

# END OF DEGREE PROJECT



**UCAM**  
UNIVERSIDAD CATÓLICA  
DE MURCIA

*FACULTAD DE CIENCIAS JURÍDICAS Y DE LA EMPRESA*  
*Departamento de Ciencias Sociales, Jurídicas y de la Empresa*

*University Degree in Business Administration*

Fundamental Analysis of EURO STOXX 50

Autor: Senja Tähkä

Tutor: María José Ayala Marín

*Murcia, June 2021*



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## 1. INTRODUCTION

The years between 2005 and 2020 have included some big crises that changed the economy in Europe and in the whole world. Starting with the financial crisis of 2008 resulting from the housing bubble in the United States which then spread all over the world. In 2012 the European debt crisis when several European countries were not able to pay their debts. Finally, the 2020 and Covid-19 pandemic that caused many deaths and made several countries to close almost all their activity and do a lockdown for several weeks. This thesis will show how these, and other events have influenced the prices and evolution of the EURO STOXX 50 index.

The objective of this thesis is to study the EURO STOXX 50 index and its evolution between 2005 and 2020 in order to find out which events have affected the stock prices and how the changes in economies of different countries have influenced the stock prices. Another objective is to give a better understanding of fundamental analysis and how it is done.

The thesis starts with general information about EURO STOXX 50 and its components. After the information about the index, the next part is about fundamental analysis. It introduces fundamental analysis by showing what it is, how it started and how and why it is done. Then it moves to the part of analysing EURO STOXX 50. First the evolution of the index between 2005 and 2020 is studied and finally, the economies of the eight EURO STOXX 50 countries are analysed and related to the stock price changes.



## 2. EURO STOXX 50 INDEX AND COMPONENTS

### 2.1. EURO STOXX 50 INDEX<sup>1</sup>

EURO STOXX 50 is an index that represents the 50 largest and most liquid companies in the Eurozone in terms of free-float market capitalization. On December 31, 2020, the stocks came from 8 different countries: France, Germany, Spain, Netherlands, Italy, Ireland, Belgium, and Finland. The index is known as Europe's leading blue-chip index for the Eurozone. The index is licensed to financial institutions, and it can serve as underlying for a wide range of investments such as futures, options, and exchange traded funds (ETFs). It captures about 60% of the free-float market capitalization of the EURO STOXX Total Market Index (TMI).

EURO STOXX 50 is part of the STOXX blue-chip index family owned by Deutsche Börse Group. STOXX Ltd. provides market index solutions in Europe and globally. The STOXX family has over 10 000 indices from which EURO STOXX 50 is the most common and famous but it also includes indices such as STOXX Europe 50, STOXX Europe 600, STOXX Global 1800 and STOXX Asia/Pacific 600. There are also single-country sub-indices derived from EURO STOXX 50 which cover EURO STOXX 50 components from these countries. These sub-indices are: EURO STOXX 50 Subindex France, EURO STOXX 50 Subindex Germany, EURO STOXX 50 Subindex Italy, EURO STOXX 50 Subindex Netherlands and EURO STOXX 50 Subindex Spain.

The index was launched in 1998. It is available in several currencies (EUR, USD, CAD, GBP, and JPY) and different return variant combinations (price, gross return, and net return). The index is calculated and disseminated every 15 seconds between 09:00 CET and 18:00 CET for EUR and USD on all return variants. The index is weighted by free float-market capitalization. It is the share of total market capitalization of a stock available for trading. Free-float

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<sup>1</sup> Source <https://www.stoxx.com/index-details?symbol=sx5e>

market capitalization is the free-float factor multiplied by full market capitalization. According to the Index Calculation Guide (2020) the STOXX indices are calculated with the Laspeyres formula. It measures price changes against a fixed base quantity weight. The formula is:

$$Index_t = \frac{\sum_{i=1}^n (p_{it} \times s_{it} \times ff_{it} \times cf_{it} \times x_{it})}{D_t} = \frac{M_t}{D_t}$$

Where,

t = Time the index is computed

n = Number of companies in the index

p<sub>it</sub> = Price of company (i) at time (t)

s<sub>it</sub> = Number of shares of company (i) at time (t)

ff<sub>it</sub> = Free float factor of company (i) at time (t)

cf<sub>it</sub> = Weighting cap factor of company (i) at time (t)

x<sub>it</sub> = Exchange rate from local currency into index currency of company (i) at time (t)

M<sub>t</sub> = Free float market capitalization of the index at time (t)

D<sub>t</sub> = Divisor of the index at time (t)

Each index has a unique index divisor. The divisor is adjusted to maintain the continuity of the index's values across changes caused by corporate actions. Changes in weights by cause of corporate actions are distributed proportionally across all components of the index. The formula to calculate index divisors is:

$$D_{t+1} = D_t \times \frac{\sum_{i=1}^n (p_{it} \times s_{it} \times ff_{it} \times cf_{it} \times x_{it}) \pm \Delta MC_{t+1}}{\sum_{i=1}^n (p_{it} \times s_{it} \times ff_{it} \times cf_{it} \times x_{it})}$$

Where,

D<sub>t+1</sub> = Divisor at time (t+1)

ΔMC<sub>t+1</sub> = The difference between the closing market capitalization of the index and the adjusted closing market capitalization of the index.

Weighting cap factors limit the maximum weighting for a stock at the time of the review. The factors are used to attain more diversification and avoid dominance of a single stock, country, or sector in the index. The components of EURO STOXX 50 are capped at a maximum weight of 10% quarterly. The weighting cap factors are updated quarterly with the index reviews.

According to STOXX Index Methodology Guide (2021) the components are reviewed every year in September. The components chosen are from each of the 19 supersector indices of EURO STOXX. The largest stocks according to free-float are chosen so that they represent about 60% of the free-float market capitalization of the corresponding EURO STOXX TMI supersector index. The final components are chosen by selecting the 40 largest stocks on the list and then, the remaining 10 stocks are selected from the list of largest remaining current stocks ranked between 41 and 60. The composition of the index has changed in the last 15 years as new companies have been added and others deleted. A component will be deleted from the index if it ranks below 75 on the selection list. Some of the most recent changes in the composition of the index include, for example, in September 2018 Amadeus IT group was added and Saint Gobain was deleted and in September 2020 Telefonica was replaced by Vonovia SE and Kone was added, and Fresenius deleted.

## 2.2. COMPONENTS<sup>2</sup>

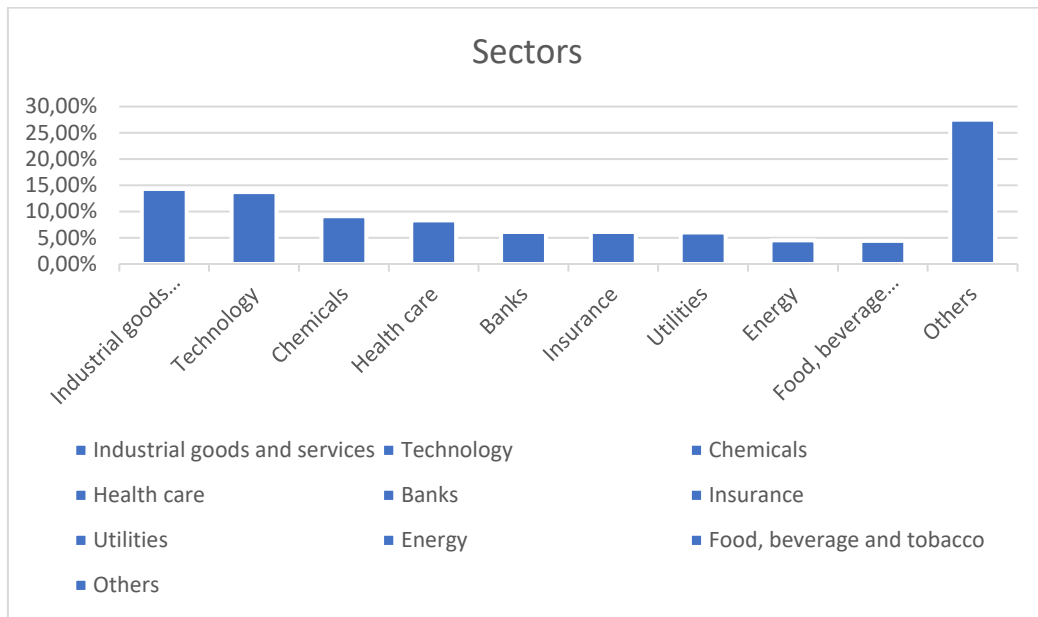
By the end of the year 2020, EURO STOXX 50 consisted of 19 different sectors from 8 different countries. According to the data from STOXX on December 31, 2020, the top sectors of the index (Figure 1) were: industrial goods and services (14,3%), technology (13,7%), chemicals (9,1%), health care (8,3%), banks (6,1%), insurance (6,1%), utilities (6,0%), energy (4,5%) and food, beverage, and tobacco (4,4%). The index has components from 8 different countries as represented in Figure 2. According to the data from STOXX the biggest country in EURO STOXX 50 is France with 17 different companies which represents 36,8% of the index weight. The second biggest country in the index is

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<sup>2</sup> Source <https://www.stoxx.com/index-details?symbol=sx5e>

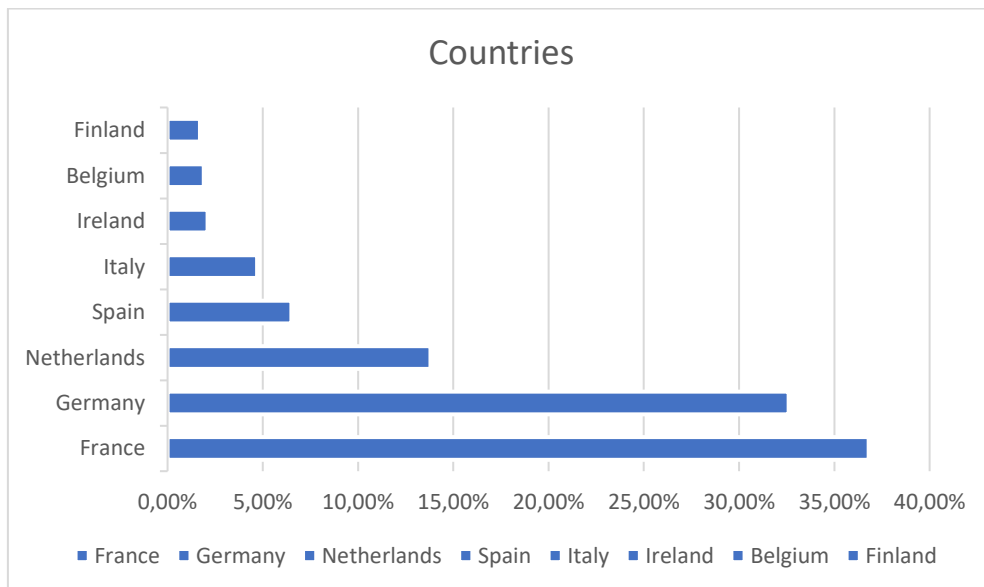
Germany with 15 companies which represents 32,6% of the total weight. The six countries left are the Netherlands (13,8%), Spain (6,5%), Italy (4,7%), Ireland (2,1%), Belgium (1,9%) and Finland (1,7%). EURO STOXX 50 has a total of 50 components which are represented in Table 1.

**Figure 1: Top sectors of EURO STOXX 50**



Own development, source. STOXX (26.01.2021)

**Figure 2: EURO STOXX 50 has components from 8 different countries**



Own development, source STOXX (26.01.2021)



**Table 1: Components**

	Name	Sector	Country	Market Cap.	Revenue
1	ASML HLDG	Technology	NL	193.82B	21.00B
2	LVMH MOET HENNESSY	Consumer products and services	FR	265.00B	73.24B
3	SAP	Technology	DE	121.50B	27.34B
4	LINDE	Chemicals	DE	105.02B	-
5	TOTAL	Energy	FR	100.92B	171.19B
6	SANOFI	Health care	FR	95.43B	56.56B
7	SIEMENS	Industrial goods and services	DE	102.30B	57.10B
8	ALLIANZ	Insurance	DE	82.23B	227.84B
9	L'OREAL	Consumer products and services	FR	169.52B	43.05B
10	IBERDROLA	Utilities	ES	63.83B	42.40B
11	SCHNEIDER ELECTRIC	Industrial goods and services	FR	69.66B	39.12B
12	AIR LIQUIDE	Chemicals	FR	58.81B	31.45B
13	ENEL	Utilities	IT	79.73B	107.03B
14	BASF	Chemicals	DE	62.04B	59.15B
15	ADIDAS	Consumer products and services	DE	56.21B	20.13B
16	BAYER	Health care	DE	49.17B	41.40B
17	ADYEN	Industrial goods and services	NL	58.16B	5.15B
18	DAIMLER	Automobiles and parts	DE	70.78B	154.31B
19	AIRBUS	Industrial goods and services	FR	75.21B	49.91B
20	DEUTSCHE TELEKOM	Telecommunications	DE	71.14B	101.00B
21	BNP PARIBAS	Banks	FR	61.58B	63.66B
22	ANHEUSER-BUSCH INBEV	Food, beverage and tobacco	BE	93.60B	47.86B
23	VINCI	Construction and materials	FR	50.89B	70.63B
24	PROSUS	Technology	NL	159.31B	4.55B
25	PHILIPS	Health care	NL	40.69B	19.54B
26	BCO SANTANDER	Banks	ES	50.15B	34.86B
27	DEUTSCHE POST	Industrial goods and services	DE	50.56B	64.65B
28	KERING	Retail	FR	65.62B	21.35B
29	AXA	Insurance	FR	50.30B	111.70B
30	SAFRAN	Industrial goods and services	FR	48.38B	29.41B
31	DANONE	Food, beverage and tobacco	FR	38.77B	36.26B
32	ESSILORLUXOTTICA	Health care	FR	59.27B	14.84B
33	INTESA SANPAOLO	Banks	IT	43.40B	17.72B
34	PERNOD RICARD	Food, beverage and tobacco	FR	41.21B	13.43B
35	MUENCHENER RUECK	Insurance	DE	34.03B	62.56B
36	VONOVIA SE	Real estate	DE	29.94B	6.98B
37	ING GRP	Banks	NL	35.26B	21.92B
38	VOLKSWAGEN PREF	Automobiles and parts	DE	86.78B	221.50B
39	CRH	Construction and materials	IE	28.02B	27.50B
40	INDUSTRIA DE DISENO TEXTIL SA	Retail	ES	85.19B	29.55B
41	KONE B	Industrial goods and services	FI	34.26B	9.94B
42	DEUTSCHE BOERSE	Financial services	DE	24.88B	3.76B
43	FLUTTER ENTERTAINMENT	Travel and leisure	IE	24.24B	2.66B
44	AHOLD DELHAIZE	Personal care, drug and grocery stores	NL	23.14B	74.74B
45	ENGIE	Utilities	FR	29.43B	54.51B
46	AMADEUS IT GROUP	Technology	ES	25.82B	5.47B
47	BMW	Automobiles and parts	DE	46.94B	98.87B
48	VIVENDI	Media	FR	33.88B	16.12B
49	NOKIA	Telecommunications	FI	18.61B	21.87B
50	ENI	Energy	IT	33.60B	68.19B

Own development, source: Investing.com and STOXX (27.02.2021)

The free-float market capitalization weights can be obtained as:

$$w_{it} = \frac{p_{it} \times n_{it} \times f_{it}}{\sum_{i=1}^n p_{it} \times n_{it} \times f_{it}}$$

Where,

$W_{it}$  = Free-float market capitalization weight (i) at the time (t)

$P_{it}$  = Price of company (i) at time (t)

$N_{it}$  = Number of shares of company (i) at time (t)

$F_{it}$  = Free-float factor of company (i) at time (t)

n = number of shares

Table 2 represents the top ten components of EURO STOXX 50 on December 31, 2020, based on their free-float market capitalization weight. The table is based on data from STOXX.

**Table 2: Top Components According to Free-float Market Capitalization**

	Name	Description	Weight
1	<b>ASML Holding</b>	One of the leading companies in manufacturing chip-making equipment. They design and manufacture the lithography machines that are used in chip manufacturing. The company was founded in 1984 in the Netherlands, and it employs more than 24 000 employees in 16 different countries.	6,56%
2	<b>LVMH Moet Hennessy Louis Vuitton SE</b>	French family group that offers luxury goods and jewelry. They offer luxury products of different sectors that are Wines and Spirits, Fashion and Leather Goods, Perfumes and Cosmetics, Watches and Jewelry and Selective Distribution. They have more than 150 000 employees in 179 different countries.	5,25%
3	<b>SAP</b>	German company that is the market leader in enterprise application software. SAP employs 102 400 employees from more than 140 countries.	4,54%
4	<b>Linde PLC</b>	Global industrial gases and engineering company from Germany. The company serves customers in many different industries like chemicals and refining, food and beverage, electronics, health care and primary metals. They have more than 74 000 employees worldwide.	4,33%
5	<b>Total</b>	Multinational oil and gas company from France. It is the producer and supplier of fuels, natural gas, and electricity. The company is active in more than 130 countries, and they have more than 100 000 employees.	3,63%
6	<b>Sanofi</b>	Global health care company from France. Their core business units are speciality care, vaccines, and general medicine. They employ over 100 000 employees from 142 different nationalities.	3,48%
7	<b>Siemens AG</b>	Global technology company from Germany. They focus on intelligent infrastructure for buildings and distributed energy systems as well as automation and digitalization. They employ around 293 000 employees around the world.	3,41%
8	<b>Allianz</b>	Global insurance and financial services company from Germany. They offer a wide range of insurance and fund products to their customers all over the world. They have more than 150 000 employees worldwide and they operate in 70 different countries.	3,21%
9	<b>L'Oréal S.A.</b>	The world's largest cosmetics company. It is a French company with 36 international brands such as Ralph Lauren, Maybelline New York, Biotherm, and Garnier. They have 88 000 employees in 150 countries.	2,94%
10	<b>Iberdrola</b>	Multinational electric utility company from Spain. Iberdrola is a global energy leader, one of the biggest electricity utilities in terms of market capitalization and the number one producer of wind power. They have almost 40 000 employees in 40 countries.	2,63%

Own development, sources: STOXX, ASML Holding, LVMH Moet Hennessy Louis Vuitton, SAP, Linde PLC, Total, Sanofi, Siemens AG, Allianz, L'Oréal S.A., and Iberdrola.



### **3. FUNDAMENTAL ANALYSIS**

#### **3.1. FUNDAMENTAL ANALYSIS**

Fundamental analysis is a method used to evaluate a security by measuring its intrinsic value by examining factors related to it with a goal to predict the future price movements and profitability of the security (Suresh, 2013). Intrinsic value refers to the value of a security that can be obtained by a careful analysis of the relevant facts (Sloan, 2019). The factors examined can be economic, financial, or other qualitative and quantitative factors. It uses all the publicly available information that may affect the security's value that are macroeconomic factors such as overall economy and industry conditions as well as individual specific factors that can be financial conditions and management of companies. With this information the analyst can analyse the past performance and can anticipate the prospects. (Suresh, 2013.) Fundamental analysts believe that the price of a stock is influenced by the performance of the company and fundamental analysis is used to study the financial affairs of a business in order to understand the company that issued stocks (Smart, Gitman, & Joehnk, 2017).

Fundamental analysis was pioneered by Benjamin Graham and David Dodd in the book "Security Analysis" in 1934. This book was written after the stock market crash of 1929 of what the authors described as "The New-Era Theory," and its original purpose was to identify securities for investment with an emphasis on capital preservation (Grimm, 2012). In their book Graham and Dodd were encouraging the investors to dedicate their attention to the field of undervalued securities which are selling below the levels that were obtained by analysing the relevant facts (Sloan, 2019). In this approach an important part is the estimation of stock's intrinsic value. The estimation is based on precise analysis of financial statements and relevant facts. If a stock's intrinsic value exceeds enough its current market price it is determined to have "margin of safety" in the case of downside loss. Because these stocks are considered to be

“undervalued,” they are an apt choice for investment. If the current market price is close to intrinsic value, or if the current market price is higher than intrinsic value, the investment in the stock is omitted (Grimm, 2012).

According to Suresh (2013) fundamental analysis has three objectives. First one is to predict the direction of the national economy. This is because economic activity affects the corporate profit, investor expectations and attitudes and security prices. The second is to estimate the stock price changes. This can be done by studying the forces that are operating in the overall economy along different influences on industries and companies. Finally, the third objective is to select the right time and appropriate securities for the investment (Suresh, 2013).

The fundamental security analysis is normally performed in two different ways: bottom-up and top-down. The bottom-up method is more focused on the analysis of the company instead of extensive analysis of economics and industry. It focuses more on specific attributes of the company such as the quality of management, characteristics of product or services, operational efficiency, and other business fundamentals (Grimm, 2012). The investor can use bottom-up methodology to select shares for study by examining main financial ratios. These ratios indicate a bargain relative to akin offerings (Hooke, 1998, 2010). The typically used and most comprehensive method of fundamental analysis is the top-down method. The method starts with an analysis of the global economy, then the analysis of the market and the industry and finally company analysis (Grimm, 2012). The first phase of top-down analysis is the economic analysis to understand the macroeconomic environment. The purpose of this phase is to study the general economic situation and development of the country and it can be done by analysing the economic indicators. The second phase is the industry analysis. The purpose of this phase is to evaluate the prospects of various industry groupings, and this can be done for example by analysing the industry life cycle or doing a competitive analysis of industries. Finally, the third phase is the company analysis. The purpose of this is to study the company’s financial and non-financial aspects and to determine what to do with the shares of the company (whether to buy, sell or hold the shares). This can be done with various tools by analysing the financial aspects of the company such as sales and

profitability, and analysing the non-financial aspects such as management, corporate image and quality of product or service (Suresh, 2013). The choice between bottom-up or top-down method depends on the preferences and training of the investor (Grimm, 2012).

According to Suresh (2013) the advantages of fundamental analysis are: long-term trends, value spotting, business acumen, value drivers and knowing who is who. Fundamental analysis is a valid method for long-term trend based investments. By identifying and analysing long-term economic, demographic, technological, and consumer trends the investor can get an idea in which industry group or companies to invest. Value spotting is a strength because an accurate and thorough fundamental analysis will help to determine companies that represent good value. This can help investors to recognize the companies that have valuable assets, steady balance sheets, stable earnings and staying power. Many investors think of long-term and value when planning their investments. Fundamental analysis is good because it gives a thorough understanding of the business and it can help investors to avoid companies that in the future might not succeed and find the ones that have more possibility to be successful and give profit. After fundamental analysis, the investor will be more familiar with the key revenue, profit, and earnings drivers in the company. Fundamental analysis also helps the investor to understand the most important value drivers in the company because the stock's price is affected by the industry group. With fundamental analysis the investor can better determine opportunities that could be for example high-risk, low-risk, growth oriented, value driven, non-cyclical and cyclical. If the investor knows the company's business, they can categorize stocks within their relevant industry group. In order to estimate the dividend to be paid and the future price of the shares it is relevant to study what influences the performance of the company. The performance of a company is influenced by the industry in which the company belongs to and the general economic and socio-political situation of the country. (Suresh 2013.)

Although fundamental analysis is a valuable method, some caution should be used when reading the analysis. The personal opinion of the analyst may affect the analysis, so it is important to know who has done the analysis. Also, it

is important to notice that although press releases give good information about the company, there should be used some caution when reading them because they are a PR tool for companies (Suresh 2013). Fundamental analysis is also very time-consuming, and the analyst may need to use many different criteria to evaluate different industry groups (Petrusheva & Jordanoski, 2016).

Theory of random walk challenges the typical technical and fundamental analysis of stock markets. According to Fama (1965) the theory of random walk implies that stock price changes are independent and have no memory so the past prices cannot be used to predict the future prices. The theory says that the prices are independent from each other and therefore it is no more predictable than a series of random numbers. The theory of random walk challenges fundamental analysis by saying that fundamental analysis is only useful if the information is new, or the insight is different (Fama, 1965). Fama (1965) also pointed out that if the analyst does not have new information or different insights then the fundamental analysis is useless, and the analyst may choose stocks randomly. The theory of random walk challenges the fundamental analyst to demonstrate that it is better and more profitable to choose stocks by analysing them and not just choosing them randomly (Fama, 1965).

### 3.2. EVOLUTION OF EURO STOXX 50

This part will focus on the fundamental analysis of EURO STOXX 50. In the first part the evolution of EURO STOXX 50 between 2005 and 2020 will be studied and related to the events that moved the stock prices on the index. The second part will focus on the different countries on EURO STOXX 50 and the evolution of the countries related to the changes on EURO STOXX 50.

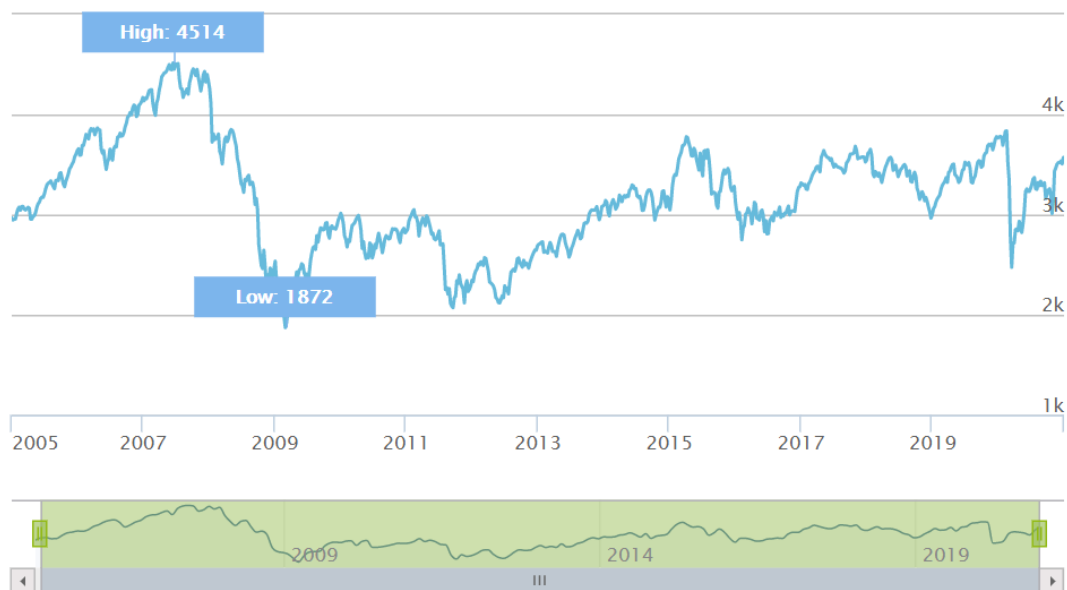
Stock prices are hard to predict and there have been many studies about factors and models affecting stock price changes. Some of the factors that affect stock prices are fundamental factors, technical factors, psychological factors, and news. Fundamental factors are for example dividend yields and earnings per share. Technical factors include inflation, gross domestic product (GDP), foreign



direct investment (FDI), fiscal policies, interest rates and monetary policies (Tvaronavičiene & Michailova, 2006). This analysis will focus more on the technical and macroeconomic factors affecting the stock prices.

Figure 3 shows the evolution of EURO STOXX 50 between 2005 and 2020. In the next steps, the evolution will be studied more profoundly divided into three parts. First part is between 2005 and 2010, the second part focuses on the years 2011 to 2015 and finally the third part will be between 2016 and 2020. Figure 3 shows that the biggest changes on the stock prices on EURO STOXX 50 happened between 2007 and 2010 which was due to the financial crisis. Other big price changes happened in 2012 due to European debt crisis and in 2020 due to Covid-19 pandemic.

**Figure 3 EURO STOXX 50 (2005-2020)**



Source: STOXX <https://www.stoxx.com/index-details?symbol=sx5e> (12.02.2021)

### 3.2.1. Analysis between 2005-2010

Figure 4 EURO STOXX 50 (2005-2010)



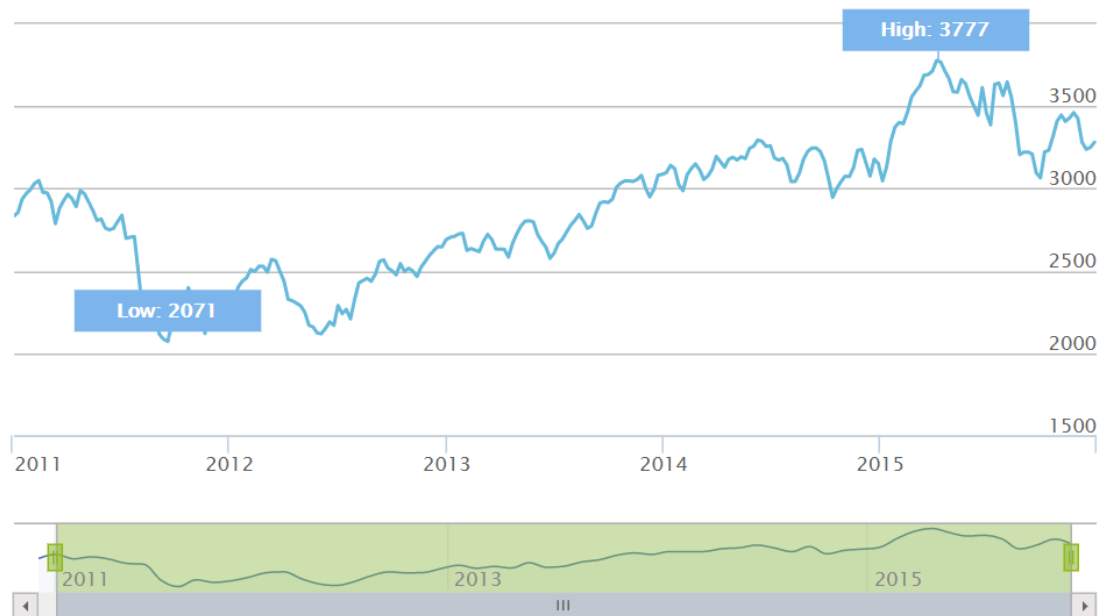
Source: STOXX <https://www.stoxx.com/index-details?symbol=sx5e> (12.02.2021)

This part focuses on Figure 3 which shows the evolution of the index between January 2005 and December 2010. These years were affected by the housing bubble which led to the Global Financial Crisis. Also, the European Debt crisis started to spread in European countries.

Between the years 2005 and 2008 the stock prices were growing, and the index hit its highest point of 4514 points in June 2007, just before the financial crisis. The Global Financial Crisis started when Lehman Brothers, one of the biggest investment banks in the U.S. collapsed on September 15, 2008. The collapse made the stock prices fall in the U.S. which then was followed in stock markets around the world. European markets had an immediate response to the changes in the U.S. stock markets. During the time of the U.S. subprime mortgage crisis, the public debt problems started to spread out in European countries which made it harder for the European leaders to respond to the crisis (Mahmoudi & Guerrero, 2016). The figure shows that since 2008 when the financial crisis hit Europe as well, the prices were falling, and the index hit the lowest point of 1872 points in March 2009.

### 3.2.2. Analysis between 2011-2015

Figure 5 EURO STOXX 50 (2011-2015)



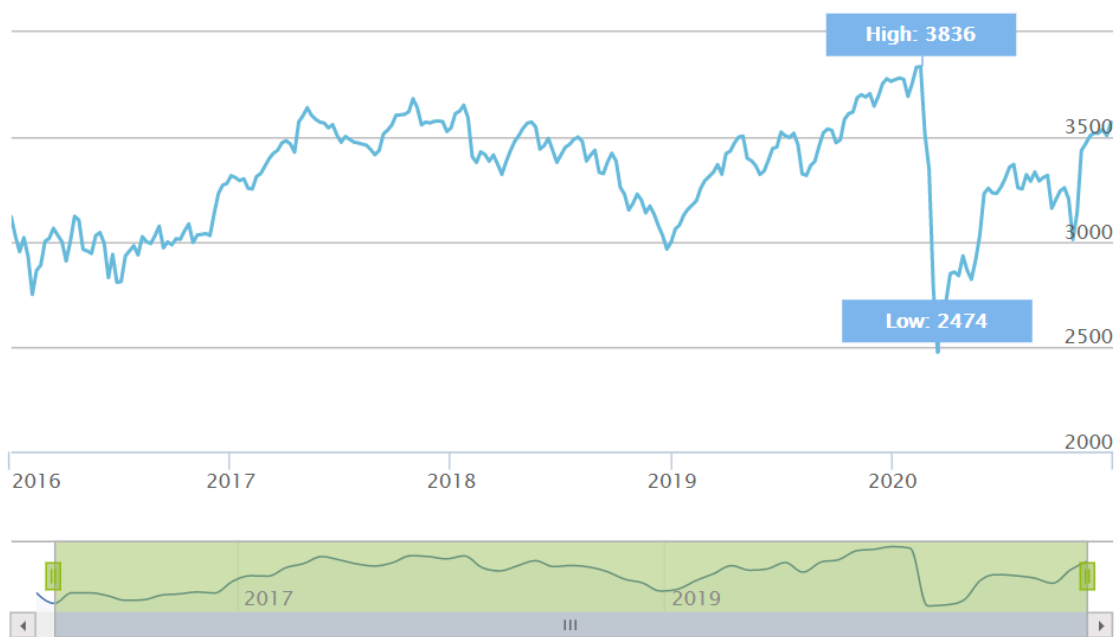
Source: STOXX <https://www.stoxx.com/index-details?symbol=sx5e> (12.02.2021)

The years between 2011-2015 were affected by the European debt crisis recession. The first signs of the debt crisis were seen already in late 2009 when Greek Prime Minister George Papandreou revealed that the previous government had not revealed the true amount of the nation's debt. The crisis hit Europe in 2010 when the concerns about the ability to pay debts spread to other European countries such as Spain, Italy, and Portugal (Beker, 2014). The stock prices fell again in 2011 after the fears of Europe's debt crisis started to spread among countries (Stock markets fall on fears over Europe's debt crisis, 2011) and the index hit the lowest value of 2071 points on September 19, 2011, as shown in Figure 4. The prices fell again in 2012 because of the debt crisis and this time especially Spain and Italy had problems with their bonds as for example in Spain the yield of the 10-year bonds rose to 7% in June 2012 (Smith, 2012). The financial crisis started to calm down after mid-2012 when the President of European Central Bank announced that the ECB would become the euro-zone's lender of last resort. This allowed European authorities more time to find ways to get out of the debt crisis (Beker, 2014).

After the second half of 2012 until the mid-2015 the prices on the market were slowly growing. During the first half of 2015 the stock prices were increasing faster because European Central Bank launched a massive stimulus program (Thompson, 2015). And as seen in Figure 4, the highest value of these years was 3777 points on April 6, 2015. Although the prices have been growing, it has not reached the values of before the recession.

### 3.2.3. Analysis between 2016-2020

Figure 6 EURO STOXX 50 (2016-2020)



Source: STOXX <https://www.stoxx.com/index-details?symbol=sx5e> (12.02.2021)

Finally, this part will focus on the years 2016-2020 of the evolution of the stock prices.

2016 was affected by many events that shook the stock markets. In the beginning of the year there was a drop in oil prices and there were also problems in European banking system (Egan, 2016). In June 2016, the stock markets fell when the UK voted for Brexit. This had an impact on the stock markets all over the world. The shares of Banco Santander fell almost 20% and BNP Paribas fell 17,4% (Johnston, 2016).

In 2018 the stock prices were mainly just falling and on December 27, 2018, the index hit 2937 points. The decrease in stock prices was caused by several reasons such as the General Election in Italy on June 1<sup>st</sup> as a second populist government took control in Italy and the government's decision to conform with the budget rules of the EU after a period of confrontation. Another reason was Brexit because November 25<sup>th</sup>, after almost 18 months of negotiating, the EU and the UK came to an agreement on terms about which the UK will leave the EU (Mason, 2018).

In the beginning of the year 2020 the index hit the highest score of these years of 3836 points. But after that, in late February the prices started to fall as Covid-19 started to spread around the world. As seen in Figure 5, after a huge drop, the index hit the lowest value of 2474 points on March 18. In October 2020, the prices fell again as the second wave of Covid-19 hit Europe and the concerns about new restrictions and the actions governments would take worried the investors (Abdulla, 2020). In many countries the restrictions were very strict with curfews, closing of restaurants and bars, travel restrictions etc. Some countries even did country wide lockdowns. During the first wave in the spring of 2020 there were more strict restrictions than during the second wave. After the first wave, in the summer of 2020, when the Covid-19 situation was better, the stock prices also increased.

### 3.3. EVOLUTION BY COUNTRIES

This part focuses on the evolution of the eight countries that were on EURO STOXX 50 on December 31, 2020. The focus in this analysis is on economic growth, unemployment, and inflation of each of these countries. The analysis is between 2005 and 2020 and the information is from OECD Economic Outlooks, Yahoo Finance and World Bank. The objective of this part is to relate the changes of EURO STOXX 50 to the changes of the countries' economies. As France and Germany together represent almost 70% of the EURO STOXX 50, the changes in these countries affect the changes on the index the most.

The economy of a country has a high influence on stock prices and the performance of the economy affects a lot on the performance and profitability of the companies. Normally, when the economy is strong, the stock prices move up and when the economy is weaker, stock prices go down as well. The situation in a company changes with the economy and therefore the stock prices change too (Smart, Gitman, & Joehnk, 2017).

### **3.3.1. France**

#### *3.3.1.1. Economic Growth*

During 2005 the GDP of France was growing by 1,7%. Consumer demand and investment were recovering and after a long period of weakness, the exports were also increasing (OECD, 2005). The economy was growing in 2006 and GDP grew by 2,5% with larger increases in construction, commerce, and transport (OECD, 2007). There was a modest slowdown of economic activity in 2007. The main sources of weakening in the domestic side were private consumption and residential investment (OECD, 2007). The stock prices of LVMH Moet Hennessy Louis Vuitton were stable between 2005 and 2008 while Boeing was increasing until mid-2007 when the economy started to slow down. Also, EURO STOXX 50 prices were increasing until June 2007.

After slowing in 2007, GDP grew by 2,6% in the first quarter of 2008 (OECD, 2008). The gains of the first quarter of 2008 were erased by the decrease in economic activity during the rest of the year. All major components of domestic demand fell, most importantly housing and business investment (OECD, 2008). GDP fell by 2,9% in 2009. LVMH Moet Hennessy Louis Vuitton prices were slightly decreasing during the financial crisis but stayed more stable than the EURO STOXX 50 index in general as it had a big drop from June 2007 to March 2009 of 2642 points. There was a large drop in the share prices of Total and Sanofi from 2008 to 2009. Industrial production started to recover in the second quarter of 2009 which was reflecting the policy-induced boost in the car industry. The exports were increasing while private consumption was lagging (OECD, 2010). In 2010 the French economy was recovering. Real GDP was growing relatively strong at the end of 2009 which was driven by the decrease in

destocking and dynamic private consumption, although all components of investment were negative (OECD, 2010). Business and residential growth turned positive in 2010 and business confidence was improving (OECD, 2010). In 2010 LVMH Moet Hennessy Louis Vuitton stocks were slightly growing while Boeing remained stagnant. GDP of France grew by 2% in 2010.

The economy of France was recovering in 2010 and 2011, but by the end of 2011 France entered a small recession due to loss of confidence and sovereign debt crisis (OECD, 2011). EURO STOXX 50 prices also fell radically during the second half of 2011 due to loss of confidence. The economic activity was slowing down in 2012 due to fiscal consolidation and the impact on real incomes of food and energy prices which decreased domestic demand (OECD, 2012). In 2012 and 2013 the economic activity was slugging although EURO STOXX 50 started to increase in mid-2012 as well as stocks of Total and Sanofi. Residential and non-residential investment were decreasing and the ongoing fiscal consolidation and decrease in labour markets affected households' consumption (OECD, 2013). After the economic growth had been slugging in the previous years, in 2014 the economy of France was growing due to modest expansion and the exports were growing due to stronger world trade. The economy of France was also supported by the recovery in the euro area and improvement in business confidence (OECD, 2014).

Between the years 2015 and 2018 the economy of France was growing modestly. EURO STOXX 50 was only clearly increasing during 2017 and the stock prices of French companies LVMH Moet Hennessy Louis Vuitton and Boeing started growing in 2016. The exports and demand were increasing because of lower energy prices, better financial conditions, slowing fiscal consolidation, strengthening external demand and a pro-competitive reform agenda (OECD 2015). Private consumption and business investment were also growing (OECD, 2016). Exports increased in 2017 due to stronger world trade as well as due to high aircraft deliveries and a boost in agricultural exports and tourism (OECD, 2018). In 2020 the economy of France faced a deep recession due to Covid-19 crisis. Consumption and investment decreased sharply (OECD, 2020). The GDP of France fell 13,5% in the second quarter of 2020 due to the

lockdown and strict restrictions in the spring of 2020. After the lockdown, in the third quarter the GDP increased 18,5% and finally due to the second lockdown the GDP of France decreased by 1,4% (OECD, 2020). Following the events of Covid-19 pandemic, the share prices, and EURO STOXX 50 had a big drop in March 2020 and a second drop in November 2020.

### 3.3.1.2. *Unemployment*

Employment was low in 2005 and the unemployment rate was at 8,5% (OECD, 2006). Unemployment was falling faster in 2006 due to growth in employment in the public and private sector together with a sharp drop in the participation rate due to a wave of early retirement (OECD, 2007). Despite the slowing of economic activity in 2007, the labour market remained strong which led to a decrease in unemployment rate to 7,7% (OECD, 2007). In 2009 unemployment was rising and in 2010 after reaching the peak of 9,5% the unemployment rate started to decrease slowly although long-term unemployment was increasing (OECD, 2010). In 2011 unemployment in France was facing new problems although it was still recovering from the Great Recession and long-term unemployment and the share of older workers among the employed was increasing (OECD, 2011). The unemployment rate was rising steadily since 2009 and the highest rate of unemployment was in 2015 of 10,4%. The unemployment rose because of slow economic activity (OECD, 2013). After the peak in 2015 unemployment started to decrease mostly because of subsidised jobs in the non-market sector especially for youth and low skilled (OECD, 2015). In 2016 the unemployment rate was decreasing because of stronger economic growth, tax reductions and hiring subsidies (OECD, 2016). Unemployment kept decreasing in 2018 and 2019 due to strong employment gains as well as decrease in dependence on subsidised jobs and short-term contracts (OECD, 2019). The unemployment increased to 9,0% in the third quarter of 2020 due to Covid-19 pandemic. It was the biggest quarterly increase since 1975 and highest rate since 2018 (Reuters, 2020).



### 3.3.1.3. *Inflation*

Inflation was rising between 2005 and 2008 because of falling oil and food prices (OECD, 2007). In 2009 inflation dropped from 2,4% (2008) to 0,1% because of the financial crisis. From 2010 the inflation was more stabilized although low due to the slack in the economy (OECD, 2010). Decrease in the labour market and slack in the economic activity together with fall in energy and food prices caused the inflation to fall even more and in 2014 inflation was 0,6% (OECD, 2014). Low inflation and low energy prices caused private consumption and business investment to increase (OECD, 2016). The inflation remained low due to high unemployment until 2017. In 2018 inflation was increasing slowly due to strengthening of economic activity and higher energy prices (OECD, 2018).

### 3.3.2. **Germany**

#### 3.3.2.1. *Economic Growth*

In 2005 the economic activity of Germany was weak as the exports were the only drivers of economic activity. But the predictions and growth in GDP closer to the end of the year showed that the economic activity was strengthening (OECD, 2005). In 2006 the economy was growing strong in Germany as the domestic demand got stronger (OECD, 2007). During the second half of 2006 the economy was growing at more than twice its potential rate of around 1,5% and the GDP increased by 3,8% in 2006. Private consumption was low, but households' purchases of durable goods (such as cars) were increasing due to the coming increase in value added taxes in 2007. The standard VAT rate increased by 3% in 2007 (OECD, 2007). The stock prices of Siemens and Allianz were rising between 2005 and 2007 together with the growing German economy. The increase affected the EURO STOXX 50 which was growing as well.

In the beginning of 2008, the German economy was growing strongly, and it was not yet affected by the shocks in the financial markets. Compared to other countries, Germany was less exposed to the effects of the global housing price bubble because prices had not followed the previous global trend (OECD, 2008). After the strong beginning of 2008, the effects of the financial crisis reached Germany and economic activity and GDP declined which reflected mostly to

construction investment, private consumption, and exports (OECD, 2008). In 2009 economic activity in Germany was still declining and GDP fell even more than in 2008 because the exports dropped as the world trade had collapsed. GDP decreased 5,7% in 2009. The decline of economic activity reflected on stock prices as the stock prices of Siemens, Allianz and SAP were very low and that caused a fall on EURO STOXX 50 too.

In 2010 the economy was recovering together with world trade. The growth of real GDP in the second quarter was the strongest since the reunification of Germany. GDP increased by 4,2% in 2010. This reflected growth in exports and good domestic demand (OECD, 2010). In 2011 the economy was growing strongly due to solid investment in machinery and equipment and rising demand for exports (OECD, 2011). After strong growth in 2011, a worldwide loss of confidence and lower world trade hit Germany and its economy faced a period of weakness and as a consequence entered into a mild recession by the end of 2011. This was due to the sovereign bond crisis in Europe. People were hesitating more on investing because of a decrease in confidence (OECD, 2011). Decrease in confidence reflected on EURO STOXX 50 as the stock prices were falling although the decrease was not as deep as in 2009. EURO STOXX 50 fell from 3031 points in February 2011 to 2071 points in September 2011. In 2012 the economy of the whole euro area was weak, and the GDP of Germany was growing only by 0,4%. Also, world trade was slower and foreign demand, especially from the euro area, fell (OECD, 2012). Starting from 2014 economic activity was growing strong. In 2014 the growth was due to mild winter which pulled forward construction and prices of houses were rising which boosted residential construction (OECD, 2014).

Between 2015 and 2017 the economy was growing solidly. Construction was strong because low interest rates, higher incomes and refugees' housing needs boosted residential investment and housing demand. The exports were strong as well as business confidence and investment (OECD, 2017). Stock prices were growing as for example Bayer and Allianz stocks were growing strongly between 2012 and 2015. In 2018 GDP growth slowed because world trade growth reduced, and important export markets decreased (OECD, 2019).

Reduction in global trade affected the export-oriented economy of Germany and economic growth slowed down. In 2019 GDP growth was only 0,6%. Continuing trade disputes and Brexit were affecting business confidence and investment (OECD, 2019). The slowdown in world trade and Brexit had effects on stock markets and caused EURO STOXX 50 to decrease in 2018 as well as the stock prices of SAP and Bayer. Bayer stock prices decreased from 113,47€ in September 2017 to 52,82€ in May 2019. In 2020 German economy was facing a deep recession because of Covid-19 crisis. Economic activity decreased around 5,5% in 2020 due to falling private consumption, business investment and exports. Strict restrictions slowed down the economic activity such as closing restaurants and bars, entertainment and public recreation facilities, travel restrictions etc. (OECD, 2020).

#### 3.3.2.2. *Unemployment*

In 2005 unemployment in Germany was high, 11,2%. Starting from 2005 employment was growing which was mainly caused by subsidised employment schemes (OECD, 2005). In 2006 employment was growing strongly and it rose by over 1% and unemployment was decreasing to 10,3% (OECD, 2007). In 2009 employment had decreased because of the crisis and partly because of the government sponsored short-time working scheme which allowed firms to reduce labour input without layoffs. Even though the production dropped during the recession, unemployment rose by 0,2% from 2018 (OECD, 2010). During the crisis unemployment development was better than other countries and the increase of unemployment in 2008 was the smallest among OECD countries. One of the reasons is that the job losses in the manufacturing sector were compensated by employment increases in other sectors which were less affected by the crisis. The performance of the labour market in Germany during the crisis was stronger compared to previous recessions (OECD, 2010).

In 2010 unemployment reached its lowest level (7,0%) since the reunification of Germany (OECD, 2010). By the end of 2011, the labour market of Germany was not yet affected by the weakening of economic activity and in fact, unemployment reached the lowest level in more than two decades (OECD,

2011). In 2012 job creation slowed down due to slowing economic activity although not big changes in unemployment happened. The share of long-term unemployment in total unemployment was large (OECD, 2012). Between 2013 and 2019 unemployment was decreasing more and more, and it was hitting the historical low values and was one of the lowest among European Union countries (OECD, 2015). The lowest unemployment rate of 3,1% was recorded in 2019. In 2020, due to the Covid-19 crisis and many restrictions, the unemployment rate increased by 1,4% over the first 6 months of 2020 even though strong fiscal support was protecting jobs and firms (OECD, 2020).

### *3.3.2.3. Inflation*

In 2005 and 2006 inflation was only 0,4% meaning that activity was below its potential (OECD, 2007). In 2007 inflation increased to 1,8% mostly due to an increase of 3% in value added tax (VAT) and insurance tax rate (OECD, 2007). In 2008 inflation fell to 0,9% because of decrease in food and energy prices (OECD, 2008). A year after inflation increased back to 1,8% but then it decreased again to 0,6%. From 2011 inflation increased due to high energy and food prices (OECD, 2011). From 2012 until 2015 inflation remained more stable with inflation slightly around 2%. In 2019 inflation increased to 2,2% which was due to low unemployment and wage growth. In 2020 due to Covid-19 crisis, inflation decreased to 0,7% (OECD, 2020).

### **3.3.3. Netherlands**

#### *3.3.3.1. Economic Growth*

In 2006 the economy of Netherlands was growing as the GDP increased by 3,5%. The growth was driven by stronger exports and business investment (OECD, 2006). The exports were increasing due to strong world demand and improving price competitiveness. Domestic demand was also growing due to a better labour market (OECD 2007). Strong economic growth continued in 2007 and in the third quarter economic growth reached the highest rate since 2000 (OECD 2007). The GDP increased by 3,8% in 2007. Due to slower world trade and tension in international financial conditions the economy of Netherlands started to slow down in 2008 (OECD, 2008). Private consumption decreased due

to weaker income growth (OECD, 2008). In 2009 the economy of Netherland was in a sharp recession and the GDP decreased by 3,7%. As the economy was in recession the stock prices fell and EURO STOXX 50 was decreasing a lot between June 2007 and March 2009. Stock prices of ING Group and Philips declined sharply. ING Group stocks fell from 44,99€ in October 2007 to 4,51€ in February 2009.

The economy was recovering in 2010 together with the stock prices. Strong world trade led to an increase in exports (OECD, 2011). In the second half of 2011 the economic growth slowed down because of slowing world trade, fiscal consolidation, and mild household income growth (OECD, 2011). The slowdown in the economy and decrease in confidence reflected in stock prices as also the EURO STOXX 50 prices were falling at the end of 2011 and Philips's stock prices had another sharp decline during 2011. The recession in 2011 was deeper in the Netherlands than in the neighbouring countries which was mainly due to decrease in private consumption (OECD, 2012). Economic activity slowed down in 2012 and GDP decreased by 1%. Recession in 2012 was due to weak domestic demand. Private consumption and consumer confidence weakened because of increase in unemployment, slow wage growth and falling housing prices (OECD, 2013). In 2014 the Dutch economy started to recover slowly. The economy was growing due to continuing improvement in private consumption and growth in business investment as well as strong growth of exports (OECD, 2015). Private consumption was recovering which was supported by higher employment and strong wage growth (OECD, 2016). The economy kept growing between 2016 and 2018 and GDP was growing more than 2% each year. EURO STOXX 50 was increasing together with the economy between 2015 and 2018 and as the economy was performing better, Philips stocks were rising between September 2015 and September 2018. In 2019 economic growth started to slow down. The external demand decreased which impacted negatively on trade growth and industrial production (OECD, 2019). In 2020 the Dutch economy suffered from the Covid-19 pandemic and the economic activity in Netherlands recorded the largest contraction since World War II (OECD, 2020). Despite Covid-19 pandemic, ASML Holding stock prices were growing strongly during 2019 and 2020.

### 3.3.3.2. *Unemployment*

Unemployment was declining since 2005 and employment was growing in 2006 which caused private consumption to grow as well (OECD, 2007). In the beginning of 2008, there was a historically high number of job vacancies and the unemployment rate dropped to 3,7% (OECD, 2008). Despite the decreasing economic growth, the labour market was performing well, and unemployment was decreasing (OECD, 2008). Increase in unemployment was modest during the financial crisis and most of the jobs that were lost affected workers on easy-to-terminate temporary contracts (OECD, 2009). Strict employment protection legislation helped ensure that the permanent workers did not lose their jobs during the crisis and unemployment did not increase much (OECD, 2010). Due to the recession unemployment was increasing from 2009 to 2014, reaching 7,4% in 2014. The Dutch authorities introduced tax measures to boost employment in 2014 (OECD, 2014). After 2015 unemployment was strongly falling to 3,4% in 2019. Although in 2020 unemployment increased to 4,1% due to the pandemic.

### 3.3.3.3. *Inflation*

In 2005 inflation was low and decreasing due to decrease in contractual wages to 1% when it had been 3,5% in 2002 (OECD, 2005). Inflation was 2,3% in 2008 because of a tight labour market (OECD, 2008). In 2009 inflation dropped to 0,2% and in 2010 and 2011 inflation remained low due to slow wage growth (OECD, 2011). In 2014 inflation was declining again because of higher unemployment and economic slack (OECD, 2014). In 2017 inflation was increasing due to a tight labour market and product market (OECD 2018). In 2019 inflation reached 3%.

## **3.3.4. Spain, Italy, Ireland, Belgium, and Finland**

### 3.3.4.1. *Economic Growth*

Between 2005 and 2007 the economies of Spain, Italy, Ireland, Belgium, and Finland were growing strongly. The main drivers of the expansion were strong exports as world trade was growing and increasing private and public consumption (OECD, 2007). The GDP of Spain increased by 3,7% in 2005 while in Ireland it increased by 5,7%. In Finland, the GDP grew by 4% in 2006. The

expansion reflected on the stock prices as EURO STOXX 50 was growing strongly during those years. The index grew from 2967 points on January 3rd, 2005, to 4514 points on June 18<sup>th</sup>, 2007. Starting from the second half of 2007 the economic growth started to slow down which continued slow throughout 2008 and in 2009 it got worse. The main reasons for the recession were decreasing exports due to slowdown in world trade and weak domestic demand which were caused by the financial crisis (OECD, 2009). The biggest decrease in GDP was in Finland in 2009 of 8,1%. Also, in Italy GDP fell by 5,3% and in Ireland 5,1%. EURO STOXX 50 was falling after June 2007 together with the economies of the countries and it hit the lowest point of 1872 points in March 2009 from where it started to slowly increase again.

In 2010 the economies of the countries were slightly growing as the world trade and exports were increasing (OECD, 2010). The GDP in 2010 was growing by 3,2% in Finland, 2,9% in Belgium and only 0,2% in Spain. In late-2011 and in 2012 the economy started to decline again due to slow world trade and European debt crisis which caused weak private and public consumption and fall in employment (OECD, 2012). The GDP was decreasing in 2012 and 2013 in Spain, Italy, and Finland while in Ireland and Belgium it was slowly growing. EURO STOXX 50 prices were decreasing in mid-2011 to 2071 points in September 2011 but after that increased to 2570 points in March 2012 but then fell again and after mid-2012 the prices started to grow solidly. The prices were growing in 2013 even though some of the countries' economies were still declining. The GDP of Spain declined 1,4% in 2013 and in Italy 1,8% while the GDP of Ireland was growing by 1,4%.

The economy in Europe was recovering between 2014 and 2019 even though some countries like Finland and Italy were still lagging in 2014. EURO STOXX 50 was growing strongly in 2014 and 2015 reaching to 3777 points in April 2015 but after that in 2016 the stock prices were decreasing even though the economies of the countries were still increasing. The GDP of Ireland increased by 25,2% in 2015 while 3,8% in Spain, 2% in Belgium and only 0,8% in Italy and 0,5% in Finland. The economic growth was mainly driven by domestic demand and private consumption as well as rising external demand led to growth

in exports (OECD, 2017). The economic growth continued until 2019 although it was slowing down as tensions on global trade started (OECD, 2019). Despite the slowdown in economic growth, EURO STOXX 50 was growing in 2019.

In 2020 when Covid-19 pandemic hit Europe and most of the countries had to do lockdown and other strict measures, the economies entered recession. Only Irish economy expanded in 2020 and the GDP grew by 3,4% which was mostly driven by exports while domestic demand was struggling (Flanagan, 2021). Spain and Italy that are very dependent on tourism lost almost all their tourists in 2020 as for example in Spain the number of international tourists in September 2020 was 87,1% smaller than in 2019 (OECD, 2020). The Spanish GDP decreased by 11,2% in 2020 which is the biggest decrease since the Spanish Civil War in the late 1930s (Maqueda, 2021). The GDP of Italy fell 8,8% in 2020 while the expected decrease for the year was 9% (EL PIB italiano cayó un 8,8 % en 2020, 2021). In Belgium, the GDP decreased by 6,2% in 2020 (Kangas & Liira, 2021) and in Finland the decrease was 3,2% (Kostiainen, 2021). The EURO STOXX 50 prices fell sharply in March 2020 when the countries started lockdown and again in October 2020 when the second wave of Covid-19 made the countries put more restrictions.

#### 3.3.4.2. *Unemployment*

As the economies of the countries were growing between 2005 and 2007, new jobs were created which made employment increase and unemployment to decrease (OECD, 2007). In Spain unemployment was decreasing from 9,1% in 2005 to 8,2% in 2007 and in Italy from 7,7% in 2005 to 6,1% in 2007. In Belgium and Finland, the decrease in unemployment continued until 2008. In Belgium unemployment decreased from 8,4% in 2005 to 7,0% in 2008 and in Finland unemployment decreased between 2005 and 2008 from 8,4% to 6,4%. Ireland was an exception as their unemployment was slightly increasing from 4,3% in 2005 to 5,0% in 2007. Unemployment started to increase in the countries during 2008 and 2009 due to the financial crisis and slowdown in economic growth. In Spain unemployment was increasing from 2008 to 2013 when it reached an unemployment rate of 26,1% which was the highest rate among these countries.



Unemployment in Spain was highest among young unqualified workers and in 2011 46% of them were unemployed (OECD, 2011). In Italy unemployment was increasing from 2008 until 2014 when it reached 12,7%. In Ireland unemployment was growing until 2011 when it increased to 15,4% which was mostly due to layoffs in construction (OECD, 2008). In Belgium unemployment was growing since 2009 but it decreased a bit in 2011 and after that started increasing again reaching 8,5% in 2014. The unemployment in Finland was increasing since 2009 as the GDP of the country was decreasing. As in Belgium, in Finland also unemployment decreased in 2011 but after that increased until 2015 reaching an unemployment rate of 9,4%.

After the peak in unemployment in all the countries the rate started to decrease as the economies were growing strongly. In Italy, the unemployment rate decreased to 9,9% in 2019 but it was still high, especially among young workers and women (OECD, 2019). In Ireland there was a strong decline in unemployment and an increase in the labour market (OECD, 2017) and as the economy kept growing the unemployment rate of Ireland decreased to 4,9% in 2019. Unemployment rate decreased to 5,4% in 2019 in Belgium and to 6,7% in Finland. In 2020 due to the Covid-19 pandemic many people lost their jobs and unemployment increased. For example, in Spain many people from the tourism sector lost their jobs and the unemployment rate increased to 16,1% (Maqueda, 2021).

#### 3.3.4.3. *Inflation*

As the economies were growing between 2005 and 2007 inflation was high in these countries. This was mostly due to high energy and food prices (OECD, 2007). In Spain, after 2009 inflation was very low, around 0% which was due to weak domestic demand (OECD, 2010). Inflation in Spain continued low until 2016 because of low energy prices and economic slack (OECD, 2016). In 2017 energy prices increased and the inflation in Spain also increased to 1,3% (OECD, 2017). In Italy inflation decreased to 0,4% in 2010 but then rose again to 1,6% in 2011. Between 2013 and 2019 the inflation in Italy remained quite stable at around 1%. In Ireland inflation was negative between 2008 and 2010 because of excess production capacity and the ongoing adjustment in the labour market (OECD,

2010). In 2015 when the Irish economy was growing very strongly, inflation was 7,8%. In 2016 inflation was globally low and because of that the inflation in Ireland was also low at -0,3% (OECD, 2016). In 2009 when energy and food prices were low, inflation in Belgium was low at 0,5% (OECD, 2009) but in 2010 inflation in Belgium rose to 1,9% because of automatic wage indexation (OECD, 2011). Between 2016 and 2019 inflation in Belgium remained stable at around 1,8%. Inflation in Finland fell to 0,3% in 2010 but increased again in 2011 and 2012 due to high oil and commodity taxes and high indirect taxes (OECD, 2011). In 2016 inflation in Finland was only 0,1% but in 2018 it increased to 1,8% as energy prices increased (OECD, 2018).

#### 4. CONCLUSION

The analysis shows that most of the European countries follow the same pattern in economic growth. The recessions and expansions happened around the same time in all countries, only some countries had stronger recession and expansion than others. For example, in 2009 the GDP in Finland decreased by 8,1% and in Belgium the decrease was only 2% and in 2015 the GDP in Ireland increased by 25,2% and in Italy by only 0,8%. The analysis also shows that unemployment and inflation are related to economic growth and when the economy is slugging usually the unemployment is rising and inflation is lower and when the economy is growing, in most cases unemployment is decreasing, and inflation is higher. The changes in unemployment follow the changes in economic growth a little late as in many cases, after recession, GDP was already increasing but unemployment was still increasing for a while before starting to decrease. The changes in economic growth in one country do not affect much on the stock prices on EURO STOXX 50 although countries like France and Germany that weigh more on the index do affect more on the evolution.

Moreover, when the economy was growing in different countries the stock prices were rising and the index was increasing as well. In contrast, when the economy was in recession, the stock prices, and EURO STOXX 50 were decreasing. Therefore, it can be concluded that the economic growth of the countries is affecting the stock price changes and the EURO STOXX 50 evolution.

It can be also concluded that the economies took longer to recover from recessions than stock prices. As in 2013 the economies of most of the countries were still declining or GDP growth was close to zero but EURO STOXX 50 was already increasing from mid-2012. This is because stock prices react to many other factors apart from economic growth although economic situation in the country has big influence on stock prices.

As mentioned, when the difficulties of fundamental analysis were discussed, fundamental analysis is very time-consuming and requires a lot of work when the different aspects are analysed more profoundly. This analysis is more focused only on the evolution of EURO STOXX 50 and the economic analysis of the countries, but the analysis could be continued with industry analysis by studying the different industries EURO STOXX 50 represents as well as analysis of the companies on index by studying financial statements and financial ratios and other variables on the company level.

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## ANNEXES

### Annex 1: France unemployment, GDP, and Inflation

Year	Unemployment	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	8,5	1,7	1,9
2006	8,5	2,5	2,2
2007	7,7	2,4	2,6
2008	7,1	0,3	2,4
2009	8,7	-2,9	0,1
2010	8,9	2,0	1,1
2011	8,8	2,2	0,9
2012	9,4	0,3	1,2
2013	9,9	0,6	0,8
2014	10,3	1,0	0,6
2015	10,4	1,1	1,1
2016	10,0	1,1	0,5
2017	9,4	2,3	0,5
2018	9,0	1,8	1,0
2019	8,4	1,5	1,3
2020	-	-	-

Own development, source: World Bank (03.04.2021)

## Annex 2: Germany unemployment, GDP, and Inflation

Year	Unemployment	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	11,2	0,7	0,4
2006	10,3	3,8	0,4
2007	8,7	3,0	1,8
2008	7,5	1,0	0,9
2009	7,7	-5,7	1,8
2010	7,0	4,2	0,6
2011	5,8	3,9	1,1
2012	5,4	0,4	1,5
2013	5,2	0,4	2,0
2014	5,0	2,2	1,9
2015	4,6	1,5	1,9
2016	4,1	2,2	1,3
2017	3,8	2,6	1,3
2018	3,4	1,3	1,7
2019	3,1	0,6	2,2
2020	-	-	-

Own development, source: World Bank (03.04.2021)

## Annex 3: Netherlands unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	5,9	2,1	2,0
2006	5,0	3,5	2,6
2007	4,2	3,8	2,1
2008	3,7	2,2	2,3
2009	4,3	-3,7	0,2
2010	5,0	1,3	0,9
2011	5,0	1,6	0,2
2012	5,8	-1,0	1,4
2013	7,2	-0,1	1,3
2014	7,4	1,4	0,3
2015	6,9	2,0	0,8
2016	6,0	2,2	0,5
2017	4,8	2,9	1,3
2018	3,8	2,4	2,4
2019	3,4	1,7	3,0
2020	4,1	-	-

Own development, source: World Bank (03.04.2021)

#### Annex 4: Spain unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	9,1	3,7	4,1
2006	8,4	4,1	4,0
2007	8,2	3,6	3,4
2008	11,2	0,9	2,3
2009	17,9	-3,8	0,1
2010	19,9	0,2	0,2
2011	21,4	-0,8	0,0
2012	24,8	-3,0	-0,1
2013	26,1	-1,4	0,4
2014	24,4	1,4	-0,2
2015	22,1	3,8	0,5
2016	19,6	3,0	0,3
2017	17,2	3,0	1,3
2018	15,3	2,4	1,2
2019	14,1	2,0	1,4
2020	-	-	-

Own development, source: World Bank (03.04.2021)

#### Annex 5: Italy unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	7,7	0,8	2,0
2006	6,8	1,8	2,1
2007	6,1	1,5	2,5
2008	6,7	-1,0	2,4
2009	7,8	-5,3	1,7
2010	8,4	1,7	0,4
2011	8,4	0,7	1,6
2012	10,7	-3,0	1,5
2013	12,1	-1,8	1,1
2014	12,7	0,0	0,9
2015	11,9	0,8	0,9
2016	11,7	1,3	1,1
2017	11,2	1,7	0,7
2018	10,6	0,9	1,0
2019	9,9	0,3	0,7
2020	9,3	-	-

Own development, source: World Bank (03.04.2021)

## Annex 6: Ireland unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	4,3	5,7	3,1
2006	4,4	5,1	3,5
2007	5,0	5,3	1,2
2008	6,8	-4,5	-0,3
2009	12,6	-5,1	-4,6
2010	14,5	1,8	-3,1
2011	15,4	0,3	1,5
2012	15,4	0,2	2,3
2013	13,7	1,4	1,2
2014	11,9	8,6	-0,1
2015	9,9	25,2	7,8
2016	8,4	3,7	-0,3
2017	6,7	8,1	1,1
2018	5,7	8,2	0,8
2019	4,9	5,5	1,5
2020	5,9	-	-

Own development, source: World Bank (03.04.2021)

## Annex 7: Belgium unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	8,4	2,3	2,1
2006	8,2	2,6	2,3
2007	7,5	3,7	1,9
2008	7,0	0,4	1,9
2009	7,9	-2,0	0,5
2010	8,3	2,9	1,9
2011	7,1	1,7	1,8
2012	7,5	0,7	2,0
2013	8,4	0,5	1,3
2014	8,5	1,6	1,0
2015	8,5	2,0	1,3
2016	7,8	1,3	1,9
2017	7,1	1,6	1,8
2018	5,9	1,8	1,6
2019	5,4	1,7	1,7
2020	6,0	-	-

Own development, source: World Bank (03.04.2021)

## Annex 8: Finland unemployment, GDP, and Inflation

Year	Unemployment (%)	GDP growth (annual %)	Inflation, GDP Deflator (annual %)
2005	8,4	2,8	0,9
2006	7,7	4,0	0,9
2007	6,8	5,3	2,8
2008	6,4	0,8	3,0
2009	8,3	-8,1	1,8
2010	8,4	3,2	0,3
2011	7,8	2,5	2,6
2012	7,7	-1,4	3,0
2013	8,2	-0,9	2,6
2014	8,7	-0,4	1,6
2015	9,4	0,5	1,6
2016	8,8	2,8	0,1
2017	8,6	3,3	0,6
2018	7,4	1,5	1,9
2019	6,7	1,1	1,8
2020	7,8	-	-

Own development, source: World Bank (03.04.2021)