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IPO Activity in Europe under the Covid-19 Pandemic

With a focus on the Norwegian IPO market

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Abstract

This thesis seeks to provide comprehensive insights into the IPO activities in the top eight European IPO markets by capital raised in 2020, with an emphasis on the Norwegian IPO market, from the beginning of 2020 to the end of the first quarter in 2021. The top eight European countries include Norway, the United Kingdom, Sweden, France, Netherlands, Germany, Poland, and Italy.

The analysis reveals that most European IPOs in 2020 were conducted in the third and fourth quarters. Norway has achieved the most IPOs in Europe during the Pandemic, the highest growth in IPOs, and reached a decade-high level in IPO, despite the hit by Covid-19 Pandemic and Oil price collapse. In the meantime, the UK raised the most capital from IPOs in 2020. Moreover, the vast majority of IPOs in Norway, Sweden, Poland, and France were conducted on the Growth Market, while on the Main Regulated Market in the other four countries. Financials, energy, healthcare, industrials, utilities, and technology are the most active industries in 2020 in Europe. Furthermore, a flurry of green companies was noticed in the Norwegian IPOs. In addition, the average first-day return for the Norwegian IPOs reached 20.5% in 2020 and 16.22% in the first quarter of 2021, compared to around 2% in the previous three years. In particular, the average first-day return for the "Green" IPOs is nearly 40% in 2020 and 25.5% in the first quarter of 2021. Lastly, the number and market value of private investors had significant growth in Norway in 2020.

In addition, this thesis also aims to investigate factors that may drive the Norwegian IPO boom in 2020 through an exploratory approach, which is based on facts and empirical research results. The exploration findings suggest that the smoother listing process on Merkur Market lacks evidence in driving the IPO activities in 2020. The relationship between high first-day return and IPO volume needs further research because both favorable and opposed data and research results were discovered. Furthermore, according to previous studies in Asian markets, the early commitment from cornerstones in Norwegian IPOs may have boosted the market confidence and improved the IPO success probability. Nevertheless, more extensive research in the Norwegian market is needed to verify this argument.

Besides, the innovation culture in Norway may have enhanced the adaptability of companies in changing conditions. However, the adaptability may also be influenced by the less intensive pandemic situation in Norway. A scientific study with the elimination of interference from other factors is needed to prove this argument further. Lastly, the leading green transition wave with enormous support from the Norwegian government may be a pivotal contributor to the "green" IPOs. Notwithstanding, research with sufficient data is needed to make a thorough comparison with the other European countries to evince why only Norway saw a green IPO wave in 2020.

Acknowledgments

Professor Xunhua Su, my master thesis supervisor, deserves special thanks for offering competent academic guidance and valuable insights during the writing process. His patience and encouragement helped me tremendously along the way. I would also like to express my gratitude to Anders Sjåstad, my internship chief, for providing me with flexible time and support. Finally, I want to express my gratitude to my husband for always being there for me, no matter what.

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1. Introduction

1.1 Research background

The Covid-19 Pandemic has impacted the world in many ways, ranging from a country's economic activity to people's daily life. Europe is not an exception. In 2020, the GDP in the European Union had decreased 4.8% from 2019[1]. The S&P 350 Europe index also ended a negative return of 5.48% at the end of 2020. Furthermore, the global stock market was highly volatile in 2020, beginning with a bull market, followed by a free fall bearish run, and finally ending with a steady bullish recovery period (Jackson, 2020). However, despite the tumultuous situation and market volatility, the volume of initial public offering (IPO) in Europe has surpassed 2019 by 27.8% in 2020, and the IPO proceeds have exceeded 6%[2] (Gopinath, 2020). In particular, the IPO activities in Norway reached a decade high in 2020.

With EUR 3.1 billion raised from 53 IPOs[3] in 2020, Norway became the busiest venue in Europe, exceeding the United Kindong (UK) and Sweden. The IPO volume in Norway in 2020 accounts for 30% of the overall European IPOs. Compared to 2019, the IPO volume in Norway has increased by 342% and IPO proceeds by almost 100%. The growth in IPO volume is also the highest among all European countries. Moreover, in the first quarter of 2021, Norway has already witnessed 25 IPOs and raised EUR 1.9 billion, accounting for 47% of the total volume and 61% of the total capital raised in 2020.

In prior years, Sweden has been the main driver of IPO activity in the Nordic countries and one of Europe’s main drives (Jakobsen, 2020). The Norwegian primary market has been relatively quiet after the financial crisis in 2008. Besides, Norway is a comparatively small country regarding population and stock exchange size in Europe. Furthermore, as one of the

[1] Only include 27 countries. Data is retrived from https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en

[2] As of date 15th of December.

[3] Market transfers and mergers are excluded in Norwegian IPO in this thesis in order to compare with other countries

world's largest oil exporters, Norway was hit by the oil price collapse simultaneously as the Covid-19 Pandemic (Berglund, 2020). By the end of 2020, the GDP in Mainland Norway decreased by 2.5 % (SSB, 2021), and the Oslo stock exchange benchmark index – OSEBX returned only 4.56% in 2020[4].

Research shows that GDP growth directly impacts the IPO volume, and the annual index return of the capital market is also an essential factor for going public in the Polish market (Tomas, Marek, & Justyna, 2014). Furthermore, the performance of an over six-month bullish market or two-year negative market positively impacts IPO activities (Batnini & Hammami, 2015). On top of that, a time series of research on the relationship between macroeconomic uncertainty and IPO issue cycles concludes that the former factor has a solid and robust negative impact on the latter (Thanh, 2020). Based on the situation above in Europe and Norway, many research findings point to a negative trend in IPO activity in 2020, which is the opposite of actuality. Given that, the positive growth of IPO activities in Europe, especially the exceptional surging of IPO activity in Norway during the Covid-19 Pandemic, has created puzzles.

In addition to the surge of IPO volume and IPO value in Norway, some other phenomenons were also observed. The first is that main Norwegian IPO activities were conducted on the Growth Market – Merkur Market, current Euronext Growth in Oslo. In 2020, 48 out of the 53 IPO transactions happened on Merkur Market, surpassing the previous years' overall amount. In the first quarter of 2021, Merkur Market continues dominating the IPO activities by having 24 IPOs out of 25. Secondly, Oslo Stock Exchange(OSE) has witnessed a "green wave" during the Covid-19 Pandemic period[5]. Green IPOs in sectors like renewable energy, carbon capture, carbon storage, and waste disposal have become outstanding among all the IPOs. Thirdly, private investors have rushed into the Norweigian stock markets during the Pandemic[6] by increasing 26%. In particular, the private investors in Merkur Market soared drastically by

[4] Data is retrieved from EUR onext: https://live.EUR onext.com/nb/product/indices/NO0007035327-XOSL/overview

[5] Due to the fact that the Covd-19 Pandemic is not ended when the this thesis was written, the Pandemic period in this thesis only limits to the time from the first day of 2020 to the end of first quarter in 2021.(01.01.2020 to 31.03.2021) 1

[6] Pandemic in this thesis only refers to the Covid-19 Pandemic

644%. Last but not least, the first-day return for IPOs in the Norwegian market rose sharply from an average of 2% in the previous three years to an average of 20.5%. Especially in the "green" companies, the average first-day return is nearly 40%.

1.2 Research motivation, objectives, and methods

Based on these puzzles and phenomenons, this thesis seeks to provide detailed descriptions and valuable insights into the field of European and Norwegian IPOs, with the hope of building a foundation for other researchers.

The first goal of this thesis is to provide an overall review and analysis of IPO activities in Europe during the Pandemic period, with an aim to investigate what happened with IPO activities in Europe during the Pandemic. Thus, the review will mainly revolve around the IPO volume, IPO value, IPO distribution on each stockmarket, IPO distribution by industries, and a time series of IPO activity. However, the review is by no means complete.

The second objective is to explore and analyze what factors may have contributed to the exceptional IPO growth in Norway. Several factors will be explored and analyzed based on data facts, market viewpoints, and previous empirical researches. These factors include the listing process on the Growth Market, the IPO first-day return, the cornerstone investors, the innovation culture in Norway, and the green transition wave in Norway.

The primary research methodology used in this thesis is descriptive research, intending to describe what the IPO situation is in Europe in the Pandemic and what exceptional phenomenons were observed in the Norwegian stock markets. In order to provide a representative description of the overall European IPO situation, the top eight countries by IPO proceeds were selected as research targets. These countries include the UK, Norway, Netherlands, Poland, Sweden, Germany, Italy, and France. The research process contains IPO data collection, data cleaning, data visualization, and data description. The primary source of data is gathered from each country's official stock exchanges. A Business Intelligence platform known as Power BI is used for data cleaning and visualization. The data description section then provides a more detailed analysis of IPO activities in each country, using illustrations from Power BI graphs.

Exploratory research is another research approach used in this thesis to evaluate what factors might have led to the IPO boom in Norway in 2020. The facts presented in the description section, empirical findings from earlier research, comparison with other countries, and market participant insights are incorporated into the exploratory process. This thesis will not provide any final or conclusive answers to the research questions with the exploratory research method.

1.3 Research structure and data

The main body of this thesis consists of three chapters, from chapter two to chapter four. Chapter two provides an overview of the Covid-19 Pandemic situation in Europe to give a Pandemic background for the IPO activities. Chapter two revolves around the Pandemic cases, the Pandemic impact on GDP growth and unemployment rate, corresponding fiscal and monetary measures, and the stock market performance. The Pandemic cases data is retrieved from a website called Our World in Data. On the other hand, the GDP and unemployment rate data are retrieved from the official statistic websites in each corresponding country or European Union. Most fiscal policy and monetary policy data are also retrieved from corresponding official government and central bank websites. Similarly, most of the stock market performance data come from the official website of corresponding stock exchanges, and a minor part is retrieved from Yahoo Finance.

The third chapter begins with a general overview of IPO activity around the world and in Europe. The emphasis will then shift to a detailed overview of IPO activities in each selected European country. The primary source of the global IPO activities comes from the "Global IPO Watch" reports made by PricewaterhouseCoopers (PWC) in 2020 and 2019[7]. Meanwhile, most IPO data in Europe is retrieved from the stock exchange in each country except for Sweden. Since Nasdaq Nordic only offers restricted IPO information for Nasdaq-listed IPOs, much of the remaining information, such as capital proceeds and issue price, is obtained from

[7] The data source of the PwC reports is from Dealogic. Please note that deviations were found in others reports regarding the global IPO volume and IPO value.

two websites, ipo.se and ipohub.io, with a combination of the IPO press release on each company's website.

Based on the evidence, empirical research, and business insights, Chapter 4 investigates factors that may have contributed to the Norwegian IPO boom in 2020. In addition to the data described in Chapter 3, some additional information is used to evaluate the factors in this chapter, such as private investors, IPO first-day returns, household investments, share issues, and share net transactions. This chapter's primary data sources are Statistic Norway (SSB), AksjeNorge, and Euronext VPS. Most of the market perspectives presented in this chapter come from newsletters published by E24.no, a Norwegian business and financial newspaper.

2. Covid-19 Pandemic in Europe

The different degrees of confirmed cases and the infection rate can impact the economy at different degrees. In addition, the stock market performance can also influence IPO activity (Batnini & Hammami, 2015). Thus, investigating the Covid-19 Pandemic situation and stock market performance in each research target country is essential to analyze the IPO activities. In this chapter, a summary of the Pandemic situation in Europe, focusing on the eight countries, is presented. The Pandemic situation is discussed in respect of Pandemic cases, GDP rise, unemployment rate, government policies, and stock market results.

2.1 Pandemic cases[8]

After the first case was reported in France in the late January of 2020, the Covid-19 virus spread out at a bearly controllable pace to all European countries. As Figure 1 presents, the first peak showed up in April of 2020 where nearly one million cases were confirmed. Along with regulations and measures, the spreading situation was gradually eased in the summer. However, the peaceful period did not last long. From September, the confirmed cases were consecutively rising at a rapid speed for three months. In the fourth quarter of 2020, close to 19 million cases were confirmed, which is 3.7 times more than the total cases of the previous three quarters. The infection rate also rockets dramatically to 0.98% in November from 0.19% in September. Until the end of 2020, there are around 24 million infected cases in Europe, with an average infection rate of 3.17%. In the first quarter of 2021, the Pandemic situation continues spreading at a similar speed as the end of 2020. Within that quarter, 16 million cases were confirmed, with an average infection rate of 2.13%.

[8] All data source in this chapter is retrieved from https://ourworldindata.org/coronavirus-source-data

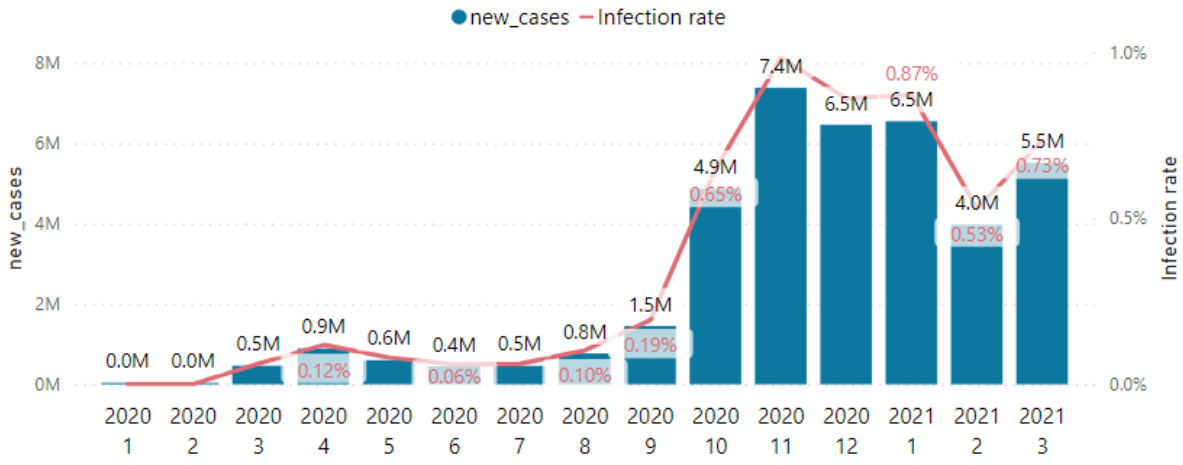

Figure 1 – Total confirmed cases of Covid-19 virus in Europe by year and month

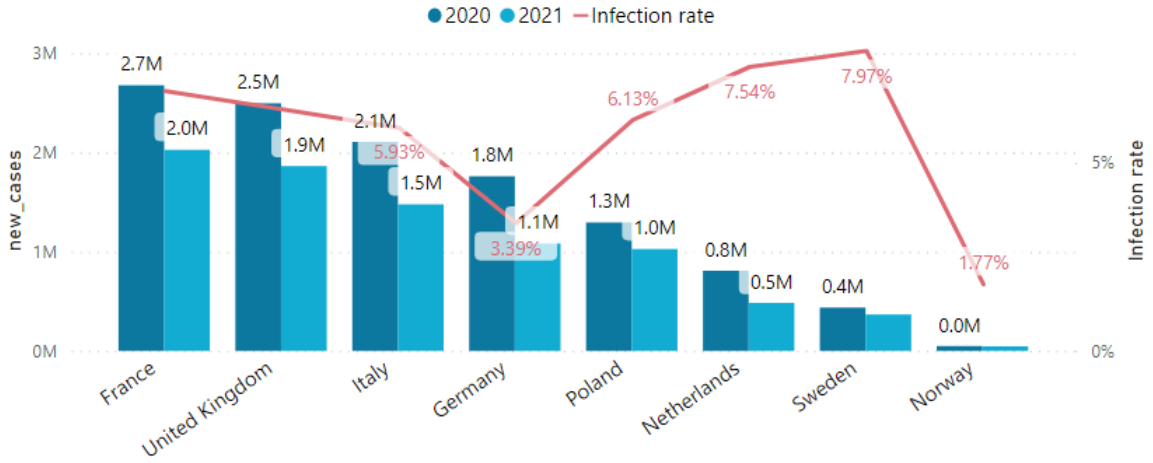

Figure 2 – Total confirmed cases and infection rate in each country, 2020-2021Q1

Among the eight countries that shall be discussed in this thesis, France has an immense amount of infection with 2.7 million cases at the end of 2020 and 2 million in the first quarter of 2021. The infection rate is also tremendously high in France by having around seven infections out of every 100 people. Following France, the UK ranked number two, with roughly 4.4 million cases confirmed during the Pandemic period. The infection rate in the UK is also slightly lower than in France. As the first country that suffered from the hectic Covid-19 outbreak in Europe, Italy ranked number three with approximately 3.6 million cases until the end of the first quarter in 2021. On average, around six out of each 100 people in Italy are infected by the Covid-19 virus. With relatively fewer confirmed cases at 2.9 million, Germany also has a comparatively lower infection rate at 3.39%.

In contrast to the top four countries by the number of confirmed cases, Poland, the Netherlands, and Sweden have a smaller number of total infected cases, at 2.3 million, 1.3 million, and 0.8 million, respectively. However, the infection rate in these three countries is ranked in reversed order. Particularly, Sweden has the highest infection rate among all eight countries. In every 100 people, almost eight of them are infected by the Covid-19 virus. With a 7.54% infection rate, the infection situation in the Netherlands is significantly intense as well. In comparison to the other seven countries, Norway has a different scenario. Until the end of 2021 first quarter, Norway has nearly 0.1 million confirmed cases with a 1.77% infection rate, which is the lowest among all eight countries.

2.2 Economic situation under the Pandemic

2.2.1 GDP growth

Assuredly, the Covid-19 Pandemic had impacted both global and regional economies in different degrees. This impact could be reflected in the GDP growth in 2020. Along with the Pandemic outbreak, most countries were already experiencing a significant decline in the first quarter of 2020 compared to the same period in 2019. However, the second quarter in 2020 is the most depressing season. Relative to the second quarter in 2019, the UK GDP has vanished 19.5%[9], Italy 18.6%, and France 18.1%[10]. On the other side, Norway and Sweden were relatively less affected in the second quarter, where the GDP has dropped around 7.1% and 7.4%, respectively. The economy started to rebound in the third quarter, particularly in the UK, where the GDP surged 16.9% from the same quarter in 2019. The GDP growth situation in the fourth quarter situation has been varying from country to country where some countries

[9] All GDP Data for the UK is retrieved from:
https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/ihyq/qna

[10] Quarter on quarter change data for EU, Italy, France, Sweden, and Germany is retrieved from Eurostat :
https://ec.europa.eu/eurostat/documents/portlet_file_entry/2995521/2-02022021-AP-EN.pdf/0e84de9c-0462-6868-df3e-dbacaad9f49f

improved the declining situation, such as the UK, Norway[11], and Sweden. In contrast, others re-entered into recession, such as Italy and France.

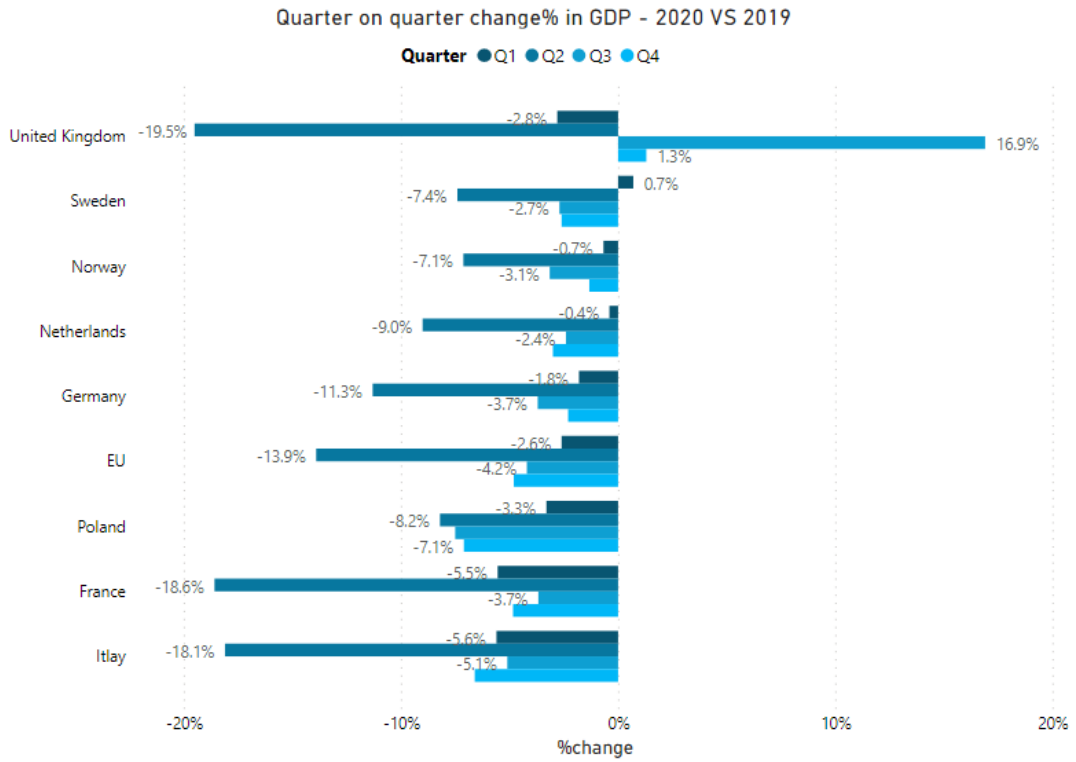

Figure 3 – "Quarter on Quarter" percentage change in GDP growth in 2020 compared to 2019

Until the end of 2020, the rebound did not manage to turn the GDP growth positive in these eight countries. As Figure 3 presents, the GDP for the European Union (EU)[12] area declined 4.8% [13]in 2020 from 2019, setting the lowest GDP growth rate in history[14]. Among the eight countries, the UK's economy had the most considerable descent. The GDP for the UK in 2020 has plunged 9.8%, breaking the most profound fall in 2009 at -4.25%. Even though with a worse Pandemic infection situation than the UK, France has a slightly less lousy GDP decline

[11] Data is retrieved from https://www.ssb.no/en/nasjonalregnskap-og-konjunkturer/statistikker/knr table 5

[12] 27 countries from 2020, excluded United Kingdom

[13] Data is retrieved from EUR ostat, https://ec.EUR opa.eu/EUR ostat/databrowser/view/teina010/default/table?lang=en

[14] All historical GDP growth data prior to 2020 is retrieved from Worldbank: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2019&start=1961&view=chart

in 2020 at -8.2% [15]. However, the decline of the French GDP growth is still record-breaking, where the lowest growth rate was set in 2009 at -2.9%. With a less intensive Pandemic situation than France, the GDP for Italy in 2020 has also dropped less, yet at a historically low point at -7.8%[16], breaking the lowest growth rate in 2009 at -5.3%. Like France and the UK, Poland and Germany also switched positions in the GDP growth from the Pandemic cases in Figure 2. The 2020 annual GDP for Poland had fallen 6.5%[17] and Germany 4.8%[18]. Interestingly, neither Poland nor Germany had broken their historical low growth records, respectively set at -7% in 1991 and -5.7% in 2009.

On the other side, the Netherlands[19], Sweden[20], and Norway are on the less desperate list. The Netherlands had dripped -3.7% in GDP in 2020, falling into a similar economic cycle as in the financial crisis time in 2009. Similar to Poland and Germany, the 2.8% drop in the Swedish GDP in 2020 is considerably better than the 4.3% decline in 2009. As the best-performed country in terms of Pandemic infection, Norway is also the best-performed country by GDP growth among the eight countries. In 2020, the Norwegian mainland GDP had declined at -2,5%[21]. Yet, in 2009, the Norwegian GDP had just dropped 1.7%, indicating that the Covid-19 Pandemic may have a more significant impact than the financial crisis on the Norwegian economy.

[15] Data source: INSEE, https://www.insee.fr/en/statistiques/5364228#tableau-cnt-g2-en

[16] Data source: ISTAT, http://dati.istat.it/?lang=en#

[17] Data is retrieved from Polish Statistic Authority https://stat.gov.pl/en/poland-macroeconomic-indicators/, calculated based on the constant prices

[18] Data source: DESTATIS, https://www.destatis.de/EN/Themes/Economy/National-Accounts-Domestic-Product/Tables/gdp-bubbles.html

[19] GDP data for Netherlands is retrieved from CBS https://opendata.cbs.nl/statline/#/CBS/en/dataset/84106ENG/table?ts=1620287553394, with working days adjusted

[20] Data source: SCB, https://scb.se/en/finding-statistics/statistics-by-subject-area/national-accounts/national-accounts/national-accounts-quarterly-and-annual-estimates/pong/tables-and-graphs/tables/gdp-quarterly/

[21] Data source:Statistic Norway, https://www.ssb.no/en/nasjonalregnskap-og-konjunkturer/artikler-og-publikasjoner/gdp-for-mainland-norway-decreased-2.5-per-cent-in-2020

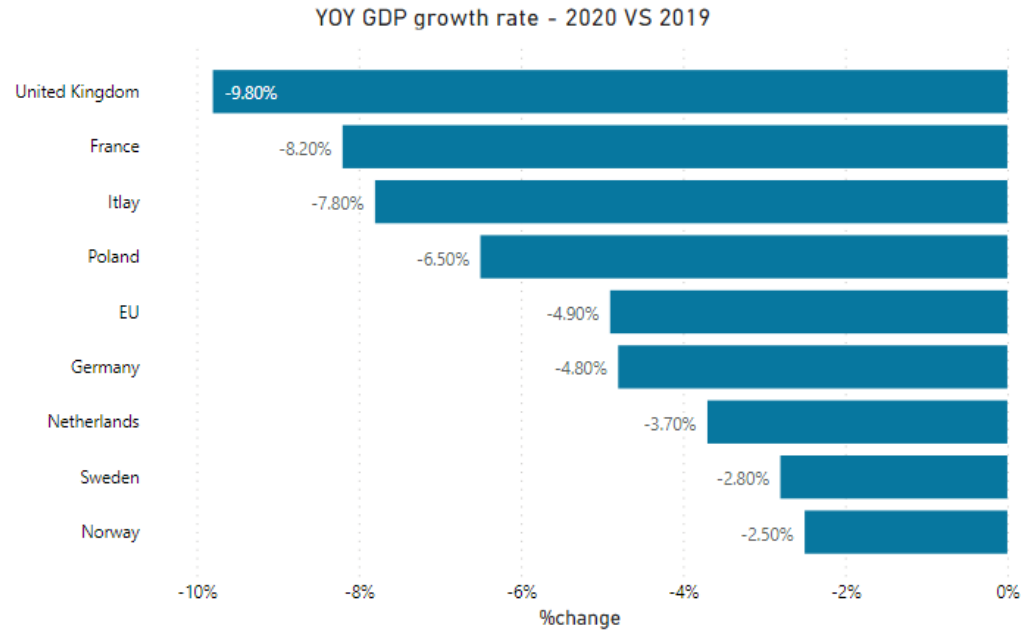

Figure 4 – Year on year growth rate in GDP in 2020 compared to 2019

2.2.2 Unemployment rate

Due to the infection measures and halted activities, the Covid-19 Pandemic has affected the employment situation. Except for Itlay[22] and France[23], the unemployment rate has seen a sharp increase in the second quarter of 2020 in the other six countries. Significantly, the unemployment rate was soared to 9.1% from 7.6% in Sweden[24] in 2020 quarter two. With more restricted rules and measures such as border control and store closures, the unemployment peak was observed in the third quarter of 2020. A considerable growth quickly reflected the time lag in the unemployment rate in Italy and France. Especially for France, the unemployment rate growth is 2% in the third quarter, meaning that more than 650,000 people have registered for unemployment in that quarter. Fortunately, the unemployment situation

[22] Unemployment rate is retrieved from ISTAT http://dati.istat.it/?lang=en#

[23] Unemployment rate is retrieved from INSEE https://www.insee.fr/en/statistiques/5056886#tableau-chomage-g2-en

[24] Unemployment rate is retrieved from SCB: https://scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/labour-force-surveys/labour-force-surveys-lfs/pong/tables-and-graphs/seasonally-adjusted-data/time-series-on-the-unemployment-rate-persons-15-74-years/

turned to be better in the fourth quarter for most countries, except for the continuous rising in the UK and Germany.

Amid the eight countries, Italy, Sweden, and France's unemployment rates are significantly higher than the other five countries. However, Italy and France managed to bounce back to a comparable opening level at the end of 2020. In particular, the unemployment rate in Italy is in 2020 is the lowest since 2012. Due to the increase in the employment rate and the status switch from unemployment to inactivity, France managed to recover from the pre-crisis level (INSEE, 2021). According to the historical unemployment rate on Worldbank, the French unemployment level in 2020 is lower than in the years between 2011 and 2018. On the other side, the unemployment situation in Sweden is not that promising. In the fourth quarter of 2020, Sweden has increased almost 2% in the unemployment rate from the pre-crisis level, forced the Swedish unemployment situation in 2020 into a similar level as in the financial crisis period. In the first quarter of 2021, the unemployment rate in Sweden already reached 10% without seasonal adjustment (SCB, 2021).

As the leading countries in IPO activity, Norway and the UK are sitting in the middle scale of the unemployment rate in 2020. Especially, Norway's labor market was heavily influenced by the Pandemic and other factors, even as the country with the least infection cases and the lowest GDP decline. Until the end of 2020, the unemployment rate in Norway rose to 5% [25]from 3.5%, surpassed the last highest record of 4.68% set in the Oil crisis time in 2016[26]. While other countries were witnessing a slow recovery, the unemployment rate in the UK[27] had constantly been increasing through all four quarters and ended at 4.8% in 2020. Nevertheless, the unemployment situation in the UK during the Pandemic is better than in the years between 2009 and 2016.

[25] Unemployment rate is retrieved from SSB https://www.ssb.no/en/statbank/table/07458/tableViewLayout1/

[26] All historical annual unemployment rates are retrieved from Worldbank https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?locations=NO

[27] Data is retrieved from:

https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/mgsx/lms

Similarly, the unemployment rate in the Netherlands in 2020 is one of the lowers, even with a 0.7% [28]increase. Unlike the volatile changes in other countries, employment in Poland and Germany are the least impacted. In 2020, Poland's unemployment concluded at the same rate as the beginning, and Germany had a minor increase of 0.2%. Both countries have been struggling to decrease the unemployment rate for years. Eventually, even though the unemployment situation in Poland and Germany is worse than in 2019, they are comparably better than the previous years.

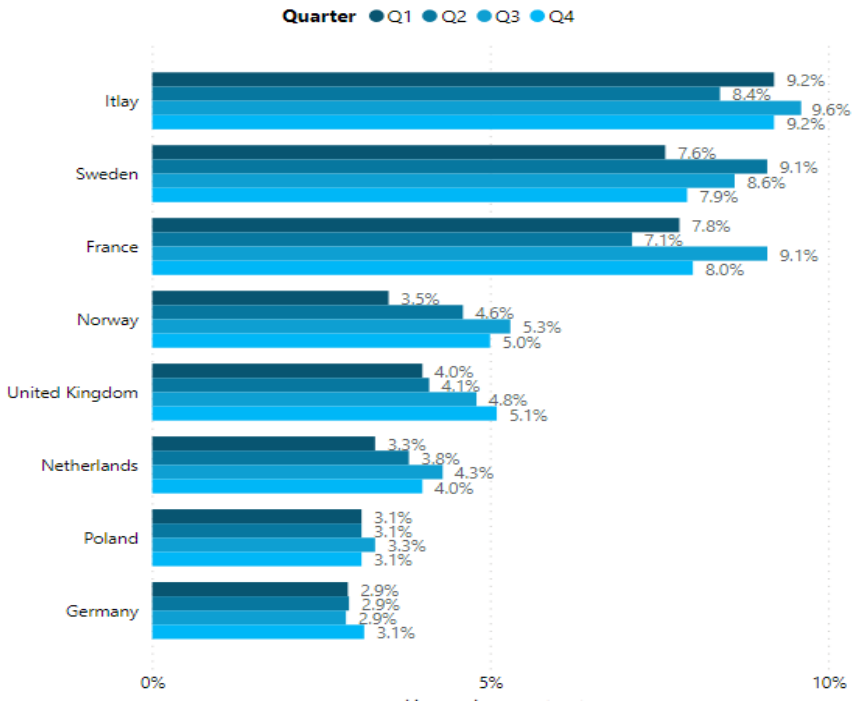

Figure 5 – Quarterly unemployment rate in each country in 2020

2.3 Fiscal and monetary policy

To respond to the outbreak of the Covid-19 Pandemic, many countries have taken various fiscal measures. Typical fiscal measures are employment-related measures, economic stimulus measures, tax and custom measures. Among the eight European countries in this thesis, the UK has the largest fiscal response corresponding to 9.1% of its GDP, where 8% is used on

[28] Data source: CBS, https://opendata.cbs.nl/statline/#/CBS/en/dataset/82309ENG/table?ts=1620287198852

emergency support and 1.1% on recovery packages (Garrigue, Baïz, Aussilloux, Mavridis, & Martin, 2021). Germany and France are the second and third by deploying 8.4% and 7.6% of their GDP to support the emergency needs and economic recovery (Garrigue, Baïz, Aussilloux, Mavridis, & Martin, 2021). According to the same authors, only an emergency support package was announced in Italy, taking up 3.8% of its GDP, against 4.8% in Germany and 4.5% in the Netherlands.

In Sweden, SEK 197 billion was invested in 2020, with SEK 223 billion expected in 2021, equivalent to 4% and 4.5% of GDP, respectively (Helgesson, Isaksson, & Hydén, 2020). According to the same report, the 2020 package is designated as an emergency assistance package, while the 2021 package is designated as a recovery package. In Norway, over NOK 139 billion was budgeted for the fiscal measures initially (Economic measures in Norway in response to COVID-19, 2020). However, the budget was revised, and the actual spending is NOK 135 billion in 2020 and NOK 94 billion in 2021 as of the reporting date[29] (Hovland, 2021). The actual spending in 2020 on the Covid-19 fiscal measures in Norway amounted to 4.4% of GDP, higher than Italy and Sweden. Based on the same news article[30], in 2020, around 50% of the Norwegian support package went to the business sector, and 14% went to the household sector.

At the same time, various monetary measures were also fast deployed by central banks to alleviate the economic effects of the Pandemic. In the Euro area, the European Central Bank has been keeping the interest rate unchanged. Instead, a Pandemic Emergency Purchase Programme (PEPP) was launched to assist sovereign debt markets. The initial overall envelope of this program worth EUR 750 billion but got increased to EUR 1850 billion in December of 2020 ((Monetary policy decisions, 2020).

In the UK, the central bank has increased the holdings of UK government bonds and sterling non-financial investment-grade corporate bonds from GBP 200 billion to GBP 645 billion by issuing central bank reserves (Monetary Policy Summary for the special Monetary Policy,

[29] 10/05/2021

[30] https://e24.no/norsk-oekonomi/i/kR71Bj/legger-frem-revidert-budsjett-tirsdag-god-tro-paa-at-vi-skal-faa-fart-paa-norge

2020). Besides, the UK's bank rate was first cut by 50 basis points on 11th March 2020, to 0.25% from 0.75% in 2018. After eight days, the bank rate was further cut to 0.1%, which is the lowest in history (Guershon, 2020).

In Sweden, a significant amount of measures have been implemented by Riksbank[31] against the Pandemic. The measures include increased funding and lending capacity, purchase of interest-bearing securities, increased access to liquidity, eased collateral requirements, the release of loans in US dollars, and reduced overnight lending rate to banks from 0.75% to 0.1% (The Riksbank's measures in connection with the corona pandemic, 2021).

In Norway, the policy rate adjustment was more frequent and bolded. The policy rate had been reduced three times after the outbreak of the Covid-19 virus in Norway. On 13th March 2020, the policy rate was brought down 0.5% to 1%[32]. One week after, Norges Bank decided to reduce 0.75% more on the policy rate to 0.25%[33]. In order to further help to dampen the downturn, the policy rate was reduced to 0% in Norway in May 2020[34]. Apart from the policy rate adjustments, Norges Bank has also offered F-loan many times in Norwegian kroner and US dollars to banks.

2.4 Stock market performance

2020 has been a remarkable year for the stock markets. The outbreak of the Covid-19 Pandemic brought unprecedented uncertainty and caused huge market volatility to the global stock market. In the first part of this chapter, the return[35] of the Main Market index is chosen

[31] Data source: https://www.riksbank.se/en-gb/press-and-published/updates-on-the-riksbank-and-the-coronavirus-pandemic/the-riksbanks-measures-in-connection-with-the-corona-pandemic/

[32] Data souce: https://www.norges-bank.no/en/news-events/news-publications/Press-releases/2020/2020-03-13-press-release/

[33] Data source: https://www.norges-bank.no/en/news-events/news-publications/Press-releases/2020/2020-03-20-press-release/

[34] Data source: https://www.norges-bank.no/en/news-events/news-publications/Press-releases/2020/2020-03-20-press-release/

[35] All index return in this chapter is calculated as (Closing price on the last trading day in 2020/Openning price on the first trading day in 2020)-1

to measure the stock market performance in the corresponding country. The details of each index return are presented in Figure 6.

When the Covid-19 virus news broke out in Wuhan, some investors were already taking action. Many major indexes closed with considerable downturns at the end of January 2020 (Katz & Ferro, 2020). Along with the accelerated global spread and the World Health Organization's announcement of a global pandemic, global equity markets suffered several extraordinary drops within March of 2020. The US market had experienced four plunges that month, triggered four times circuit breakers within two weeks, creating history (Mejdrich, 2020). In the same month, many of the world's major indices reported their worst one-day drop, such as Dow Jones Industrial Average (DJIA), which fell nearly 3000 points on 16th March (Amadeo, 2021). The Oslo Stock Exchange (OSE) in Norway was hit by both pandemic shock and the oil price collapse[36]. Until 16th March, the main index on OSE has plummeted by more than 30%[37] from the starting price in 2020.

Different from the previous recessions, the downturn in 2020 did not last long. The stock markets began to rebound in April, and most main indexes managed to return to their pre-crisis levels by the end of 2020. The final winner index of 2020 should be rewarded to Nasdaq Composite with an annual return of over 42%[38], which broke its ten-year record. S&P500 and Dow Jones Industrial also surpassed the starting level and returned 14% and 6%, respectively. In Europe, the return of the major European stock indices does not seem to be promising as the index return in US markets. The London Stock Exchange price index – FTSE100 – had experienced a decline of 13.08 %, the lowest return among the eight indexes. Market indices in France, Poland, and Italy also saw negative returns. On the other hand, major indexes in Germany, the Netherlands, Norway, and Sweden have shown positive returns, with Sweden having the highest at 13.37% and Germany having the lowest at 3.67%. Relative to the indexes

[36] Oil price collapase information: https://www.cnbc.com/2020/03/08/oil-plummets-30percent-as-opec-deal-failure-sparks-price-war-fears.html

[37] Data source: Oslo Børs

[38] Data source: Yahoo Finance.

in the other seven countries, the performance of OSEBX in Norway is decent, with a positive return of 4.56% in 2020, ranked in second place.

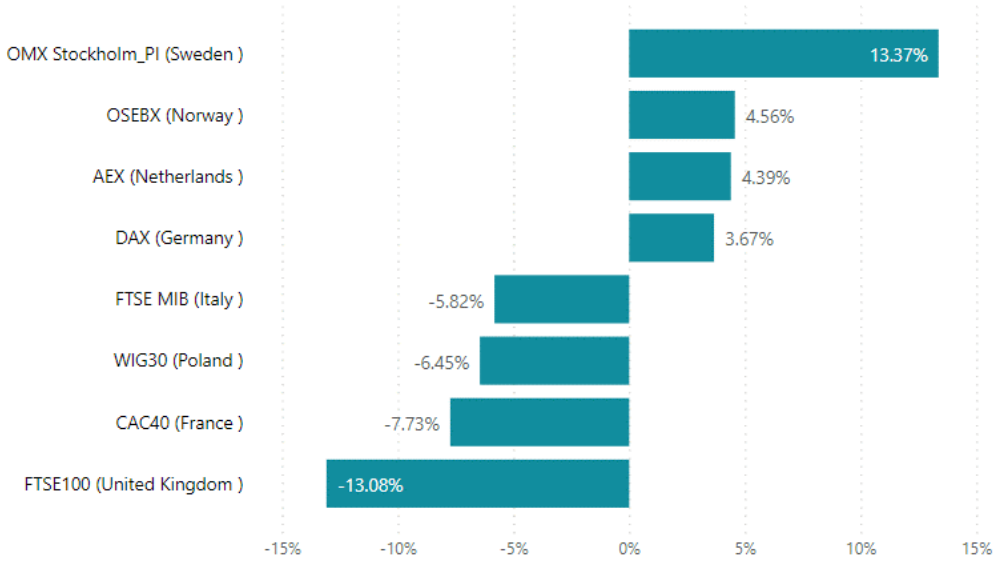

Figure 6 – The annual return of the market indexes in 2020

Aside from the index return, several European stock exchanges continued to maintain stability in the face of uncertainty. The highest spike in turnover is seen on the Euronext[39] growth market, where the annual turnover in 2020 is more than ten times that of 2019. Meanwhile, Euronext Main Markets increased trading activity by 58% and equity turnover by 20% in 2020. As it comes to the stock market on Euronext, Oslo has seen the highest increases of 21.8% on daily average turnover. In comparison, Amsterdam and Paris have both seen significant increases of 16.5% and 14.5%.

Another rising star, the GPW market on the Warsaw Stock Exchange, has increased equity turnover by more than 55 % in 2020, breaking new milestones (Harper, 2021). The resilience is also shown on the German stock venues, where the overall order book turnover has risen by 40%, from EUR 1.5 trillion to EUR 2.1 trillion. (Deutsche Börse Cash Market, 2021). On the

[39] Data source for Euronext: Euronext Fact Book 2020. Link: https://live.euronext.com/en/resources/statistics

Nordic side, Nasdaq Stockholm's Main Market has increased around 34% in turnover and 54% in the number of transactions[40].

Compared to other stock markets, the Italian Stock Exchange and London Stock Exchange (LSE) did not expand as rapidly. In 2020, only a 10% growth in turnover was realized in Italy[41] and 6% in the UK[42].

[40] Data is retrieved from the Yearly Nordic Statistics 1985-2020 excel file on http://www.nasdaqomxnordic.com/news/statistics

[41] Data source: https://www.borsaitaliana.it/borsaitaliana/statistiche/statistiche-storiche/principaliindicatori/2020/principaliindicatori2020.en_pdf.htm

[42] Data rouce: London Stock Exchange Group Annual report 2020

3. IPO activities during the Covid-19 Pandemic

The following chapter first provides an overall review of the IPO situation in the globe and Europe during the Pandemic. Afterwards, a detailed description and illustration of IPO activities in each country are presented. The descriptions mainly revolve around the IPO volume, IPO value, IPO activity in each stock market, IPO activity in each industry, and IPO times series.

3.1 Global[43]

The outbreak of the Covid-19 virus, political, social, and economic uncertainties have certain impacts on the overall market sentiment and investor confidence this year. In the first half of 2020, the IPO markets were relatively lackluster. Nevertheless, the global IPO market has shown its resilience, and IPO activities surged in the second half of the year. In 2020, the global IPO markets raised USD331.3 billion through 1415 IPOs (PwC Global IPO Center, 2020). Based on the same report, overall capital raised in 2020 is approximately 66% higher than in 2019, and the number of IPOs is 36% higher. In the first quarter of 2021, the global stock markets already received a total of USD 203 billion from 727 IPOs, accounting for 60% and 50% of the year level in 2020, respectively (PwC Global IPO Center, 2021).

The IPO activity in the Americas has been unprecedentedly prosperous, owing prominently to the boom in the United States (US), where the IPO markets have been extraordinarily high during the Pandemic. In the Americas, USD 190.75 billion was raised through 517 IPOs in 2020 and USD 144 billion from 420 IPOs in the first quarter of 2021. In the United States, 465 initial public offerings (IPOs) raised USD 177.4 billion in 2020, a 107% and 164% increase over 2019, even with the most infected cases and the presidential election. The IPO proceeds accounted for nearly 54% of worldwide IPO funding and 93% of the Americas. More extraordinarily, 399 initial public offerings (IPOs) were successfully completed in the US stock exchanges, raising approximately USD 140 billion in the first quarter of 2021, almost

[43] Unless specified, all data in this chapter is indirectly retrieved from Dealogic, directly through the PwC Global IPO Watch reports. Source link: https://www.pwc.com/gx/en/services/audit-assurance/ipo-centre/global-ipo-watch.html

matching the yearly level in 2020. In addition to the US, Brazil has also obtained remarkable growth in IPO activities during the Pandemic. In 2020, Brazil raised USD 8.5 billion from 25 IPOs, a 240% and 460% increase over 2019, despite the enormous infected cases[44]. Another vast economy in the Americas – Canada, has also achieved 20% growth in IPOs and 95% in IPO proceeds.

Driven by the busy activities in Mainland China and Hongkong, the IPO volume in the Asia Pacific accounted for 52% of all global IPO transactions, 16% more than the portion in the Americas. As the first country that suffer Covid-19 virus outbreaks, China experienced a devastating recession at the start of 2020. The trade tensions between the United States and China have also posed additional threats to the Chinese economy. However, under the fast response and effective controlling measures towards the Covid-19 Pandemic, mainland China broke its ten-year IPO record. In 2020, mainland China raised USD 68.6 billion from 395 IPOs, 88% and 97% higher than in 2019, respectively (China Capital Market Services practice of PwC, 2021). The capital raised in Hongkong IPO markets also increased 27% despite an 11% decline in IPO numbers. In the first quarter of 2020, 116 and 27 IPOs were completed in the mainland China and Hong Kong market, respectively, maintaining the active pace from the previous quarter.

Following China[45], Japan had welcomed 81 IPOs on its stock markets in 2020 and 24 in the first quarter of 2021, ranking number two in the Asia Pacific region. However, the IPO size in India is even larger, with USD 7.5 billion from 43[46] IPOs in 2020. The IPO proceeds in India in 2020 increased 61% over 2019 and rank second only to China. Despite the soaring of infected cases, India raised USD 2.6 billion from 18 IPOs in the first quarter of 2021. Conversely, with a much better infection situation due to the strict infection measures, Australia had a negative 20% growth in IPO proceeds even there are two more IPOs in 2020.

[44] As of 11 May 2021, Brazil ranked number three by total cases, source link: https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1?

[45] Include mainland China and Hongkong

[46] Data source: EY India IPO Trends Report Q4 2020. Source link: https://www.ey.com/en_in/news/2021/01/ey-india-ipo-trends-report-q4-2020

Even in the first quarter of 2021, when the mutated virus broke out in India, Australia only has 17 IPOs and raised much less capital than India.

While the Americas and the Asia Pacific have seen record-breaking IPO results, IPO operation in EMEA has remained subdued in 2020, except for Europe, especially the UK, Sweden, and Norway (Baker McKenzie, 2020). The whole African capital markets had merely 5 IPOs in 2020, raising USD 0.6 billion, which is the lowest in the last decade (PwC South Africa, 2020). In contrast, Europe had 161 IPOs and boosted USD 28.3 billion in 2020, outpacing 2019 by 18.4% and 6%, respectively (Gopinath, 2020). The detailed information of European IPO activities is presented in the following chapter.

3.2 Europe

The Oslo Stock Exchange[47] – known as Euronext Oslo since the end of 2019 – is the busiest place among the eight European countries during the Pandemic, with 53 IPOs[48] in 2020 and 25 in the first quarter of 2021. The number of IPOs in Norway in 2020 is up 342% from the previous year, and the IPO proceeds of EUR 3.1 billion were almost double what they were in 2019. More promisingly, EUR 1.9 billion was already obtained in the first quarter of 2021 on OSE, taking up 61% of the total IPO fundraising in 2020.

Although Norway is the winner in IPO volume, the United Kingdom[49] is the winner in IPO value. In 2020, the UK received the most capital proceeds from 50 IPOs, totaling EUR 9.5 billion, accounting for nearly 40% of total annual capital proceeds from all IPOs in Europe. Growth rates for IPO numbers and money collected in the UK are both relatively high, at about 39% and 85% correspondingly. The first quarter of 2021 was also reasonably busy for the UK

[47] All data for Oslo Stock Exchange in 2020 is retrieved from Euronext Statsitics: Euronext Fact Book 2020 and Monthly Cash Report Cash 202103. Link: https://live.euronext.com/en/resources/statistics. Data for 2019 is retrived from Oslo Børs, and an average monthly exchange rate is used to transfer NOK to EUR.

[48] In order to compare with other countries, only private placements, IPOs, and direct listings are counted for Norway in this chapter

[49] Data the UK stock markets is retrieved from London Stock Exchange. Source link: https://www.londonstockexchange.com/reports?tab=new-issues-and-ipos

IPO market, with EUR 1.6 billion raised from 23 IPOs, representing 17% and 46% of the year level in 2020, respectively.

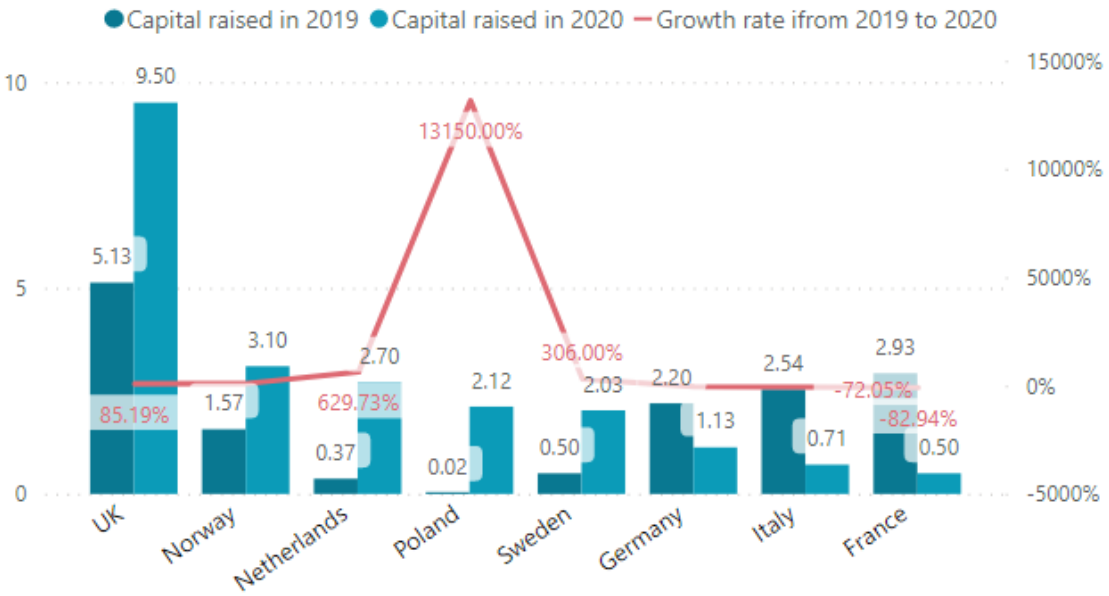

Figure 7 – IPO proceeds and the growth rate in each country

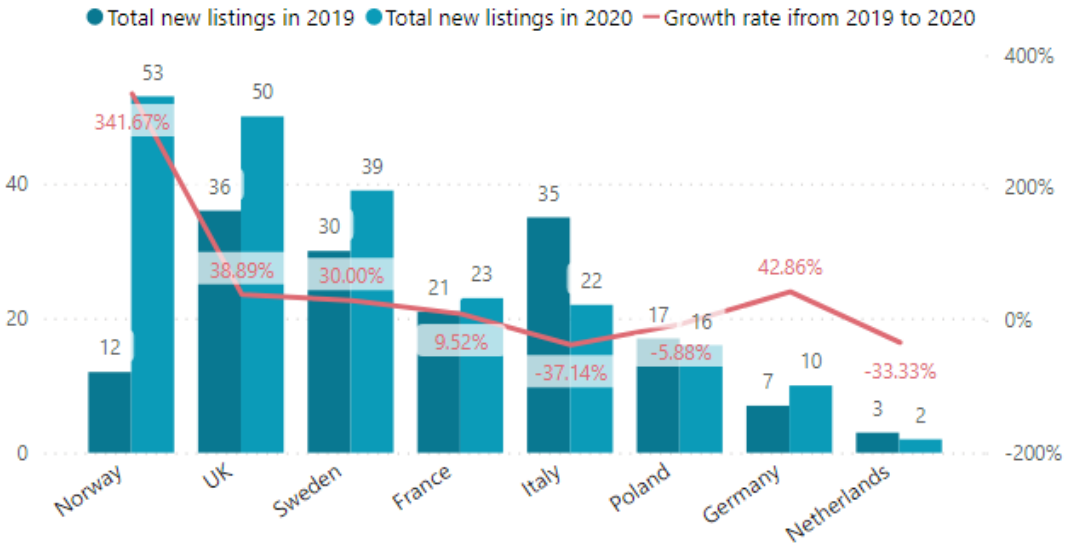

Figure 8 – Number of IPOs and growth rate in each country

The Swedish primary markets[50] also outperformed 2019 by a 30% increase in the number of IPOs and 306% in IPO proceeds in 2020. Through 39 IPOs, Sweden managed to collect EUR 2.03 billion[51] in 2020. The Swedish IPO activity in 2021 is encouraging by having 19 IPOs in quarter one, which is almost 50% of the total number in 2020. Nonetheless, the average IPO size in the Swedish markets is comparatively low, making Sweden rank behind the Netherlands and Poland by IPO proceeds.

In the Netherlands[52], IPO proceeds increased more than sevenfold to EUR 2.7 billion in 2020 from just two IPOs. Because of this considerably larger average IPO, the Netherlands ranked in the top three in IPO proceeds. More notably, the sharp rise in IPO proceeds did not end in 2021. More notably, the sharp rise in IPO proceeds did not end in 2021. In the first quarter of 2021, EUR 4.32 billion was collected from just four IPOs in the Netherlands, which was 1.6 times the yearly level in 2020.

Following the Netherlands' footsteps, the Warsaw Stock Exchange[53] in Poland has seen an even more tremendous surge in IPO proceeds. In 2020, Poland received EUR 2.12 billion by 16 IPOs. The IPO fundraising is 13150% higher than in 2019, even though the number of IPOs is lower than in 2019. This phenomenal rise can be attributed primarily to the e-commerce behemoth Allegro, which received EUR 2 billion in an IPO. The capital raised from Allegro’s IPO is 9.2 times the offering value, making it Poland's biggest IPO ever. Despite the fact that only EUR 0.39 billion was raised from seven IPOs in the first quarter of 2021, it was still the busiest quarter in the Polish IPO markets in the previous two years.

[50] Data for the Swedish stock markets is collected via three websites: Nasdaq Nordic, ipo.se, and ipohub.io. In order to compare with other countries, only private placements, IPOs, and direct listings are counted for Sweden in this chapter

[51] A monthly average currency is used to convert from SEK to EUR

[52] Data for Netherlands is retrieved from Euronext Statsitics: Euronext Fact Book 2020 and Monthly Cash Report Cash 202103. Link: https://live.euronext.com/en/resources/statistics

[53] Data for Poland is retrieved from Warsaw Stock Exchange official website. In order to compare with other countries, only private placements, IPOs, and direct listings are counted for Poland in this chapter

While the top five countries are experiencing an increase in IPO activity, Germany, Italy, and France were stumbled in 2020. Germany[54], the traditional giant stock exchange, raised nearly half as much money in 2020, despite a 43 percent increase in the number of IPOs. Nonetheless, the outlook for 2021 looks much brighter in the first quarter, with four IPOs raising EUR 4.8 billion. This quarterly IPO fundraising has already surpassed the value in 2020 by 4.2 times.

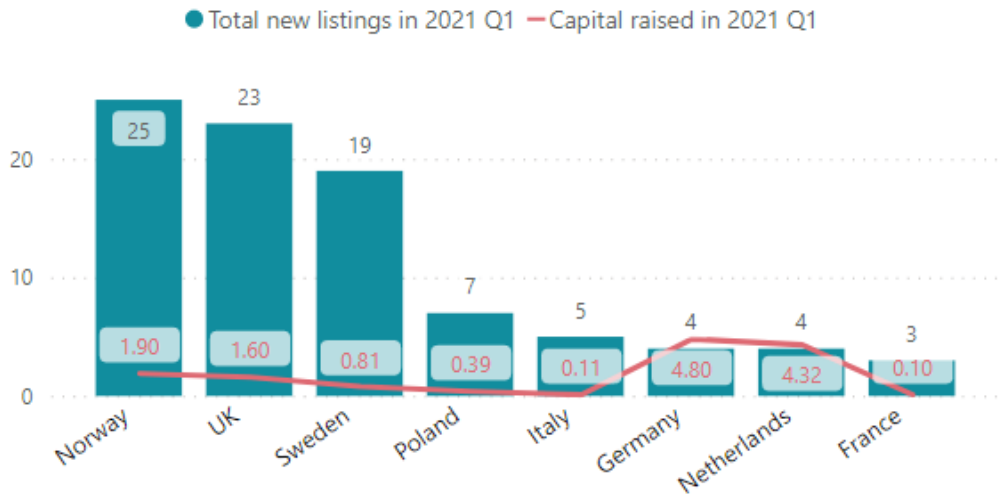

Figure 9 – The IPO volume and IPO value in each country in the first quarter of 2021

Italy[55], Europe's most active venue in 2019, saw its number of IPOs drop by 72% in 2020, from 35 to 22. Along with the drop in volume, the IPO proceeds fell 37% from EUR 2.54 billion to EUR 0.71 billion in 2020. In the first quarter of 2021, five IPOs were completed on the Italian Stock Exchange, raising EUR 0.11 billion. Based on this level, it is difficult to predict whether the Italian IPO market will liven up in the future, as it is not significantly more active than the same period in 2019.

[54] Data for Germany is retrieved from https://www.deutsche-boerse-cash-market.com/dbcm-en/instruments-statistics/statistics/primary-market-statistics. In order to compare with other markets, only initial public offerings, private placements and direct listings are counted for Germany in this chapter.

[55] Data for Italy is retrieved from borsaitaliana.it

Nonetheless, Italy is not alone in its difficulties. France[56] has suffered the greatest loss in IPO proceeds, falling by 83% despite the number of IPOs increased by around 10% in 2020. More discouragingly, the French IPO market is quiet in the first quarter of 2021, with only three IPOs filed and EUR 0.1 billion raised.

3.3 UK

In 2020, the United Kingdom maintained its lead by raising the most IPO funds, totaling GBP 8.5 billion, and demonstrating a consistent upward trend in capital proceeds. Except for the second quarter of 2020, all of the other three quarters are better than in 2019. The Covid-19 pandemic shock had little impact on the first quarter of 2020 because the outbreak occurred near the end of the quarter. Nonetheless, the Pandemic's shock sentiment was reflected in the second quarter with a significant drop in volume by 370 percent and value by 37.5 percent. In line with the stock market's adjustment, government support, and various stimulus plans, IPO activity began to recover in the third quarter of 2020, with the same number of listings but a slightly higher amount of money raised than the same period in 2019.

In line with the stock market's adjustment, government support, and various stimulus plans, IPO activity began to recover in the third quarter of 2020, with the same number of listings but with a slightly higher amount of money raised compared to the same period in 2019. The highest point was reached in the fourth quarter when more than 40% of the annual proceeds were raised. The volume in the fourth quarter already accounts for 86% of the total volume in 2019. However, the positive market trend did not last long. The continuously increasing trend in confirmed cases and the outbreak of the mutated virus have disrupted the equity market's status quo and introduced new uncertainty in the first quarter of 2021. As a result, the first downward trend is observed in the first quarter of 2021. Despite this, the volume and value of IPO activity in the first quarter of 2021 remain the highest in the previous three years.

[56] Data for France is retrieved from Euronext Statsitics: Euronext Fact Book 2020 and Monthly Cash Report Cash 202103. Link: https://live.euronext.com/en/resources/statistics. In order to compare with other countries, only private placements, IPOs, dual listings, and direct listings are counted for France in this chapter

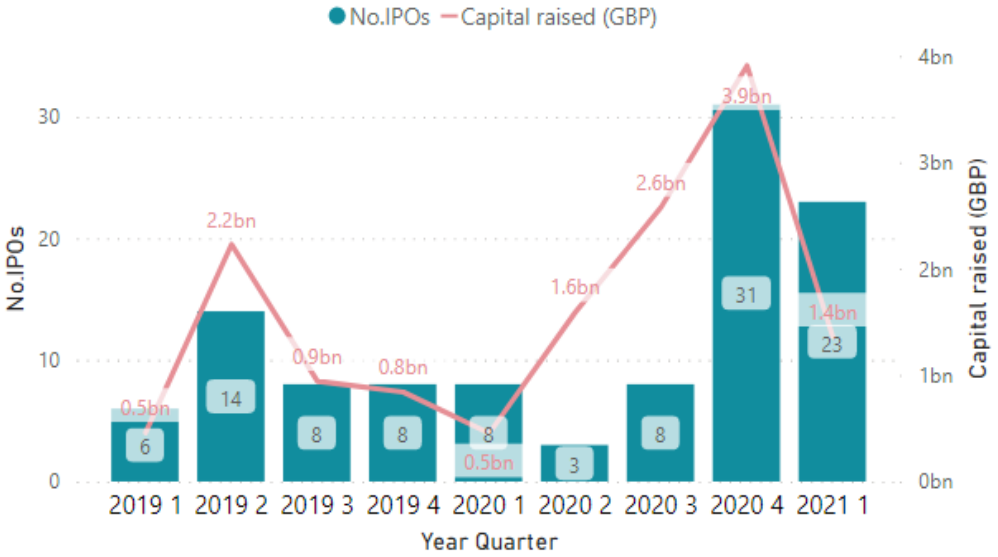

Figure 10 – Number of new listings and capital raised in each quarter in the UK

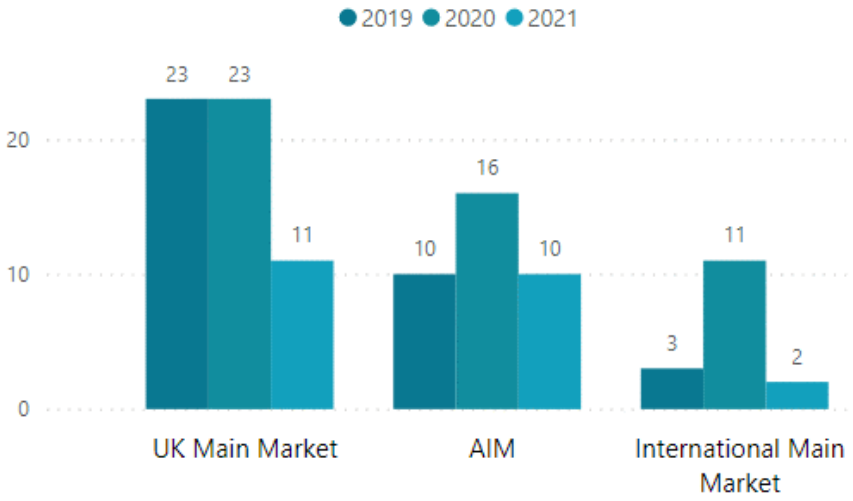

Figure 11 – Number of IPOs in each stock market in the UK

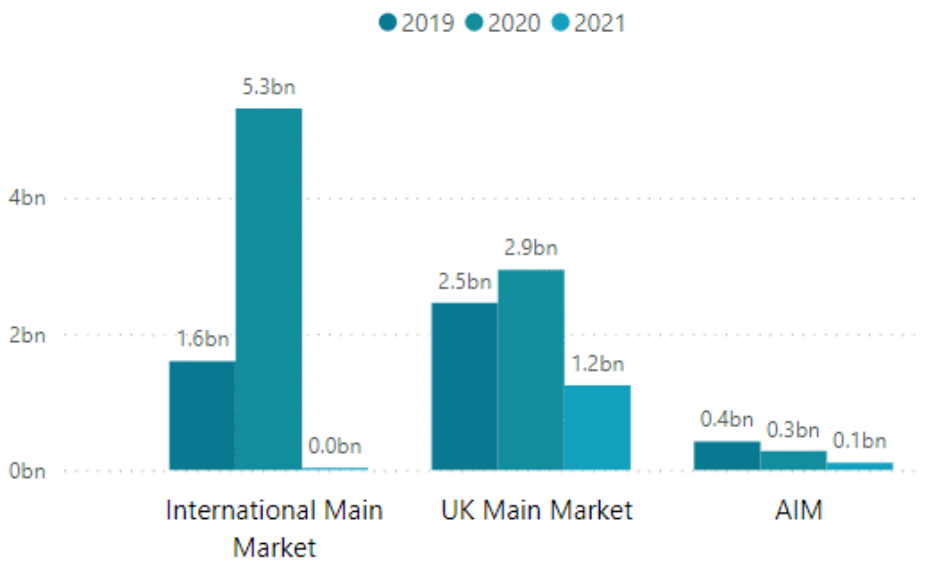

Figure 12 – IPO proceeds raised by each stock market in the UK

As illustrated in Figure 11[57] and Figure 12, the majority of listings and IPO proceeds are from the Main Markets, including the UK Main Market for companies registered in the UK or regions governed by the UK and the International Main Market for international companies. During the Pandemic, the total IPO volume on the Main Markets was 64% of the overall volume, but it generated nearly 95% of the total cash. The number of IPOs in the UK Main Market did not change from 2019 to 2020, but it did receive GBP 0.5 billion more capital. The UK is the major player in the Main Market, with 35 IPOs in 2020 and 15 in the first quarter of 2021. During the Pandemic period, the UK Main Market had committed roughly 36% of total capital proceeds.

Notably, although Covid-19 Pandemic control measures such as border control and travel restrictions have made cross-border trade more difficult than before, the International Main Market has thrived during the Pandemic by deploying digital tools. In 2020, the International Main Market had eight more IPOs and raised GBP 3.8 billion more capital than in 2019. Among the international corporations, the three Chinese IPOs contributed 33% of the total capital proceeds during the Pandemic, making them the largest contributor to the growth in

[57] Please note "2021" in all figures in this thesis only include data in the first quarter of 2021, not the whole year

the International Main Market. Aside from China, the remaining 29% come from foreign companies from various locations such as Bermuda and Kazakstan.

In contrast to the increase in the Main Markets, the AIM Growth Market raised GBP 0.3 billion in 2020, 25% less than 2019. However, the AIM market was busier in 2020 than in 2019 by having six more IPOs. Moreover, 21 out of 26 IPOs on the AIM market are domestic firms, while the other five are international.

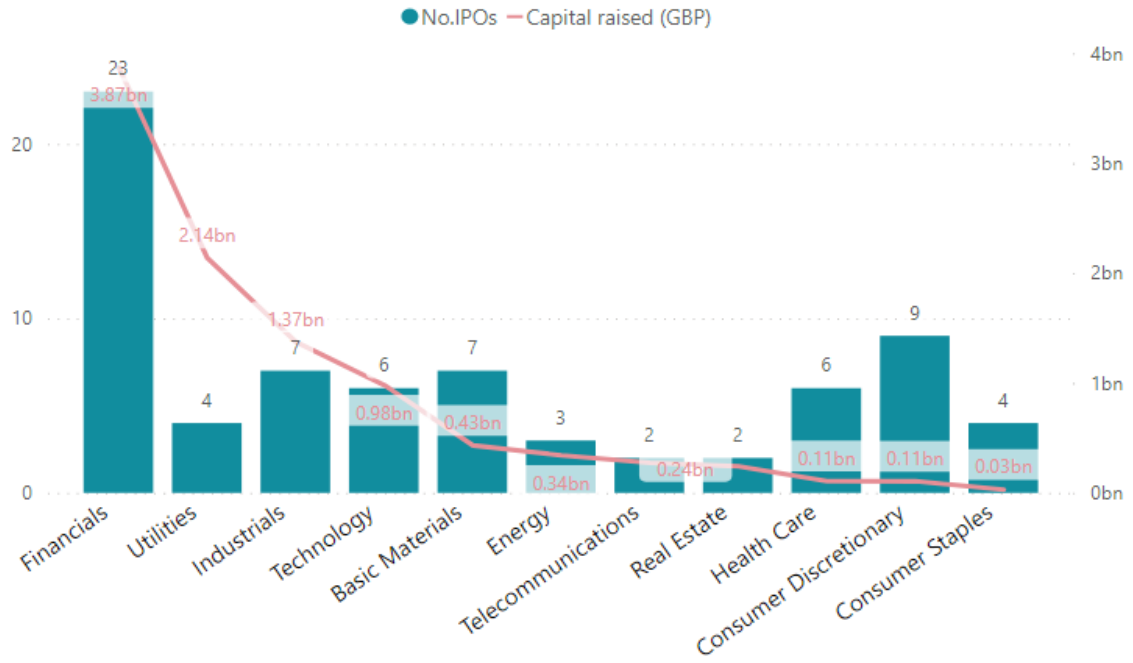

Figure 13 – IPO activity distribution by industry sector in the UK for the period between 2020 and 2021 Q1

Unsurprisingly, as a financial center, the financial industry[58] leads the IPOs during the Pandemic period on LSE by receiving GBP 3.87 billion, or 40% of total proceeds from 23 financial firms. Notably, six of the 23 financial IPOs are Open Ended Investment Companies (OEIC), and one is the largest IPO in the UK in 2020. Meanwhile, four IPOs in the utility industry have contributed 10% of total IPO fundraising, with the Chinese power company receiving GBP 1.55 billion alone. The industrial sector was relatively active following the utility industry, raising GBP 1.37 billion in capital through seven IPOs. The largest contributor

[58] All industry classification for the UK is according to Industry Classification Benchmark (ICB) made by FTSE Russell

is THG Holding, a British e-commerce company that is the third-largest IPO in the UK during the Pandemic. Aside from the top three industries mentioned above, IPOs in the technology and basic materials sectors also received substantial funding. On the other hand, the consumer discretionary and health care sectors had just received around GBP 0.11 billion from nine and six IPOs, respectively. The average IPO size in the consumer discretionary and healthcare sectors is much lower when compared to less active industries such as energy, telecommunications, and real estate.

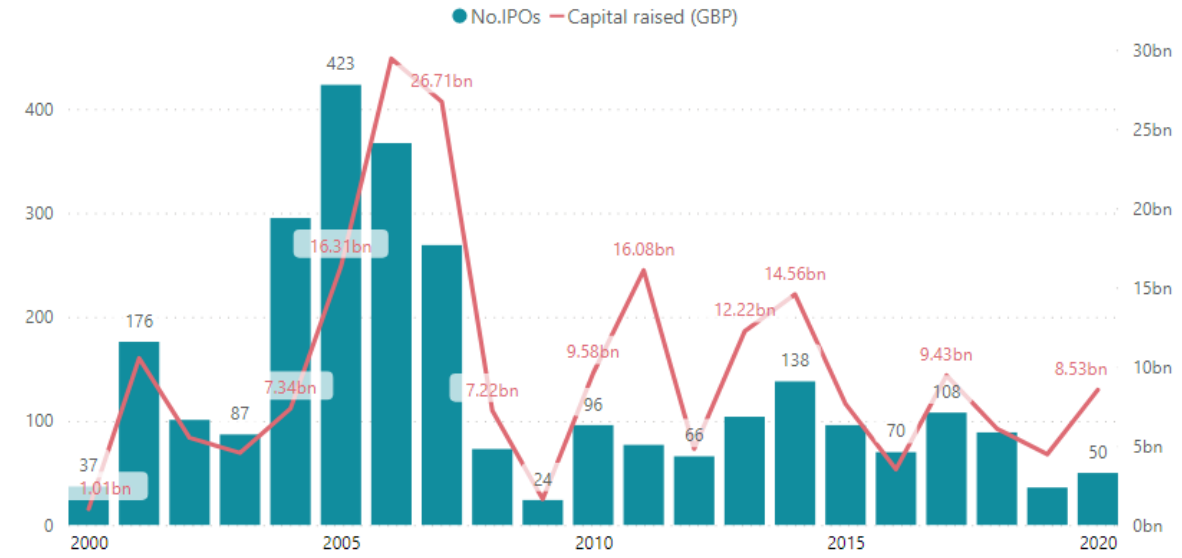

Figure 14 – Time series of the IPO activity in the UK

The LSE IPO markets have been highly volatile, with several significant ups and downs. The most prosperous period for the UK's IPO markets in the last 20 years was in the mid-2000s, following the Internet Bubble Crisis before the 2008 financial crisis, with the most IPOs in 2005. When the Internet Bubble Crisis erupted in 2000, 37 IPOs were filed, and 24 IPOs were filed during the financial crisis period in 2009. That is, when compared to the other two crisis periods, IPO activity in the UK during the Pandemic is not the worst. Essentially, the money raised in 2020 is higher than in many past years, such as 2019, 2016, and 2012. However, following the financial crisis, the UK IPO markets have not recovered to the levels seen in the mid-2000s. Observing the decrease in IPO activity on the LSE, the UK government launched several sessions reviewing listing rules in the hope of strengthening the international position of LSE for IPOs and attract more innovative and successful firms.

3.4 Norway

Including private placements, IPOs, market transfers, spin-offs, and all other types of listings, there are 59 new listings in Norway in 2020 and 28 in the first quarter of 2021. The number of total new listings in 2020 is almost 3.3 times the amount in 2019, creating an unexpected surge. The soar of IPO activity in Norway is credited to the Growth Market – Merkur Market or current Euronext Growth in Oslo[59]. The total number of new listings in 2020 in Merkur Market is 16 times the number in 2019, and the money collected from new listings in 2020 is 200 times the amount in 2019.

However, the other two OSE markets, Oslo Børs (current Euronext in Oslo) and Oslo Axess (current Euronext Expand[60] in Oslo), are very bleak during the Pandemic. In particular, Oslo Axess has not welcomed any new listing in the Pandemic period. In 2020, Oslo Børs accepted ten new listings, an increase of 11% over 2019. Although the total number of listings in 2020 is slightly higher than in 2019, the income generated from new listings is 20% lower because half of the new listings in 2020 were market transfers. Furthermore, unlike the Merkur Market, which saw a flurry of activity in the first quarter of 2021, Oslo Børs has only seen four new listings, three of which are transfers, one of which is an IPO. During the Pandemic, the total capital raised from new listing entities in Oslo Børs was just 31% of the capital raised in Merkur Market.

It is worth noting that private placements account for the majority of new listings in Norway. According to Euronext's classification, 71 new listings on Merkur Market and two on Oslo Børs are private placements during the Pandemic timeframe. Furthermore, Euronext classified only five companies as initial public offerings, four from Oslo Børs and one from Merkur Market.

[59] Information source: https://finansavisen.no/forum/thread/107370/view

[60] Was classified as Euronext Access in Euronext statistic data

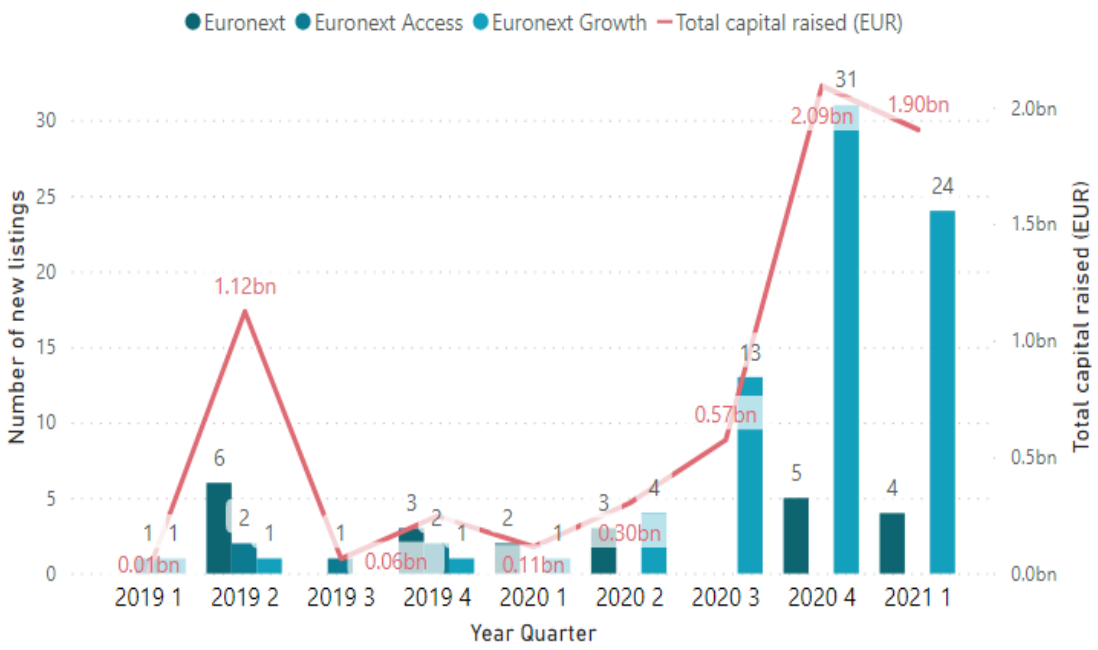

Figure 15 – Number of new listings and capital raised in each quarter in Noway

In fact, the Norwegian IPO market has been tranquil in the first and second quarters in 2020, owing to the pressures of both the Covid-19 Pandemic and the oil price crash. Within the first half-year, only EUR 0.41 billion was received from ten new listings. Compared to the same period in 2019, just 36% of the capital was collected in the first half of 2020 through ten new listings.

In the third quarter of 2020, a steady improvement in the primary market began to demonstrate, along with lower daily reported cases of the Covid-19 virus. In this quarter, EUR 0.57 billion was raised from 13 new listings on Merkur Market. One important listing in this quarter in some banker's eyes is the first Aker company on Merkur Market – Aker Biomarine, which raised EUR 2 billion, making it the fourth-largest IPO in 2020 in Norway. The closing price on the first trading day of these two companies has gone up around 197% and 132%, respectively, which are the highest first-day return among all new listings in 2020. Following Aker Biomarine, two other companies – Aker Carbon and Aker Offshore were spun off from the Aker Group in the same quarter. Noteworthily, there are five Aker companies listed in the Pandemic period, which amounts to 20% of total proceeds. According to the report from International Financing Review, some bankers believe the Akers have paved the way for other companies and improved market confidence through the group's solid reputation (Raitano, 2020).

The fourth quarter in 2020 has been the busiest quarter where most IPOs were filed. Within this quarter, EUR 2.09 billion was collected from 31 new listings, accounting for around 68% and 53% of the overall amount in 2020.

In the first quarter of 2021, 28 new listings were completed, generating EUR 1.9 billion in proceeds, accounting for roughly 61% of total year proceeds in the same market in 2020. new listings from Merkur Market and just five from Oslo Børs. The EUR 2.09 billion money raised in the fourth quarter is almost 1.5 times the amount of the whole year in 2019 and 68% in 2020.

Domestic companies are the backbones of the newly listed companies during the Pandemic span. Just 13 of the 88 new listings are worldwide, with 75 of them being Norwegian companies. The Netherlands is the leading cross-border listing participant, with four new listings raising EUR 0.5 billion. Bermuda, Denmark, and the Marshall Islands are the other eight foreign corporations, with the first two raising EUR 0.2 billion each and the latter raising none.

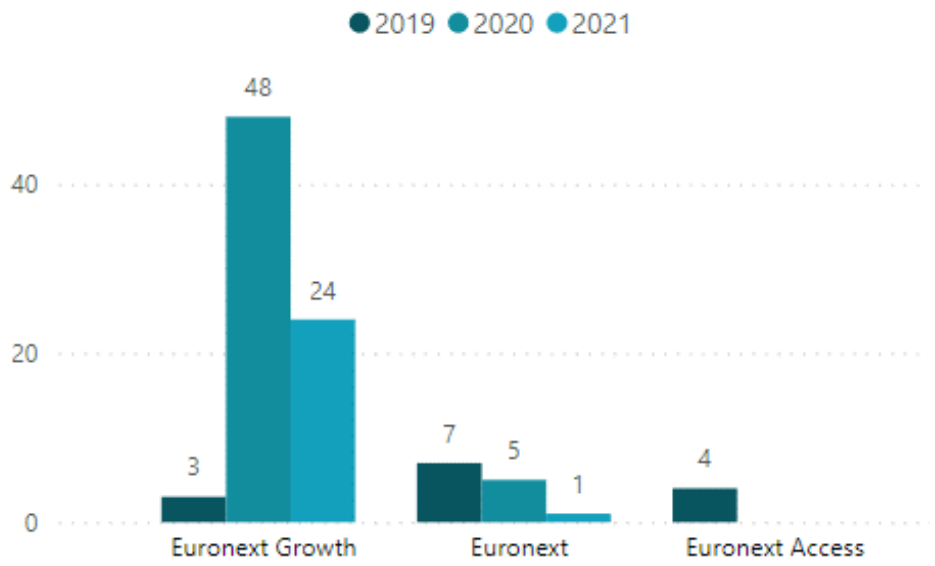

Figure 16 – Number of new listings in each stock market in Norway

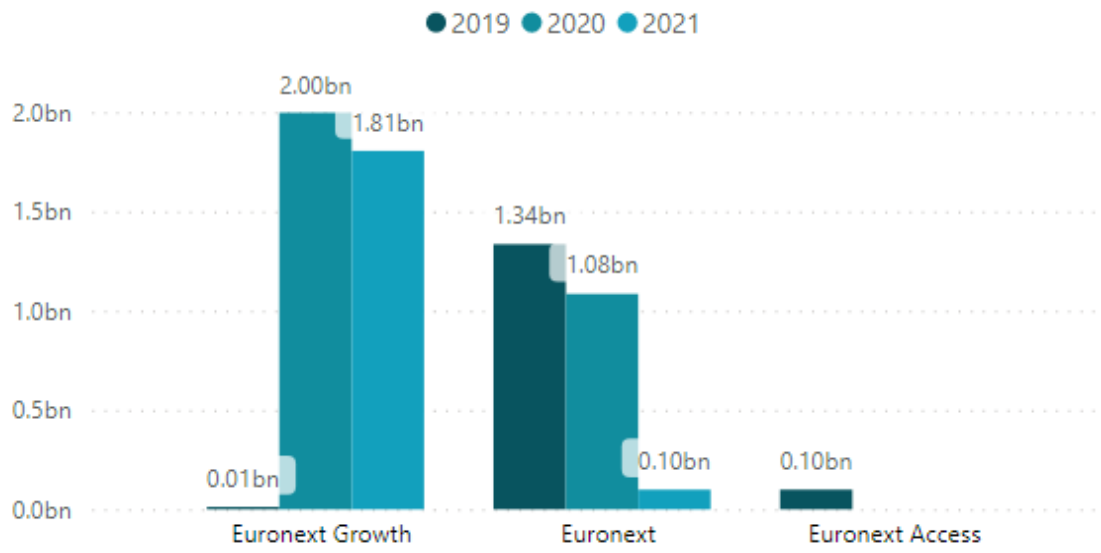

Figure 17 – Capital raised from new listings in each stock market in Norway

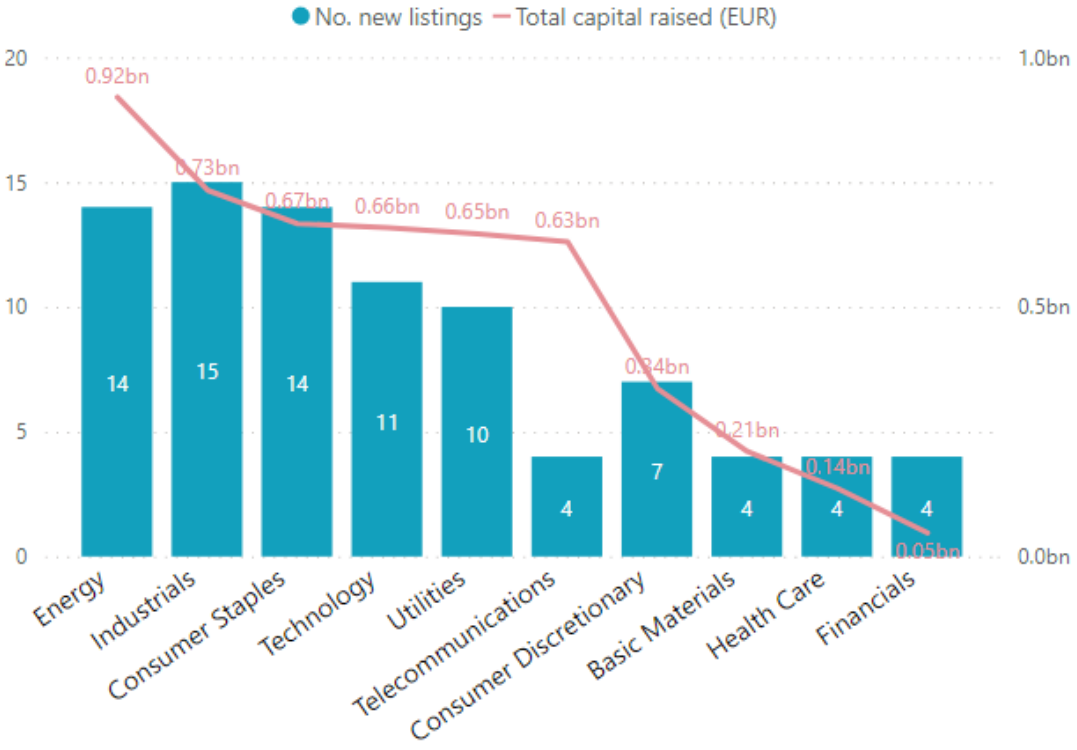

Figure 18 – IPO activity distribution by industry sector in Norway for the period between 2020 and 2021 Q1

The Norwegian IPO market has seen an extensive industry distribution among the newly listed firms during the Pandemic. As visualized in Figure 18[61], ten industries were covered by the newly listed firms on the Norwegian stock markets within the Pandemic span. Energy becomes the leading industry by raising the most cash at EUR 0.92 billion by 14 new IPOs. Twelve of the 14 businesses are in the renewable energy market, including wind power, hydrogen, and photovoltaic energy. Meanwhile, with 15 new companies and EUR 0.73 billion raised, the industrials sector is the most active one by the number of new listings. Consumer staples collected EUR 0.67 billion in new capital from 14 new listings, marginally lower than industrial and oil. It is worth noting that the classical Norwegian industries – seafood and fish farming – represent 13 of the 14 consumer staples firms. With a very close fundraising value as industrials, the technology and utility industries are relatively active by welcoming 11 and ten new listings correspondingly. Thanks to the largest IPO on OSE in 2020[62], with EUR 0.55 billion collected, the telecommunication sector managed to obtain EUR 0.63 from just four new listings. In addition to the industries listed above, consumer discretionary, basic materials, health care, and financials all had several new listings in the Norwegian IPO markets.

Aside from business delivery, the Norwegian stock markets have seen an increase in green listings. The newly listed companies are divided into two groups based on their business models: green and others. For the sake of clarification, the "green"[63] status in this study is assigned to companies that contribute to improving the natural environment, including energy transition, carbon emission reduction, and waste disposal. Fifteen newly listed companies in 2020 and eleven in the first quarter of 2021 are graded as green under this rule. These green companies include 12 companies in the energy sector, eight companies in the utilities industry, and four in industrials. The total number of newly listed green companies accounts for roughly 30% of all new listings, with capital raised accounting for roughly 34% of all fundraising during the Pandemic.

[61] The industry classification for Norway is according to Industry Classification Benchmark (ICB) made by FTSE Russell

[62] The largest IPO in 2020 on Oslo Stock Exchange is Link Mobility

[63] A full list of "green" new listings during the Pandemic are presented in Table 4 in Appendix session

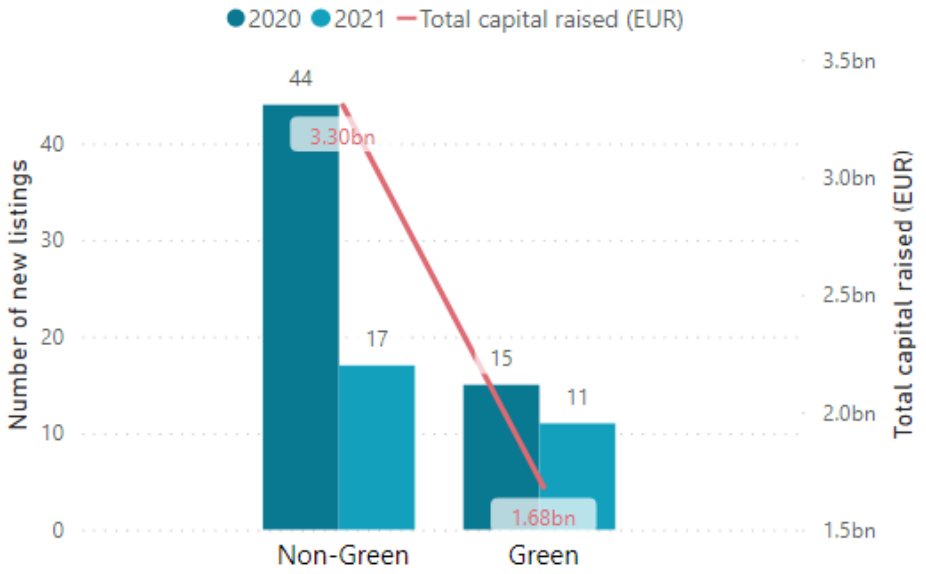

Figure 19 – Distribution of IPO activity across "Green" firms and "Non-Green" firms in Norway during 2020 and 2021 Q1

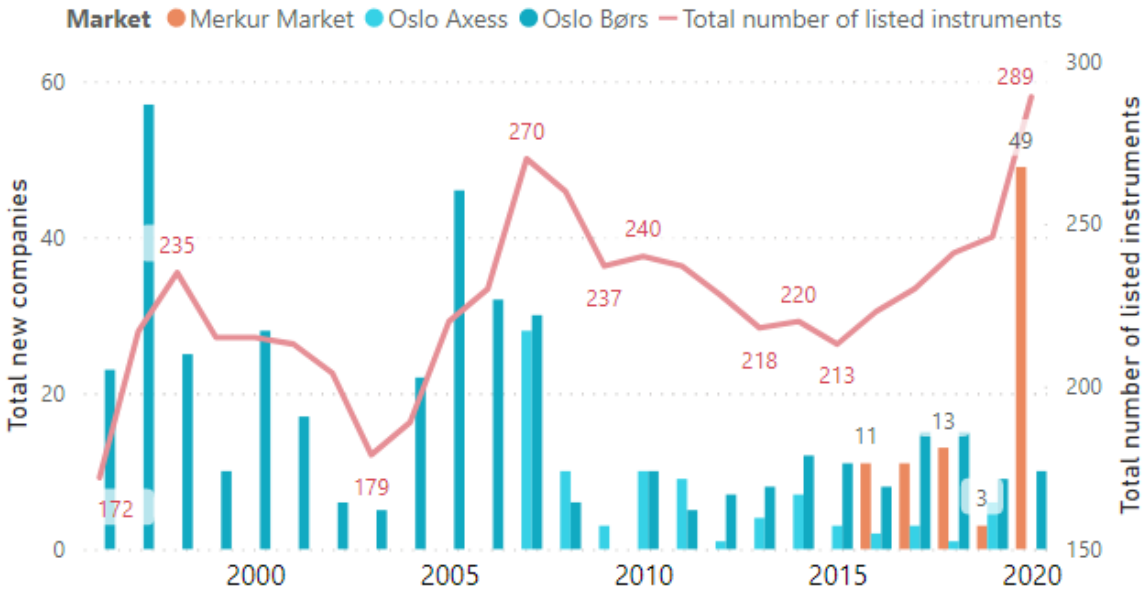

Figure 20 – Time series of new listings on Oslo Stock Exchange

The IPO activities on OSE were highly successful in the 1990s, thanks partly to the internet boom, as shown by the annual increases in new listings and total listed instruments in Figure 20. The OSE, like many other stock exchanges, was harmed by the internet bubble crash that began in 2002 and the financial crisis that began in 2008. Both new listings and total listed

instruments had experienced a turbulent fall in those two periods. Since 2008, OSE had been significantly less successful, with the number of new listings fluctuating within a low range until 2019. Meanwhile, from 2008 to 2015, the total number of registered instruments steadily declined, reaching a low of 213 in 2015. The decline was attributed to more delistings than new listings.

After the establishment of Merkur Market in 2016, a watershed moment occurred. The increased new listings on Merkur Market gradually reawakened the stock exchange, and it climbed steadily for three years in a row until 2018. Notably, the number of newly listed companies on Merkur Market was almost the same as Oslo Børs between 2016 and 2018. However, in 2019, the primary market fell to a level close to that seen during the financial crisis. Moreover, the IPO activity level on the mezzanine market – Oslo Axess had also decreased since Merkur Market was available. Remarkably, the stumbling situation was reversed in 2020, when both the number of listed instruments and new listings hit new highs.

3.5 Netherlands

2020 for the IPO market in the Netherlands is also a remarkable year relative to 2019, by raising 630% more capital across the same number of new listings in 2019. Even more astonishing, the money raised in the first quarter of 2021 is already 1.6 times the total raised in 2020. The two big IPOs – InPost with EUR 2.8 billion in 2021 and JDE Peet's NV with about EUR 2.6 billion in 2020 – primarily led to the wild increase in capital proceeds. The proceeds from the top two IPOs account for roughly 77% of the total. These two IPOs are also the most underpriced, with prices up approximately 19% and 14% from the IPO price at the end of the first trading day, respectively.

Unlike Norway, where most IPOs were conducted on the growth market, all IPOs in the Netherlands were registered on the main regulated market since 2016. Relative to the other markets on Euronext, Amsterdam had much more medium and large-cap companies than Small and Medium Enterprises (SMEs). According to Euronext statistics, the total SMEs in the Netherlands take up only 5.5% of all SMEs listed on the Euronext markets, while Paris takes 59% and Oslo takes 21%. The yearly number of new listings has not substantially

changed since 2016, where the lowest record was kept in 2019 with three new listings and the highest in 2016 with seven new listings.

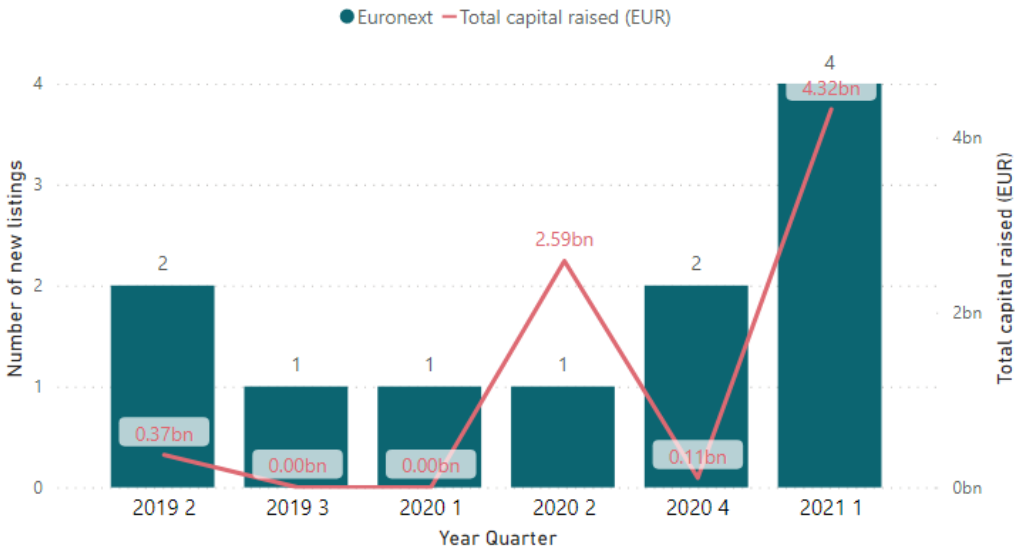

Figure 21 – Number of new listings and capital raised in each quarter in the Netherlands

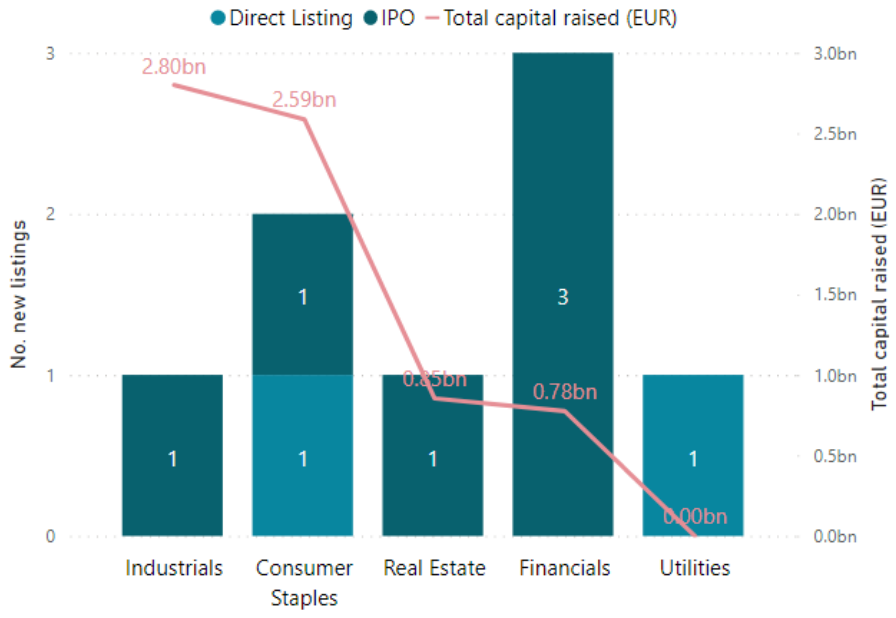

Figure 22 – IPO activity distribution by industry sector in the Netherlands for the period between 2020 and 2021 Q1

Due to the significant scale of InPost's IPO, a delivery company located in Luxenberg, the international IPOs account for 40% of the total money raised. In addition, there are other two

international companies newly listed in the Netherlands in the form of mergers and direct listing. The rest 60% proceeds – EUR 4.2 billion, are credited to the domestic firms in the Netherlands over five IPOs.

Among the eight new listings during the Pandemic, six are initial public offerings, and two are direct listings. Because of the low volume of IPOs, the primary market in the Netherlands is less diversified than those in Norway and the United Kingdom. The two leading industries are where the top two IPOs operate, InPost for industrials and JDE Peet's NV for consumer staples. Apart from those to IPOs, there are four in financial sectors with EUR 0.8 billion raised and one in real estate with EUR 0.9 billion raised. The only utility provider that could be classified as “Green” chose the route of direct listing without funding.

3.6 Poland

Poland set a new listing record by raising the most money from new listings since 2011, with a rocket-fast growth rate in IPO proceeds. There are 26 debuts during the Pandemic period, with 16 from the growth market – New Connect, and ten from the GPW Main Market. Despite the high volume in the growth market, 99% of the proceeds are from the Main Market. In terms of listing quantities, the Warsaw Stock Exchange has a relatively quiet year in 2020, with an 18 percent fall in new listings compared to 2019. The quietness is especially reflected in the first and second quarters of 2020, with just five new listings compared to 12 in the same timeframe of 2019. Luckily, the third quarter saw a rebound, with PLN 0.06 billion earned from eight new listings. In contrast to Norway's booming in the fourth quarter, fewer companies were listed in Poland than the previous quarter, but drastically more money was raised. The recovery trend continued into the first quarter of 2021, busier than the same quarter the previous two years, with PLN 1.76 billion raised by eight new debuts.

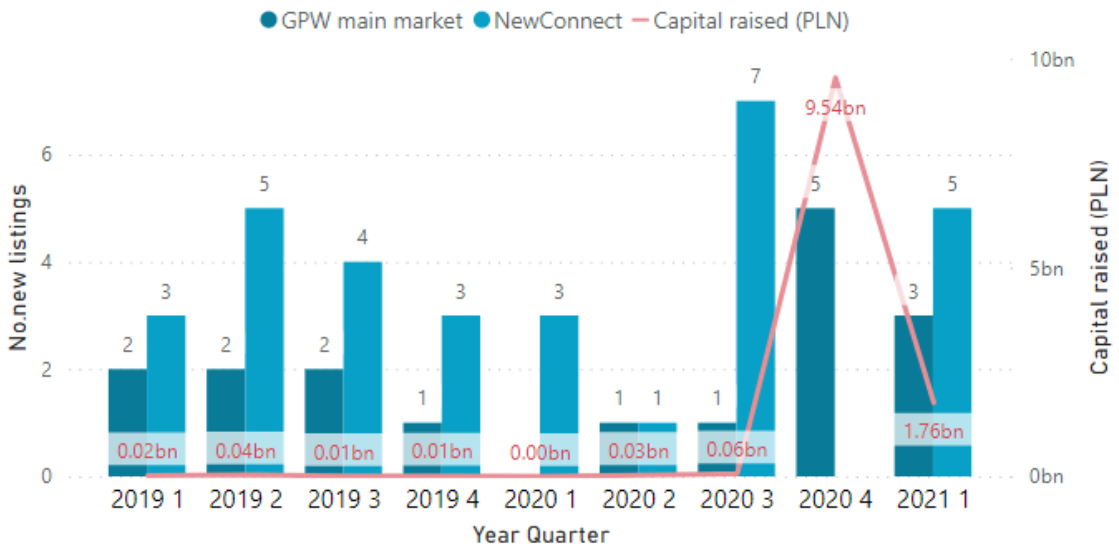

Figure 23 – Number of new listings and capital raised in each quarter in Poland

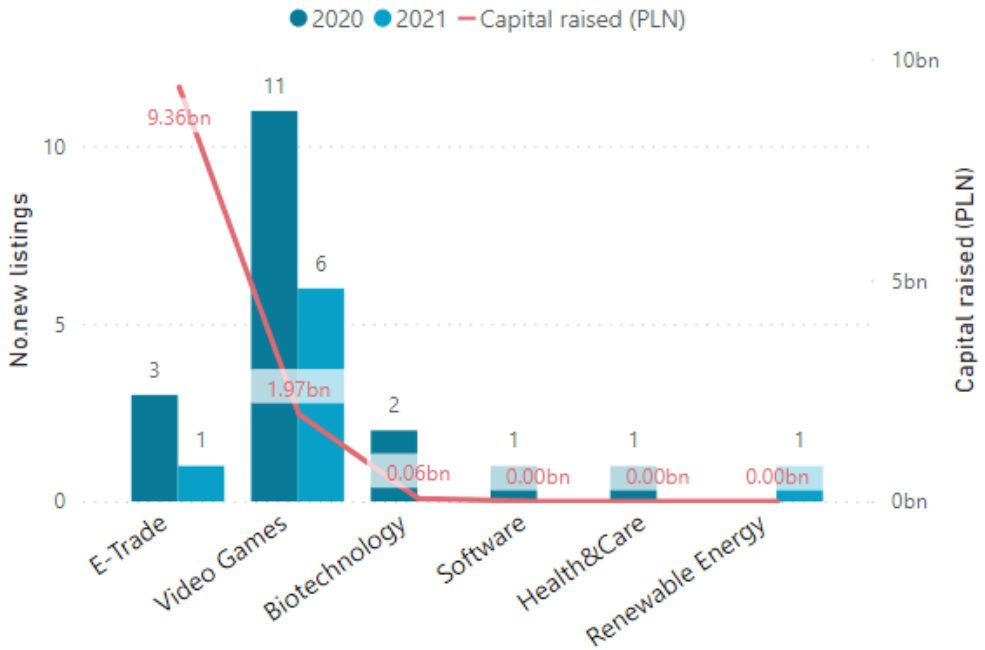

Figure 24 – IPO activity distribution by industry sector in Poland for the period between 2020 and 2021 Q1

The historically high capital funding is due to Allegro's massive IPO, which raised PLN 9.28 billion and accounted for nearly 81% of the overall capital proceeds from new listings. The business was able to obtain more than nine times the projected value given the increasing demand for online shopping during the Pandemic. Moreover, Allegro closed the first trading day about 63 percent higher than the IPO price. Thanks to Allegro and three other E-commerce

companies, the E-trade[64] sector collected the most money from the Polish primary market during the Pandemic.

Apart from the high funding value of the e-trade industry, Warsaw Stock Exchange is experiencing a video game boom. The total number of new listings in the video games industry represents 65% of the total debuts under the Pandemic period. The number of gaming companies listed on the WSE reached 54 by the end of 2020, beating the previous world's listing record on Tokyo Stock Exchange (Đorđević, 2021). According to the same author, video gaming is becoming a cultural phenomenon in Poland and received considerable government support. With six new listings in the first quarter of 2021, the booming trend appears to be continuing.

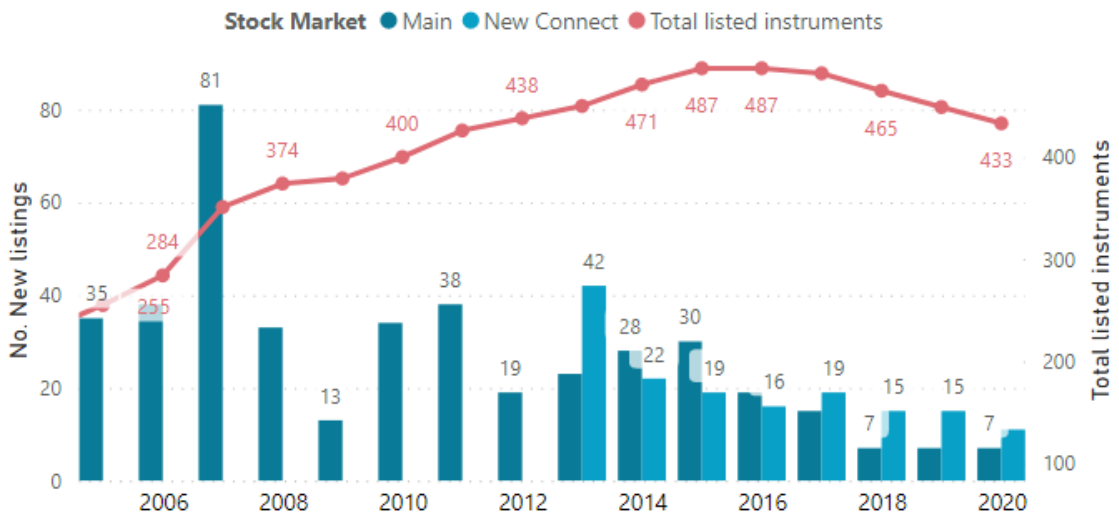

Figure 25 – Time series of new listings on Warsaw Stock Exchange

Following the financial crisis in 2008, the time series of total listings on the Warsaw Stock Exchange takes on a convex form. It started to increase in 2010, peaked in 2015, and then went into decline until the end of 2020. The initial public offering (IPO) trend is also convex, but with a peak in 2013 rather than 2015. Notably, since the establishment of the Growth Market – New Connect in 2013, the number of IPOs has been continuously decreasing until

[64] The industry classification for Poland is directly retrieved from Warsaw Stock Exchange's own classification group

2020. Both the Growth Market and the Main Market are on the decline. Figure 21 shows that Poland's number of new listings in 2020 is the lowest over the last ten years.

The trend in fundraising, on the other hand, is erratic. After reaching an all-time high of PLN 18.26 billion just before the financial crisis in 2007, the IPO market rapidly rebuilt a lower peak of PLN 15.46 billion in 2010. However, the IPO fundraising did not return to its 2010 peak level by the end of 2020, despite ten years of effort.

3.7 Sweden

As the main driver in the Nordic equity market, Sweden managed to keep the leading position by achieving the highest amount of new listings[65] in 2020 across Europe. During the Pandemic, Sweden has welcomed 68 new listings, including 58 IPOs and ten listings in other listing forms. The total capital proceeds from new listings are around SEK 29 billion. However, along with the constantly increasing infected cases, the IPO market in the first three quarters of 2020 is rather gloomy. Compared to the same period in 2019, the total number of new listings in the first three quarters in 2020 has declined around 28%, and the total capital raised from new listings dropped by roughly 33%. The spike was reached in the fourth quarter of 2020, with SEK 18.6 billion collected from 34 new listings, accounting for nearly 89% of the total proceeds in 2020.

Even though the booming trend did not persist at the same speed as the fourth quarter, the first quarter in 2021 appears to be encouraging, with SEK 8.2 billion raised from 26 new listings. The capital proceeds in this quarter already surpassed all yearly proceeds in 2019 by 33%. Benefited from digitalizing technology in the listing process, Swedish primary markets still managed to welcome six international companies during the Pandemic time[66]. Nevertheless,

[65] Include IPO, direct listing, market transfer, merger, and spin-offs

[66] Please note that the listings of Finish and Danish companies on Spotlight are not counted as new listings on Swedish stock market.

the vast majority of new companies listed in the Pandemic period are domestic companies, which takes up 93% of the total number of new listings and 95% of the total capital raised.

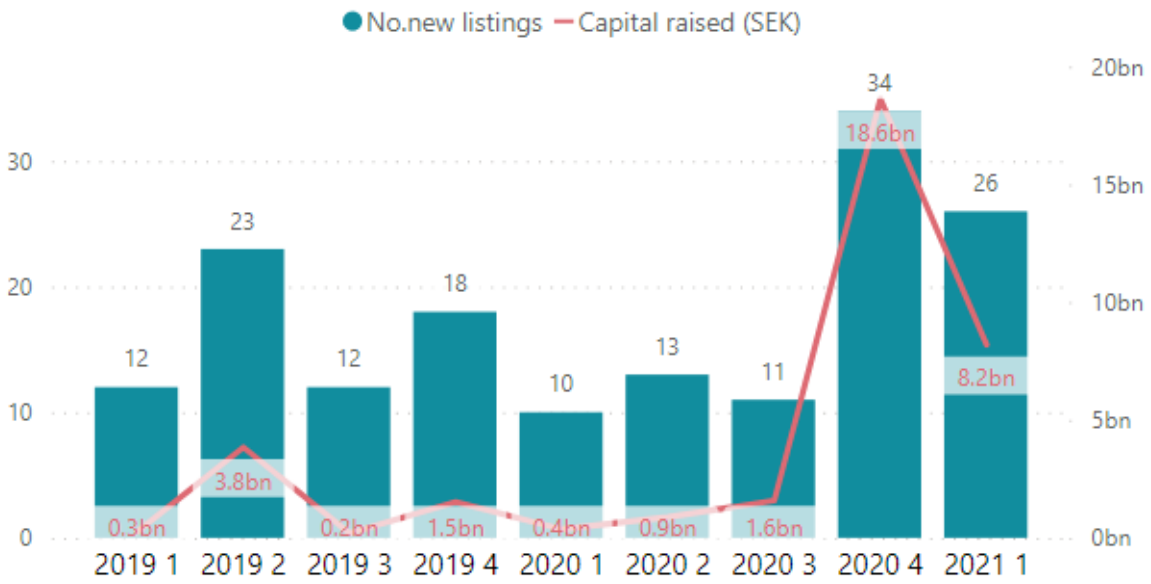

Figure 26 – Number of new listings and capital raised in each quarter in Sweden

As visualized in Figure 27, the only growth in new listings in 2020 was observed in the Nasdaq First North Growth Market. With SEK 7.9 billion raised from 41 new listings in 2020, Nasdaq First North realized a 32% increase in new listings and 553% in the capital proceeds. The average size in this growth market had increased substantially since 2019. In the first quarter of 2021, SEK 2.1 billion was raised from 19 new listings, a massive increase over the pre-crisis level.

The Main Market – Nasdaq Stockholm – collected SEK 13.5 billion in 2020 from 16 new listings and SEK 6.1 billion in the first quarter of 2021 from three new listings. Despite the unchanged volume of new listings, capital proceeds in the Main Market surged by 238% from the previous year. Notably, the Main Market's average fundraising scale in 2020 was SEK 0.84 billion, which is 3.4 times the scale in 2019, and the First North Growth Market's average fundraising scale in 2020. More impressively, the average fundraising size in 2021 Q1 is approximately SEK 2 billion, 138% higher than 2020.

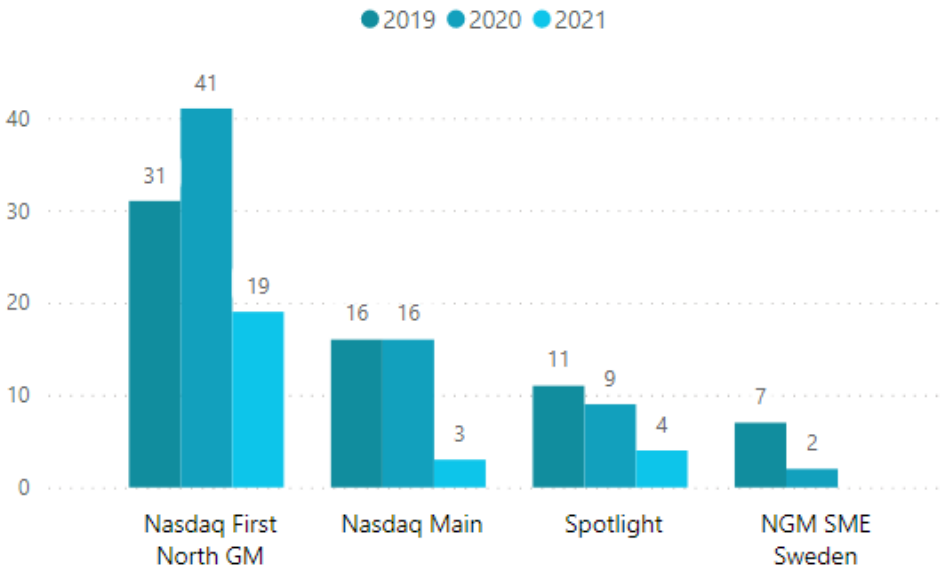

Figure 27 – Number of new listings on each stock market in Sweden

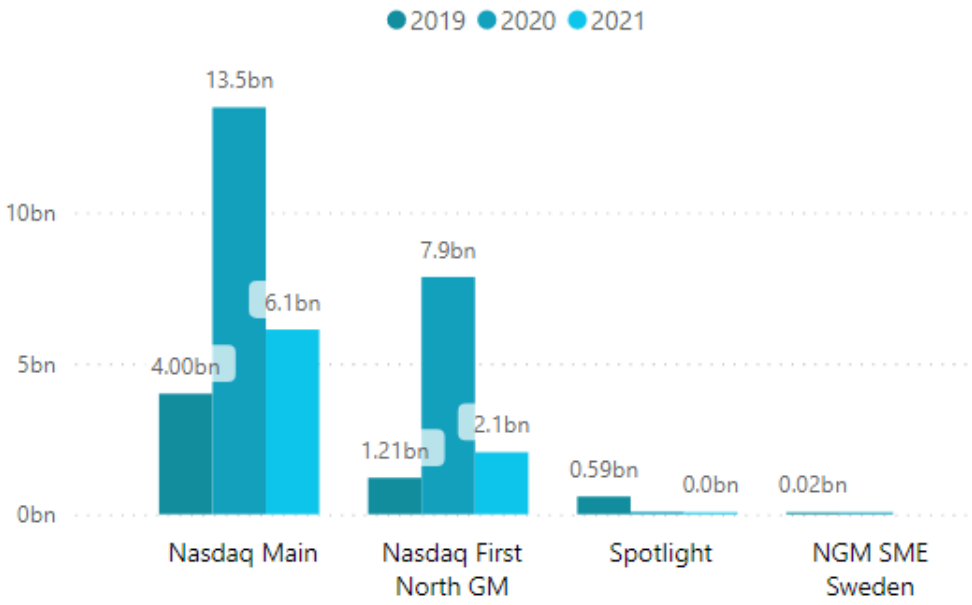

Figure 28 – Capital raised from new listings on each stock market in Sweden

In comparison to the strong trend in the First North Growth Market and the Main Market, the other two growth markets – Spotlight and NGM SME Sweden – are experiencing a downturn, with fewer new listings and funds raised during the Pandemic. These two stock exchanges serve a similar function to First North: to support small and medium-sized businesses' growth. On the other hand, Nasdaq has a greater reputation and prestige as one of the world's largest

stock exchanges. There are also more historical cases and experiences that companies planning to list can refer to. As a result, most businesses may choose to list on a more trustworthy market during a time of high uncertainty and volatility.

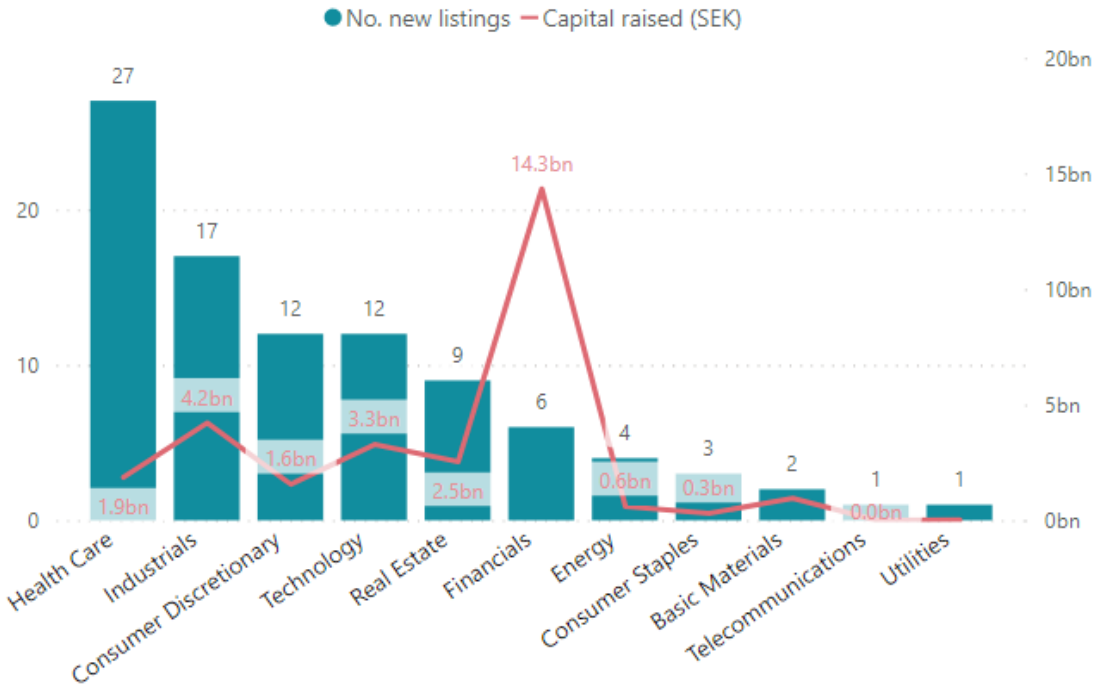

Figure 29 – IPO activity distribution by industry sector in Sweden for the period between 2020 and 2021 Q1

Like those in Norway and the United Kingdom, Sweden's latest listings are widely spread across different industries. As a country with one of the world's best national healthcare systems, Sweden is continuously improving by encouraging innovative solutions and the latest technology (Marczewska, 2013). In addition, driven by the increasing demand for vaccination and medical treatment due to the Covid-19 virus, health care IPOs are booming in the Swedish market during the pandemic period, with 27 companies newly listed in the Swedish stock markets, accounting for nearly 29% of total new listings in the same period. Most of these health care firms are relatively small, with a focus on research and development. Thus, the average fundraising size is much smaller than other industries like financials, technology, and industrials. The financial sector raised the most funds during the Pandemic time, with a sum of SEK 14.3 billion, attributed to the IPO of Nordic financial services giant Nordnet AB, the largest IPO in the Swedish market in 2020. Following the financial industry, industrials and technology companies have acquired SEK 4.2 billion and SEK 3.3 billion across 17 and 12

new listings. Surprisingly, unlike its neighbor Norway, where the energy market is booming, Sweden has only seen four new energy listings since the Pandemic. The good news is that each of the four energy firms meets the "Green" requirements.

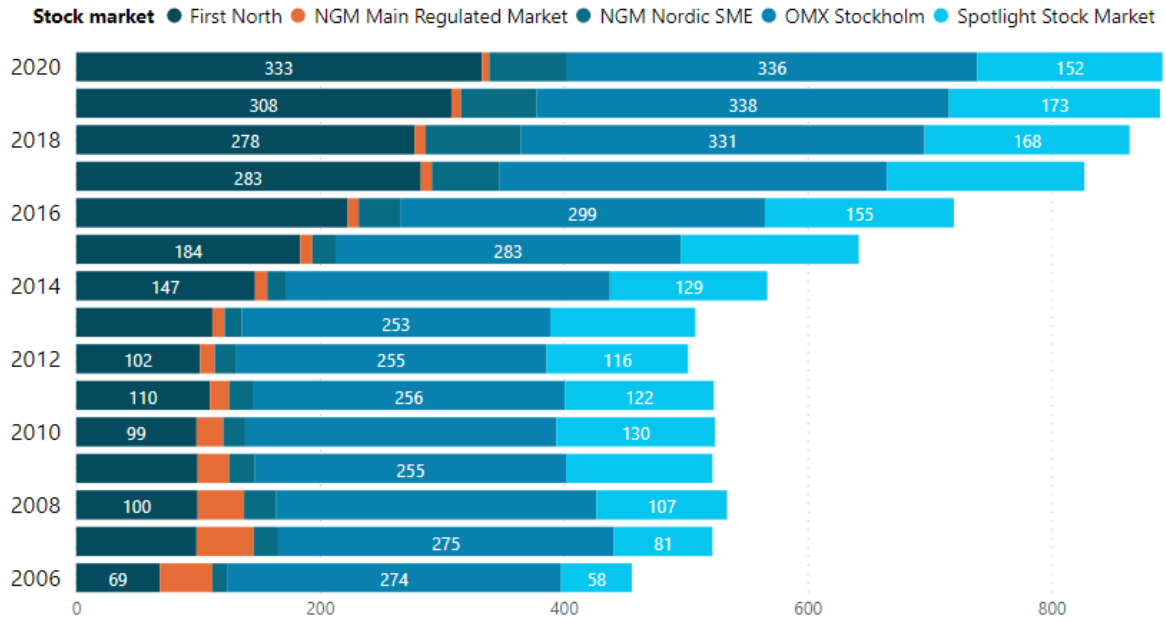

Figure 30 – Time series of the total quoted companies on each stock market in

When looking at the number of total quoted companies in the Swedish capital markets over time, it is safe to say that Sweden has been on an upward trajectory since 2012. The Swedish stock market has been steadily rising since the financial crisis of 2008, rather than fluctuating or significantly shrinking. In ten years, the Swedish stock market grew by approximately 71 percent in total quoted firms, from 524 in 2010 to 891 in 2020, a somewhat different scenario than Norway.

The major contributor to the constant growth should be accredited to the First North Growth market, as illustrated in Figure 30. By the end of 2020, 333 companies were listed on the First North Growth market, which is 3.3 times the amount at the end of 2010 when the stock market began to rebound from the financial crisis. The other two growth markets – NGM Nordic SME and Spotlight – also see a rising trend since 2015. However, the NGM Main Regulated Market has been losing listings over time. Apart from the growth markets, Nasdaq Stockholm has also achieved around 32% growth since 2010. That is to say, Swedish capital markets have seen a consistent expansion pattern in both SMEs and large caps over the last decade.

3.8 Germany

The IPO market in Germany was marginally busier during the Pandemic time than in 2019, with 12 new listings in 2020 and four new listings in the first quarter of 2021. Despite the increase in volume, the total proceeds from new listings in 2020 decreased 69% from 2019, setting the lowest record for the last decade. Out of the 16 new listings, only two are from the Growth Market – Open Market, raising 3.2% of the total capital proceeds.

Influenced by the shock and uncertainty brought by the Coronavirus that appeared at the end of January in Germany, no new listings were registered until March. Following the recovery trend in the stock market and a relative stabler market sentiment, the German IPO markets gradually rebound in the third and fourth quarters with four and five new listings. The rebound trend managed to extend to the first quarter of 2021, with EUR 4.82 billion raised across only four new listings, more than four times the overall amount raised in 2020.

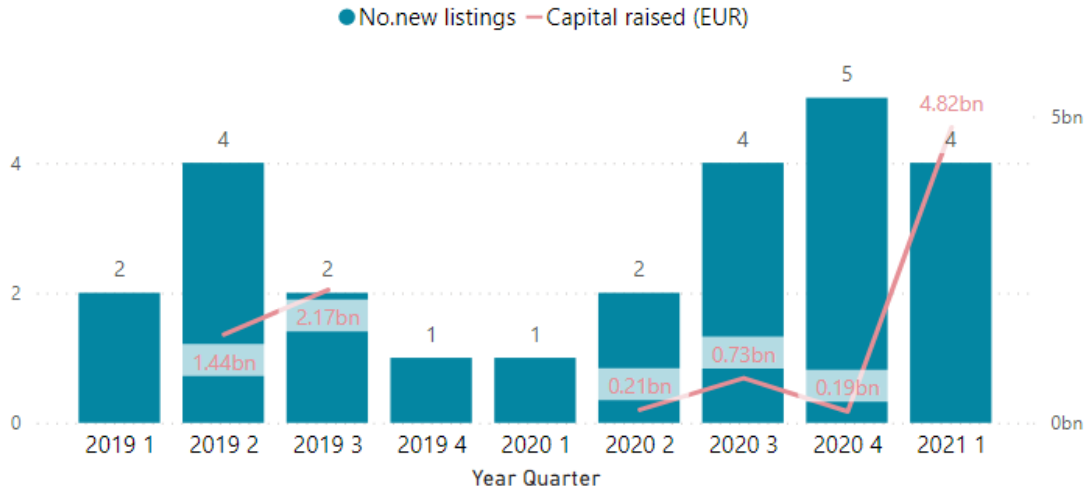

Figure 31 – Number of new listings and capital raised in each quarter in Germany

Amidst all the listing types, IPO dominates the capital proceeds during the Pandemic period by collecting EUR 1 billion across six IPOs in 2020 and EUR 4.5 billion across three IPOs in the first quarter of 2021. In 2020, four more IPOs were filed on the German stock exchange than in 2019, but the IPO proceeds declined around 50%. Apart from IPOs, a meager portion of capital – EUR 0.39 billion was raised from private placements listings. Three direct listings and two market transfers are also counted into the total new listings in Germany during the Pandemic period. Dissimilar to the diverse international newly listed companies in the UK and

Norwegian stock markets, there are only two new international listings out of 16 in Germany under the pandemic time. One of them was from Austria and directly listed in 2020. The other one is an IPO from Luxembourg in 2021 and raised EUR 0.28 billion.

According to the classification standard from Deutsche Boerse, telecommunication is the leading industry by raising most capital during the Pandemic. It is where the largest IPO in the Pandemic time –Vintage Towers operates. Through IPO, Vintage Towers – Europe's leading 5G super hosts, received EUR 2.3 billion, accounting for 38.64% of the total proceeds during the Pandemic time and 2.1 times the total amount in 2020. With EUR 1.8 billion collected, the second-largest IPO – Auto1 Group, made the retail industry the second largest industry by IPO proceeds. Lying in the middle range, industrial and technology raised roughly EUR 0.5 billion each across two and three new listings correspondingly. Financial services raised EUR 0.3 billion, a lower amount than in industrials despite the same number of new listings. As one of the world's leading countries in motor vehicle production[67], two new automobile listings were witnessed in the German stock markets, even though total production in the automobile industry decreased 24% in 2020. Unlike in Sweden, where healthcare is booming, the German capital markets have only one healthcare new listing during the Pandemic, raising around EUR 0.1 billion.

When using the FTSE Russell Industry Classification Benchmark (ICB) rule, retail and automobile fall into the "Consumer Discretionary" category, and Software falls into the "Technology" sector. As presented in Figure 33, this standard has not made significant changes to the industry rank by the fundraising value but by the number of new listings. The consumer discretionary and the technology sector become the most active sectors with four new listings in each, while industrials and financials fall to second place.

[67] Information source: https://www.oica.net/category/production-statistics/2020-statistics/

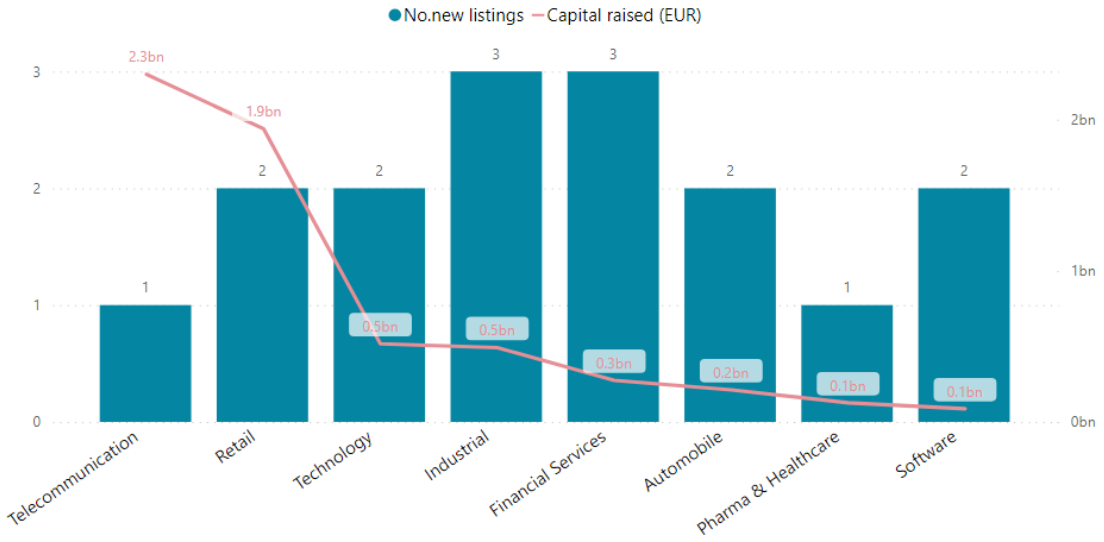

Figure 32 – IPO activity distribution by industry in Germany by Deutsche Boerse standard

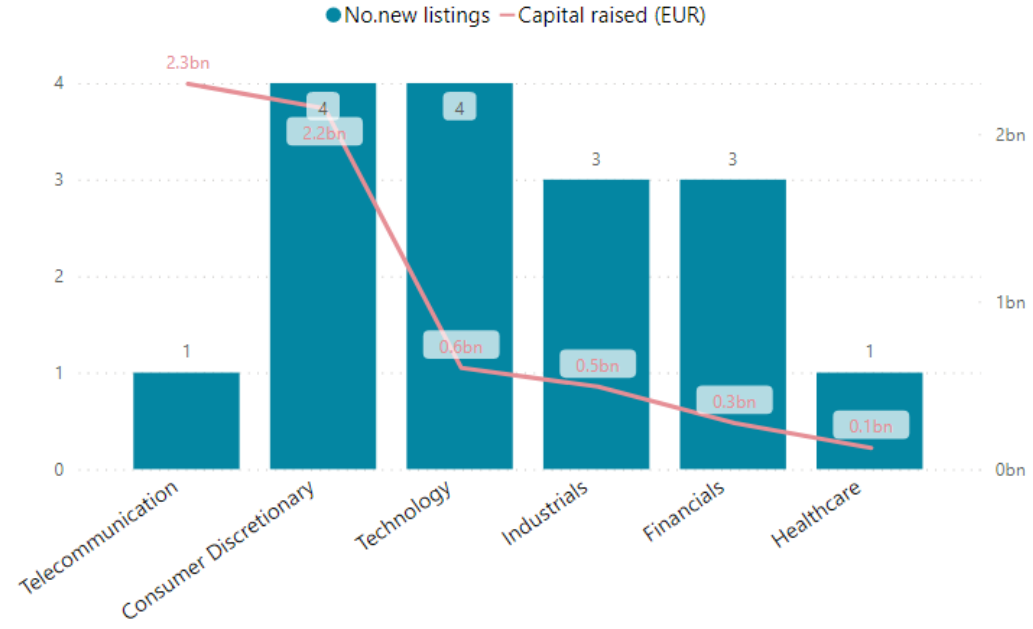

Figure 33 – IPO activity distribution by industry in Germany by ICB standard

The time series of the primary market in Germany is full of rollercoaster types of ups and downs. There are several historically low and high points from 1997 to the first quarter of 2021. After a decade of the bull market and excessive speculation of Internet-related companies in the late 1990s, the German IPO market reached a historically high level of IPO proceeds in 2000 at EUR 27.17 billion. However, the IPO market then experienced a free fall in 2001 due to the market correction for the unreasonable speculation, which is the so-called

"Dot-Com bubble" or Internet bubble. That depressive situation lasted for four years and started to rise again in 2005 and reached the peak in 2007.

Notwithstanding, like many other stock markets, the German stock market did not manage to dodge the financial crisis in 2009 when the IPO market experienced another free fall. In 2012, when the whole world was worrying about the European debt crisis[68], the German market experience a new free-fall from 219 new listings to 23 new listings. Afterwards, the German market became particularly quiet for ten years, and the maximum number of new listings is just 25. Thus, the IPO activity level during the Covid-19 Pandemic time is not the worst compared with the previous low periods.

Another interesting phenomenon in the historical German primary market is the distribution of the Open Market and the Regulated Market at different times. The open market is designed for the companies who want to go public but do not meet up the requirements in the Regulated Market. The transparency requirements on the Open Market are also lower than the Regulated Market, which made it more attractive to small and medium growth companies. The number of new listings on the Open Market had dominated the German primary markets from 2005 to 2010, even with a low portion of IPO value. However, with lower requirements and fewer regulations, the companies and investors on that market also embrace higher potential risks. As presented in Figure 35, the Open Market became exceptionally still, and the IPO activity nearly halted after 2010.

[68] Information source: https://www.bbc.com/news/business-13856580

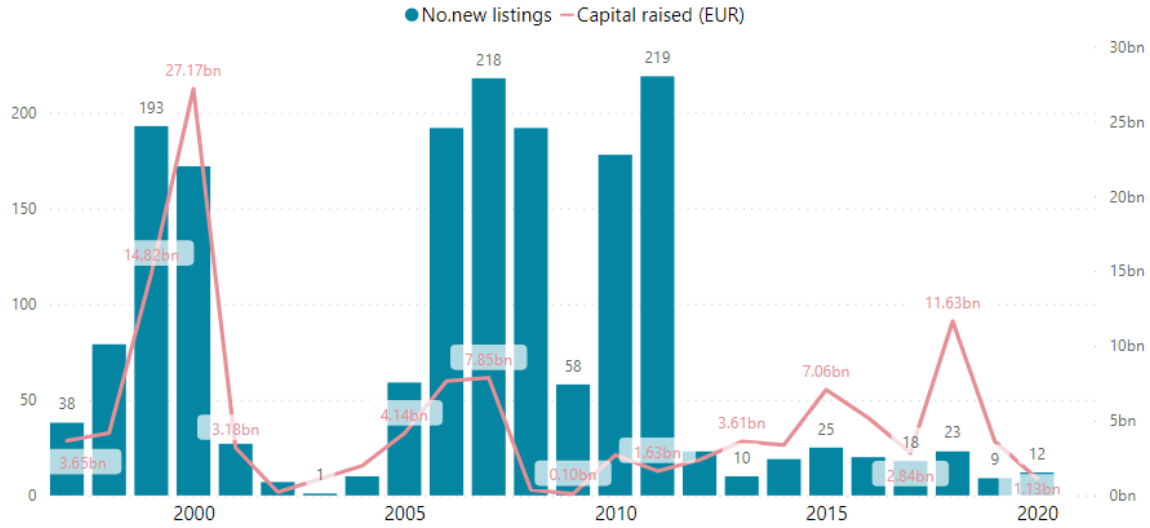

Figure 34 – Time series of new listings and IPO proceeds in Germany

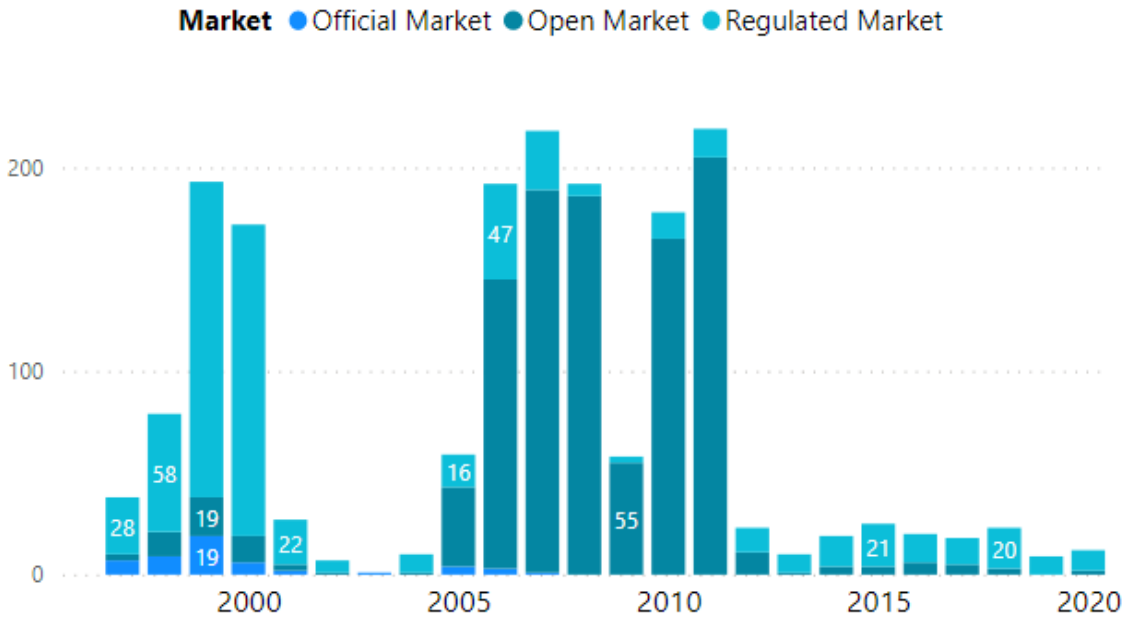

Figure 35 – Time series of new listings on each market in Germany

3.9 Italy

As the only country where both the number of new listings and the capital proceeds from new listings decreased in 2020 from 2019, Italy's IPO market has been floundering during the Pandemic. Within the Pandemic period, EUR 0.71 billion was raised across 22 IPOs in 2020, and EUR 0.11 billion was raised over five IPOs in the first quarter of 2021. The IPO proceeds in 2020 are just 28% of what they were in 2019, and the amount of IPOs in 2020 is only 65% of what it was in 2019.

With just eight IPOs reported in the first three quarters of 2020, the Italian IPO market has been unusually quiet due to the rising number of Covid-19 infected cases and high death rates. An improvement was witnessed in the fourth quarter with 14 IPOs. In the first quarter of 2021, EUR 0.11 billion was received through five IPOs, amounting to only 15% of the total proceeds in 2020. Compared to the countries in the previous chapters, the recovery speed in Italy is slightly slower.

Among all IPOs, the Growth Market – AIM-MAC dominates the volume while the Main Market – MTA dominates the IPO value. In total, EUR 0.18 billion was raised over 25 IPOs in the growth market, and EUR 0.64 billion got collected from just two IPOs in the Main Market. The primary IPO income in the Main Market during the Pandemic comes from a filter technology company called GVS, listed in June 2020. The IPO of this company successfully collected close to EUR 0.6 billion, accounting for 81% of the yearly IPO proceeds. Notably, this company was mainly supplying the healthcare sector before it offers diversified filter solutions globally. In other words, the increasing demand for filtering solutions in the health care sector due to the outbreak of the Covid-19 Pandemic may have contributed to the IPO success of GVS. Another thing worthy of note is that no international company has been admitted to the Italian Stock Exchange during the Pandemic period. The low attractiveness might due to Italy's contracting economy and the Covid-19 pandemic predicament.

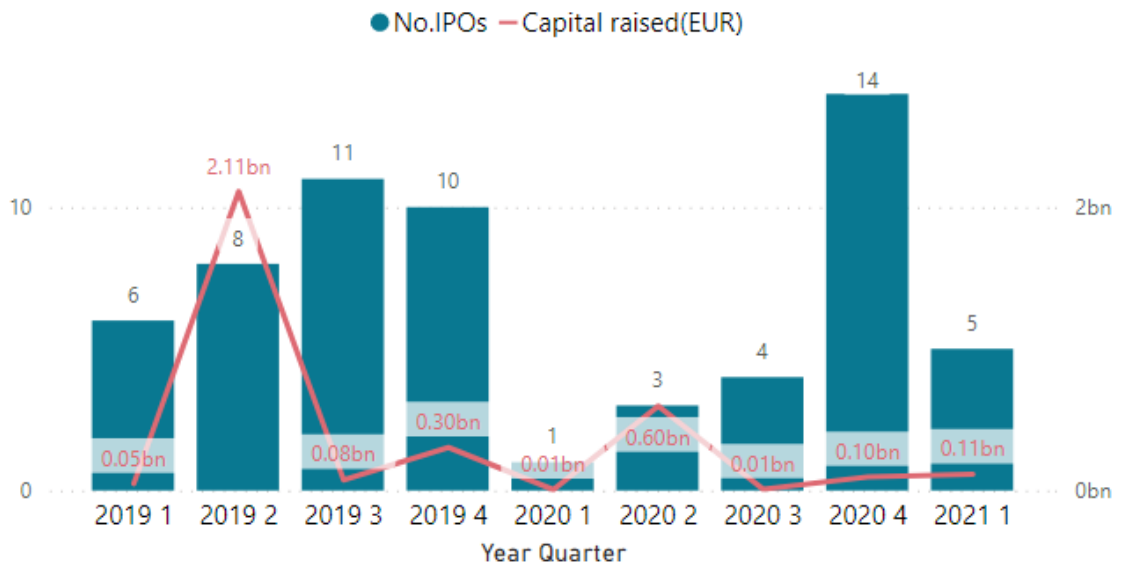

Figure 36 – Number of new listings and capital raised in each quarter in Italy

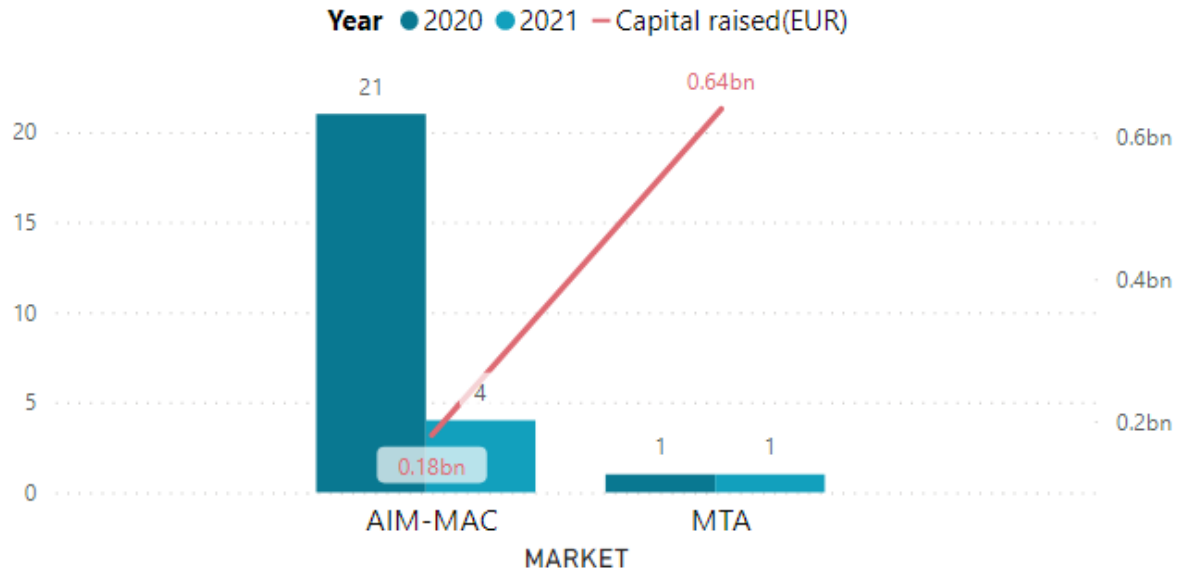

Figure 37 – IPO activity on each stock market in Italy

Despite the low IPO activity, the new IPOs during the Pandemic have covered a broad industry spectrum[69]. Being the industry where the largest IPO is operating, the technology industry is the leading industry in the Italian IPO market. During the Pandemic, EUR 0.65 billion was raised from 10 IPOs in the technology industry. The second and third most active industries

[69] The industry distribution is according to the FTSE Russel ICB standard

are industrial and healthcare industries, with seven and four IPOs. Following the healthcare sector, two companies from the consumer discretionary industries also went IPO in 2020. Worth mentioning, among the two companies, one is in the hotel sector, while the other is a film production company. While these two industries were the ones that suffered the most from the Covid-19 Pandemic, it is thrilling to see firms in these sectors went IPO at this challenging time. In addition, there is also one energy company that offers photovoltaic energy that went IPO on the Italian Stock Exchange in 2020.

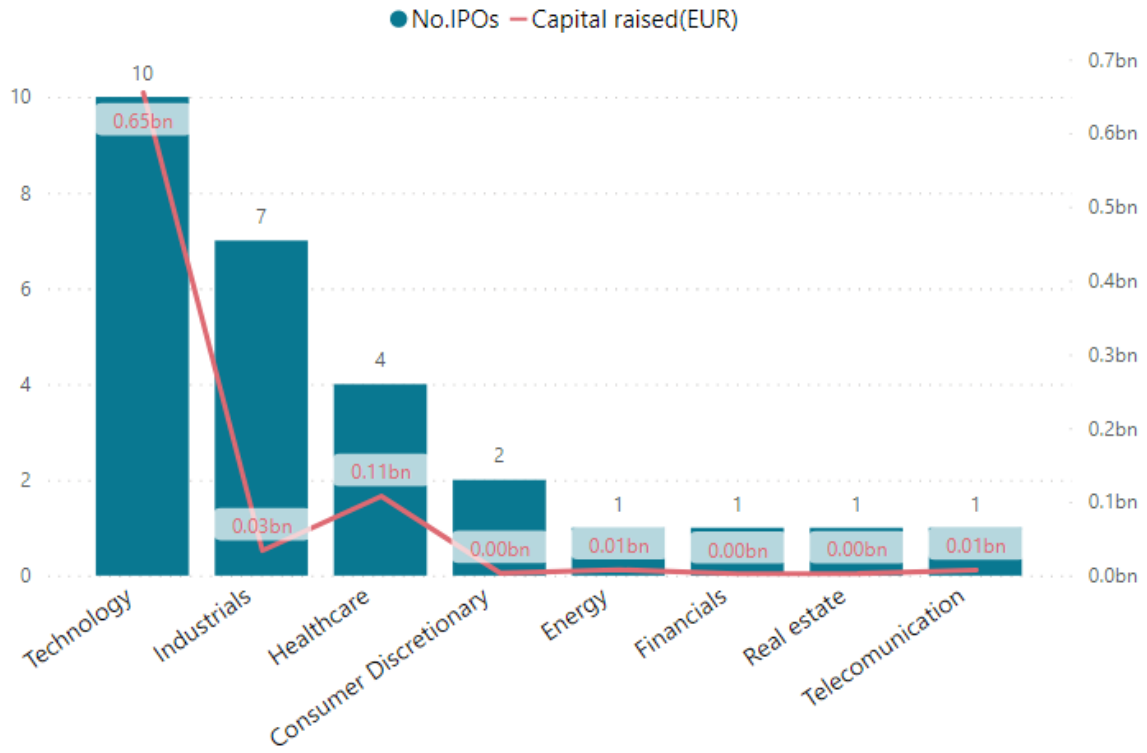

Figure 38 – IPO activity distribution by industry in Germany by ICB standard

Like Germany, the IPO activity in 2020 is not prosperous, but not the worst either in the history of the Italian Stock Exchange. On the opposite, it has been one of the better years when tracing the IPO records back to 1995. As illustrated in Figure 39, the Italian IPO markets have also experienced the “Dotcom” bubble in the early 2000s, the financial crisis in the late 2000s, and the Eurozone crisis in the early 2010s. The historically lowest level of new listings is in 2009 and 2012 with only eight new annual listings, while the highest level was in 2000 with 49 new listings.

As a result, 2020 has been a relatively good year for the Italian Stock Exchange, with a total of 24 new listings. Similarly, in terms of the Italian Stock Exchange's market capitalization,

2020 is higher than in the previous ten years. Despite the fact that the number of total listed companies on the Italian Stock Exchange hit a new high in 2020, with 464 total listings, the market capitalization is approximately 26% smaller than in 2000, when there were just 297 listings.

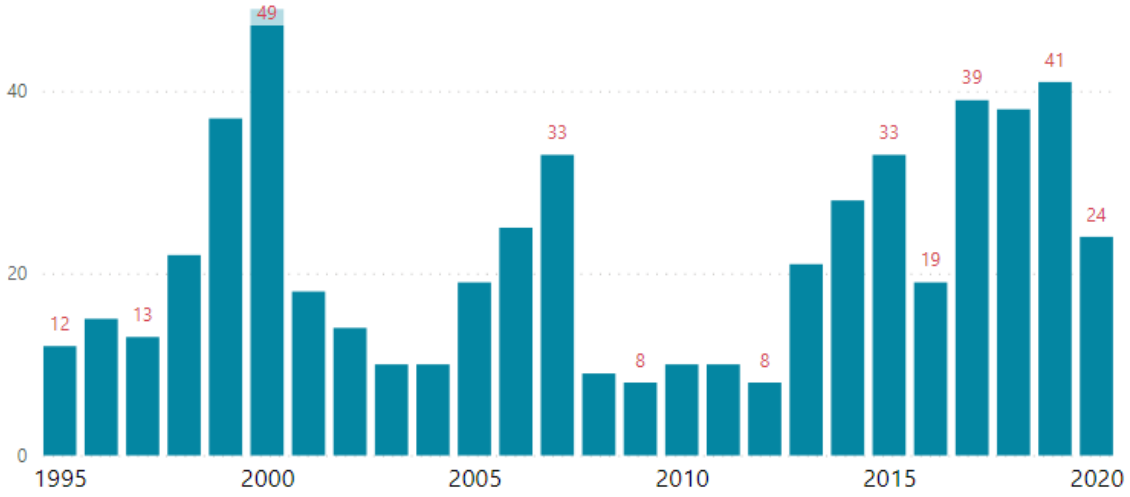

Figure 39 – Time series of new listings in Italy

3.10 France

In the first two quarters of 2020, the IPO market has not seen apparent influence by the eruption of the Covid-19 virus. In those quarters, both the number of new listings and capital proceeds are higher than the same period in 2019. The drop was lagged until the third quarter, and the paramount discretion in fundraising was created in quarter four with EUR 0.35 billion raised from 15 new listings. In the first quarter of 2021, the IPO market is relatively busier than in 2020 and 2019, with 12 new listings.

During the Covid-19 pandemic period, the French IPO market has raised EUR 0.5 billion through 37 new listings in 2020 and EUR 0.1 billion through 12 new listings in the first quarter of 2021. Out of the 49 new listings, 30 are listed on Euronext Growth, 12 on Euronext Access, and seven on the Main Market – Euronext. With nine more listings than 2019, 2020 has been a more active year for the French IPO markets. Nevertheless, the increment in the numbers did not bring a proportional increase in the fundraising. Conversely, the capital proceeds from

new listings in the French IPO market decreased to EUR 0.5 billion from EUR 2.9 billion in 2019.

One of the main reasons behind the disproportionate change in volume and value of the new listings in 2020 is that 20 out of the 49 new listings during the Pandemic are market transfer, and 16 are direct listing, which did not raise any funds. All fundraising is from the ten IPOs and the one private placement listing, as presented in Figure 41.

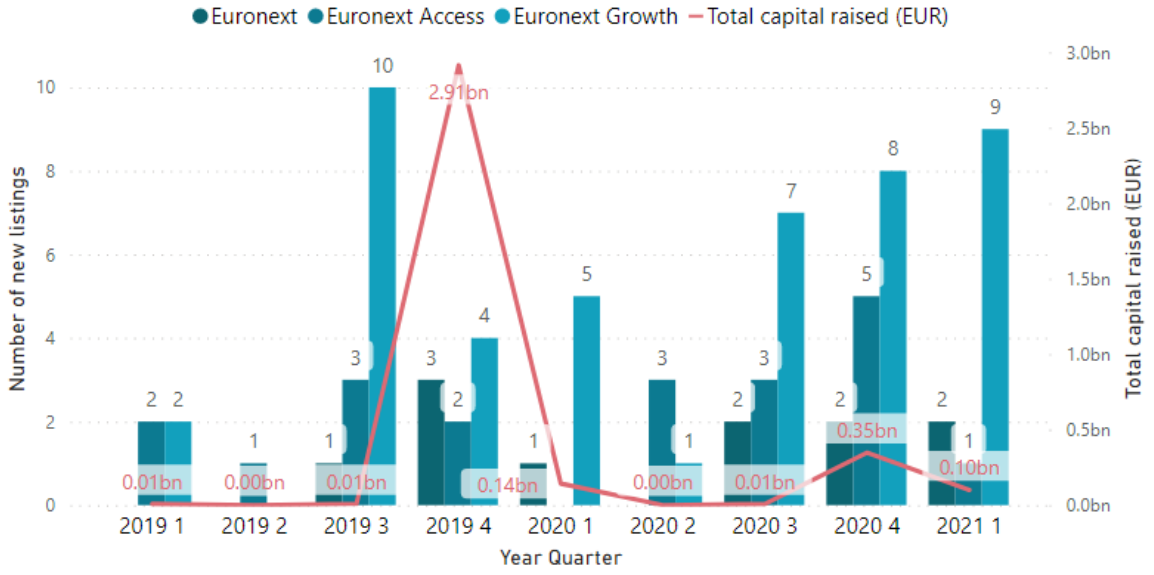

Figure 40 – Number of new listings and capital raised in each quarter in France

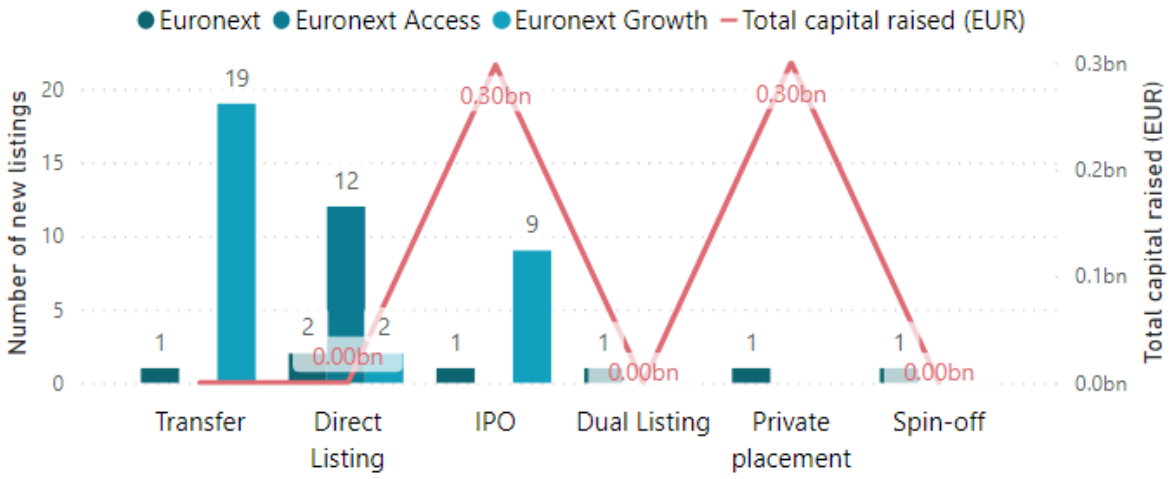

Figure 41 – IPO activity distribution by listing type in France

The largest new listing in the French IPO market through the Pandemic period is a private placement by 2MX Organic, a financial company incorporated as a SPAC and raised EUR 0.3 billion. The private placement income is roughly 50% of the total periodic proceeds. Due to this extensive listing, the financial industry raised most capital under the Pandemic on the French primary market. Meanwhile, the technology industry has the highest number of new listings even though only EUR 0.04 billion was raised through three technology IPOs. Following technology, consumer discretionary health care and real estate have the same amount of new listings. However, consumer discretionary is the second largest industry by the value of capital raised, in which EUR 0.12 billion was received from the IPO of the gaming company Nacon SA. While industrials and consumer staples ranked before the energy industry by the number of new listings, the energy industry has collected a higher quantity of capital at EUR 0.08 billion via one renewable energy IPO.

Remarkably, the French IPO market has been an attractive market for many other European countries. Amid all the new listings on the French stock markets during the Pandemic, 18 companies are from other surrounding European countries such as Spain, the UK, and the Netherlands. Interestingly, all international listings are directly listed without raising funds.

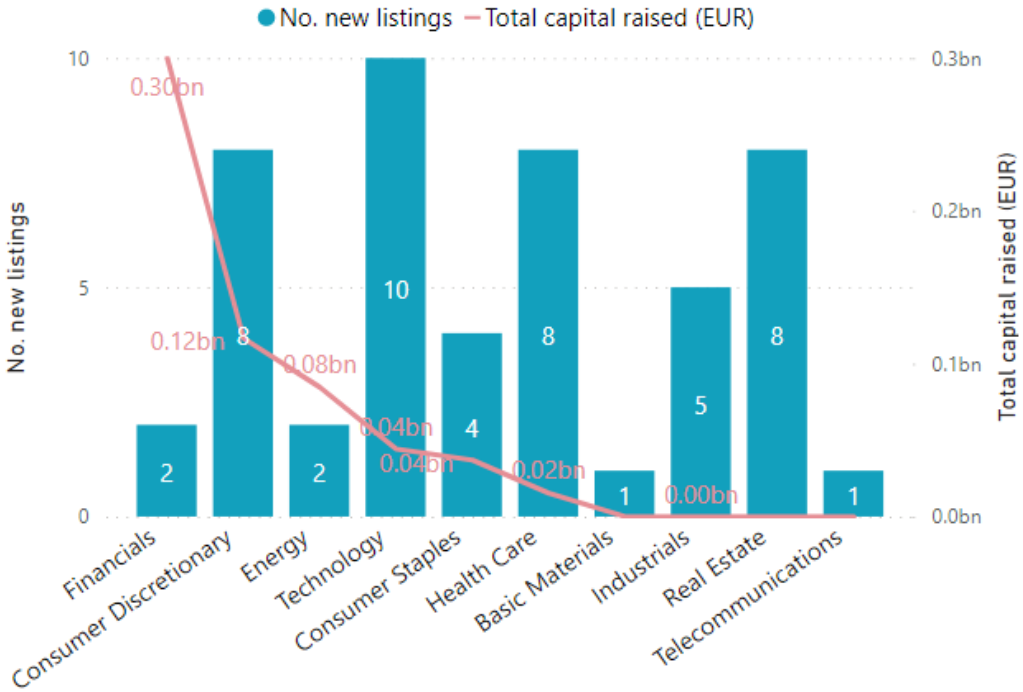

Figure 42 – IPO activity distribution by industry in France

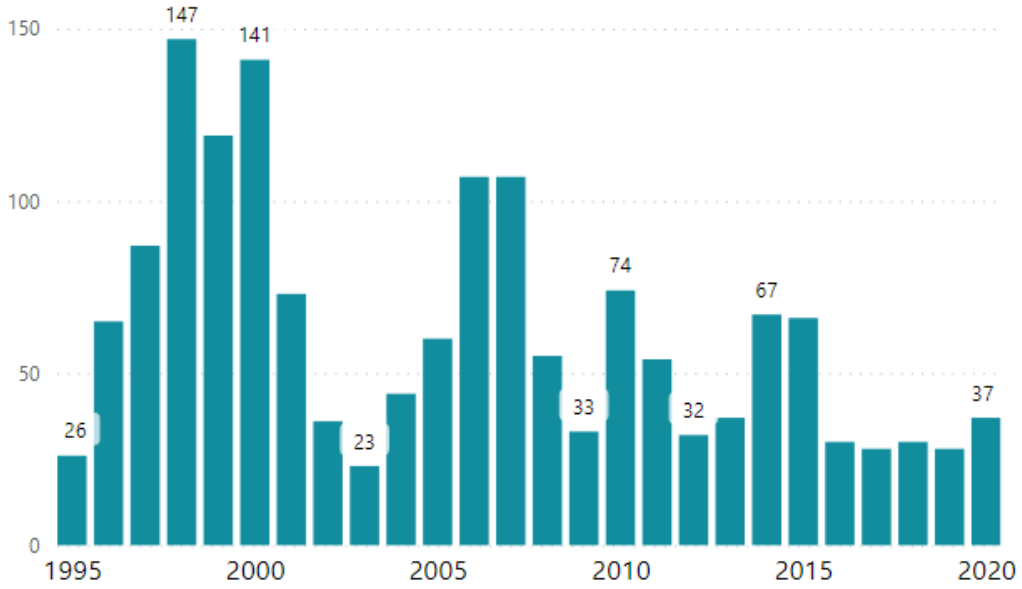

Figure 43 – Time series of new listings in France

In spite of the increase in the number of new listings in 2020 relative to 2019, the new listing activity level does not seem cheerful when looking back at the French listing record for the last 20 years. The key historical moments of new listings in the French market are similar to the other European markets, which have been unavoidably hit by the internet bubble in 2002, the financial crisis in 2008, and the Eurozone crisis in 2012. The lowest level of new listings is in 2003, with only 23 new listings, while the highest level is in 1998 with 147 new listings. After the EURO zone crisis, the French IPO market had witnessed two recovering years in 2014 and 2015 but then fell back to the crisis level in 2016. Afterwards, the number of new listings has not exceeded 30 until a marginal increment happened in 2020. In other words, the IPO activeness of the French IPO market in the years between 2016 and 2020 is approaching the historical crisis level.

4. Main drivers of the Norwegian IPO boom in 2020

There is no question that the bustling of IPO operations has made 2020 a remarkable year for the Norwegian capital markets. However, various players in the industry have different perspectives on the critical drivers of the Norwegian IPO boom in 2020. In this chapter, several potential aspects will be addressed and analyzed. These aspects include the listing process on Merkur Market, the first-day returns for IPOs, the concept of cornerstone investors, the innovation culture in Norway, and the green transition wave.

4.1 A smoother listing process on Merkur Market

One of the Norwegian IPO boom drivers in 2020 is the smoother listing process on Merkur Market relative to the other two Norwegian stock markets (Norwegian IPOs - Summer Update, 2020). As one banker stated, many companies were not planning to go public, but Merkur Market offered an alternative for them to being bought by private equity (Raitano, 2020).

As a growth market, Merkur Market has much lower listing requirements than Oslo Børs. It does not require the market cap of the company, no need full financial and legal due diligence, and allow for very flexible accounting standards. Instead of the EEA prospectus document, Merkur Market only demands a simple admission document. Moreover, it does not require the company to have fully commenced activities, meaning a small firm can still go public at a very early stage. The minimum proportion of share capital distributed among the general public is 15%, which is 10% lower than Oslo Axess and Oslo Børs. On top of the less extensive requirements, Merkur Market is considered one of the most efficient admission processes. It takes only 1-2 weeks to process the admission documents, compared to 4-8 weeks on Oslo Axess and Oslo Børs. Besides, the typical listing fee on Merkur Market is between NOK 120 thousand to NOK 647 thousand, while on Oslo Børs is between NOK 772 thousand and 1299 thousand (Raitano, 2020).

This point seems sound, but it is insufficient to carry water on its own. First and foremost, Merkur Market has existed in the Norwegian stock markets for several years since the establishment in 2016. Merkur Market's conditions have remained essentially unchanged, implying that the benefits of the listing process have remained unchanged. However, evident

listing advantages were observed in the past years when the number of new listings on Merkur Market was lower or equal to Oslo Børs. Secondly, similar growth markets exist in all the other seven European countries as well, and all the growth markets have relatively lower requirements than the Main Regulated Market[70]. Nevertheless, the Growth Markets were less active than the Main Market. For instance, most of the IPO activities in Italy, Germany, and the UK were conducted on the Main Market instead of the Growth Market.

Thus, a smoother listing process, including the stock market requirements and listings costs, may influence a company's choice of the stock market. However, in this thesis, no evidence has been found that the smoother listing process of Merkur Market can drive an IPO boom.

4.2 Reinforcement from the high first-day returns

On average, the first-day return of all IPOs in Norway is 20.5% in 2020, 16.22% in the first quarter of 2021. While in the last three years, the average first-day return is just around 2%[71] for IPOs. The significantly higher first-day return made some players believe that the IPO activity was reinforced by the high return, attracting more investors and companies (Bøhren, 2020). An analysis will be conducted in this subchapter based on facts and empirical research to see whether the high first-day return impacts the surge of IPO activities.

4.2.1 First-day returns on IPOs[72]

In 2020, the annual average first-day return was roughly 22% on the Merkur Market and 9% on Oslo Børs. As illustrated in Figure 44, the average first-day return of the companies listed on the Oslo Stock Exchange is negative in the first quarter of 2020 but positive in all the other four quarters. For Euronext Growth (Merkur Market), the IPOs in all five seasons went over the issue price at the end of the first trading day. In particular, the average first-day return on

[70] For more detailed comparison of the stock markets, please refer to Table 1 in Appendix

[71] The 2% data is retrieved from E24's news report which is according to statistics from ABG Sundal Collier. Source link: https://e24.no/boers-og-finans/i/Aldrv5/norske-meglerhus-dette-er-noekkelen-til-aarets-noteringsfest

[72] Only include IPOs and private placements

Merkur Market, when the Norwegian IPO boom started, has seen the highest average first-day return at around 45%.

The substantially high return was especially seen in the green shares. In 2020, the new listings in the "green" class went on average 40% above the issue price. While in the first quarter of 2021, this number decreased to nearly 26%, partly influenced by the price plummet of green shares on OSE at the end of February[73]. The other non-green companies have a much lower underpricing percentage in comparison with the green shares. By having a large proportion of the "green" companies, the utility and energy sectors are seen most underpriced among all the sectors. Particularly, the first-day return in the utility industry is around 65% on average.

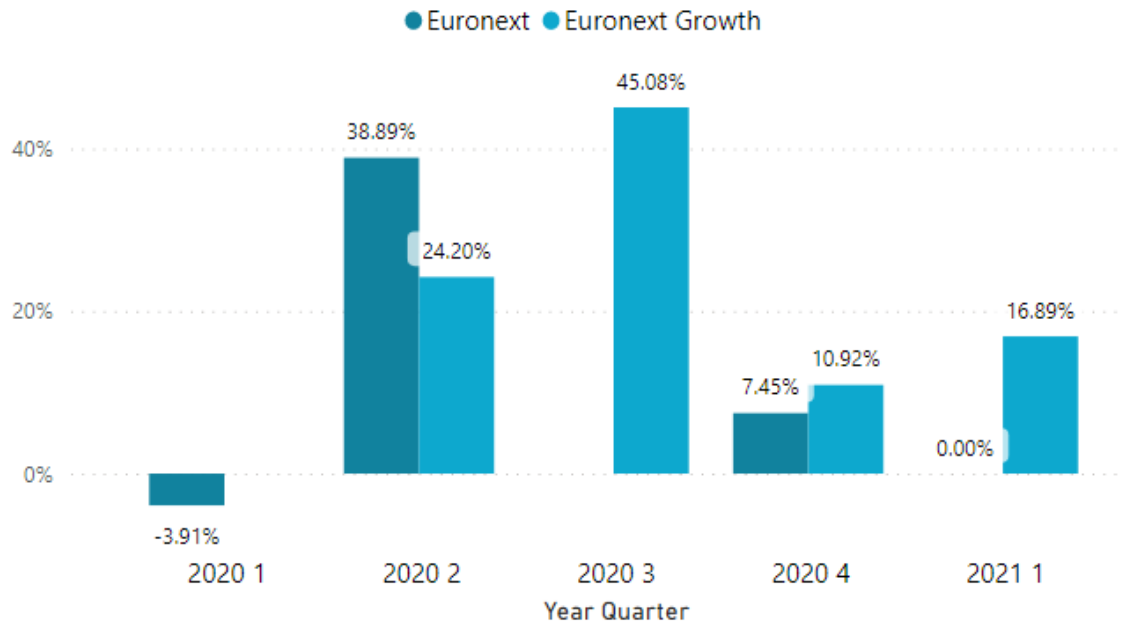

Figure 44 – Average first-day return on IPOs in each quarter in Norway

[73] https://www.nettavisen.no/okonomi/kursene-stuper-for-gronne-aksjer/s/12-95-3424092988

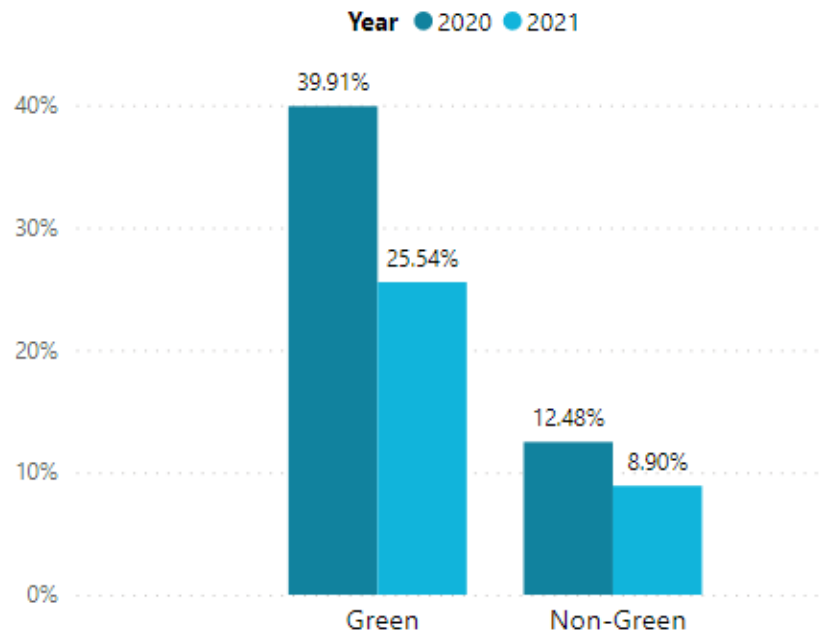

Figure 45 – First-day return by "Green" status of IPOs in Norway

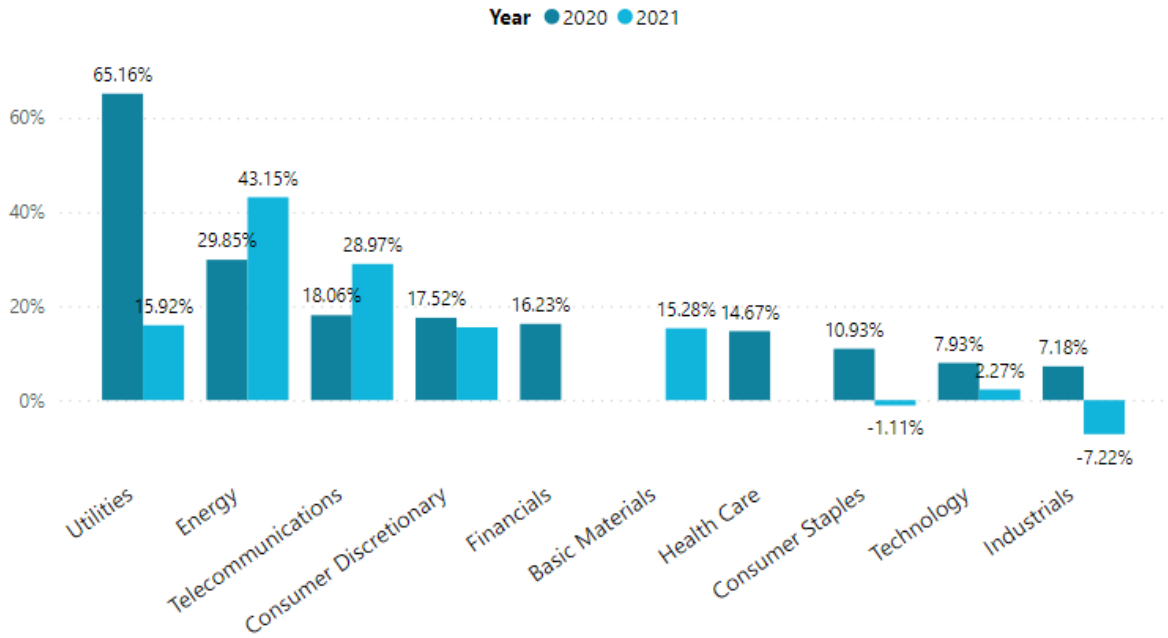

Figure 46 – First-day return of IPOs in each industry in Norway

4.2.2 Private investors surge[74]

2020 has witnessed a surge in private investors by around 91 thousand on OSE, of which 22 thousand are female and 69 thousand are male. Both females and males are experiencing a rise of about 8%. Meanwhile, the private investor sector's holding value rose by NOK 50 billion in 2020 from NOK 0.28 trillion in 2019. More impressively, the number of private investors on OSE increased by 30 thousand in just one quarter in 2021, reaching over half a million, which is approximately 10% of the population. In the same quarter, the holding value increased by NOK 30 billion. Compared to the previous five years, when only a total of 30 thousand new private investors entered the capital markets, the increase rate of private investors during the Pandemic has been remarkably high.

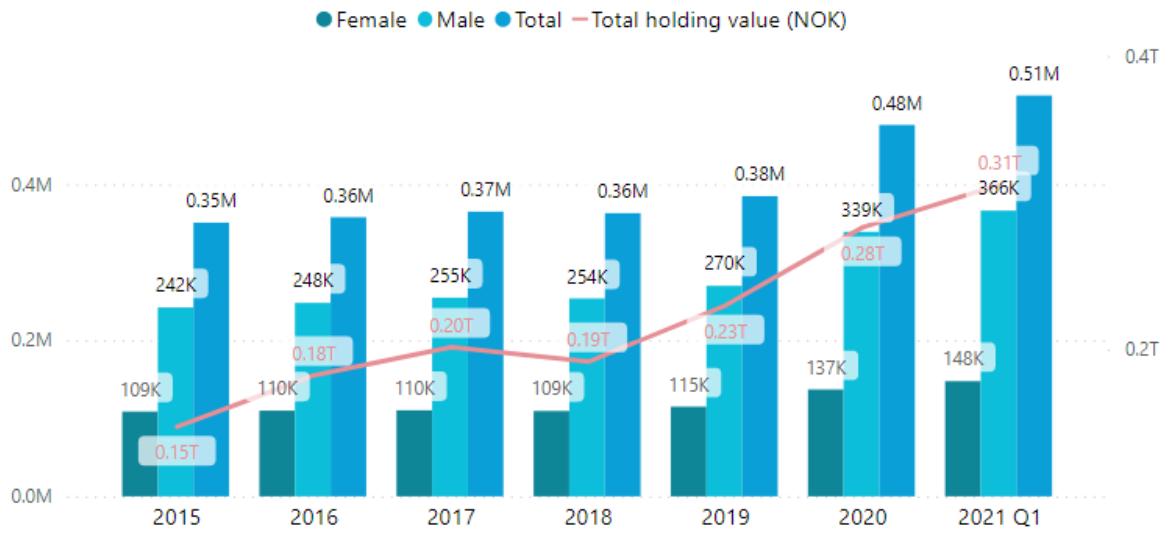

Figure 47 – Number of private investors and holding value (NOK) by gender - Norway

This expanding private investors stream is seeing in all the age groups in 2020, as illustrated in Figure 47 and Figure 48. The primary boosting group is between 20 and 29 years, with a growth of 77% in quantity and 93% in holding value. The group between 30 and 39 years has also increased significantly by 43% in number and 57% in holding value. Notably, the relatively younger group with age below 40 years old has higher growth than the relatively

[74] Private investor information is retrieved from Aksje Norge Annual Report 2020 who shared data with Euronext VPS. Source link: https://aksjenorge.no/wp-content/uploads/2021/01/Statistikk-Fjerde-Kvartal-2020.pdf

older group. Nevertheless, most value is held by the elder group over 40 years old, especially in the 55-69 group. The value of shares in the hands of over 40s has increased NOK 23 billion in contrast to NOK 6 billion increments in the below 40s group.

Since Merkur Market has a higher average first-day return than Oslo Børs, it is also essential to see whether the investors increased in Merkur Market. As Figure 50 shows, the number of private investors in the Merkur Market increased drastically by 644% in 2020, while the number barely changed in 2019. Within 2020, the number of private investors in Merkur Market is almost 7.5 times the amount in 2019. In particular, within one month in August of 2020, the number of investors has grown 116%, meaning the number of investors has been doubled within one month. August is also the month when Aker Offshore and Aker Carbon were listed. By the end of 2020, Aker Offshore and Aker Carbon are the listings with the highest first-day return among all IPOs in 2020 and with the most private investors.

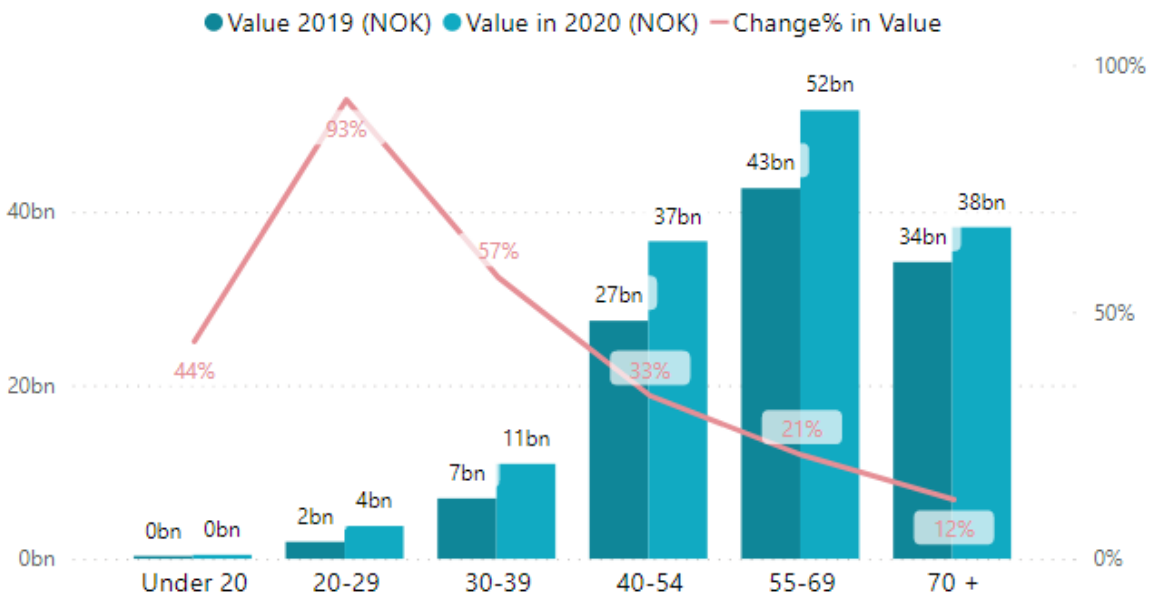

Figure 48 – Holding value by private investors and growth rate by age group in Norway

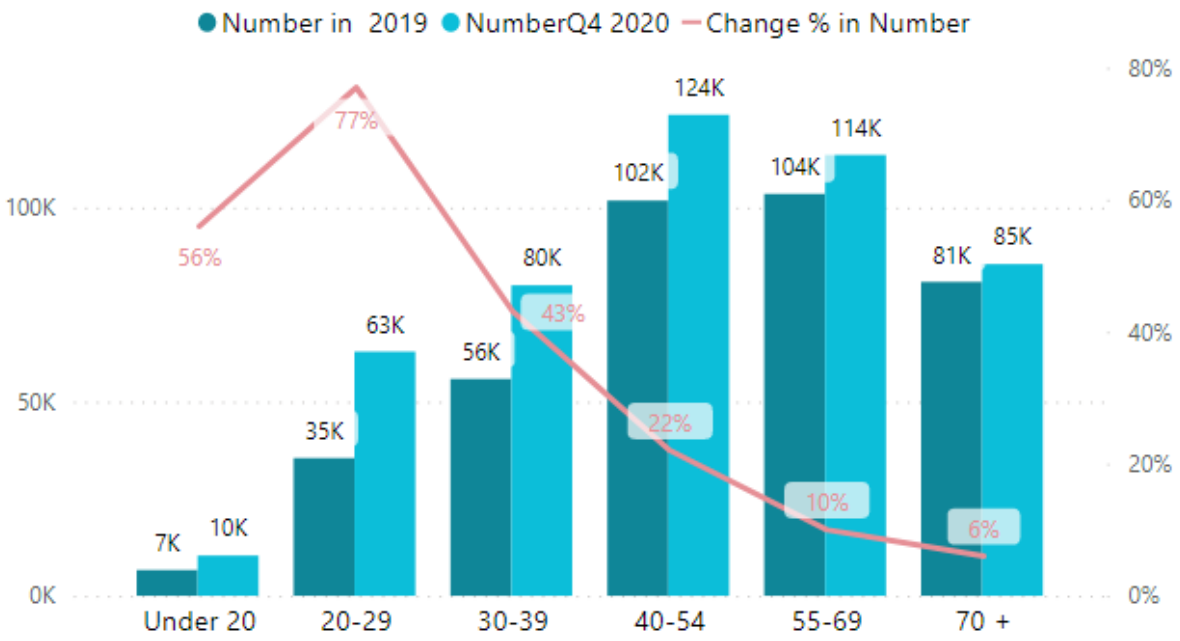

Figure 49 – Number and growth rate of private investors by age group in Norway

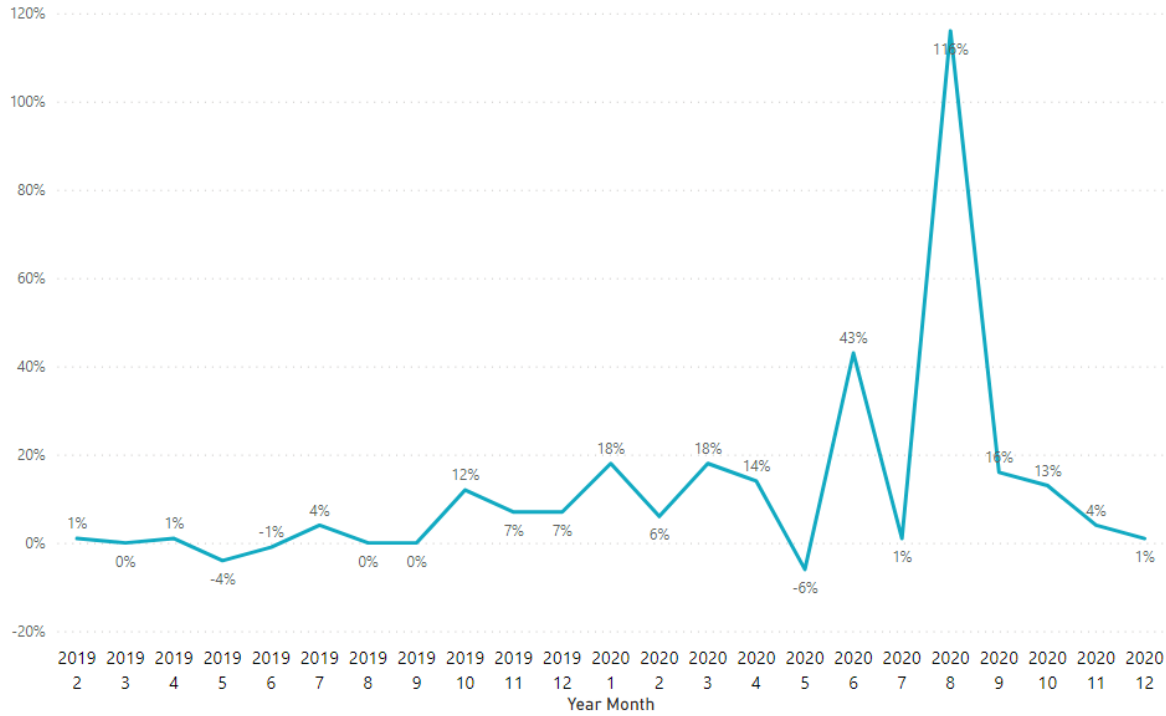

Figure 50 – The growth rate of private investors in Merkur Market. Adapted from Euronext VPS.

4.2.3 Share emissions and investments increase

Not only the private sector is growing. In 2020, the overall net purchases of listed shares increased by NOK 5 billion, hitting a ten-year high, as Figure 51[75] presents. The rise was primarily seen in the foreign sector, which invests as institutional investors in the Norwegian stock market. In 2020, foreign investors' net purchasing value increased by NOK 7 billion, outpacing 2018 and 2019. When the IPOs flourished in Norway in the fourth quarter of 2020, the net purchase increased to NOK 45 billion from NOK -6 billion in the previous quarter. Out of the NOK 45 billion, the overseas sector accounts for about 69%. Despite the fact that the Norwegian stock market is relatively small, it has been a popular investment place for international investors. In fact, the international investment sector has been the most prominent investment group for the past years, according to the statistic from SSB.

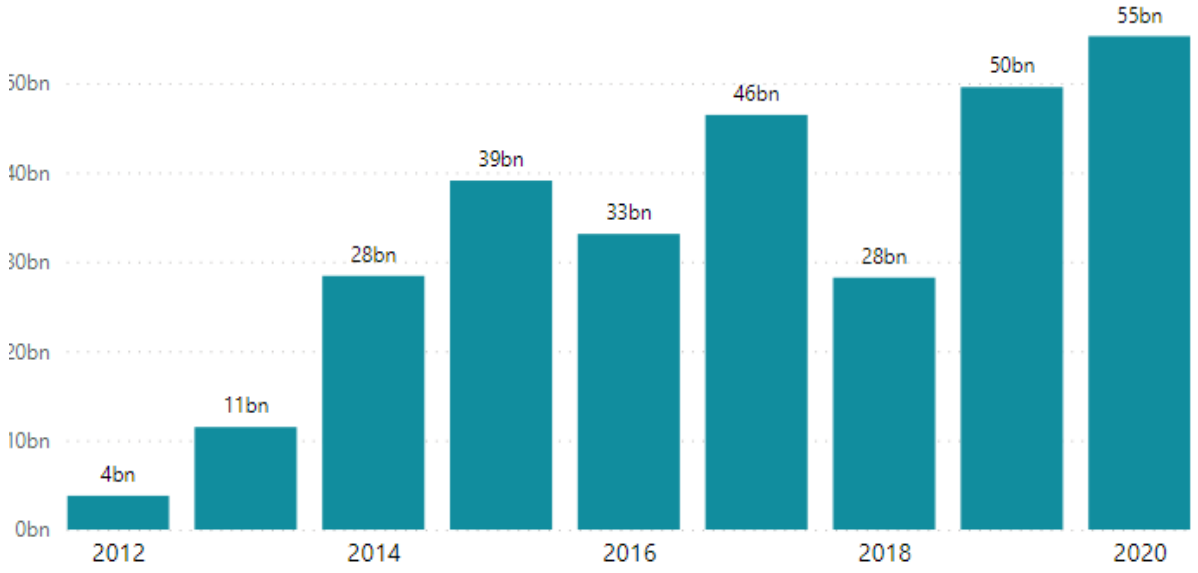

Figure 51 – Net purchases/sales (NOK) of listed shares in Norway from 2012 to 2020

Besides equity sales, the market value of listed shares on the Oslo Stock Exchange in each owner sector has consistently increased during 2020, with particularly strong quarterly growth (19%) in the fourth quarter. The rise in market value is mainly attributed to higher share prices and more share questions (SSB, 2021). The abroad sector has the most considerable market

[75] Data source: Statistic Norway, https://www.ssb.no/en/statbank/table/09445/

value and quarterly increments among all the holding sectors. However, as compared to the previous year, the total market value is down 7%. The only quarter that has outperformed the same quarter in 2019 is the fourth quarter, which increased by nearly 8%.

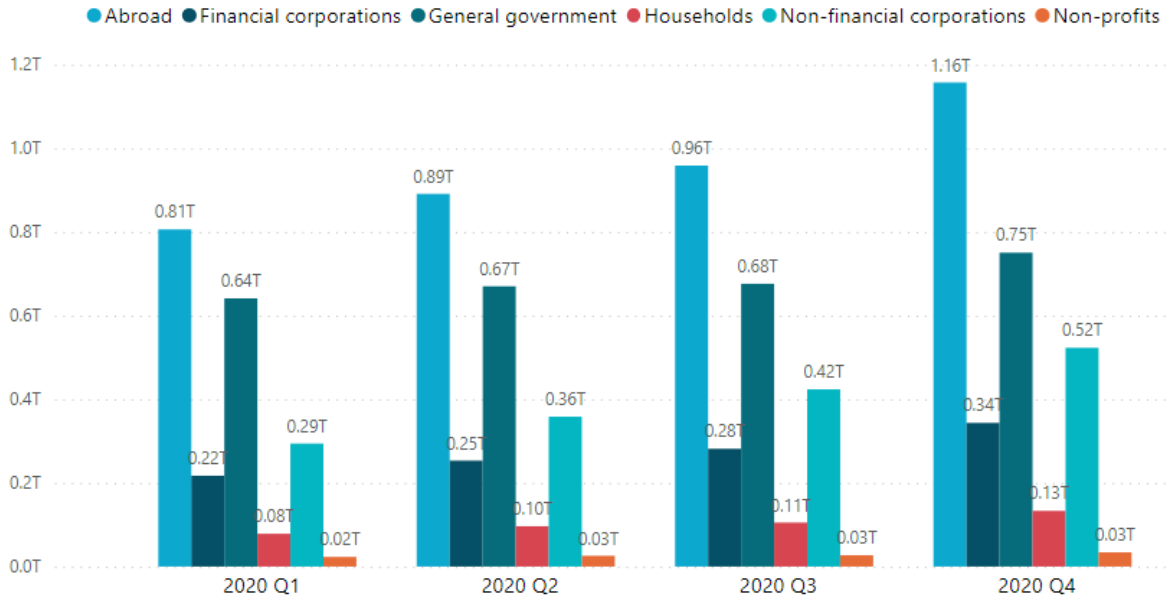

Figure 52 – Market value of listed shares registered on VPS by owning sectors

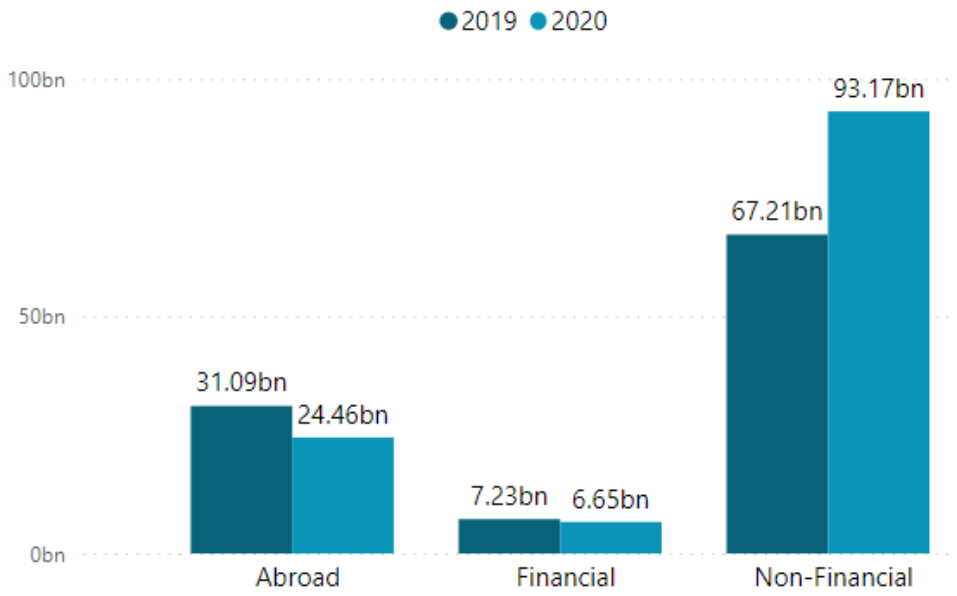

Figure 53 – Share emissions in each issuing sector in 2019 and 2020 in Norway

A monthly share issuing value by all issuing sectors in 2020 is shown in Figure 53. The rising issuing value trend is in line with the IPO proceeds trend described in Chapter 3.4. All the listed shares on VPS issued shares worth NOK 124.27 billion in 2020, rising about 18% from 2019. The domestic non-financial issuing market, in particular, has issued NOK 93.17 billion in 2020, accounting for 75% of the total issue value and up 39% from the previous year. However, the other two industries – international and financial companies – have fallen by 21% and 8%, respectively.

4.2.4 Interest rate and household savings

The Norwegian central bank has lowered the policy rate to 0.25 percent, a historically low amount, in response to the shock of the Covid-19 Pandemic. For both private and institutional investors, Treasury bonds and bank deposits are becoming less appealing investment choices. Meanwhile, household savings[76] hit a decade high of NOK 0.26 trillion, representing a 15.4 percent saving rate. The disposable income for households also increased 1.7% in 2020.

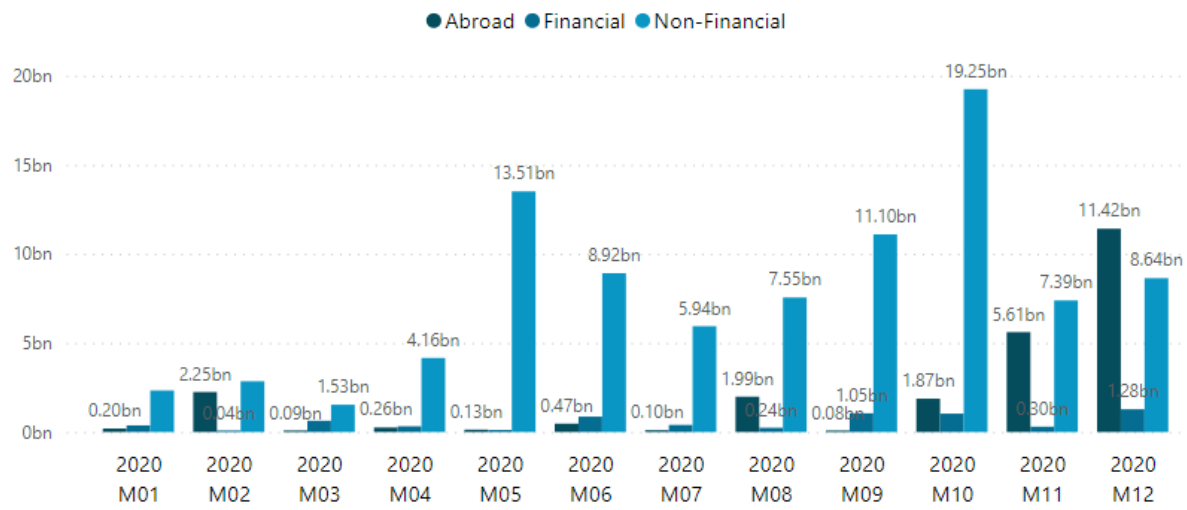

Figure 54 – Share issues by issuing sectors (NOK) in Norway in 2020

[76] Data source: https://www.ssb.no/nasjonalregnskap-og-konjunkturer/nasjonalregnskap/statistikk/nasjonalregnskap-inntekts-og-kapitalregnskapet

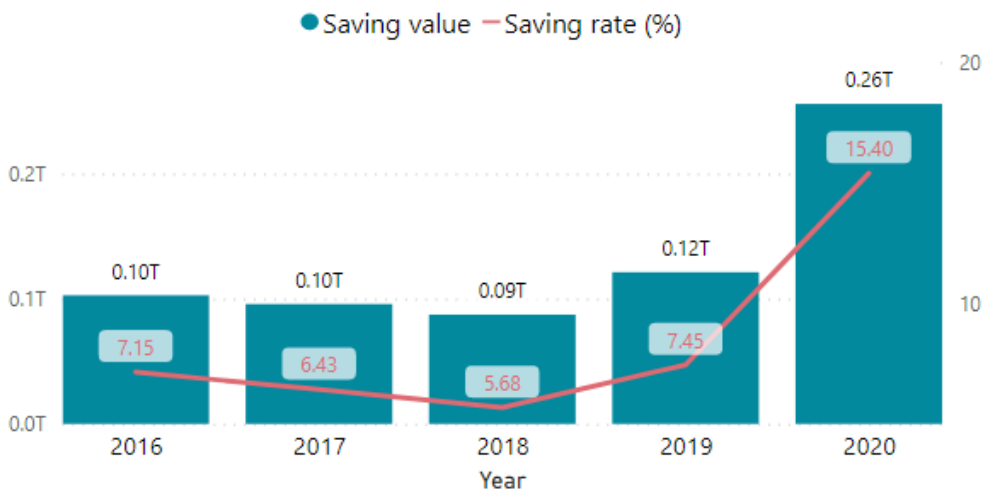

Figure 55 – Annual householding saving value (NOK) and saving rate in Norway

4.2.5 Argument summary

Based on the facts presented above, let us return to the point made earlier in this chapter, a high first-day return attracts more companies and investors, reinforcing the IPO growth. The previous findings reveal that after the high first-day returns observed, more IPOs and share issues appeared. Meanwhile, the net transactions, number, and holding value of private and institutional investors all increased in 2020. In other words, the phenomenon observed aligns with Bøhren's argument. Moreover, a similar phenomenon was observed in the German stock market. In 2020, the average first-day return for IPOs in Germany was 6.65%, an increase of 7% from 2019. At the same time, the number of IPOs increased 43% in 2020 from 2019.

Some empirical studies could also support this argument. Research done by Monash university suggested that higher underpricing will encourage a broader range of investors to participate, as well as a more dispersed ownership structure (Pham, Kalev, & Steen, 2003). Furthermore, this argument could be supported from another angle – market liquidity. Various previous empirical studies showed that the underpricing of IPOs boosts market liquidity in the secondary market (Bouzouita, Gajewski, & Gresse, 2015). This theory is further proved in Norwegian Market that aftermarket liquidity positively relates to underpricing (Bjørnerud & Kristiansen, 2019). Liquidity is an essential factor for all market participants by affecting the return on investment, trading cost, and risk (Foucault, Pagnano, & Roell, 2013). When the market is illiquid, investors, brokers, and share issuers all can face a higher cost and risk of

trading. This liquidity argument then can explain why the smoother listing process did not manage to lead active IPOs on Merkur Market in previous years due to the low liquidity. In other words, the high first-day returns on the Norwegian market, especially on the Merkur Market, the high first-day return of IPOs may have improved the market liquidity, hence contributing to investors' growth and share issues.

However, no firmed and definite conclusion should be given to this argument due to the following reasons. Firstly, this argument could not be backed by data from the United Kingdom, where the average first-day return in 2020 is 10.54%. The return in 2020 is down about 20% from 2019[77], while the number of IPOs increased by 40%. On the contrary, the number of IPOs between 2010 and 2018 was higher than in 2020, despite a lower average first-day return.

Secondly, the logic between the increase in investors and first-day return is a chicken-egg problem. It is hard to define which is the cause and which is the effect. For instance, a cross-section regression analysis showed that the initial returns are mainly influenced by investor sentiment and demand, with evidence from Germany (Oehlera, Rummer, & Smithb, 2004). Another research that used the Indian IPO data also suggested that the unmet demand of non-institutional investors primarily drives the first-day return (Clarke, Khurshed, Pande, & K.Singh, 2016). Based on these two research results, one could conversely argue that the increasing investors' participation in the IPO market contributed to the high first-day return of Norwegian IPOs.

Moreover, an adverse effect of severe underpricing of IPOs is that companies receive less cash than they could, potentially dampening their wealth. Evidence was found in the US IPOs that minimizing the company's wealth losses determines the extent of the trade-off between underpricing and promotion (Habib & Ljungqvist, 2001). This evidence indicates that when companies can influence the first-day return, they will balance underpricing or promotion to minimize wealth loss instead of only preferring high first-day returns. In other words, high first-day returns may not necessarily attract more companies to go public.

[77] Data source: https://site.warrington.ufl.edu/ritter/files/UK-IPOs.pdf

Last but not least, the historically low interest rate could make stock market investment more attractive than other investment alternatives such as treasury bonds and bank savings (KPMG, 2021). In addition, household stock ownership positively correlates with wealth, age, retirement savings (Shum & Faig, 2006). That means the increase of investors' shareholding value could be influenced by the growth in household saving rate and disposable income.

In summary, this point has been supported by favorable data and scientific findings and opposed by adverse facts and research results. More research needs to be done to see if there is a connection between high first-day returns and the number of Norwegian IPOs.

4.3 Cornerstone investors

Another interesting phenomenon noticed on the Merkur Market is that many companies have used cornerstone investors in their IPO process. Many of the market players believe that well-known cornerstone investors have given the marketplace more credibility (Wiersholm, 2021) and owe the IPO success to introducing "cornerstone" concepts (Bøhren, 2020). Cornerstone investor is defined as "*a class of investors who commit in advance to invest a fixed amount of money, or for a fixed number of shares, in an IPO*" (Tan & Ong, 2013). In some places, such as Hongkong, the cornerstone investors are subject to a lock-up period when such IPO commitment occurs, while in Singapore, contractual lock-ups are rare (Tan & Ong, 2013). The cornerstone concept was more commonly deployed in Asia (Kerr, 2021) and the other Nordic markets such as Sweden (Ström, 2020). In general, cornerstone investors are well-known investors (Espinasse, 2018). They could be both individual investors or institutional investors.

Pexip, the video conferencing technology company, is the first one in Norway that has used cornerstone investors, according to the CEO of Carnegie Petter Hagen (Bøhren, 2020). Pexip was listed in May 2020 on Euronext Oslo, raising approximately NOK 2.4 billion (EUR 0.22 billion), making it the third-largest IPO in Norway in the same year. On the first trading day, the share price of Pexip has gone up around 39% over IPO price. In Hagen's opinion, the success of Pexhip's IPO opened the eyes of people and told the market that the Cornerstone investor concept also works in Norway.

Meanwhile, the Head of Equity Transactions (ECM) in ABG Sundal Collier - Magnus Kvinge, thinks that the involvement of a cornerstone investor in Pexip's listing has been helpful for the transaction during the market turbulence (Bøhren, 2020). According to Kvinge in the same newsletter, following the successful introduction of cornerstone investors in Pexhip's leading, many other firms, such as Ice Fish Farm, Andfjord Salmon, Mercell, Link Mobility, Meltwater B.V, have successfully listed with cornerstone investors. In particular, Link Mobility and Meltwater are the two largest Norwegian IPOs in 2020, with Link mobility listed on Euronext Oslo and Meltwater on Euronext Growth. On top of that, most of the cornerstones who participated in the IPO are also with high credibility, for instance, DNB Asset Management, Nordea Asset Management, and Folketrygdfondet.

In the eyes of Petter Hagen, the CEO of Carnegie and Corporate, the commitments of cornerstone investors in Norwegian IPOs can provide security and positive signals to other investors (Bøhren, 2020). This argument is also documented in an article written about the cornerstone investors in Asian IPOs. In this article, several benefits of cornerstone investors were highlighted. One of them is that the signaling effect and halo effects of cornerstone investors are particularly high among the retail investors that do not have thorough analysis availability and limited access to information (Tan & Ong, 2013). According to the same authors, the participation of cornerstone investors can significantly raise the profile of an equity issue and demonstrate their interests to a broader range of investors. The chances of a favorable price and transaction success are also increased by stimulating demand and carrying out optimistic signals to the public.

Similar arguments are also stated in a book for the practice guide of cornerstone investors in Asian IPOs. In the book, two functions of cornerstone investors are mentioned: attracting more participants and lowering the risk for both issuers and underwriters through the early commitment, reputation, and credibility (Espinasse, 2018). The role of cornerstone investors is especially important in a volatile equity market. A report in FactSet mentioned that the involvement of a high cornerstone investor during the highly volatile time could improve the credibility of the IPO and contribute to the success probability of an IPO (Jakobsen, 2020). When market conditions are challenging, cornerstone investors not only attract more retail investors but also play a vital role in the success of an IPO (Tan & Ong, 2013).

Based on the above arguments, it is fair to speculate that the prior commitment of solid and trustworthy cornerstone investors during the pandemic time in Norwegian IPOs may have increased the likelihood of the IPO success. However, many of the prior studies were conducted in the Asian market. To prove the effectiveness of cornerstone investors in Norwegian IPO still needs further research.

4.4 Innovation

The Covid-19 Pandemic has changed consumer behaviors in many ways, such as home offices, digital learning, and online shopping. It also impacted industries in various ways, such as production processes and interruption of supply chains. As a result, these changes have squeezed out plenty of companies that cannot respond but made the survivors stronger. Based on this, one of the voices from many people is that the Norwegian market is more adaptive in dire economic conditions due to Norway's long-existed innovation entrepreneurial culture (KPMG, 2021). From the same report, Norwegian business is perceived to have many creative engineers and companies that are able to develop new, future-oriented technology.

In most cases, innovation creates positive changes, although it can lead to undesired results (Kylliäinen, 2019). According to the same author, innovation plays a vital role for society, companies, individuals, and economic growth. Around 84% of the executives agree that Innovation is an essential factor for growth (McKinsey&Company, n.d.). Moreover, open innovation can help organizations solve pressing problems and build a positive reputation in a crisis (Dahlander & Wallin, 2020).

More specifically, one study found that a lack of innovation before the financial crisis was one of the causes of the financial crisis in 2008 (Hausman & J.Johnston, 2014). Furthermore, the same research also argued that innovation plays a significant role in pulling the US economy out of the financial crisis. Another research that used innovation data in the Netherlands suggests that innovation positively impacts the probability of firms' survival to a great extent (Cefis & Marsili, 2006). Innovation capability also impacts the contemporaneous stock performance and the eventual firm survival (Guo & Zhou, 2016). A case study in Nigeria points out that product innovation and the survival of SMEs are significantly correlated (Ibidunni, Iyiola, & Ibidunni, 2009).

In 2020, around half of all European IPO transactions were conducted in the Nordic (Ström, 2020). In the same report, the CEO of ABG Sundal Collier – Jonas Ström, has mentioned that Nordic companies have been far better positioned to take advantage of the changed customer behaviors during the Pandemic. In other words, the Nordic companies have stronger feasibilities and adaptabilities to the Pandemic. The ability to adapt can be seen in the GDP figures of two Nordic countries, Norway and Sweden, which were the least affected by the Pandemic among European countries, with a decline of 2.5% and 2.8%.

Norway has started innovation culture at a fairly early stage. After several oil crises, Norway realized the importance of innovation and reduced reliance on the off-shore industry. Thus, the Norwegian government has taken various actions to encourage innovation activities. Many platforms have been established to facilitate the growth of innovative companies. Typical platforms are Innovation Norway and Startup Norway. By the end of 2019, over 60% of the Norwegian companies have conducted innovation activity in the previous two years, making Norway rank among Europe's ten most innovative countries (The Research Council of Norway, 2019). According to the same report, the primary innovative sector with high values is the small and medium-sized enterprises, which is also the primary sector of the IPOs in Norway during the Pandemic.

The effect of innovation encouragement policy in Norway could be seen in the new listings in those traditional industries. As an internationally recognized stock exchange for being a world leader in the energy, seafood, and shipping segments, Oslo Stock Exchange managed to retain this title despite the massive impact of the Pandemic. During the Pandemic span, Oslo Stock Exchange had five shipping listings, twelve seafood & fish farming listings, and fourteen energy listings, accounting for over 50% of the yearly new listings. Most of these firms have adopted innovative technologies or business models. For instance, the fish farming companies listed in 2020 are more on landfarming, moved from ashore farming. The energy sector is also transforming to a more renewable direction using technology innovation. In addition, eleven technology companies have also been successfully listed in Norway in the Pandemic time, which can further show how innovation helped Norwegian companies survive in a crisis.

On the other hand, Sweden is a world leader in promoting innovation and entrepreneurship as well (Sweden.se, 2021). According to the World Bank, Sweden's R&D spending as a

percentage of GDP is much higher than the global and European Union averages[78]. The Biotech industry in Sweden is one example of resilience achieved by innovation. In Sweden, the three priority industries of medicine and bioscience, technology, and environment are where most strategic investments have been made (Fisk, 2017). According to the same author, Sweden is particularly strong in biotechnology. As mentioned in Chapter 3.7, Sweden has various policies to encourage innovation in the biotech industry. As a result, 27 companies in the healthcare industries, with a primary emphasis on biotechnology, were successfully listed in Swedish stock markets during the Pandemic period.

In this case, someone may argue that the healthcare industry's listings surge is due to the Covid-19 Pandemic demand. However, to have that many listings, the country needs to have a certain amount of companies that can be listed. For instance, few healthcare companies occurred on the IPO list in other European countries in the same period. Secondly, Sweden has the highest infection rate among the right European countries despite relatively lower cases. The higher infection rate makes the Covid-19 situation more intense. However, there are still more companies going public, which can further support the survival ability of Swedish firms.

However, other considerations, such as the Pandemic situation in Norway, could interfere with this point. Despite being one of Europe's most innovative nations, Norway has the fewest infected Covid-19 cases and the lowest infection rate of the eight European countries. It is difficult to identify whether the companies' survival in Norway is due to the lower intensity of Covid-19 or their ability to adapt to changes through innovation. In order to check this argument in Norway, more extensive research by controlling other variables is needed.

4.5 Green transition wave

During the Pandemic period, Norway has seen a green IPO wave on Oslo Stock Exchange, which is unique among all other European stock exchanges. Despite the standards for “Green” shares in other reports that may vary from this thesis, it is no doubt that renewable energy,

[78] Information source: https://sweden.se/business/innovation-in-sweden/

technology, and waste handling are appearing more frequently on Oslo Stock Exchange. The emerge of green companies in the Norwegian stock market is not by coincidence. Along with the climate change agreements, all countries know that green transition is inevitable and the future. However, Norway is leading on this path. In Fact, Norway is a leader in the global green transitions and paving the path for other nations to reduce climate change (PAGE, 2016).

The transition level could be reflected, for example, on the electrification level in the automobile industry. By the end of 2020, electric vehicles in Norway take up 54% of the whole vehicle market share (Norwegian EV policy, n.d.). In addition, 98% of the electricity production in Norway is renewable, according to a report from the Norwegian government[79]. Moreover, the capital city of Norway – Oslo, was awarded as European Green Capital in 2019[80]. Moreover, Norway has been leading in many other areas, such as CO_2 capture and storage, offshore wind, hydrogen ferry, and hydropower storage (Holm, 2020). The author also mentioned that Norway has a large renewable energy company cluster, and NOK 10 trillion has already been invested abroad for renewable energy development.

To promote the green transition in the Norwegian economy and equip business and industry for a low-emission future, the Norwegian government has made various measures, including financial support and collaboration facilitation. For instance, in addition to the general support for innovation activities, Innovation Norway(IN) has launched a "Green Platform" to offer public funding for large comprehensive projects within green conversion. According to the statistics from IN, by 11th February 2021, 93 out of 400 applicants have received NOK 300,000 each from the "Green Platform." In May 2020, a green transition package worth NOK 3.5 billion was included in the Norwegian Covid-19 Pandemic crisis package[81], which is unique among other European stimulus packages. The green crisis package aimed to facilitate private

[79] Information source: https://www.regjeringen.no/en/topics/energy/renewable-energy/renewable-energy-production-in-norway/id2343462/

[80] Information source: https://ec.europa.eu/environment/europeangreencapital/winning-cities/2019-oslo/

[81] Information source: https://www.regjeringen.no/en/topics/the-economy/economic-policy/economic-measures-in-norway-in-response-to-covid-19/id2703484/

businesses in green shipping, hydrogen, battery technology, and circular economy (Nybø, 2020).

Another example is the “Better growth lower emissions” strategy plan made by the Norwegian government in 2018. This strategy revolves around green solutions such as marketing, research, technology development, and infrastructure (Better growth, lower emissions, 2018). Several infrastructure sectors were discussed in this report, such as new technology in the electricity supply system, emission-free transportation, electrification of the transportation system, digitalization, autonomous technology, carbon capture, and carbon storage. Not surprisingly, these infrastructure sectors are also where the new green companies on OSE operate.

When the government is doing the most to support an inevitable transition, companies that operate in related industries have some advantages for sure. At the same time, investors’ preferences have also shifted to more sustainable industries. Environmental, social, and governance (ESG) is now the priority of many institutional investors (Eccles & Klimenko, 2019). According to various research, there is an increasing demand for ESG from investors in ETF, bonds, and hedge funds (Smith, 2020). In the US, the annual flow to ESG funds rose to USD 51.1 billion in 2020 from USD 21.4 billion in 2019, a near 140% growth (Hale, 2021). In Norway, the investors’ preference for green shares can be reflected by the exceptionally higher first-day returns based on the research result from Oehlera et al. (2004). In short, the leading green transition wave in Norway has made Norway stand out from other countries with a cluster of green companies. The investors' preferences are also shifting to green shares. As a result, the probability of companies going public is higher than in other European countries. Nevertheless, a study with more detailed data comparison and examination is necessary to verify this opinion.

5. Conclusion

This thesis aimed to review IPO activities for selected European countries during the Pandemic period, from 2020 to the first quarter of 2021. Through the descriptive analysis, an opposite IPO phenomenon based on previous research was discovered.

According to the findings of the fundamental Pandemic background provided in Chapter 2, Norway has the fewest contaminated cases and the smallest GDP decrease of 2.5%. Sweden was second to Norway in terms of least infection cases and the decline in GDP. On the other hand, the UK, France, and Itlay have the most infected cases and GDP drop. The Pandemic also affected the unemployment rate in many countries during the second and third quarters of 2020, especially in the United Kingdom. However, most of them managed to rebound to the pre-crisis level at the end of 2020. All countries had come up with crisis measures in response to the Pandemic, including both fiscal and monetary policies. In terms of fiscal policy, the UK has invested the most in relation to GDP, while Italy, Norway, and Sweden have spent a much lower proportion of GDP. Regarding the stock market performance in each country, OMX Stockholm has the highest benchmark index return at 13.37%, while the UK has the lowest, with a return of -13.08 %. The benchmark indexes in Norway, the Netherlands, and Germany, among other nations, ended the year with positive returns but negative returns in Italy, France, and Poland.

The detailed review in Chapter 3 revealed that most European IPOs in 2020 were conducted in the second half-year. Norway has the most IPOs, while the United Kingdom has the most capital generated by IPOs. Except for Italy, Poland, and the Netherlands, all five countries have more IPOs in 2020 than in 2019, with exceptionally high growth in Norway by roughly 342%. In the first quarter of 2021, most countries have seen an increase in IPOs compared to the same period in 2020. When it comes to IPO proceeds, except for Germany, Italy, and France, all countries obtained more capital from IPOs in 2020, with the most incredible surge of 13150% in Poland and the most tumble of 83% in France.

The illustration in Chapter 3 also demonstrates that the UK, Italy, Germany, and the Netherlands all had more IPOs and capital proceeds on the Main Market. On the other hand, the Growth Market saw more IPOs in Norway, Sweden, France, and Poland. However,

Norway is the only country with more IPOs and proceeds from the Growth Market, while Sweden, France, and Poland have more IPO proceeds from the Main Market. From the industry perspective, this thesis also discovered that the IPOs in Europe had covered various industries in the Pandemic. The financial industry led the industries in the UK by most IPOs and capital proceeds. In Sweden, the financial industry raised most capital, but healthcare has the most IPOs. In Poland, Italy, and France, technology is the most popular sector among all IPOs. In particular, Poland has seen a Gaming boom in the Pandemic. Compared to other countries, the Norwegian IPOs have a more even distribution across the top industries, where energy, industrial, and consumer staples are all leading by most IPOs. Besides, the green IPO wave was also observed in Norway, with an extremely high average first-day return at nearly 40%. Furthermore, a time series of IPO suggests that Norway has reached the best year of IPO for the past decade. In contrast, the UK, France, Italy, Poland, and Germany did not manage to return to the previous high level.

This thesis also aimed to explore potential factors that may lead to the Norwegian IPO boom in 2020. Through a vertical (historical) and horizontal analysis, no clear evidence was found to prove that the smoother listing process on Merkur Market is the main driver of the Norwegian IPO boom. However, the smoother process may influence companies' choice of the stock market.

The thesis further investigates whether the high first-day return of IPOs in Norway has attracted more investors and companies. Both favorable and adverse sides have been found towards this statement from various data facts and empirical research results. More extensive research is needed to give a conclusive answer to this argument.

The next factor being explored is the impact of the commitment from cornerstone investors. Analysis from previous research studies and facts in Norway showed that the participation of cornerstone investors in Norwegian IPO could have strengthened the market confidence and improved the probability of IPO success. Notwithstanding, no significant research evidence has been found in the Norwegian market to brace this viewpoint.

This thesis then continued exploring the effect of innovation culture in Norway. Through comparison analysis with Sweden and prior analysis conclusions, the innovation level of companies in Norway could have improved companies' adaptability in the Covid-19

Pandemic. Nonetheless, Norway also has a much less intense pandemic situation compared to the other European countries. This factor may interfere with the innovation effect.

Lastly, the green transition wave in Norway was deemed a reasonable factor contributing to the growth of the "green" industry by leading in many areas. In addition, both private and institutional investors have shown increasing interest in the "green" transition. However, the data in this thesis is insufficient to compare with the other European countries and give an assertive answer. An in-depth study is needed to investigate this argument further.

I hope that this thesis has given you a better understanding of the IPO activities in Europe, especially in Norway, during the Covid-19 Pandemic. Furthermore, it is hoped that this study has laid the groundwork and provided some starting points for future research into European and Norwegian IPO activities.

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Appendix

Table 1 – The critical requirements of each stock market in each country

Stock Exchange	Stock markets	Market place status	Minimum market capitalization (before listing)	Admission process duration	Minimum free float rate	History and activity
London Stock Exchange	Main Market-High Growth	Regulated	GBP 300 million	2-8 weeks	10% (>30 million)	>= 3 years
	Main Market-Standard	Regulated	GBP 0.7 million	2-8 weeks	25%	>= 3* years
	Main Market-Premium	Regulated	GBP 0.7 million	2-8 weeks	25%	>= 3 years
	AIM	MTF	N/A	2-8 weeks	N/A	N/A
Euronext(Paris& Amsterdam)	Euronext	Regulated	N/A	N/A	25% (>EUR 5 million)	>= 3 years
	Euronext Access	MTF	N/A	N/A	EUR 1 milliom	>= 2 years
	Euronext Growth	MTF	N/A	N/A	EUR 2.5 milliom	>= 2 years
Nasdaq Stockholm	Nasdaq Main	Regulated	EUR 1 million	N/A	25% *	>= 3 years
	First North Premier	MTF	EUR 10 million	4 weeks	25%	>= 1 year*
	First North	MTF	No requirement	4 weeks	10%	2 years*
Italian Stock Exchange	MTA	Regulated	EUR 40 million	20 business days	25%	>= 3 years
	AIM-MAC	MTF	No requirement	10 days	10%	N/A
Frankfurt Stock Exchange	Regulated market	Regulated	EUR 1.25 million	N/A	25% (> 10000 shares)	>= 3 years
	Open market(Scale)	Regulated Unofficial	EUR 30 million	N/A	20% (> 1 million)	>= 2 years
Warsaw Stock Exchange	GPW Main Market	Regulated	EUR 17 million	14 days	25% (> 50000 shares)	>= 3 years
	NewConnect	MTF	EUR 15 million	14 days	15% (> 10000 shares)	>= 1 year
Oslo Stock Exchange	Oslo Børs	Regulated	NOK 300 million	4-8 weeks	25%	>= 3 years*
	Oslo Axess	Authorized and fully regulated place	NOK 8 million	4-8 weeks	25%	>= 1 year
	Merkur Market	MTF	No requirement	1-2 weeks	15% (> EUR 2.5 milliom)	>= 1 year*

*: some exemptions may be applicable

Table 2 – GDP growth in 2020 compared to the same period in 2019

Country	2020Q1	2020Q2	2020Q3	2020Q4	2020
United Kingdom	-2.8%	-19.5%	16.9%	1.3%	-9.8%
Sweden	0.3%	-7.3%	-2.4%	-1.7%	-2.8%
Norway	-0.7%	-7.1%	-3.1%	-1.3%	-3.0%
Poland	-3.3%	-8.2%	-7.5%	-7.1%	-6.5%
Itlay	-5.6%	-18.1%	-5.2%	-6.6%	-7.8%
France	-5.5%	-18.6%	-3.7%	-4.8%	-8.2%
Germany	-1.8%	-11.3%	-3.7%	-2.3%	-4.8%
Netherlands	-0.4%	-9.0%	-2.4%	-3.0%	-3.7%
EU	-0.9%	-12.2%	-3.0%	-3.4%	-4.9%

Table 3 – Quarterly unemployment rate in 2019 and 2020

Country	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020Q4
United Kingdom	3.8%	3.9%	3.8%	3.8%	4%	4.1%	4.8%	5.1%
Sweden	7.2%	7.0%	6.5%	6.3%	7.6%	9.1%	8.6%	7.9%
Norway	3.8%	3.4%	3.7%	4.0%	3.5%	4.6%	5.3%	5.0%
Poland	3.9%	3.2%	3.1%	2.9%	3.1%	3.1%	3.3%	3.1%
Itlay	10.4%	10.0%	9.5%	9.6%	9.2%	8.4%	9.6%	9.2%
France	8.7%	8.4%	8.4%	8.1%	7.8%	7.1%	9.1%	8%
Germany	4.2%	4.2%	4.2%	3.3%	2.9%	2.9%	2.9%	3.1%
Netherlands	3.7%	3.3%	3.2%	3.3%	3.3%	3.8%	4.3%	4.0%

Table 4 – "Green" firms listed in Norway in 2020 and 2021Q1

Name	Stock Market	Issuer country	IPO Type	Industry sector
Agilyx AS	Euronext Growth	NOR	Private placement	Utilities
Aker Carbon Capture	Euronext Growth	NOR	Private placement	Energy
AKER CLEAN HYDROGECFI	Euronext Growth	NOR	Private placement	Utilities
Aker Horizons AS	Euronext Growth	NOR	Private placement	Energy
Aker Offshore Wind Holding	Euronext Growth	NOR	Private placement	Utilities
BW Energy LTD	Euronext	BMU	IPO	Energy
BW IDEOL AS	Euronext Growth	NOR	Private placement	Energy
Cadeler	Euronext	DNK	Private placement	Industrials
Cambi ASA	Euronext Growth	NOR	Private placement	Utilities
Cloudberry Clean Energy AS	Euronext Growth	NOR	Private placement	Utilities
Everfuel	Euronext Growth	DNK	Private placement	Energy
HAV GROUP	Euronext Growth	NOR	Private placement	Industrials
Hexagon Purus AS	Euronext Growth	NOR	Private placement	Energy
Horisont Energi AS	Euronext Growth	NOR	Private placement	Energy
Hydrogen Pro	Euronext Growth	NOR	Private placement	Energy
INTEGRATED WIND SO	Euronext Growth	NOR	Private placement	Energy
KYOTO GROUP	Euronext Growth	NOR	Private placement	Energy
MPC Energy Solutions N.V.	Euronext Growth	NLD	Private placement	Utilities
Nordic Unmanned AS	Euronext Growth	NOR	Private placement	Industrials
Ocean Sun	Euronext Growth	NOR	Private placement	Energy
Pryme B.V.	Euronext Growth	NLD	Private placement	Utilities
Quantafuel	Euronext Growth	NOR	Private placement	Utilities
Skandia GreenPower AS	Euronext Growth	NOR	Private placement	Utilities
TECO 2030	Euronext Growth	NOR	IPO	Energy
Zaptec	Euronext Growth	NOR	Private placement	Industrials