengthen the competitiveness of European firms in the Asian market. Indeed, Taiwan will become a reliable hub for European investors in the fast growing Asian region. Hereby the BIA gives an opportunity to explore triangular synergies between the EU, mainland China and Taiwan, building upon the already existing bilateral agreements such as ECFA. Similarly for Taiwan a BIA will create a level playing field with advanced economies such as South Korea and Japan that already receive preferential treatment under a variety of agreements with the EU.

3.3.2 Double Taxation Agreements

As stated before currently only a total of 9 EU member states have a double taxation agreement with Taiwan. Several interviewees and respondents to the questionnaire have indicated that it is advisable for other member states to follow suit in signing such DTAs and remove double taxation. This will clearly augment investments into those countries. In addition, to emphasise the urgency of the matter, in its model tax convention, the OECD highlights the damaging effects that double taxation has on the movement of capital and other factors in the development of inter-country economic relations.[270]

Recently, in June 2015, the Commission presented a strategy to re-launch the Common Consolidated Corporate Tax Base (CCCTB). This was announced in the Action Plan for Fair and Efficient Corporate Taxation.[271] If the European Commission manages to push through this proposal, the CCCTB will offer a holistic solution to the current problems with corporate taxation in the EU. 'It would greatly improve the business environment in the Single Market, by making it simpler and cheaper for companies to operate cross border. At the same time, it could serve as a powerful tool against corporate tax avoidance by removing the current mismatches between national systems and fixing common anti-avoidance provisions'.[272]

[270] Organisation for Economic Co-operation and Development (OECD) (2014), "Model Tax Convention on Income and on Capital, Condensed Version" – Retrieved from http://www.oecd.org/ctp/treaties/2014-model-tax-convention-articles.pdf
[271] European Commission, Taxation and Customs Union, Common Consolidated Corporate Tax Base (CCCTB) – Retrieved from http://ec.europa.eu/taxation_customs/taxation/company_tax/common_tax_base/index_en.htm
[272] Ibid.

3.3.3 Investment Promotion Agencies

One of the key stakeholders attracting and promoting outward flows of FDI from Taiwan to the EU are the national investment promotion agencies in the respective EU member states. The Netherlands Foreign Investment Agency (NFIA) is often mentioned as a prime example of an effective, constructive stakeholder in managing to leverage the strength and peculiarities of the Dutch investment climate. In doing so, it manages to attract increasing amounts of overseas investment through the guidance and support of both SMEs and MNCs in setting up their respective subsidiaries in the Netherlands.

For other EU member states there is still ample untapped potential in better using their own investment agencies with the purpose of promoting their country as an attractive investment destination. Through the structured provision of targeted information on the benefits for particular industries and companies at different stages of the value chain, one can significantly increase FDI flows. Plenty can be done in terms of informing on the differences and benefits of respective investment climates. Moreover, there is a necessity to improve on the quantity and quality of business missions and matchmaking events that can lead to contacts between business clusters that can accordingly seek complementarity in production methods and/or research and development. Investment promotion agencies, in cooperation with Taiwanese industrial associations and TAITRA should aim to find synergies and a structured way of signalling their added value for aspiring SMEs and multinational corporations alike.

3.3.4 Legal support

To overcome bureaucratic and visa-related issues and speed up business development, Taiwanese companies admit that a strong and cooperative local partner (either a law firm or a legal consultant) is a crucial factor. This is particularly true in France, Italy, Spain, and most Central and Eastern European countries where the Taiwanese investors have serious difficulties to understand the language, legislation, procedures, and requests of multiple authorities on reporting, accounting and tax legislation.

3.3.5 Better explore Marketing

The interviews that were conducted and the responses that were gathered from the questionnaire signalled that Taiwanese firms usually do not have a firm marketing component engrained in their company DNA. There is plenty of room to improve such marketing related activities that foster better branding awareness, brand recognition and public perception. This should be done through targeted marketing efforts of SMEs, MNCs and business associations in order to build a consistent and improved image of Taiwan and Taiwanese products. In a highly competitive European market where a high number of Asian countries are active, Taiwan should leverage the 'made in Taiwan' label as being clearly distinct, representing high quality products that are environmentally sustainable.

3.3.6 Educational and Scientific Exchanges

The research has shown, and this was corroborated by the findings from our questionnaires and interviews, that Taiwanese businessmen have a high level of familiarity and affinity with the United States. This detracts a lot of investment into the EU. It is a given that many Taiwanese students enjoy their studies in the US, forging lasting links that are often further explored later on by setting up companies or subsidiaries. For the European Union, to engender a similar type of attractiveness and commitment, partnerships between universities,

high schools and research institutes need to be institutionalised. This might not immediately lead to growing FDI numbers, but might have serious implications for future investment flows.

3.3.7 Participation in EU Programmes

Taiwanese investors seem aware of the opportunities of the European market, and they do not shy away from taking advantage of the European need to attract foreign capital to sustain growth and competitiveness, and create new jobs. In fact, many respondents showed awareness of the unique synergies that might arise between Taiwanese and European companies in the aftermath of the economic crisis, now that capital and foreign investment are often welcome in the EU.

To this end, companies should explore opportunities to participate in the EU Juncker Plan and the European Fund for Strategic Investment in Europe (EFSI) and other EU programmes such as the 'Energy Union', 'Smart cities', 'Smart transport', 'Connecting Europe', 'Horizon 2020', and 'Digital Europe'. From the European side more should be done to make foreign investors and stakeholders aware of the opportunities that are present, and on how interested parties can apply for EU funds.

The same goes for enhancing the number of scientific exchanges between doctoral students, post-docs and academia. Both the European Union and Taiwan should incentivise and promote existing framework programmes in which Taiwanese companies and academia can cooperate in the field of research and development.

3.4 Future scenarios

Throughout the research, interviewees were also requested to provide their own assessment on the current EU-Taiwan trade relations and whether these relations could be strengthened via more structured bilateral trade or investment agreements. The general consensus argues that enhanced EU-Taiwan trade and investment relations would benefit the EU, Taiwan and mainland China alike. A study published by the Copenhagen Economics in 2008 shows that an EU-Taiwan economic agreement may well support EU, Taiwan and mainland-Chinese economic interests.[273] This was also confirmed in our interviews. Cross Straits relations could also further develop, opening the door to further progress towards regional integration and Taiwan's deeper interaction and bilateral economic agreements with countries other than mainland China.

Before presenting the potential scenarios a brief background towards the current EU-Taiwan trade relations is given. The background and the historical evolution of EU-Taiwan trade relations could be summarized as follows:

EU supported Taiwan's accession to WTO which took place in 2002, a few days after China's accession. Consequently, a European Economic and Trade Office was opened in Taipei in 2003.[274] In 2008 the EU signed with Taiwan a first economic and trade agreement which focuses on reduction of customs duties and import tariffs. The European Parliament, on its side, while reconfirming its commitment to 'one China' policy made in 2008,[275] in 2013 called on the European Commission 'to start talks on investment and trade agreements with Taiwan'. The EU Trade Commissioner-designate Malmström in September 2014 during her hearing at the EP stated that 'an agreement with Taiwan is on the agenda'.[276]

EU and Taiwan hold annual consultations on trade and political matters. On trade matters consultations take place also in four technical groups on Sanitary and Phytosanitary Measures (SPS), Technical Barriers to Trade (TBT) issues, Intellectual Property Rights (IPR) and pharmaceuticals. Regular consultations also focus on food safety, IPR investment and services (market access issues). In 2010 the first Economic Cooperation Framework Agreement (ECFA) was signed between mainland China and Taiwan which includes also many more sectoral agreements in particular the Cross- Straits Service Trade Agreement (CSSTA).[277]

Taiwan also aims to enter the Trans-Pacific Partnership (TPP) agreement and the Regional Comprehensive Economic Partnership in Asia (RCEP). This Taiwanese trade "diplomacy" aims to expand Taiwan's international space and it can positively contribute to a peace agreement and domestic economic revival.

Under the current circumstances the following scenarios could be considered:

3.4.1 Option 1: Status quo

According to some assessments, comparative analysis and past evidence, EU-Taiwan trade and investment relations can expand even in absence of structured trade relations. Under this

273 Copenhagen Economics (2008), "Taiwan: Enhancing Opportunities For European Business. Trade And Investment Between The European Union And The Separate Customs Territory Of Taiwan, Penghu, Kinmen And Matsu (Chinese Taipei)", Copenhagen Economics Final Report
274 Okano-Heijmans, Wit and van der Putten (2015)
275 Council of the European Union, 2008. This position was reiterated in various statements by EU High Representative Catherina Ashton afterwards
276 European Parliament (2,014) 'Hearing of Cecilia Malmström, Commisioner-Designate (Trade). Brussels: Available online at: http://www.europarl.europa.eu/hearings-2014/en/schedule/29-09-2014/cecilia-malmstrom
277 Okano-Heijmans, Wit and van der Putten (2015)

"status quo" scenario, however, the paradoxical situation is that in the near future the EU will have bilateral agreements with all its most important trade partners in Asia, except Taiwan. This may become politically and economically unsustainable in the long term.

3.4.2 Option 2: Taiwan as "Gateway" to mainland China

In absence of a structured trade relation with the EU, Taiwan could create new trade opportunities with the EU by acting as "springboard" for EU investment to mainland China. In this respect Taiwan could play the same "gateway to mainland China" role played in the past by Hong Kong. Therefore EU companies may find it convenient to localize their business in Taiwan in view of penetrating in a second stage the Chinese larger and fast-expanding markets. Under this scenario EU, Taiwan and mainland China obtain relevant investment and trade advantages. The example of Japan is quite significant. This country, having signed an Investment Agreement with Taiwan, is using it as a "hub" for economic activities in mainland China.[278]

Moreover, in order to attract foreign investment, Taiwan should emphasize its deep knowledge of the Chinese business environment and cultural affinities. In order to achieve the full potential of Taiwan as a gateway into mainland China, a grounded quantitative research needs to be conducted. This research should look into the extent to which European companies effectively use Taiwan as a gateway to mainland China, and what measures and regulations hinder such a business strategy.

3.4.3 Option 3: Towards a Bilateral Investment Agreement

There is a situation of asymmetry between EU-Taiwan and EU-South Korea trade relations (and also Japan, ASEAN and mainland China for that matter). In fact the EU has already signed an FTA with South-Korea. It is negotiating a Bilateral Investment Treaty (BIT) with China and PCAs/FTAs with several ASEAN countries. Unless a similar trade agreement is negotiated with Taiwan, EU-Taiwan trade and investment relations in Europe may be badly hampered by a higher competition from other EU partner countries in Asia. Under this scenario, EU may consider three levels of trade policy commitment towards Taiwan:

- upgrading its current annual consultations with Taiwan, including the bilateral trade dialogues focusing on four technical working groups, whose scope could be deepened and broadened,
- considering the opportunity to start negotiations on an EU Bilateral Investment Treaty with Taiwan,
- considering the political and economic feasibility to reach agreement on an EU FTA with Taiwan.

This latter alternative will not undermine EU political relations with mainland China for the following reasons:

- there are precedents of FTA agreements between Taiwan and other partner countries which do not recognize Taiwan diplomatically. In this respect EU should re-affirm its commitment to the "one China" policy while negotiating a trade agreement with Taiwan.
- Following the WTO model and other plurilateral agreements currently being negotiated, such as the Environmental Goods Agreement, both sides can join international

[278] Okano-Heijmans, Wit and van der Putten (2015)

agreements. These precedents support Taiwan in aiming for reasonable representation in international fora and bilateral agreements.

However, to avoid the risk of asymmetric situations among its Asian trade partners, EU-Taiwan BIT/FTA negotiations should go hand in hand with similar EU negotiations with mainland China on a bilateral BIT which, eventually, may lead to an EU-mainland China FTA. Negotiations with Taiwan will most likely need to follow parallel negotiations of the EU with mainland China. The political feasibility of this scenario is worth being explored by the European Commission, the EP and EU member states. The model that the EU could apply to its trade and investment relations with Taiwan is the EU comprehensive FTA with Singapore.

4 Conclusion

The 2014 EIAS report "Taiwan's Outward Foreign Direct Investment (OFDI) Into The European Union And Its Member States – Quantitative & Qualitative Research" unveiled untapped potential for Taiwanese investment into the European Union. In addition, it drew attention to the potential for further cooperation between European and Taiwanese businesses, and advocated for a Bilateral Investment Agreement (BIA) between the two partners to further strengthen an already positive relationship.

Building upon that report, the European Institute for Asian Studies (EIAS) has conducted research on 10 leading Taiwanese enterprises doing business in the EU in order to identify the key factors that drive their activities in Europe. Using the information and data collected through a questionnaire, interviews and open source research, the report aims at understanding the rationale behind the individual decisions to invest in the European Union and identifying a set of common hurdles and issues that Taiwanese firms face when entering the European market.

This survey provided a selection of 10 Taiwanese companies from 10 different industrial sectors as case studies. Taiwan is traditionally seen as an ICT-hub, yet in order to move away from this superficial perception, this research also put emphasis on other industries in which Taiwanese companies are thriving such as the textile, food, fashion, logistics and agricultural industries.

Taiwanese investors are particularly interested in Northern and Western European countries. The Netherlands, Germany and the UK are the primary destinations of Taiwanese investment for numerous reasons, including:

- Knowledge of English language/polyglot workforce
- Cultural affinity
- Favourable investment climate
- An effective incoming investment promotion agency
- Tax incentives
- A pre-existing complete value chain
- Business, knowledge and R&D hubs
- An established Taiwanese business community
- A big consumer market
- Double taxation agreements
- Modern infrastructure and transport networks

In addition to those countries, France is considered by many as an important consumer market. Central and Eastern European countries are often chosen as manufacturing destinations, while Italy and Spain are underexplored markets with room for more investments, provided that some hurdles such as double taxation and language barriers are addressed.

This research confirmed that by and large Taiwanese investment into Europe is of mutual benefit for both Taiwanese companies and the receiving country. First, Taiwanese companies generate local employment, and could prove to be valuable partners in EU funded projects. Second, they contribute to a two-way knowledge transfer between two highly skilled regions, enhancing the European value chain in the process and improving the EU's global competitiveness. Third, there is evident complementarity between many Taiwanese and European firms. Both Taiwan and the EU are home to leading companies, which have already proven ready to join forces and explore opportunities for shared research and mutual

development opportunities. Finally, Taiwanese companies have proven to be among the most trustworthy foreign partners, and occasions in which IPR issues or financial irregularities have arisen as a result of the cooperation between EU and Taiwanese companies have been few and far between.

Notwithstanding the aforementioned benefits and strengths of Taiwan investors, this research ascertained that many hurdles still remain. The following hindrances prevent Taiwanese investment in the EU from living up to the identified potential:

- Language problems (this is especially the case for Southern and Eastern European countries)
- Cultural barriers (this is especially the case for Southern and Eastern European countries)
- Different management structures
- Burdensome labour laws
- Lack of transparency and clarity
- Access to credit
- Difficulty of opening a bank account
- Visa and migration laws
- Inefficient and cumbersome bureaucracy
- Double taxation issues
- Different rules and regulations in what is supposed to be 'a single market' (EU28)

Taiwanese investors in the EU believe that a bilateral investment agreement between Taiwan and the EU would increase Taiwanese foreign direct investment, and concurrently support a free trade agreement which would furthermore enhance Taiwanese competitiveness vis-à-vis South Korea, Japan and those ASEAN countries that already have concluded, or are in the process of negotiating trade and investment agreements with the European Union.

In addition to the importance of signing a BIA/FTA, this study proffered other avenues to improve the quantity and quality of Taiwanese investment in Europe. Firstly, bilateral agreements between Taiwan and several EU member states for the avoidance of double taxation can have a significant impact while being politically more viable in the current climate. Secondly, the study has shown that there remains ample room for improvement by part of some incoming investment promotion agencies in Europe, specifically in terms of B2B and matchmaking activities. Thirdly, one of the more salient observations that came to the fore is that Taiwanese investors (mainly SMEs) seem to lack proper understanding of the nitty gritty of different European markets and regulations. Constructive guidance for Taiwanese companies, from either Taiwan investment agencies or European member state agencies might therefore help in better assisting companies in entering and understanding the European context.

Tools that are often undervalued but could prove of great value are marketing related activities. A more marketing oriented approach will improve the image of those Taiwanese companies with high-quality products but with less developed links with their European customers. Last but not least, this study emphasises the importance of enhanced educational and research linkages. The collaboration between universities and R&D centres will need to be improved for more sustainable cooperation in both the short and long term. To this end, EU Programmes such as Horizon 2020, Digital Europe and Smart Cities will need to be fully explored, and Taiwanese companies need to be made aware of potential involvement in such programmes.

The study finished with the drawing of three future scenarios under which EU-Taiwan trade and investment relations may develop. What is paramount is that the EU has demonstrated its interest in the fast-growing Asia-Pacific region by either starting or concluding trade negotiations with South Korea, Japan, mainland China, Vietnam, Malaysia, Thailand, Singapore and ASEAN as a whole. Taiwan is one of the top investors in nearly all these markets. By enhancing EU-Taiwan investment and trade relations, Taiwan would become a crucial and much-needed link for EU companies to achieve their strategic objective of expanding their presence in the Asia-Pacific.

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