

When the Real Economy gets COVID-19, the financial system starts coughing?

The Case of Switzerland in the interaction between Financial System and the Real Economy during the current Pandemic

Excellent paper

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1.Introduction

The COVID-19 pandemic created political and social unrest throughout the world. Some claim it created opportunities to strengthen the power of the digital economy and online services whilst others argue that current inequalities between countries deepened as a result of diverging quality of government support and appropriate fiscal and monetary policies (United Nations, 2020). Nevertheless, growth in Switzerland is expected to return to its pre-crisis level in 2021 (Credit Suisse, 2020) and while economic loss for large equity holdings in certain “traditional sectors” is undeniable, household wealth seems to have already reverted to its pre-crisis level due to the quick and appropriate reaction from the Government and the Swiss National Bank (SNB). In this paper, we will investigate whether a technical and comprehensive analysis of the Economy confirms the previous claims for Switzerland or whether there are signs of a financial crisis glooming on the horizon.

In the first part, we create a model aiming to understand how the Swiss Economy moves during a shock under and based upon historical data of GDP. We find that there is no trend leading to conclude that there might be a financial crisis in the coming year but that Switzerland might be entering a new business cycle in the coming years which might prompt agitation in the Market. We will then focus on analyzing key Swiss Industries in both 2019 and 2020 and report any major changes that could be associated with the impact of the COVID-19 crisis. In order to get a quick overview for the year 2020, we interpret the lockdown index (Faber, Ghisletta and Schmidney, 2020) and the KOF Economic Barometer (ETH Zurich). As KOF reached a new low in 2020, it reflected a lack of optimism from the business owners, whose sentiment was in line with the negative effects of the lockdown, especially upon Hospitality & Tourism, Arts & Entertainment, Watchmaking and Personal Services. On a more positive note, there are key industries in Switzerland which have witnessed quite positive results despite the COVID-19 crisis such as, the Information and Communication Technology, Pharmaceutical and Chemical, and Road and Rail Infrastructure industries. Also, we must mention the shift in consumers’ behavior towards online shopping, due to the new strict hygiene measures which were imposed and caused a high level of uncertainty among individuals. Finally, we will investigate whether there was debt financing became more popular both for companies and the Government in 2020 as this might be a sign of economic turmoil. We conclude that Banks have indeed more loans outstanding but the Government did not increase its sovereign debt which is a good sign.

In the second part, we concentrate on analyzing key financial indicators fishing for signs of a financial crisis. We will start by investigating the bond market in Switzerland, especially the yield curve for bonds with different maturity dates. This analysis helps understand investor’s expectations concerning the Swiss financial market. Pursing this goal, we explore the topic of the credit risk indicators for Swiss bonds, analyze the interest rate expectations and finally comment on the fear related to the risk of deflation due to the appreciation of the Swiss Franc but also the risk of high inflation thanks to the excess of money in Switzerland. Furthermore, as a higher demand for precious metals can be a sign of economic downturn, we look into the Gold and Oil market. We find that the oil price War in March 2020 could be just a punctual imbalance on the demand for oil followed by the OPEC’s disagreements. Finally, we analyze the Stock market, pointing out the winners and losers during the COVID-19. The findings coincide with the analysis of the key Swiss industries addressed in the first part of this paper. Although further research is necessary to confirm an upcoming crisis, our thorough analysis of the Swiss Economy at large and the Swiss Financial Market identifies no sign of economic distress that might trigger the next Financial crisis.

2. Real economy analysis

In order to comprehend and analyze a potential upcoming financial crisis, the first step is to understand what the real economy is. It consists of purchasing power as well as the production and the flow of goods and services within a country. The real economy focuses on the overall activities which fulfill individual needs and preferences. As the COVID-19 virus created uncertainties in the global economy, the question which needs to be addressed and assessed is how such a virus affected the real economy in Switzerland from January until November 2020. In order to even attempt to assess such a question, first, we will use the data provided by the World Bank to analyze the Swiss GDP trend starting with the Internet bubble in 2000 all the way to 2020 including the financial crisis of 2007-08. Secondly, we use the Theorem of the adaptative anticipations and regression modeling or also called (Real Business Cycle Modeling) to shed a light on the changes of indicators such as the real interest rate, tax revenue, government spending, unemployment rate or the balance of goods and services. Furthermore, we will analyze and describe how and by which indicator the Swiss GDP was affected and fluctuated during the crisis and unpredictable shocks.

2.1. Real business cycle modeling

The Real Business cycle modeling (RBC) was first introduced by two macroeconomists, Mr. Finn Kydland and Mr. Edward Prescott in 1982 based on the previous literature written by another economist Mr. Robert E. Lucas's agent-based behavior theory which describes the economic trends using macroeconomic equations. The RBC model in principle is a class of macroeconomic models which uses the economic shocks in the real economy to test previous theories on business cycles.

After the application of RBC model theories, our model $GDP_t = C_t + I_t + G_t + Ex_t - Im_t$ ¹ (equation 1) will be used in our study. It will allow us to understand the movements of the Swiss GDP based on the most important indicators such as government spending, external balance of goods and services and the unemployment rate. There are a few assumptions² which have to be taken into consideration before the application of this model, which are expected to ease the analysis: (1) When analyzing the real economy, **money** is neutral as it has little importance in the business cycle and (2) the fluctuations which are created by the **rational agents** are an optimal response to real shocks such as extreme changes in level of productivity, government public expenses, real interest rate policy, and government policy for instance unemployment.

To understand the effects of the shock of the health crisis on the real economy, we will apply the dynamic stochastic general equilibrium modeling to attempt to explain the economic growth and business cycles considering the effects of the economic policy as following:

$$\left\{ \begin{array}{ll} GDP_t = C_t + I_t & (1) \text{ Simplification of the equation with } A = G_t + Ex_t - Im_t = \varepsilon \\ C_t = cGDP_{t-1} & (2) \text{ Modeling the consumption as fonction of the last year GDP} \\ I = \beta(C_t - C_{t-1}) & (3) \text{ Modeling the Investment as fonction of the consumptions} \\ C_{t-1} = c^2GDP_{t-2} & (4) \\ GDP_t = (c - \beta)GDP_{t-1} - \beta c^2GDP_{t-2} + A & (5) \end{array} \right. \quad \text{Inserting in equation 1 the transformations}$$

¹ With GDP_t the Gross Domestic Product for the period considered, C_t the consumption for the same period, I_t the investments for the same period, we may consider $I_t = S_t$ for our analysis as the investment reflects the savings, G_t the government spending for the year t , and the balance of good and services $Ex_t + Im_t$ with the export and imports respectively for the same period of time.

² Stylized fact will influence our analysis as well. We take in account: (1) Labor input varies considerably and procyclical. As a matter of fact, we will take employment rates as an indicator. (2) The stock of capital face less variations at business cycle frequencies. (3) Productivity growth is procyclical but does not reflect the same levels as the employment. To be able to explain this we will take in account the Gross Domestic Product (GDP). A decrease in GDP can be explained by following the trend on the unemployment rate. (4) Wage meet less fluctuations than the productivity and has a low correlation to the GDP. (5) The overall expenditures are procyclical. We may think about how indicators vary by taking in account that private investment, as for households and firms is volatile and the consumption of goods and services are less volatile than GDP.

After following the steps above, we get the following formula as a regression model:

$$GDP_t = \alpha_1 GDP_{t-1} - \alpha_2 GDP_{t-2} + \varepsilon$$

The latter formula leads us to the adaptative anticipations theory which considers the GDP as function of the last years GDP in t-1 and t-2. This is close to a two-variables regression with $\alpha_1 = (c - \beta)$, $\alpha_2 = \beta c^2$, and $\varepsilon = A = \text{the white sound}$. We will use the data provided by the World Bank on Switzerland from 2000 to 2020. If our assumptions are valid, we should be able to determine the big fluctuations from early 2000 to 2007 as well as from the inception of the Covid-19 crisis. We will concentrate on the fluctuations in unemployment and output because output is the best mirror of the real economy and the unemployment rate would give fair inputs on the Swiss government's policy in regard to the health shock. After running the data, we are able to determine that (1) the **unemployment** fluctuations are intertemporal substitutions of the free time. As the productivity is the key factor, we aim to say that the optimal actions of agents are to work more during expansions and work less during recessions and (2) the **investment and consumption** do not follow the same trend. Why? In order to be able to explain the why, we should remember that a rational agent will invest when the economy is performing well and not invest when the economy is performing poorly but rather consume more.

The fluctuations in GDP_t are visible when we analyze GDP_t as a function of the past GDPs. We are going to apply the regression model with 2 variables GDP_{t-1} and GDP_{t-2} . In this case we obtain: $GDP_t = a_0 + a_1 GDP_{t-1} + a_2 GDP_{t-2} + \varepsilon$ with a_0, a_1, a_2 the coefficients of the regression and ε the error. This function is similar to the one of the adaptative anticipations because we take into account the past events and readapt the function based on the past economic fluctuations. Three steps are necessary to determine the equation:

$$\begin{cases} \alpha_1 = \frac{\sum GDP_{t-1}^2 \sum GDP_{t-2} GDP_t - \sum GDP_{t-1} GDP_{t-2} \sum GDP_{t-1} GDP_t}{\sum GDP_{t-1}^2 \sum GDP_{t-2}^2} & (1) \\ \alpha_1 = \frac{\sum GDP_{t-2}^2 \sum GDP_{t-1} GDP_t - \sum GDP_{t-1} GDP_{t-2} \sum GDP_{t-2} GDP_t}{\sum GDP_{t-1}^2 \sum GDP_{t-2}^2} & (2) \\ \alpha_0 = \overline{GDP_t} - \alpha_1 \overline{GDP_{t-1}} - \alpha_2 \overline{GDP_{t-2}} & (3) \end{cases}$$

In order to make a more accurate analysis we are also going to apply the growth rate of the indicators as GDP, unemployment rate, etc. following the next steps:

$$\begin{cases} k = \frac{GDP_t - GDP_{t-n}}{GDP_{t-n}} & \text{Calcul of the percentage growth over the period} & (1) \\ g = (1 + k)^{\frac{1}{t-n}} - 1 & \text{Determining the growth rate YoY} & (2) \end{cases}$$

As we take GDP in current 2010US dollars, we notice an increase in GDP since 2000 (Graph n°1³). The tendency shows that during crises, as for the Internet bubble in 2000 and financial crisis of 2007, there are spreads between the trend and the actual values. We notice that the financial crisis in 2008 has its roots in 2007 and its shock is reabsorbed later in 2011. The shape of "V" of the spread suggests a fast recovery and the return to the trend. During years 2011 and 2018, we notice diversions from the trend following the shape of a "U" which suggests the existence of shocks in the real economy which persist over time. Even the economy is recovering shortly after the existence of shocks, "there is some permanent loss of output" as suggested by Carlsson-Szlezak, P.⁴ The COVID-19 crisis seems to follow more of a "V" shape which suggest the full recovery and return to the trend starting in 2011.

³ This study is based using the table n°1 in appendix. The same analysis is made for the other indicators in this section.

⁴ Carlsson-Szlezak, P and al. "Understanding the Economic Shock of Coronavirus" published on 27 March 2020 on the Harvard business review page.

We may ask what those fluctuations mean and where are they rooted. If considering the financial crisis of 2007, we may think that we were already in a new 6 years business cycle in early 2012 and 2018. Study of the GDP per capita in percentage helps us to better picture the Swiss real economy during the last two decades. As shown in the graph n°2, “*Swiss GDP per capita growth (annual %) from 2000 to 2020*,” we can see the impact of the 2000 and 2008 crisis with a delay of 1 to 2 years. From the same graph, we can determine 4 business cycles which tend to be at the peak in 2000, 2007, 2011 and 2018. As a matter of fact, we could speak about up to 10 years business cycles also called *Juglar business cycle* which suggests the existence of crises every 8 years. Although the COVID-19 had a big impact across the overall world economy, the health crisis shock seems to follow the flow of the new business cycle which started in 2018 in the case of Switzerland. In order to better explain the overall picture, we are going to make the same analysis for each indicator: interest rate, tax revenues, unemployment rate and external balance.

Starting with the government expenditure during the last twenty years (graph n°3), we are able to identify an 18-year business cycle which experienced the trough in 2001 and in the early stage of 2018 suggesting a Kuznets business cycle. We can attest that the increase in GDP in Switzerland is driven by the increase in government spending while during the recession, we face the reverse effect. As government spending seems to go up since 2018, there is no fear of a new crisis following our observations.

The study on the interest rate in Switzerland in the same period (graph n°4) shows us that the interest rate tends to decrease 6 years before a financial crisis (we look at the 2007 financial crisis) and increase for 6 years after. Our regression analysis reflects the conclusion made by the World Bank as shown in the graph n°10. The year 2020 is marked by the lower interest rates since 2014 with 0%. The government interest policy in Switzerland is, with this regard, following the trend of a Juglar business cycle.

The tax revenue does not seem to help us determine the business cycles (graph n°5). The twenty-year period seems to be insufficient to make a conclusion about the tax revenue fluctuations; however, we may make another assumption about the existence of a **Kondratiev**⁵ business cycle which lasts for 40 years in average. We clearly can see that the tax revenue is decreasing since 2017, which suggests a new wave in the business cycle.

The Swiss external balance seems to follow an ascending trend (graph n°6) even when faced with a financial crisis as the one from 2007 which its economic shock returned to normal shortly. At this point, only studying the balance of goods and services by its own does not clearly explain the real economy fluctuations. In the graph (n°6) the bar of the balance of goods and services seems to go under the trend, and it follows the “V” shape trend. Even though, the health crisis that started in early 2020 seems to portray disequilibrium.

The Swiss unemployment rate follows an upward trend during the last two decades for both overall working class and the youth ranging from 18 to 30 years old, in general (graph n°7 and 8). The youth unemployment rate in Switzerland is correlated to the movement of the labour market following the same trend. One difference is that the youth are more affected by the changes in the labour market than the actual fluctuations. One conclusion can be drawn: the employment rate seems to attend its business cycle peak during the crisis followed by a recession period, once the agents are aware of the real implications of a crisis in relation to the 2007 financial crisis. We can notice an increase in the employment rate just before 2019. Overall, we are unable to identify the effects of COVID-19 crisis on the labour market yet. To understand its impact, we are going to consider the period starting from October

⁵ Since the last two centuries economists were able to identify 5 Kondratiev: (1) 1780 – 1830 as result of invention of steam engine, (2) 1830-1880 as result of the development of steel industry and railroads, (3) 1930 – 1970 as result of the electrification and chemical industry innovations, (4) 1930 – 1970 as result of auto industry and petrochemicals and (5) 1970 based on the artificial intelligence and information technology. Many economists sustain that it would be ended once a 6th wave starts driven by biotechnology and healthcare industry.

2019 to September 2020 and compare it with the number of infections determined over the same period inspired from the ECB-BASIR model (graph n°11). As predicted by the World Bank, the employment rate is forecasted to decrease by 0.034% in 2021 comparing to 2019 as a result of the health crisis. As expected, the employment and unemployment rate are negatively corelated with unemployment rate being positively corelated to the number of active COVID-19 cases in Switzerland since February to November 2020. Since April 2020, the employment rate has followed a decreasing trend due to the shock on 31st of March 2020. Switzerland faced inactivity from the labour force in the participation rate between April and July falling from 68.009% in January 2020 to 66.944% in June 2020, representing a late effect of the health shock attested at the end of March. The increase in COVID-19 active cases in November 2020 is positively corelated with the Swiss labour force which theoretically would be the driver of the increase of the employment rate in 2021.

Based on our regression and growth studies, we predict no abnormality in the Swiss GDP fluctuations given the historical data. If no such abnormalities in the GDP are seen, why is it imperative to be documenting the negative impacts of the Covid-19 virus on the real economy? To answer this question, we need to first understand the distribution of GDP by activities and industries followed by a cross industry examination during the 2020 health crisis.

As we already know (graph n°9 a.), Switzerland is one of the most competitive economic leaders in the world as a result of the development of the service sector. When we divide by sector, tertiary sector which occupies 73.6% of the Swiss economy and it is clearly the one having the biggest impact on the Swiss GDP. European Union (EU) is the main trading partner of Switzerland with 52.65% of exports and 70.3% of imports from the same partner (graph n°9 b. and c.). Swiss exports are represented in big part by the export of chemicals and pharmaceutical products with 44.8% in 2018 as reported by The Observatory of Economic Complexity (OEC) (graph n°9 d.).

The main industries which drive the Swiss GDP are the manufacturing including mining and quarrying industry that is followed by the public administration (education, human health and social work activities) sector and the real estate activities followed by the financial services sector as reported by FSO – National Accounts. Starting from 2018 and 2019, we can notice a negative impact of the trade activities and other service activities on the Swiss GDP for instance, the tourism industry. Furthermore, the first four mentioned industries absorbed the most negative impacts in 2020 due to the pandemic. In the same year, these four industries weighted more than 100% of the Swiss GDP as shown in the graph (n°12). The tourism sector in Switzerland weight in average 9.75% of the Swiss GDP during expansion and 8.5% during recessions as noticed during the previous crisis. In order to understand the effects of the Covid-19 crisis on the Swiss GDP movements, we are going to make a cross industry analysis of the key Swiss Industries in 2019 and later on compare what experts predicted in 2020 versus what really happened in 2020.

2.2 Industries in Switzerland before and during the COVID-19 Pandemic



2.2.1 Industries in Switzerland before COVID-19

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Different sources brought to the conclusion of how well Switzerland was progressing on their growing economy. Their strong outcomes were based on its outstanding production levels and the high employment rates. Based on this two pillars Switzerland was already positioned as the third highest GDP per capita within the OECD group. Nevertheless, external factors still brought down the maintained GDP levels that

Figure 1: The economy is set to pick up in 2020

(Annual growth rates, %, unless specified)	2018	2019	2020
Gross domestic product (GDP)	2.8	0.8	1.4
Private consumption	1.0	1.1	1.4
Government consumption	0.3	1.1	1.1
Gross fixed capital formation	1.1	0.4	1.5
Exports of goods and services	2.9	-0.4	2.7
Imports of goods and services	-0.3	-0.6	3.3
Unemployment rate (% of labour force)	4.7	4.5	4.5
Consumer price index	0.9	0.5	0.4

Source: OECD, OECD Economic Outlook database, October 2019.

Switzerland already obtained in former years, as it can be seen in **Figure 1**, on the right. Outer problems on Europe mainly brought down figures such as *Exports of goods and services* where the Manufacturing suffered from a bouncing influence from BREXIT and the global problems within the automotive industry. Nevertheless, European governments were willing to take actions on this matter such as the German government increasing their spending as an expansionary monetary policy from the European Central Bank (ECB). The European household lays behind these issues tries to increase their consumers forecast. As a matter of fact, the households are presenting a very steady and even increasing working conditions due to a lower unemployment environment (OECD , 2019).

Normally, Switzerland has a huge attraction regarding its tourism industry, watch industry and pharmaceuticals. And the overview for the later years 2019 was not the exception. Moreover, there were already plans to boost these industries due to the two major European sporting events such as the Summer Olympics and the European Football champion. Both were going to take place on the 2020, and as the official headquarters of both events are located in Switzerland, sever costs and licenses were included as part of the GDP Swiss data for the year 2020. The increase of these events were estimated to increase it in 0,3 percent point compared to its former year 2019 (Credit Suisse, 2019)

Another important sector that contributes enormously on the Swiss GDP is the financial sector, within 5% of the total workforce and 9% of the total economic output. Moreover, the influence that Switzerland has regarding this sector pushed to have in Switzerland a very efficient regulated financial centre in the whole world. As seen on **Figure 2** the Financial Services have not been increasing in the past years, a tendency that is forecasted to maintain, regarding that the GDP whole tendency has been of rising on the past ten years. This

industry holds several sectors such as loans, payment transactions and insurance service. The ones where the most negatively impacted were the big banks, which even passed through a downturn.

Another industry that keeps increasing and gathering more importance as part of the most exported sectors is the ICT one. Being in 2019 the sixth most important service exporter with CHF 19,2 billion. Accounting also almost two thirds of the whole export and having the EU as its most important trader. Other important exporters are China, for instance. In this sector the exports have increased in 15% of the total exports of 2018. The expectations that China would become their second most important markets for the year 2020 are strong hold.

Regarding the sensitive and innovating Retailing industry it is important to highlight that in the case of Switzerland, its turnover divides also in Online Retail, the one that keeps growing with an

Figure 2:
Added value, in CHF bn

	2009	2014	2019
Financial services	38.0	34.6	33.2
Insurance services	24.9	27.8	30.9
Financial centre total	63.0	62.4	64.1
in % of GDP	10.7	9.6	9.2
GDP Switzerland	589.2	649.7	698.7

Data: FSO/SECO, annual aggregates of GDP, production approach (annual data)

Trend of increasing number of foreign guests weakens

Swiss Consumer Price Index (LIK), rate of change compared to same month of previous year (%)



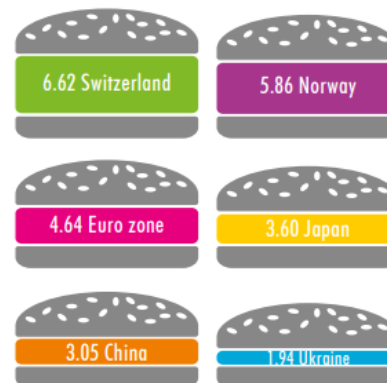
Source: FSO 2019

Source: Swiss Federal Statistical Office, Credit Suisse

	Gross value added (in CHF bn)			Share of overall economy (direct and indirect)
	direct	indirect	Total	
Banks	32.8	13.4	Total: 46.2	6.9%
Insurance companies	30.5	6.4	Total: 36.9	5.5%
Financial sector	63.2	19.8	Total: 83.0	12.4%

Figure 3:

Big Mac Index (\$)

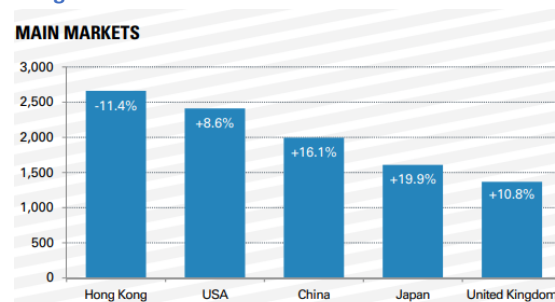


Source: Economist July 2019

increasing pace of 10% (VSK, GfK, 2019) This information is quite important as these new niche also provides information besides the Delivery sphere and Collecting points that also are an important part of the Swiss GDP. However, the whole retail industry regarding the research institute GfK, states that even in some Quarters of the 2019 appeared more consumption between food and non-food sectors. This could not equal its former year. Moreover, the State Secretariat for Economic Affairs (SECO) forecasted a weak economic increase of just 0,8 % the one that has already mentioned within several worldwide events has a strong belief to increase in the year 2020. Several factors, such as a weak immigration increase of just 0,7% reducing this on -13,2% regarding former years. This damages greatly the retail industry. However its impact it is not felt by its population, as the Swiss possess a higher purchasing power. Even with the Bic Mac Index, as stated in **Figure 3**, Switzerland highlights in comparison to its peer European countries (CBRE, 2019)

Another successful and important industry is the Watchmaking one, with exports that keep on rising yearly, reaching 21,7 billion francs with an increase of 2.4% compared to 2018. Their exported markets increase in million francs in the **Figure 4**. It can also be noticed the important role that the Asian markets plays in this industry, representing 53% of the export turnover. The current protest situation in Hong Kong, brought a decline of 11,3% in the Hong Kong market, compared to its previous year.

Figure 4:



The continuous advance of agricultural exports also takes part of the GDP, but in a lower and slow pace. Even though the market of exportation of agricultural goods keeps increasing worldwide from 9,9% to 17,4% in exports. The case of Switzerland shows that the GDP regarding this section has been falling in the last 20 years. We take this metric cause in cases of low-income countries, agricultural sector contributes almost 25% GDP. This can be clearly not the case of Switzerland.

Finally, the construction industry, accounts with 10% of the Swiss GDP. Nevertheless, in the year 2019 occurred an stagnation regarding its previous year. The year 2019 ended with an expenditure of 0,2%, this was lead by a fall of 0,9% in construction projects. However there were still investments on civil engineering for 3,9% increased to its previous year. In the next section, we will see the changes in those industries in 2020 and whether the pre-COVID 19 expectations were matched by reality.

2.2.2 Affected industries in Switzerland due to COVID-19 in 2020

In Switzerland all started with the first patient diagnosed with COVID-19 back on February 25, 2020 in Kanton Ticino. Since then, things have escalated quickly and at the moment we are finding ourselves analysing essential Swiss industries and assessing their performance in an unprecedented situation of imposed lockdowns and extreme health measures.

M. Faber, A. Ghisletta and K. Schmidheiny (2020) have computed a lockdown index for the various Swiss industries to examine the impact of the current pandemic. The lockdown index measures a group's initial

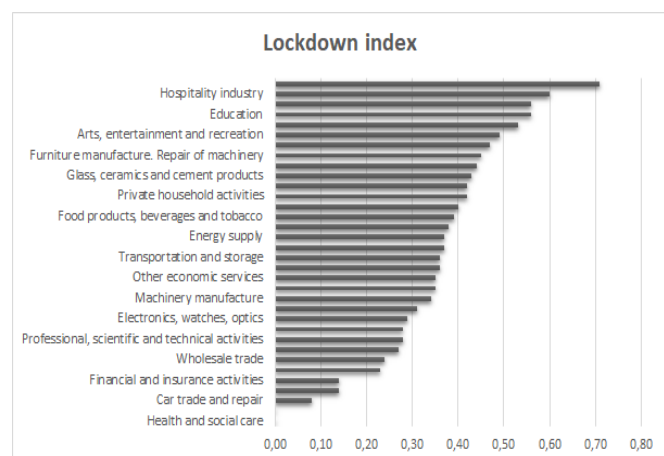


Table 1: A lockdown index to assess the economic impact of the coronavirus
(Marius Faber, Andrea Ghisletta and Kurt Schmidheiny 2020)

exposure to the coronavirus restrictions. Taking into consideration each occupation's need for physical proximity for about 70 000 Swiss residents, the index can range between 0 and 1 and it indicates the share of people in a certain group (industry) that is somehow affected by the virus lockdown. If certain industries were exempt from these measures (public administration, agriculture, health and social care), it is reflected in Table 1.

We consider the KOF Economic Barometer (Table 2) as a leading Composite Indicator for the Swiss Business Cycle predicting how the Swiss economy should perform in the near future. The Barometer is developed as a series of month-to-month growth rates of Switzerland's GDP, based on the quarterly breakdown of the Swiss Federal Statistical Office data by the Swiss State Secretariat for Economic Affairs. According to Investopedia, lower expected values of this indicator as seen in the first quarter of 2020, can cause erosion for the Swiss franc. For the people who run the companies in Switzerland, the economic barometer reflects the level of optimism they express regarding the performance of the economy and personal expectations related to the business performance.



Table 2: Developments in individual industries, Source: ETH Zurich

PwC Strategy & Swiss industry experts have assessed (Appendix 2) the COVID-19 industry expected impact in Switzerland, as following: Consumers goods and retail (food), Agriculture, Telecommunications, Healthcare are finding themselves in the least impacted categories, and at the opposite pole, Services, Entertainment & Media, Automotive, Passenger transportation, Travel, and Hospitality were badly impacted by the health crisis. Technology and software, Utilities and Pharma & life sciences are positioned somehow in the middle, on a scale from very negative to positive.

According to the Swiss National Bank (quarterly bulletin, 2020 September), the **tourism and hospitality industries** have recorded both relative normal values close to historical values, but also losses, where international guests were a key revenue driver. The overall market decline was controlled due to interventions. The Swiss Confederation took measures as early as February 2020 to grant loans to the Swiss Hotel Credit Corporation, an additional 5.5 CHF million was available for those, who found themselves dealing with problems, such as liquidity shortages (KPMG, 2020). Also, cantonal authorities allowed greater flexibility to business owners for repayments, which are due at the beginning of 2021.

Restaurants turnover suffered a decline, because of the absence of large events and the caution among consumers (Table 3 and Appendix 1).

The entertainment and leisure industry, as well as conferences and trade fairs, are still among the segments most affected by the pandemic, effects reflected by the decline in turnover, infrastructure utilisation and margins.

It seems that during the first quarters of 2020, the health crisis has not put additional immediate financial pressure on **private banks** (Table 4), but the repercussions probably will be felt in the coming months (KPMG, 2020). Additionally, the expanding digital communication channels seem to have improved the client-bank relationships and the conservative policies imposed in the past years that have prioritized limited loan losses, served as a cushion against new challenges.

The aggregate balance sheet total of all banks in Switzerland has reached an increase of 6.4% during the first five months of 2020. Also, during this period, liquid assets grew by 20.6% and amounts due from banks by 15%. Amounts due from customers, amounts due from securities financing transactions and mortgage loans all grew less, by 2.7%, 4.8% and 0.8% respectively. The most significant market

corrections in liquid assets and trading activities took place between March and May, both being affected by the SNB launching its COVID-19 refinancing facility and raising threshold factor, and by economic effects caused by the current pandemic. On the liabilities side, amounts due in respect of customer deposits rose by 5.8%.

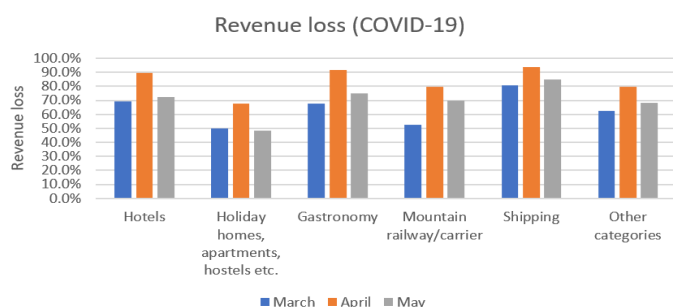


Table 3: Revenue loss due to COVID-19 for tourism, hospitality and restaurants. Source Statista

Between January and May 2020 mortgage loans rose by 1.3%. Secured and unsecured loans also grew, by 20.2% and 5.0% respectively. This substantial increase is probably attributable to the COVID-19 bridging loans made available by the federal government and banks.

Corporate finance, financial transactions and capital markets are of key importance for the Swiss economy. This has been demonstrated during the COVID-19 pandemic.

The established “house bank model”, the SME loan programme and access to the financial markets have ensured that firms are provided with sufficient liquidity and therefore helped to weather the economic turbulence.

Whereas SMEs are financed mainly by bank loans and private transactions, larger companies are focused on the capital markets, where they can secure larger volumes, mostly on more favourable terms. In the previous decade, net demand

peaked at CHF 11.5 bn per quarter. This has changed recently because uncertainty caused by the COVID-19 pandemic has led to increased demand for financing in both the public and private sectors. In the second quarter of 2020, new CHF bond issues from domestic borrowers amounted to CHF 20.4 bn, with net market demand standing at CHF 13.9 bn. Issuance was thus around twice the historical average, which shows that the Swiss capital market is fulfilling its role as a provider of liquidity, alongside bank loans, even in this challenging situation and thus contributing to the prosperity of Switzerland’s economy.

The ICT (information and communication technology) industry was analysed using the Swiss Software Industry Survey 2020, which used a database of 5000 validated Swiss software companies, from 19 cantons, 723 participants and 336 complete responses (Thomas Hurni and Jens Dibbern, 2020). The software industry is one of the key growing sectors in the Swiss economy and has a significant contribution to the overall national economy. In 2020, exports accounted for around 21% of revenues in the Swiss software industry, but



Table 4: Expected Impact for the Swiss Financial Industry. Source KPMG

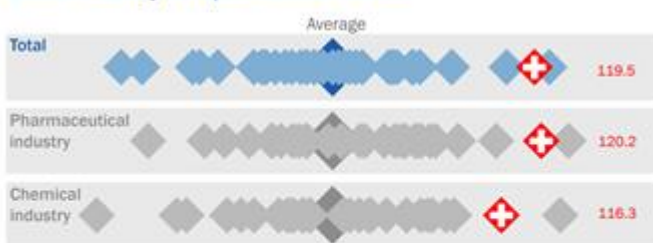
the companies have still suffered under the COVID-19 restrictions. Due to this situation, 86.5% of the surveyed companies had to increase their costs but expect in the future a more flexible working model. Providers and resellers of standard and cloud solutions and providers of customisation services for third-party solutions experienced a slight upturn thanks to the pandemic. However, most of the industry suffered due to the postponement of existing orders and the difficulty in acquiring new customers and new orders.

Despite the COVID 19 pandemic, the Swiss software industry is cautiously optimistic about the economic outlook: Although the industry expects below-average sales growth of 2.7% and employee growth of only 6% in 2020, it expects a significant recovery to the level of previous years as early as 2021. Looking back at 2019, Swiss software companies reported a decline in the EBIT margin to 6%, but an increase in sales

per employee to an impressive CHF 245,000. After a moderately successful year in 2018, the foreign business developed particularly well: about 21% of sales in 2019 were generated outside Switzerland.

In **manufacturing**, except for **pharmaceuticals** and **construction-related manufacturing**, all reported a YoY decline in turnover. Business activity at companies in the mechanical engineering, electrical and metals industries was very low compared to last year. Production capacity remains underutilised everywhere, and profit margins are below the levels that would be considered normal.

Global Industry Competitiveness Indices



GICI 2020
The index value of 100 is equivalent to the average of the countries in the peer group. Deviations from the mean are measured in standard deviations (a metric of the dispersion between all countries). An index of 110 (120) means the index value for that country lies one (two) standard deviations above the peer group average.

Source: BAK Economics

Table 5: Global Industry competitiveness Index Source BAK Economics

According to BAK Economics AG (BAK) In both the pharmaceutical and chemical industry Switzerland ranks among the leaders in the Global Industry Competitiveness Index (Table 5). In the overall ranking Switzerland is in second place: behind the USA and ahead of Ireland. This puts Switzerland among the most competitive countries in the world compared to other major production locations.

The Swiss chemical and pharmaceutical industries are of major significance for the

country's prosperity, because they are highly competitive on the Global market and have gained tremendously from international trends, thus becoming the main growth engine for the Swiss economy.

There is still an observed weakness in the **watchmaking, the automotive and the aviation industry, which causes** losses also for the sectors that supply them. Some industries reported positive impetus from investments in **road and rail infrastructure**. According to the Federation of the Swiss Watch Industry, an unprecedented crisis in the first half of this year affected the watchmaking business. The market was at a standstill for many weeks during this period and most trade was interrupted.

After a promising start to the year, yet unaffected by Covid-19, Swiss watch exports began to fall sharply in March and then came to a halt in April and May. Although the decline in June was still very pronounced, there were signs that the initial shock had passed and that the expected recovery had begun, albeit timidly, and only due to China in the short term. In six months, the sector exported the equivalent of 6.9 billion francs, far from the 10.7 billion posted for the same period last year, a fall of 35.7% compared with the first half of 2019. The only real impact in the first quarter was a decline in China, resulting in a fall of 7.4%. The most severe consequences of the pandemic were felt in the second quarter, which saw watch exports plummet by 61.8%.

Spending is expected to remain below usual levels across categories, particularly for nonessential categories

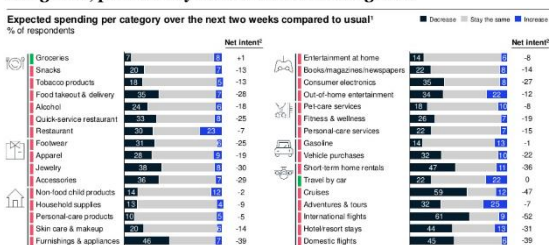


Table 6: Consumers' spending across categories. Source: McKinsey & Company

⁶Consumers goods and retail (food) sector has been highly impacted by the COVID crisis (Table 6), as it was pushed towards digitalisation and has triggered a significant increase in online sales (Appendix 3).

In 2020, Swiss **agriculture** is expected to generate a gross value added of CHF 4.4 billion, an increase of 5.8% compared with 2019. Total production has remained stable, while production costs have fallen. Due to the Federal Council's declaration of an "extraordinary" situation caused by COVID-19 and the measures

⁶ Q: Over the next two weeks, do you expect that you will spend more, about the same, or less money on these categories than usual?

Source: McKinsey & Company COVID-19 Switzerland Consumer Pulse Survey 6/18-6/21/2020, n=607, sampled to match Switzerland's general population 18+ years

adopted this spring, animal and vegetable production has increased, but viticulture production has seen a worsening situation. These initial estimates for 2020 are based on the economic accounts for agriculture put together by the Federal Statistical Office (FSO).

Construction, (building construction, civil engineering, and the finishing trade) recorded dynamic business activity. But productivity is still restricted due to hygiene and distancing rules. But the construction representatives expect business to slow in the coming quarters.

The situation in the **real estate market** raised the issue of rising vacancy rates for rental properties. There was mention of pressure on commercial property leases.

2.3 Is financing by debt the solution to help sick businesses?

Since we were able to determine in our research and analysis results that the COVID-19 pandemic triggered a brief economic shock in the Swiss economy, we ask ourselves how companies deal with this situation. In the previous part it was mentioned breathily that many companies, especially SMEs, take on loans during the pandemic. The question arises whether the taking on of debt is the right approach to finance businesses in times of uncertainty. To assess if a company is in financial distress, we must take a closer look at the definition of that term. Financial distress is a condition in which a company cannot generate sufficient revenues or income. This results in an inability to pay its financial obligations. This is generally due to high fixed costs, a large degree of illiquid assets, or revenues sensitive to economic downturns. There are multiple warning signs that could indicate a company is experiencing financial distress or is about to experience it soon. Poor profits are the most simplistic thing to point out that a company is financially unhealthy. Struggling to break even suggests a business that cannot sustain itself by generating internal funds and must instead raise capital externally. This leverage comes at an increased risk for the company and lowers its creditworthiness with lenders, suppliers, investors, and banks. Limiting access to funds typically results in a company failing which already gives a hint to the answer that is about to be found to the question for this part.

Before diving into the instrument of debt against financial distress, alternatives are to be considered by businesses before the decision of taking on outside capital is made. Changes in the business plan are certainly the first approach to anticipate financial distress. However, the implementation of changes to a business operation takes time and especially in the example of a pandemic, which is unpredictable, the approach to change the business plan to resolve distress before it becomes menacing was impossible. Restructuring of debt is not necessarily dependent on financial distress as many companies re-assess their external capital constantly to ensure that they receive capital at the lowest possible rate. Nevertheless, many companies only come up with the idea to take a closer look at their capital structure when they are about to face financial distress or already have financial problems. However, when the entire economic environment is financially constrained, it becomes difficult to obtain cheap external capital. This approach is therefore very limited during the pandemic. The final approach, most of the time considered then financial distress has already surfaced, is cutting costs. A big chunk of costs for every company is its employees. Therefore, cutting staff is another approach to react to momentous changes in demand. At the beginning of the pandemic, the number of unemployed shot up, this is threatening for the entire economic situation of a country. To maintain stability, jobs had to be secured, which is the responsibility of the state and we will encounter the instrument that is used to sustain stability later.

We have encountered that companies have their hands tied when they suddenly find themselves in financial difficulties and the economy around them is struggling as well. The private sector cannot borrow or lend freely at the same terms as the government. This situation was discussed by Willem H. Buiter in 'The Theory of Optimum Deficits and Debt'. This theory builds on the fact that governments can borrow at lower costs than the private sector. When a government issues bonds, it eases financial constraints on borrowers who now receive additional resources from the government, through instruments like tax cuts or government loans (Buiter, W.H., 1983). Besides, Marina Azzimontiaand and Pierre Yared suggest in

their journal about 'The optimal public and private provision of safe assets' that if financial constraints become tighter, an optimal policy response increases public debt to halt the shrinking supply of safe assets for creditors. Simultaneously the response provides more liquidity to increasingly constrained borrowers (Azzimonti, M., Yared, P., 2019). We encountered the safe asset role of optimal debt in various contexts in the past. In the effects of the global financial crisis, under changing income risk, along with financial deregulation, and during times of increase of cross-border capital flows.

2.3.1 Debt provision by the Swiss government

To keep the Swiss economy stable, the government decided to issue debt to private companies in a huge scope. The Swiss scheme has two elements. With the first element, businesses can apply for an urgent loan, worth up to 10% of their annual revenue but with a limit of 500,000 CHF. The loans are provided by Swiss banks and are interest-free. Those loans come with a full credit guarantee on the amount by the Swiss government. The second element lends up to 20million CHF, also provided by the banking system. 85% of the loans are guaranteed by the government, charged at 0.5% interest. The amount of loans that are issued to which company size is visualized in appendix 1. The bank assumes the risk of the last 15%, charged at a competitive rate. The loan volume by bank category can be seen in appendix 2.

Now the question arises as to whether the Swiss state can even afford these injections of liquidity. In comparison to other countries, Switzerland is in a much better equipped than Germany, Spain, France, Italy and the US to address the economic impact of the COVID-19 crisis. Switzerland has achieved a fiscal surplus in the last three years (2.8billion CHF, 3.2billion CHF, and 3.6billion CHF respectively) alongside a quite conservative administration of debt compared to other countries. The debt capacity of the country is still significant, since total debt to GDP is only 40%, as can be seen in appendix 3, compared to 120% in France, 70.4% in Germany, 115% in Spain and 136.3% in the US (Bris, A., Demaré, M., 2020).

Estimates show that in the coming months, Swiss SMEs are strait into financial distress. Arturo Bris and Michel Demaré have analyzed the 100 most representative Swiss SMEs according to Refinitiv Datastream. Right now, under the same performance as in 2019, only about 3% of all companies would be unable to satisfy their salary and benefit payments with the proceeds from their gross profits and cash holdings, considering their financial obligations. In the case that firms were to realize losses in 2020, only 60% of them would be able to maintain employment and pay total salaries. Moreover, only 25% of all firms could meet their operating and financial obligations for more than two years. A less radical scenario, a reduction of 50% in revenues, could assure the survival of 40% of Swiss companies beyond two years (Bris, A., Demaré, M., 2020). With a federal budget surplus and staggering 821 billion CHF in reserves in the Swiss National Bank, Switzerland is well equipped to implement this much more aggressive plan than those chosen in other countries.

Concerns over moral hazard were raised by the regulatory system during the crisis after the experiences from the financial crisis in 2008. Moral hazard is the risk that a party has not entered a contract with ulterior motives or has provided wrong or misleading information about its financial circumstances like assets, liabilities, or credit capacity. As each party in a contract may have the opportunity to gain from acting contrary to the principles proposition, the agreement chances are, that one party will do so (Kenton, W, 2020). The problem with government loans is limited liability. The owner cannot lose more than their initial investment, which leads to an incentive to borrow too much resulting in a high amount of risk. The resulting debt burden, in which firms with minimal equity have an incentive to gamble for redemption, rather than to recapitalize, can lead to overall underinvestment. On a free lending market, without any crisis going on, a lender usually require collateral that they can seize in the event of default, they can impose covenants that restrict behavior, and banks require frequent reporting about the financial circumstances of the borrower (Moral Hazard: A Primer, 2017).

Many economists argue that all regulatory intervention in the financial system, not just limited to moral hazard, is counterproductive. If regulators would not intervene the market would ensure efficient

outcomes. On the other hand, many overserves find this position unpersuasive due to market failures in preventing panics, along with the significant negative effects that follow from panics. The trade-off between the economic damage from a panic, in this case, caused by the pandemic, and the moral hazard costs of bailouts must be acknowledged. Especially as the pandemic affects any company in a way, taking advantages out of the easy process of receiving debt is limited (Crawford, J, 2015).

It can be concluded that the issuing of debt by the government is the correct shock absorber for the private sector in the face of unpredictable, temporary economic shock. It avoids the insolvency of many companies and stabilizes the overall economy by securing jobs. With the reserves that Switzerland has been able to raise in recent years, politics can now afford to support its economy on a large scale even though there has a trade-off to be made between the economic damage of the pandemic and the moral hazard costs involved.

3. Financial sector



3.1 Bonds and the yield curve

In the first part of this paper, we have constructed a model that allowed us to determine that Switzerland might be entering a new business cycle, which might imply a slowdown of the economy in the coming years. Keeping that hypothesis in mind, we then analyzed changes in key industries and concluded that although some sectors performed better than others during the pandemic, there is no alarming signs of a major recession as of now. This can be explained by large issues of loans to private business owners by banks to support the economy. Given the risky loans being issued by Swiss banks, are investors still confident in Swiss businesses and most importantly, have they lost confidence in the Government?

In order to investigate whether a financial crisis is glooming on the horizon in 2020 and beyond, we must thoroughly analyze key indicators in the financial market. In this first sub-section, we will focus on the bond market in Switzerland, most specifically, the government bond yield for short and longer maturities as well as the long-term bond yield of one of the two most important major banks in Switzerland, Credit Suisse (CS). At the end of 2019, it had 163 billion CHF loan outstanding in Switzerland alone (Credit Suisse, 2020). Therefore, we believe it is a good proxy for the Swiss banking system and will consequently focus on it. Because bond yields reflect expectations towards credit worthiness of a corporation or a government as well as macroeconomics factors such as interest rates, we will naturally analyze market expectations in terms of interest rate fluctuations, government debt level, government credit rating and finally credit default swap spread for 2020 and beyond. These observations will allow us to reasonably assess the health of the swiss bond market and draw conclusions whether a financial crisis will burst soon.

3.1.2 Historical yield curve

One can observe in graph 1, yields went below 0 starting in the last quarter of 2019. A first-time event since late summer 2016. A negative yield signifies strong confidence of the investors in the future cash flows of that bond since they accept to pay a high price for the bond today than the payment they expect to receive at a later day, which results in a negative yield. Indeed, "Negative-yielding bonds are purchased as safe-haven assets in times of turmoil and by pension and hedge fund managers for asset allocation" (Investopedia, 2020). Swiss government bonds are therefore a safe-haven in 2020, securing financing for the country.

According to graph 2, the yield trend continued to go down until March 2020 where yields skyrocketed at -0.20 previously from -0.95 (an increase of 0.75 bps). The slight loss of confidence of investors in expected future cash flows came as a result of the aftermath of the start of the nation-wide lockdown.

As 2020 passed, one can observe that government bond yields stabilized between the interval $(-0.4, -0.6)$ starting in July. The COVID-19 created uncertainty in the market and investors rushed to buy Swiss government bonds which stabilized the Swiss market short after the end of the lockdown. We can safely conclude that given the graphs, that there is no sign of distress in the demand for government bonds.

3.1.3 Credit risk indicators

In order to confirm our conclusion that no financial crisis is to be expected when looking at the negative yield on government bonds, we must investigate other indicators which drive yields on government bonds. In the graph 3, one can see the upward sloping curve which signifies that investors want to be compensated for having their money tied for a longer period. Indeed, a 10 year-bond yield is approximately 7 times larger than the 6-months yield. This type of shape is typical under normal economic circumstances. We would otherwise observe a downward sloping curve in times of turmoil as investors expect credit default today justifying a much higher yield and perhaps vouch for a recovery later justifying in turn a lower yield for long term bonds. To make sure of that hypothesis, we looked at the credit default swap prices for Swiss bonds in table 3. The Credit default swaps are derivative products that allow the investors to protect themselves against the eventuality of credit default. According to the financial encyclopedia, Investopedia, 'the more the holder of a security thinks its issuer is likely to default, the more desirable a CDS is and the more it will cost' (Investopedia,2020). Switzerland obtains the lowest spread amongst its European counterparts despite a slight increase from October to November 2020. These observations confirm our conclusion that Swiss government bonds appear to be a very good investment in 2020, therefore stabilizing the economy.

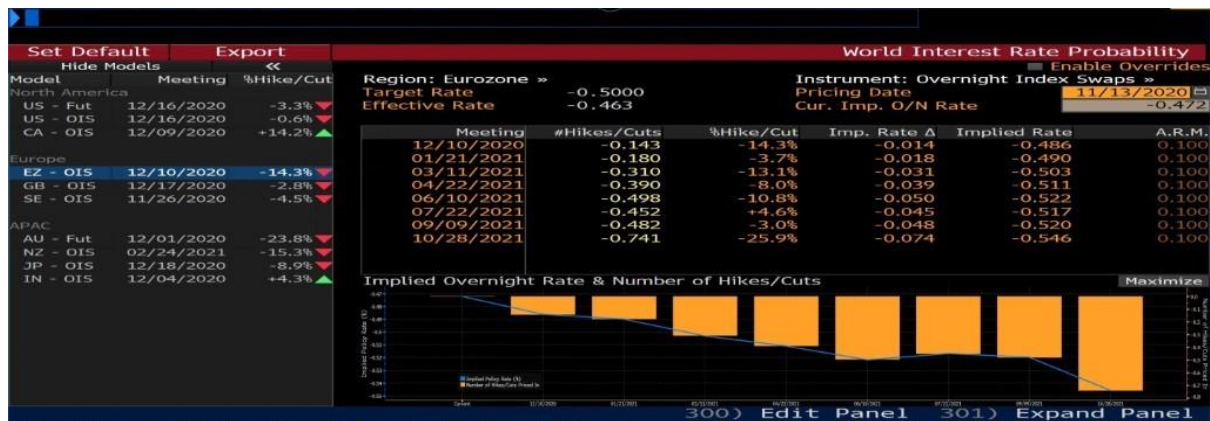
Furthermore, from table 1, yields are expected to go down overtime reaching -0.01 (10 year-bond) and -0.20 (2-year bond) respectively by Q1 2023. This can be interpreted as investors moving away from safe bonds while the economy recovers therefore decreasing the demand for Swiss bonds and resulting in a lower price. A look at Credit Suisse corporate bond confirms our view. On graph 5, we therefore observed a peak in yield at the time of the lockdown and then decreased and stabilized at around 5%. Although, the yield is still on average higher than the pre-covid level, one can reasonably conclude that the market is slowly regaining confidence in the Swiss financial sector, despite the extensive amounts of loan outstanding seen in the first part of this paper.

Another credit risk indicator that explains the negative yield curve of Swiss bonds is their credit rating. Indeed, in table 2, one can notice that Switzerland ranks highest through all major rating agencies in 2020. The COVID-19 crisis did not seem to have affected its creditworthiness as of November 2020. There is no sign of distress from this perspective either. Finally, a country taking on more debt is a sign of economic turmoil or high uncertainty. We therefore compared the US and Switzerland debt level change in 2020 in Graph 4. We observed that although the US decided to increase sovereign debt by 106.6% between January 2020 and November 2020, Switzerland did not become more indebted. Our finding confirms that the country is undeniably financially stable during the COVID-19 pandemic.

3.1.4 Interest rate expectations

As a final robustness check for our conclusion that there is no indicator of the next financial crisis in the bond market, one must look at the expected fluctuations in the interest rate. In Table 6 below, analysts expect interest rates to be cut by 9% on average. It is safe to assume that governments in the Eurozone would cut interests rates in order to stimulate the economy in the coming years. Typically, Swiss monetary policies use negative interest rates to control an undesired appreciation of the Swiss Franc and ensure the competitiveness of Swiss products. It is therefore very likely that such measures would also occur in Switzerland. This monetary policy coupled with strong fiscal policies ensures that the Swiss economy

stays afloat. Investors consequently remain confident and the probability of a financial crisis remains low in the coming years in Switzerland.



Graph 6. Expected Interest rates fluctuations (Bloomberg,2020)

3.1.5 Inflation

As well as the interest rate, a controlled inflation rate by the Swiss National Bank (henceforth SNB) assures that the Swiss economy continues running smoothly. Besides that, both indicators are directly connected to the investor's premium, especially in bonds, but also in equity. A scenario with higher inflation would be extremely beneficial to investors, that could then require a higher inflation premium. Through a strategy of depreciation of the Swiss franc, the inflation rates could rise, regulating, thus, the interest rates and investors premium. However, "the most recent conditional inflation forecast shows that inflation is not expected to rise above 2% over the medium term" (Credit Suisse, 2020). The positive effect of inflation for the Swiss market seems to be a difficult story though, in fact a positive interest rate is desired, but it can only be achieved if inflation is well above zero (Credit Suisse, 2020). Once in Switzerland the inflation rates remain quite low, often negative, it contributes to the decline in nominal interest rates (real interest rates summed to the inflation premium). Even though the SNB has 2% as the target inflation for Switzerland, the inflation rate has been decreasing since the second semester of 2018. Comparing the year of 2019 with 2020, we verified that the inflation rate has been negative since October 2019 at -0.3% (except of December 2019 and January 2020 with 0.2%). The lowest point of the inflation rate was April, May and June of 2020 (with respectively -1.1%, -1.4% and -1.3%)

The development of the topic inflation in Switzerland seem to follow two extremely different paths. In this paper, the two principal arguments about inflation are going to be discussed from perspectives of the risk of deflation due to the appreciation of the swiss franc and the risk of high inflation thanks to the excess of money.

Firstly, the SNB's inflation objective of 2% is distant from the actual inflation rate in Switzerland provoking the "decline in inflation expectations, and therefore in the level of interest rates" (Credit Suisse, 2020, p.15) and the consequent Swiss franc's appreciation trend. Both the Fed and the ECB seem to accept to move to a higher inflation targets, which is not a conservative strategy. Therefore, the SNB is seen as even more conservative in comparison to the US and ECB, that are not convinced about the commitment of the SNB in keeping the inflation rate positive, around its target. Credit Suisse (2020) agrees that the SNB should communicate "more clearly that it is determined to achieve a positive inflation well above zero and similar to inflation rates targeted by the major central banks" being able, then, to counteract deflationary risks.

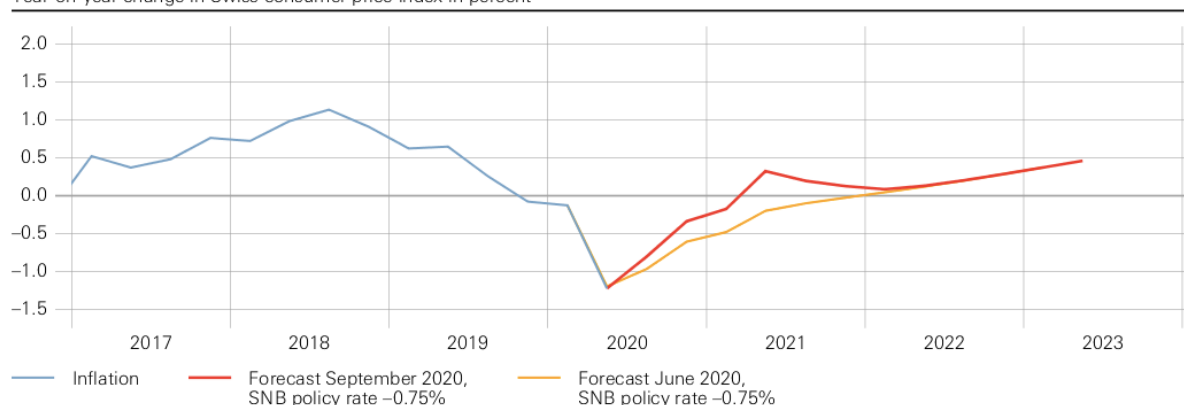
Secondly, Kugler and Reynard (2020) explain that "dramatic increase in the reserve that commercial banks have at central banks has sometimes raised inflation fears that have not materialized". The substantial excess liquidity is a signal to worry and can lead to the increase of inflation. Indeed, the SNB has reacted to the appreciation of the Swiss franc during the recent financial shock with foreign exchange

interventions, increasing the broad monetary aggregates (growth rates of 10%). Despite those interventions and consequences, inflation is still low. That is because the broad money (M2, M3, M4), which is less liquid, has increased and not the narrow money (M0, M1) that are kinds of money that are highly liquid. Therefore, Kugler and Reynard (2020) conclude that “excess liquidity has been low and stable despite the high level of broad money growth”, with “continuing decline in the equilibrium velocity” resulting in no risk of rising inflation, that has been consistently low.

Since the SNB has 2% as the target for inflation rate and the inflation remains negative, we conclude that fear related to deflation in Switzerland is rational but exaggerated. Yet, the risk of high inflation is not eminent. As we have seen inflation was particularly low in the second quarter of 2020 and is month by month getting closer to what we can call normality in Switzerland. However, those conclusions are based on analysis that has a focus on the past. Considering high uncertainties brought by the second wave of infections caused by COVID-19, the Swiss economy recovery is interrupted, affirms the State Secretariat for Economic Affairs. The Economic forecast by the Federal Government’s Expert Group affects the individual and the corporate decision-making processes, it shapes the spending pattern in a large proportion, attracting the attention of the central banks, as explained by Bullard (2016). This scenario affects the inflation expectations in Switzerland, and therefore, the development of the actual inflation rate. The graph of the SNB bellow shows the conditional inflation forecast of September 2020 in comparison to the forecast of June 2020:

CONDITIONAL INFLATION FORECAST OF SEPTEMBER 2020

Year-on-year change in Swiss consumer price index in percent



Sources: SFSO, SNB

The conditional inflation forecast is based on the consumer price index (CPI): the prices of the market basket, including housing, energy, healthcare, transport and others. Even if the CPI has decreased to 100.96 points in November 2020, we can see in the graph that the inflation is expected to increase in the medium-term. As the scenario keeps changing, due to high level of uncertainties related to the interrupted recovery of the Swiss economy facing the second wave of the COVID-19, we can only state that the inflation is expected and forecasted to rise, but it is still unknown what high numbers inflation can reach considering a grey scenario. Considering the short-term and past oriented analysis, we continue supporting our argument that the COVID-19 pandemic caused not more than a shock in the financial sector in 2020. Nevertheless, we take into account the fact that different scenarios can cause the risk of high inflation to be materialized in the medium-term, thanks to the inflation expectations as well as other factors such as the recovery of the Swiss economy. In the next section we are going to look at the price of commodities and relate it with the sentiment analysis of the market in relation to the pandemic

3.2 Commodities



3.2.1 Gold

Considering that there was a shock due to the restrictive measures taken by the Swiss government, which decided to establish quarantine from March 20 until late April and June 2020 impacting quite incisively several sectors, including the financial sector and given the uncertainty and fear of investors during the first semester of 2020, it is possible to verify that precious metals, more precisely gold, were an attractive option able to guarantee a reliable reserve of value.

According to Bloomberg “investors can invest in precious metals by purchasing the physical asset, purchasing future contracts for the particular metal or through the purchase of shares in publicly traded companies”. In the case of a financial crisis, investors prefer to buy the physical gold, for example, in order to safeguard their assets. Indeed, many portfolios were able to stabilize and protect their positions by buying more or holding to physical gold during the first semester of 2020. Mainly because the commodity was one of the few investments that increased during the first wave of the COVID-19 pandemic.

That said, this analysis aims to verify what were the variations in precious metals in 2019 and 2020. Starting with gold, it is a fact that it has been increasing its value since the last quarter of 2018. But it was in 2019 that physical gold has seen its value rising from 1'286.05 USD in January to 1'510 USD in December. Therefore, it was already possible to perceive a trend of higher demand for gold. In 2020, with the uncertainty and fear rising day by day, this trend has extrapolated. However, in March, together with the drop in the oil price, the price of physical gold decreased to 1'498.65 USD, increasing again rapidly to reach 1'735.68 USD in May. Besides that, the price of gold has been rising in a steep way, reaching the mark of 2'035.55 USD in August. Nevertheless, already in the middle of August the price of gold started to drop again, reaching 1'889.20 USD in November.

As already explained in this paper, COVID-19 pandemic affected several sectors of the economy and it seems also clear that there were/are fluctuations in the financial markets related to the volatility and uncertainty also showed by the Fear&Greed Index, which indicated at 7 points on March 19, 2020, against 62 points one year from there. Even if the emotions that have driven the market were pointing to the possibility of a financial crisis, we believe that the effects of the COVID-19 pandemic will not be long lasting. Permeated by volatility, investors seem to have abandoned the fear sentiment as showed by the Fear&Greed Index at 92 points on November 27, 2020. Following a technical analysis, the price of gold is expected to decrease day by day, as a response to the sentiment of fear being left behind.

3.2.2 Oil

Another commodity that also showed relevant price fluctuations during the COVID-19 pandemic and the restrict measures established by most of the countries worldwide was the oil. The demand for this commodity and its products has decreased enormously. According to Turak for the CNBC (2020), in March 2020, to keep the price of oil at a moderate level, Saudi Arabia tried to negotiate with Russia so that both countries would reduce the production of the commodity in order to regulate supply and finally the demand for oil. After Russia's refusal, the oil price war of 2020 began. The result of this conflict was a considerable reduction in oil prices.

In addition, the contango situation further intensified the crisis. The future price of oil reached a higher level than the expected spot price of the contract maturity. Commodity investors and companies that have their activities based on oil preferred back then to pay more to receive oil in the future, that to avoid the high storage costs of oil in platforms in the middle of the sea.

The combination of COVID-19 lowering the demand for oil and its products and the oil price war with Saudi Arabia, did not last for a long period of time. At the beginning of April 2020 Russia gave in to pressure from Saudi Arabia and the market and finally agreed to reduce oil production. Subsequently,

both countries agreed in June to further cut the production of the commodity, regulating, thus, the supply.

Let's now investigate the stock market in 2020 and actively look for potential signals of a financial crisis.

3.3 The Stock Market

Financial System analysis Switzerland

During COVID-19



Figure 1: Source: Swissquote

Looking at the total returns from the SMI since beginning of the crisis of the companies listed in the SMI, a profile of the corporate landscape in Switzerland emerges – at least for the large companies quoted on the Swiss stock exchange. This yield profile can be seen as the fingerprint of the corona crisis on the Swiss corporate landscape. After the huge drop in March, billions have been destroyed in Swiss Equities. For example, shares from Adecco or Credit Suisse were only worth half as much as in the beginning of the year. The main reason for this decrease was the caused panic due to the pandemic.

Since most of the companies reported better results than analyst's expectations, the SMI changed the trend again into a positive direction. The second drop in the graph below from October was created by the announcement of the second corona wave. Meanwhile the SMI reached the level before the pandemic started of around 10'500 points. Overall, the graph of the performance shows, the pandemic situation will have a direct impact on the Swiss Market Index. It is important to stabilize the situation with Covid-19. Since most of the pension funds hold a lot of assets directly in the equity market, the performance of these stocks influences retirement provisions. If the stock market goes down, this will have an impact on our retirement provisions. If the Swiss government is not able to get the situation under control, it is quite possible that Switzerland will suffer a financial crisis.

Analysis of the Winners and Losers during COVID-19

As we have seen on the figure above, the coronavirus influences the Swiss Market Index. Since public life stands almost still, companies fear for their existence. For some of them, the Swiss Government and the Swiss National Bank have launched aid packages worth billions to cushion the consequences of the coronavirus pandemic, which cannot yet be assessed. The capital market in particular is marked by strong ups and downs. Who were the profiteers or the ones who suffered the most so far in the Swiss Market Index? In the following you can find an overview of the winners and losers in the SMI during the corona crisis.

Winner 1: Lonza (+68,12%)

Lonza hat definitely one of its best years in 2020 so far. This, because of the production of a vaccine for global use requires large quantities of specialized chemical substances which are produced by the company based in Basel. The main reason for the massive jump was the announcement in May, that the company has signed a significant agreement with the US biotech company



Figure 2: Source: Swissquote

Moderna Therapeutics to participate in the production of a promising vaccine against Covid-19. The effectiveness is around 94.5% according to the company. The production line is already under construction in Visp and Lonza intends to start production there this year. Furthermore, the basel-based firm recently announced a collaboration with the US biopharmaceutical company Altimmune. They plan to produce together a potential corona vaccine called Adcovid, which is administered once via a nasal spray. With this news, the upside potential for the company Lonza, is given for next year for sure.



Figure 3: Source: Swissquote

due to the announced 3rd quarter results. The bottom line was a 0.9% lower net profit of 561.5 million CHF compared to the previous year. Since analysts had expected significantly lower figures, the share price went up massively.

Winner 2: Sika (+30.22%)

Especially the first half year was really hard for the construction chemicals and adhesives manufacturer Sika. The company suffered a decline in sales of over 3% due to the corona crisis. Without an acquisition, the decline would have been as much as 10%. In May Sika bought the French mortar manufacturer Parex. This was the largest acquisition in the company's history. Starting with the second half of the year, the company reached again a positive organic sales growth for the first time since February. Investors have welcomed the fact that sales have returned to a normal level. The increase in the stock price in November is



Figure 4: Source: Swissquote

However, these figures contribute less than 10% of sales. The latter recorded a sharp decline in March, as important distribution channels of perfumery customers, retail and travel retail were closed or hardly frequented at all. Overall, the company based in Vernier is having a really good performance so far on the stock market.

Looser 1: Swiss Re (-27.75%)



Figure 5: Source: Swissquote

Beside of banks, also insurance companies or reinsurers are facing a challenging time. Swiss Re already posted a loss in the first quarter of the Corona crisis. Costs of over 470 mio USD were incurred for damages in connection with the pandemic. For example, the company has to pay part of the cost of postponing the Olympic Games in Tokyo. Furthermore, since the value of the bonds and shares on their balance sheets, which guarantee the financing of the promised insurance benefits, has fallen overall, the share price of reinsurance companies suffer and will fall with the correlation to the falling price of these assets in the future.



Figure 6: Source: Swissquote

Looser 2: Swiss Life (-22.23%)

Since the outlook for the global insurance markets is bleak, it is not surprising that Swiss Life Holding AG who is one of the biggest insurance company in Switzerland, is suffering. The company with based headquarters in Zurich lost also business volume in the first quarter. Overall, the impact of the corona crisis on Swiss Life is manageable so far. According to the CEO Patrick Frost, the investments in customer advisory services and especially in digital channels have paid off. The insurer is making progress in the key performance indicators. Additionally, the financial position is

so strong that own shares will be bought back from January onwards. However, the share price lost over 20% this year so far.

Looser 3: Credit Suisse (-18.12%)

The corona crisis is leaving deep marks on the results of the banks. One of them is Credit Suisse. The prospect of low business activity in international investment banking, rising lending risks, even lower interest rates and a decline in the value of assets under management are weighing heavily on the stock. Credit Suisse is also marginally affected by the bankruptcy of the Dax group Wirecard. Last year, the Swiss bank structured a transaction of 900 mio EUR and sold convertible bonds of Wirecard from the portfolio of the media group and major start-up investor Softbank to institutional investors. The securities are also said to have ended up in accounts of Credit Suisse clients. The lately reported results showed that the bank's earnings decreased around 40% in comparison with the third quarter from the previous year. However, the bank's share buyback program, which was interrupted due to the Corona crisis, is to be resumed in 2021. This might be one of the reasons, why the share price start to rise in November.



Figure 7: Source: Swissquote

4. Conclusion

The purpose of this paper was to closely assess the Covid 19 pandemic on the real economy and the financial system with a focus on Switzerland. To understand the economic development and the effects on the GDP, we used the RBC model. It presented us the outcome that the employment rate seems to attend its business cycle peak during the crisis and therefore goes in line with the, from the pandemic independent, business cycle. Events that are taking place in a country, that are of international interest, can have a significant impact on the long-term projections of GDP growth. As the pandemic prevents such occasions, key industries for Switzerland like tourism, those who are already badly affected, suffer even more. As many SMEs cannot conduct their business activities in the scope that is normally possible and business measures in the event of the sudden pandemic are not having any effect, we concluded that the issuance of debt by the government is the correct shock absorber in the face of unpredictable, temporary economic shock.

We then turned our focus on the implications of the pandemic on the financial sector. We found out that swiss government bonds are a safe-haven in the year 2020 and that we can conclude that no financial crisis is to be expected when looking at the negative yield on government bonds. Investors are slowly regaining confidence in the Swiss financial sector, despite the extensive amounts of loans outstanding. That is not surprising for the matter of fact that Switzerland actually did not become more indebted. For a closer assessment of the implications on the stock market, we looked closer at companies that have been strongly affected by the pandemic and companies that are actually profiting from the circumstances. The effects of the pandemic on the respective companies can be identified quickly and are reflected in their pricing by investors. As in every crisis, we did not want to ignore inflation development for this analysis. We found that inflation rates in Switzerland remain quite low, often negative, which contributes to the decline in nominal interest rates, which shows its effect on the yield of government bonds which we assessed earlier in this paper. Furthermore, our findings show, that the excess liquidity is low and stable which indicates that no inflation is imminent, not even if the swiss franc appreciates slowly. Precious metals have, as in many crises in the past, enjoyed popularity. Lastly, we found that the supply of oil had to be adjusted to avoid a strong decrease in price due to less demand.

All the factors examined bring us to the inference that it is unlikely that a financial crisis will burst, but one must stay alert. Reduced GDP and the termination of the emergency programs might affect the ability for Switzerland to create wealth (Credit Suisse,2020). Our comprehensive analysis complements the previous statement by highlighting that although the government did not take on more debt, the countries' banks extended loans that appear not as safe as those assets once were. Such pressure on financial institutions drove the Greeks to enter a recession in 2012. Although it is unlikely to see a crisis in the coming year, one must stay alert about future developments in the coming two years.

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6. Appendix

5. CS corporate bond yield (Bloomberg,2020)

Real business cycle model- data

Table n°1: Swiss GDP per capita (constant 2010 US\$)

Series Code	Value	GDP % YoY	GDP ²	Estimated GDP using the regression model (EGDP _r)	Estimated GDP using the growth rate (EGDP _g)	GDP _{t-1}	GDP _{t-1} ²	GDP _{t-2}	GDP _{t-2} ²	ε
		(GDP _t -GDP _{t-1})/GDP _{t-1}		$\alpha_0 + \alpha_1 \text{GDP}_{t-1} + \alpha_2 \text{GDP}_{t-2}$	GDP _{t-1} * (1 + Growth rate)					
2000	67807.93		4597914938.33							
2001	68264.53		4660045543.74		68373.81	67807.93	4597914938.33			
2002	67860.24	-0.01	4605012829.22	68910.83	68944.41	68264.53	4660045543.74	67807.93	4597914938.33	-1050.58
2003	67385.30	-0.01	4540778340.63	68608.68	69519.77	67860.24	4605012829.22	68264.53	4660045543.74	-1223.38
2004	68781.61	0.02	4730910229.93	68137.69	70099.93	67385.30	4540778340.63	67860.24	4605012829.22	643.92
2005	69355.62	0.01	4810201627.86	69317.19	70684.94	68781.61	4730910229.93	67385.30	4540778340.63	38.43
2006	69355.62	0.00	4810201627.86	69489.40	71274.83	68781.61	4730910229.93	68781.61	4730910229.93	-133.78
2007	75143.70	0.08	5646575980.88	69489.40	71869.64	68781.61	4730910229.93	68781.61	4730910229.93	5654.31
2008	75793.63	0.01	5744674809.30	75130.47	72469.42	75143.70	5646575980.88	68781.61	4730910229.93	663.16
2009	73189.19	-0.03	5356657907.10	76491.36	73074.20	75793.63	5744674809.30	75143.70	5646575980.88	-3302.17
2010	74605.72	0.02	5566013609.02	74262.23	73684.02	73189.19	5356657907.10	75793.63	5744674809.30	343.49
2011	75029.76	0.01	5629464558.49	75197.03	74298.94	74605.72	5566013609.02	73189.19	5356657907.10	-167.27
2012	74984.14	0.00	5622620819.16	75747.71	74918.99	75029.76	5629464558.49	74605.72	5566013609.02	-763.57
2013	75499.71	0.01	5700205719.16	75759.55	75544.21	74984.14	5622620819.16	75029.76	5629464558.49	-259.85
2014	76410.86	0.01	5838619015.07	76211.07	76174.65	75499.71	5700205719.16	74984.14	5622620819.16	199.79
2015	76553.28	0.00	5860405006.08	77082.54	76810.35	76410.86	5838619015.07	75499.71	5700205719.16	-529.26
2016	77026.34	0.01	5933056356.57	77321.19	77451.36	76553.28	5860405006.08	76410.86	5838619015.07	-294.86
2017	77684.05	0.01	6034811340.90	77758.20	78097.72	77026.34	5933056356.57	76553.28	5860405006.08	-74.15
2018	79234.96	0.02	6278179352.08	78399.71	78749.47	77684.05	6034811340.90	77026.34	5933056356.57	835.25
2019	79406.66	0.00	6305417272.71	79855.98	79406.66	79234.96	6278179352.08	77684.05	6034811340.90	-449.32
2020F	80069.33	0.01	6411097855.47	80199.48	80069.33	79406.66	6305417272.71	79234.96	6278179352.08	-130.15
2021F	80737.54				80737.54					
2022F	81411.32				81411.32					
2023F	82090.72				82090.72					
2024F	82775.79				82775.79					
2025F	83466.58				83466.58					
2026F	84163.14				84163.14					
2027F	84865.51				84865.51					
2028F	85573.74				85573.74					
2029F	86287.88				86287.88					
2030F	87007.98				87007.98					

Total	1413369.71
Average	74387.88
α_1	0.89
α_2	0.12
α_0	20.17

0.16	105424904257.47	1400416.90	103515269149.89	1388818.17	101807766815.52
	5548679171.45	73706.15	5448172060.52	73095.69	5358303516.61

Percentage change in GDP	0.17
Growth rate	0.01

Table n°2: Swiss GDP per capita growth (annual %)

Series Code	Value	GDP % YoY	GDP _t ²	Estimated GDP using the regression model (EGDP _r)	ΔGDP	Estimated GDP using the growth rate (EGDP _g)	ΔGDP	GDP _{t-1}	GDP _{t-1} ²	GDP _{t-2}	GDP _{t-2} ²	ε
		(GDP _t -GDP _{t-1})/GDP _{t-1}		$\alpha_0 + \alpha_1 \text{GDP}_{t-1} + \alpha_2 \text{GDP}_{t-2}$	GDP _t -EGDP _t	GDP _{t-1} *(1+Growth rate)	GDP _t -EGDP _g					
2000	3.35		11.25									
2001	0.67		0.45			0.2167	0.46	3.35	11.25			
2002	-0.59	-1.88	0.35	0.53	-1.12	0.0140	-0.61	0.67	0.45	3.35	11.25	-1.12
2003	-0.70	0.18	0.49	0.39	-1.09	0.0009	-0.70	-0.59	0.35	0.67	0.45	-1.09
2004	2.07	-3.96	4.29	0.46	1.62	0.0001	2.07	-0.70	0.49	-0.59	0.35	1.62
2005	2.07	0.00	4.29	1.20	0.87	0.0000	2.07	2.07	4.29	-0.70	0.49	0.87
2006	2.07	0.00	4.29	1.00	1.07	0.0000	2.07	2.07	4.29	2.07	4.29	1.07
2007	3.19	0.54	10.15	1.00	2.19	0.0000	3.19	2.07	4.29	2.07	4.29	2.19
2008	0.86	-0.73	0.75	1.30	-0.43	0.0000	0.86	3.19	10.15	2.07	4.29	-0.43
2009	-3.44	-4.97	11.81	0.59	-4.03	0.0000	-3.44	0.86	0.75	3.19	10.15	-4.03
2010	1.94	-1.56	3.75	-0.38	2.32	0.0000	1.94	-3.44	11.81	0.86	0.75	2.32
2011	0.57	-0.71	0.32	1.37	-0.80	0.0000	0.57	1.94	3.75	-3.44	11.81	-0.80
2012	-0.06	-1.11	0.00	0.61	-0.67	0.0000	-0.06	0.57	0.32	1.94	3.75	-0.67
2013	0.69	-12.31	0.47	0.54	0.15	0.0000	0.69	-0.06	0.00	0.57	0.32	0.15
2014	1.21	0.76	1.46	0.79	0.42	0.0000	1.21	0.69	0.47	-0.06	0.00	0.42
2015	0.19	-0.85	0.03	0.87	-0.68	0.0000	0.19	1.21	1.46	0.69	0.47	-0.68
2016	0.62	2.32	0.38	0.56	0.06	0.0000	0.62	0.19	0.03	1.21	1.46	0.06
2017	0.85	0.38	0.73	0.75	0.10	0.0000	0.85	0.62	0.38	0.19	0.03	0.10
2018	2.00	1.34	3.99	0.78	1.22	0.0000	2.00	0.85	0.73	0.62	0.38	1.22
2019	0.22	-0.89	0.05	1.07	-0.85	0.0000	0.22	2.00	3.99	0.85	0.73	-0.85
2020F	0.19	-0.13	0.04	0.51	-0.32	0.0000	0.19	0.22	0.05	2.00	3.99	-0.32
2021F	0.16					0.0000						
2022F	0.14					0.0000						
2023F	0.12					0.0000						
2024F	0.11					0.0000						
2025F	0.09					0.0000						
2026F	0.08					0.0000						
2027F	0.07					0.0000						
2028F	0.06					0.0000						
2029F	0.05					0.0000						
2030F	0.04					0.0000						
Total	13.93	-23.59	47.64					14.42	48.06	17.56	59.26	
Average	0.73		2.51					0.76	2.53	0.92	3.12	
α ₁	0.27											
α ₂	-0.07											
α ₀	0.60											
Percentage change in GDP	-0.94											
Growth rate	-0.13											

Table n°3: Swiss General government final consumption expenditure (annual % growth)

Series Code	Value	G % YoY	G _t ²	Estimated G using the regression model (EG _r)	ΔG	Estimated G using the growth rate (EG _g)	ΔG	G _{t-1}	G _{t-1} ²	G _{t-2}	G _{t-2} ²	ε
		(G _t -G _{t-1})/G _{t-1}		$\alpha_0 + \alpha_1 \text{G}_{t-1} + \alpha_2 \text{G}_{t-2}$	G _t -EG _t	G _{t-1} *(1+Growth rate)	G _t -EG _g					
2000	1.50		2.24									
2001	0.08		0.01			1.49	-1.40	1.50	2.24			
2002	1.83	20.83	3.36	0.80	1.03	1.47	0.36	0.08	0.01	1.50	2.24	1.03
2003	1.97	0.08	3.88	1.16	0.81	1.46	0.51	1.83	3.36	0.08	0.01	0.81
2004	0.96	-0.51	0.93	1.93	-0.96	1.45	-0.49	1.97	3.88	1.83	3.36	-0.96
2005	0.96	0.00	0.93	1.45	-0.49	1.44	-0.48	0.96	0.93	1.97	3.88	-0.49
2006	0.96	0.00	0.93	1.05	-0.09	1.43	-0.47	0.96	0.93	0.96	0.93	-0.09
2007	0.74	-0.23	0.55	1.05	-0.31	1.42	-0.68	0.96	0.93	0.96	0.93	-0.31
2008	1.22	0.64	1.48	0.94	0.28	1.41	-0.20	0.74	0.55	0.96	0.93	0.28
2009	3.01	1.47	9.08	1.10	1.91	1.40	1.61	1.22	1.48	0.74	0.55	1.91
2010	1.06	-0.65	1.12	2.23	-1.17	1.39	-0.34	3.01	9.08	1.22	1.48	-1.17
2011	1.70	0.61	2.89	1.91	-0.21	1.39	0.32	1.06	1.12	3.01	9.08	-0.21

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2012	1.53	-0.10	2.35	1.48	0.06	1.38	0.16	1.70	2.89	1.06	1.12	0.06
2013	2.33	0.52	5.43	1.65	0.69	1.37	0.96	1.53	2.35	1.70	2.89	0.69
2014	2.15	-0.08	4.62	2.00	0.15	1.36	0.79	2.33	5.43	1.53	2.35	0.15
2015	1.14	-0.47	1.30	2.22	-1.08	1.35	-0.21	2.15	4.62	2.33	5.43	-1.08
2016	1.27	0.11	1.60	1.62	-0.35	1.34	-0.07	1.14	1.30	2.15	4.62	-0.35
2017	1.15	-0.09	1.32	1.28	-0.13	1.33	-0.18	1.27	1.60	1.14	1.30	-0.13
2018	0.28	-0.76	0.08	1.27	-0.99	1.32	-1.04	1.15	1.32	1.27	1.60	-0.99
2019	1.31	3.70	1.72	0.77	0.54	1.31	0.00	0.28	0.08	1.15	1.32	0.54
2020F	1.30	-0.01	1.69	0.97	0.33	1.30	0.00	1.31	1.72	0.28	0.08	0.33
2021F	1.29					1.29						
2022F	1.28					1.28						
2023F	1.27					1.27						
2024F	1.26					1.26						
2025F	1.26					1.26						
2026F	1.25					1.25						
2027F	1.24					1.24						
2028F	1.23					1.23						
2029F	1.22					1.22						
2030F	1.21					1.21						

Total	26.88
Average	1.41
α_1	0.52
α_2	0.39
α_0	0.17

25.07	45.26	25.66	43.57	25.85	44.10
	2.38	1.35	2.29	1.36	2.32

Percentage change in GDP	-0.12
Growth rate	-0.01

Table n°4: Swiss tax revenue (% of GDP)

Series Code	Value	T % YoY	GDP ²	Estimated T using the regression model (ETr)	ΔT	Estimated T using the growth rate (ETg)	ΔT	T _{t-1}	T _{t-1} ²	T _{t-2}	T _{t-2} ²	ε
		$T_t - T_{t-1} / T_{t-1}$		$\alpha_0 + \alpha_1 T_{t-1} + \alpha_2 T_{t-2}$	$T_t - ET_t$	$T_{t-1} * (1 + \text{Growth rate})$	$GDP_t - EGDP_t$					
2000	10.20		104.13									
2001	9.21		84.84			9.42	-0.21	10.20	104.13			
2002	9.19	0.00	84.51	8.81	0.38	8.69	0.50	9.21	84.84	10.20	104.13	0.38
2003	9.19	0.00	84.47	8.83	0.36	8.03	1.17	9.19	84.51	9.21	84.84	0.36
2004	9.22	0.00	85.08	8.83	0.39	7.41	1.82	9.19	84.47	9.19	84.51	0.39
2005	9.22	0.00	85.08	8.86	0.36	6.84	2.39	9.22	85.08	9.19	84.47	0.36
2006	9.22	0.00	85.08	8.86	0.36	6.31	2.91	9.22	85.08	9.22	85.08	0.36
2007	9.36	0.01	87.60	8.86	0.50	5.83	3.53	9.22	85.08	9.22	85.08	0.50
2008	9.91	0.06	98.27	9.00	0.91	5.38	4.54	9.36	87.60	9.22	85.08	0.91
2009	9.68	-0.02	93.73	9.54	0.14	4.96	4.72	9.91	98.27	9.36	87.60	0.14
2010	9.72	0.00	94.46	9.29	0.43	4.58	5.14	9.68	93.73	9.91	98.27	0.43
2011	9.65	-0.01	93.16	9.34	0.31	4.23	5.42	9.72	94.46	9.68	93.73	0.31
2012	9.52	-0.01	90.64	9.27	0.25	3.90	5.62	9.65	93.16	9.72	94.46	0.25
2013	9.60	0.01	92.21	9.14	0.46	3.60	6.00	9.52	90.64	9.65	93.16	0.46
2014	9.40	-0.02	88.39	9.23	0.17	3.33	6.08	9.60	92.21	9.52	90.64	0.17
2015	9.84	0.05	96.86	9.02	0.82	3.07	6.77	9.40	88.39	9.60	92.21	0.82
2016	9.73	-0.01	94.69	9.47	0.26	2.83	6.90	9.84	96.86	9.40	88.39	0.26
2017	10.40	0.07	108.18	9.34	1.06	2.62	7.79	9.73	94.69	9.84	96.86	1.06
2018	10.08	-0.03	101.63	10.02	0.06	2.41	7.67	10.40	108.18	9.73	94.69	0.06
2019	2.23	-0.78	4.96	9.67	-7.44	2.23	0.00	10.08	101.63	10.40	108.18	-7.44
2020F	2.06	-0.08	4.23	1.85	0.21	2.06	0.00	2.23	4.96	10.08	101.63	0.21
2021F	1.90					1.90						
2022F	1.75					1.75						
2023F	1.62					1.62						
2024F	1.49					1.49						
2025F	1.38					1.38						
2026F	1.27					1.27						
2027F	1.17					1.17						
2028F	1.08					1.08						
2029F	1.00					1.00						
2030F	0.92					0.92						

Total	167.25
Average	8.80
α_1	1.00
α_2	-0.04

-0.76	1573.24	174.40	1653.85	182.38	1753.02
	82.80	9.18	87.04	9.60	92.26

α_0	0.03
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Percentage change in GDP	-0.78
Growth rate	-0.08

Table n°5: Swiss Real interest rate (%)

Series Code	Value	i % YoY	i_t^2	Estimated i using the regression model (Eir)	Δi	Estimated i using the growth rate (Eig)	Δi	i_{t-1}	i_{t-1}^2	i_{t-2}	i_{t-2}^2	ε
		$(i_t - i_{t-1})/i_{t-1}$		$\alpha_0 + \alpha_1 i_{t-1} + \alpha_2 i_{t-2}$	$i_t - E i_t$	$i_{t-1} * (1 + \text{Growth rate})$	$i_t - i g_t$					
2000	2.55		6.50									
2001	3.20		10.24									
2002	4.19	0.31	17.56	2.97	1.22	2.54	0.66	2.55	1.04	2.55	1.04	1.22
2003	2.10	-0.50	4.41	4.18	-2.08	2.53	-0.42	4.19	1.04	3.20	1.04	-2.08
2004	2.90	0.38	8.41	3.40	0.50	2.52	0.39	2.10	1.04	4.19	1.04	-0.50
2005	2.41	-0.17	5.82	2.41	0.00	2.51	-0.09	2.90	1.04	4.19	1.04	0.00
2006	0.92	-0.62	0.84	2.66	-1.74	2.50	-1.57	2.41	1.04	2.10	1.04	-1.74
2007	0.72	-0.22	0.52	1.19	0.48	2.49	-1.76	0.92	1.04	2.41	1.04	-0.48
2008	1.29	0.80	1.66	-0.08	1.37	2.48	-1.18	0.72	1.04	2.41	1.04	1.37
2009	2.38	0.85	5.67	0.18	2.20	2.47	0.08	1.29	1.29	0.92	1.04	2.20
2010	2.41	0.01	5.80	1.41	0.99	2.46	-0.04	2.38	2.38	1.29	1.29	0.99
2011	2.37	-0.02	5.61	2.26	0.11	2.45	0.07	2.41	2.41	2.38	2.38	0.11
2012	2.87	0.21	8.22	2.25	0.62	2.44	0.44	2.37	2.37	2.41	2.41	0.62
2013	2.66	-0.07	7.09	2.59	0.08	2.43	0.25	2.87	2.87	2.37	2.37	0.08
2014	3.34	0.25	11.13	2.82	0.52	2.42	0.93	2.66	2.66	2.87	2.87	0.52
2015	3.33	0.00	11.08	3.15	0.17	2.41	0.93	3.34	3.34	2.66	2.66	0.17
2016	3.27	-0.02	10.70	3.66	-0.39	2.40	0.89	3.33	3.33	3.34	3.34	-0.39
2017	3.22	-0.02	10.37	3.61	-0.39	2.39	0.84	3.27	3.27	3.33	3.33	-0.39
2018	2.39	-0.26	5.72	3.53	-1.14	2.38	0.03	3.22	3.22	3.27	3.27	-1.14
2019	2.23	-0.07	4.96	2.88	-0.65	2.37	-0.13	2.39	2.39	3.22	3.22	-0.65
2020F	2.22	0.00	4.92	2.14	0.08	2.36	-0.13	2.23	2.23	3.22	3.22	0.08
2021F	2.21					2.35						
2022F	2.20					2.34						
2023F	2.19					2.33						
2024F	2.18					2.32						
2025F	2.17					2.31						
2026F	2.16					2.30						
2027F	2.15					2.29						
2028F	2.15					2.28						
2029F	2.14					2.27						
2030F	2.13					2.26						

Total	47.21
Average	2.48458115
α_1	0.73167513
α_2	0.75661072
α_0	1.30285764

Percentage change in GDP	-
Growth rate	0.00416469

0.85	130.48	48.19	39.05	48.51	37.87
	6.87	2.54	2.06	2.55	1.99

Table 6: Swiss External balance on goods and services (% of GDP)

Series Code	Value	(Ex-Im) % YoY	(Ex-Im) _t ²	Estimated (Ex-Im) using the regression model (E(Ex-Im) _t)	Estimated (Ex-Im) using the growth rate (E(Ex-Im) _t)g	(Ex-Im) _{t-1}	(Ex-Im) _{t-1} ²	(Ex-Im) _{t-2}	(Ex-Im) _{t-2} ²	ε
		$\frac{(Ex-Im)_t - (Ex-Im)_{t-1}}{(Ex-Im)_{t-1}}$		$\alpha_0 + \alpha_1(Ex-Im)_{t-1} + \alpha_2(Ex-Im)_{t-2}$	$(Ex-Im)_{t-1} * (1 + \text{Growth rate})$					
2000	2.67		7.11							
2001	2.49		6.20		2.89	6.13	37.58			
2002	2.92	0.17	8.55	5.60	3.14	5.61	31.53	6.13	37.58	-
2003	4.12	0.41	16.94	5.75	3.41	6.72	45.17	5.61	31.53	2.68
2004	4.32	0.05	18.63	6.37	3.70	6.69	44.72	6.72	45.17	-
2005	4.68	0.09	21.94	7.26	4.01	8.95	80.09	6.69	44.72	1.63
2006	4.68	0.00	21.94	8.56	4.36	8.95	80.09	8.95	80.09	-
2007	11.30	1.41	127.61	8.56	4.73	8.95	80.09	8.95	80.09	2.58
2008	10.54	-0.07	111.15	9.51	5.13	11.30	127.61	8.95	80.09	-
2009	7.53	-0.29	56.71	10.56	5.57	10.54	111.15	11.30	127.61	3.88
2010	10.68	0.42	114.04	8.91	6.04	7.53	56.71	10.54	111.15	2.73
2011	8.43	-0.21	71.15	8.44	6.56	10.68	114.04	7.53	56.71	1.04
2012	10.38	0.23	107.85	9.35	7.12	8.43	71.15	10.68	114.04	-
2013	12.05	0.16	145.28	8.84	7.73	10.38	107.85	8.43	71.15	0.01
2014	11.69	-0.03	136.59	10.64	8.39	12.05	145.28	10.38	107.85	1.03
2015	11.70	0.00	136.94	11.45	9.10	11.69	136.59	12.05	145.28	3.21
2016	11.52	-0.02	132.62	11.25	9.88	11.70	136.94	11.69	136.59	1.05
2017	10.56	-0.08	111.46	11.18	10.72	11.52	132.62	11.70	136.94	0.25
2018	12.23	0.16	149.48	10.69	11.64	10.56	111.46	11.52	132.62	0.27
2019	12.63	0.03	159.48	10.81	12.63	12.23	149.48	10.56	111.46	-
2020F	13.71	0.09	187.85	11.93	13.71	12.63	159.48	12.23	149.48	0.62
2021F	14.88				14.88					1.54
2022F	16.14				16.14					1.82
2023F	17.52				17.52					-
2024F	19.02				19.02					0.27
2025F	20.64				20.64					-
2026F	22.40				22.40					0.62
2027F	24.31				24.31					1.54
2028F	26.38				26.38					1.82
2029F	28.63				28.63					-
2030F	31.08				31.08					0.27
Total	175.67	2.52	1836.20			187.11	1922.06	180.61	1800.16	
Average	9.25		96.64			9.85	101.16	9.51	94.75	
α ₁	0.40									
α ₂	0.58									
α ₀	-0.18									
Percentage change in GDP	3.74									
Growth rate	0.09									

Table 7: Swiss unemployment rate, total (% of total labour force) (national estimate)

Series Code	Value	U % YoY	U _t ²	Estimated U using the regression model (EU _t)	ΔU	Estimated U using the growth rate (EU _g)	ΔU	U _{t-1}	U _{t-1} ²	U _{t-2}	U _{t-2} ²	ε
		$\frac{U_t - U_{t-1}}{U_{t-1}}$		$\alpha_0 + \alpha_1 U_{t-1} + \alpha_2 U_{t-2}$	$\frac{U_t - U_{t-1}}{U_{t-1}}$	$U_{t-1} * (1 + \text{Growth rate})$	$\frac{U_t - EU_{g,t}}{EU_{g,t}}$					
2000	2.67		7.11									
2001	2.49		6.20									
2002	2.92	0.17	8.55	2.53	0.40	2.74	-0.25	2.67	7.11			
2003	4.12	0.41	16.94	3.10	1.01	2.81	0.11	2.49	6.20	2.67	7.11	0.40
2004	4.32	0.05	18.63	4.48	-0.16	2.88	1.23	2.92	8.55	2.49	6.20	1.01
2005	4.43	0.03	19.63	4.46	-0.03	2.96	1.35	4.12	16.94	2.92	8.55	-
2006	4.43	0.00	19.63	4.42	0.02	3.04	1.39	4.32	18.63	4.12	16.94	0.16
2007	3.65	-0.18	13.34	4.42	-0.76	3.12	1.31	4.32	18.63	4.32	18.63	-
												0.03
												0.02
												-
												0.76

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2008	3.35	-0.08	11.22	3.60	-0.25	3.29	0.06	3.65	13.34	4.32	18.63	-
2009	4.12	0.23	16.94	3.37	0.75	3.38	0.74	3.35	11.22	3.65	13.34	0.25
2010	4.80	0.17	23.07	4.38	0.42	3.47	1.33	4.12	16.94	3.35	11.22	0.42
2011	4.40	-0.08	19.38	5.06	-0.66	3.56	0.84	4.80	23.07	4.12	16.94	-
2012	4.48	0.02	20.11	4.41	0.07	3.66	0.83	4.40	19.38	4.80	23.07	0.66
2013	4.75	0.06	22.53	4.60	0.14	3.75	0.99	4.48	20.11	4.40	19.38	0.07
2014	4.83	0.02	23.29	4.91	-0.08	3.85	0.97	4.75	22.53	4.48	20.11	0.14
2015	4.80	-0.01	23.05	4.95	-0.15	3.96	0.85	4.83	23.29	4.75	22.53	-
2016	4.92	0.02	24.19	4.90	0.02	4.06	0.86	4.80	23.05	4.83	23.29	0.08
2017	4.80	-0.02	23.01	5.05	-0.25	4.17	0.63	4.92	24.19	4.80	23.05	0.15
2018	4.71	-0.02	22.22	4.88	-0.16	4.28	0.43	4.80	23.01	4.92	24.19	-
2019	4.39	-0.07	19.31	4.80	-0.41	4.39	0.00	4.71	22.22	4.80	23.01	0.16
2020F	4.51	0.03	20.35	4.42	0.09	4.51	0.00	4.39	19.31	4.71	22.22	-
2021F	4.63					4.63						0.41
2022F	4.75					4.75						0.09
2023F	4.88					4.88						
2024F	5.01					5.01						
2025F	5.15					5.15						
2026F	5.28					5.28						
2027F	5.42					5.42						
2028F	5.57					5.57						
2029F	5.72					5.72						
2030F	5.87					5.87						

Total	82.73	0.74	365.37					80.48	349.21	78.75	337.01	
Average	4.35		19.23					4.24	18.38	4.14	17.74	
α_1	1.23											
α_2	-0.22											
α_0	0.04											

Percentage change in GDP	0.65
Growth rate	0.03

Table 8: Swiss unemployment rate, youth total (% of total labour force ages 15-24) (modelled ILO estimate)

Series Code	Value	U % YoY	U _t ²	Estimated U using the regression model (EUR)	Estimated U using the growth rate (EUG)	U _{t-1}	U _{t-1} ²	U _{t-2}	U _{t-2} ²	ε
		$(GDP_t - GDP_{t-1}) / GDP_{t-1}$		$\alpha_0 + \alpha_1 GDP_{t-1} + \alpha_2 GDP_{t-2}$	$GDP_{t-1} * (1 + \text{Growth rate})$					
2000	5.00		24.99							
2001	5.62		31.60		5.10	5.00	24.99			
2002	5.58	-0.01	31.14	5.61	5.21	5.62	31.60	5.00	24.99	-0.03
2003	8.48	0.52	71.96	5.74	5.32	5.58	31.14	5.62	31.60	2.74
2004	7.70	-0.09	59.34	7.91	5.43	8.48	71.96	5.58	31.14	-0.21
2005	7.86	0.02	61.84	8.09	5.54	7.70	59.34	8.48	71.96	-0.23
2006	7.86	0.00	61.84	7.89	5.66	7.70	59.34	7.70	59.34	-0.02
2007	7.11	-0.10	50.61	7.89	5.78	7.70	59.34	7.70	59.34	-0.77
2008	7.00	-0.02	49.06	7.44	5.90	7.11	50.61	7.70	59.34	-0.44
2009	8.47	0.21	71.79	7.20	6.02	7.00	49.06	7.11	50.61	1.27
2010	8.22	-0.03	67.60	8.28	6.14	8.47	71.79	7.00	49.06	-0.06
2011	7.69	-0.06	59.15	8.48	6.27	8.22	67.60	8.47	71.79	-0.79
2012	8.31	0.08	69.11	8.01	6.40	7.69	59.15	8.22	67.60	0.30
2013	8.73	0.05	76.14	8.34	6.54	8.31	69.11	7.69	59.15	0.39
2014	8.58	-0.02	73.67	8.82	6.67	8.73	76.14	8.31	69.11	-0.23
2015	8.81	0.03	77.56	8.82	6.81	8.58	73.67	8.73	76.14	-0.01
2016	8.57	-0.03	73.48	8.95	6.95	8.81	77.56	8.58	73.67	-0.38
2017	8.05	-0.06	64.82	8.83	7.10	8.57	73.48	8.81	77.56	-0.78
2018	7.93	-0.02	62.85	8.38	7.25	8.05	64.82	8.57	73.48	-0.45
2019	7.40	-0.07	54.73	8.15	7.40	7.93	62.85	8.05	64.82	-0.75
2020F	8.16	0.10	66.52	7.72	7.55	7.40	54.73	7.93	62.85	0.44
2021F	8.33				7.71					

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2022F	8.50
2023F	8.68
2024F	8.86
2025F	9.04
2026F	9.23
2027F	9.42
2028F	9.62
2029F	9.82
2030F	10.02

7.87
8.03
8.20
8.37
8.55
8.73
8.91
9.09
9.28

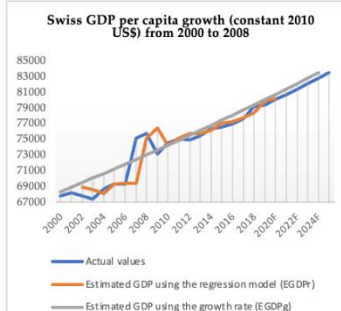
Total	150.53
Average	7.92
α_1	0.75
α_2	0.26
α_0	0.06

0.52 1203.20
63.33

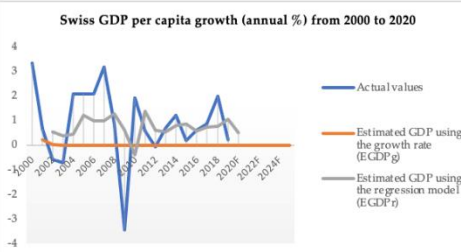
147.67 1163.27 145.28 1133.53
7.77 61.22 7.65 59.66

Percentage change in GDP	0.48
Growth rate	0.02

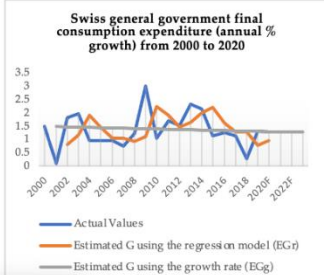
Graph n°1:



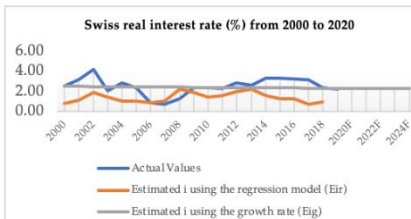
Graph n°2:



Graph n°3:



Graph n°4:



Graph n°5:

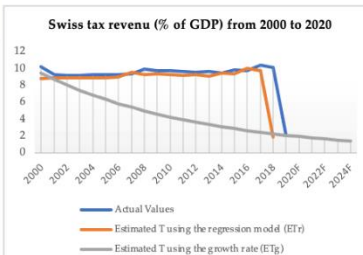
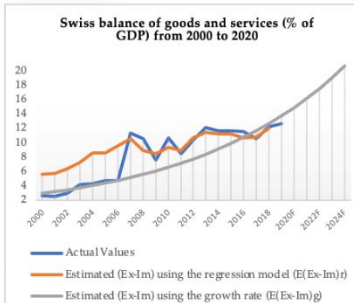
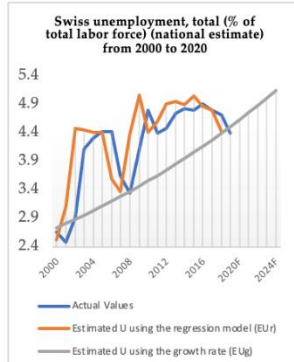


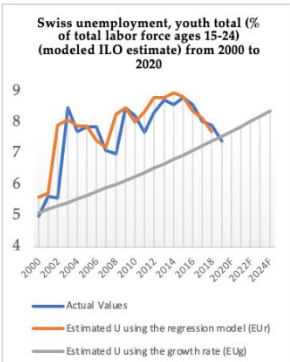
Chart Area



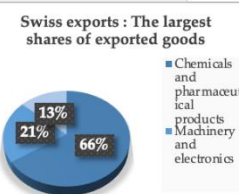
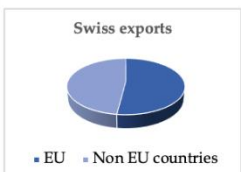
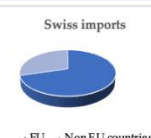
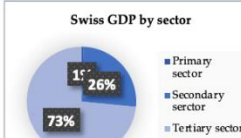
Graph n°7:



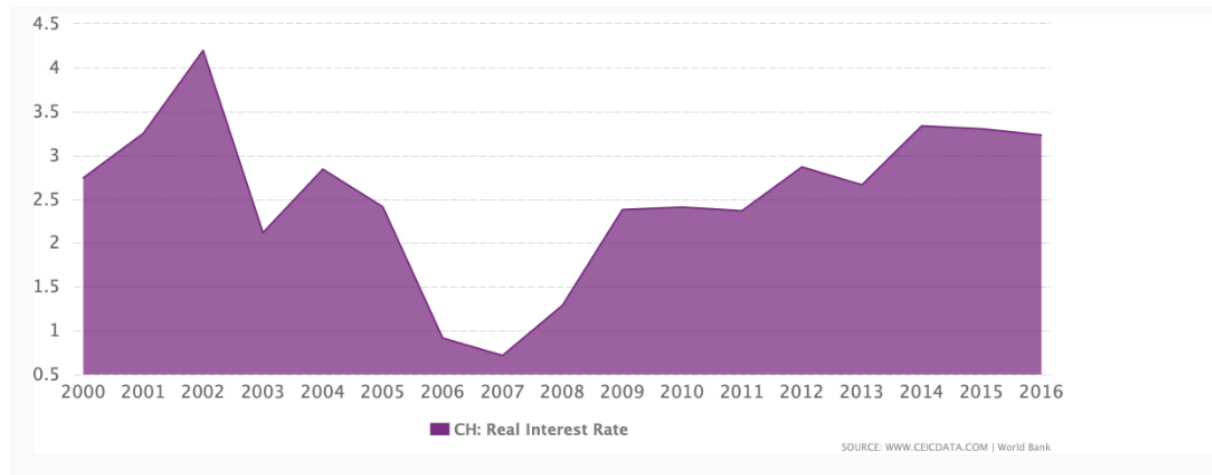
Graph n°8:



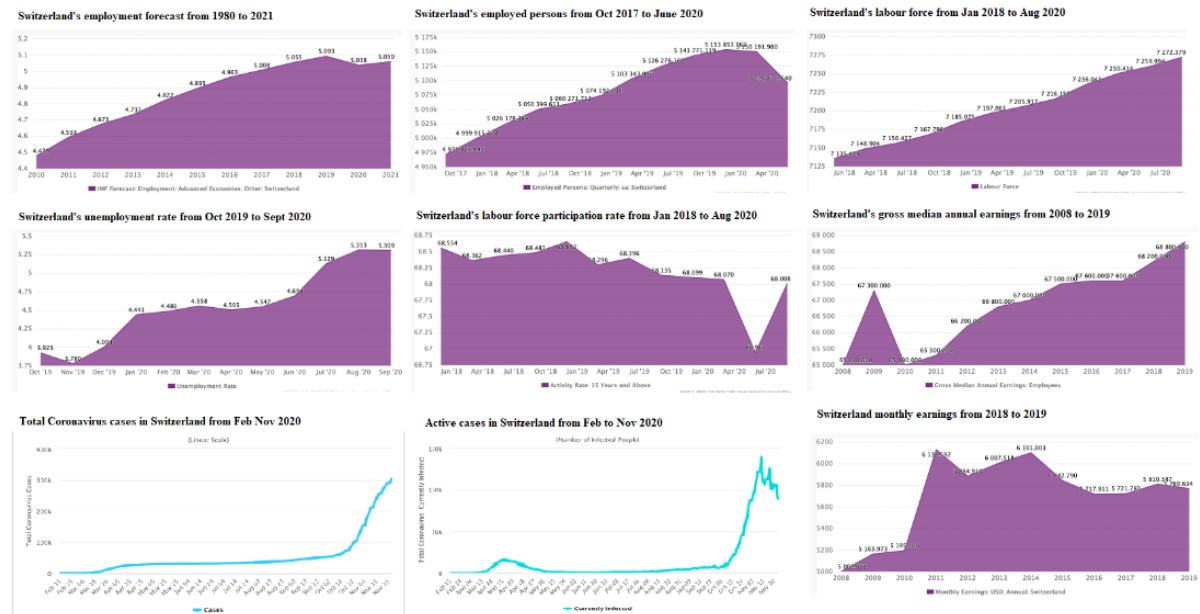
Graph n°8:



Graph n°10: Switzerland real interest rate from 2000 to 2016

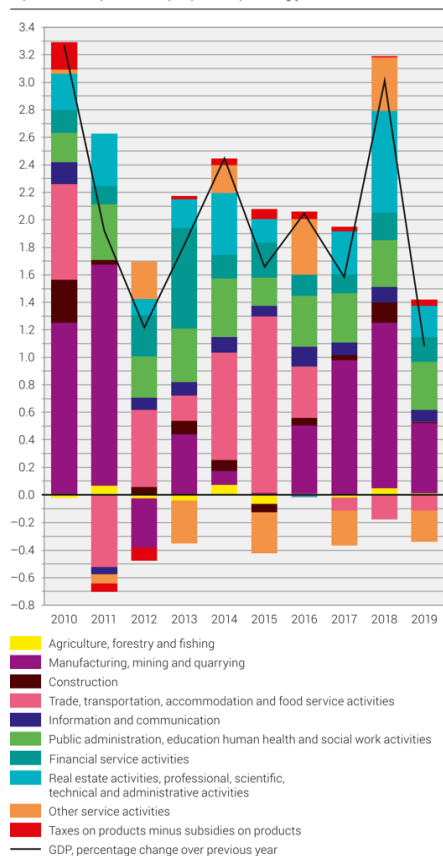


Graph n°11



Graph n°12: Contribution to GDP growth

In points of GDP (absolut level), at prices of preceding year

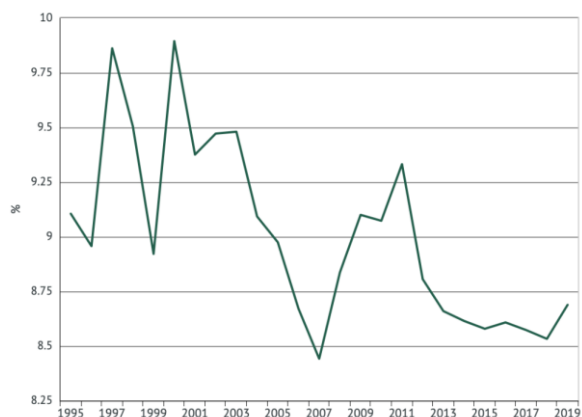


Source: FSO – National Accounts

© FSO 2020

Graph n°13

What is Switzerland contribution of travel and tourism to GDP (% of GDP)



Industries during the COVID-19 Crisis (2020)

Appendix 1: 2019 and 2020 data for room occupancy in tourism industry

		Establi shment s	Rooms	Beds	Arrivals	Overnight stays	Room nights	Room occupancy	Bed occupan cy
2019	Total of the year	4,234.42	130,625.13	253,071.33	19,764,557.00	39,562,039.00	25,206,518.00	55.16	44.85
	January	4,193	131,201	255,326	1,226,739	2,836,384	1,828,385	46.19	36.86
	February	4,205	131,504	255,443	1,332,892	3,113,363	1,923,553	53.09	44.26
	March	4,334	134,414	261,121	1,526,592	3,352,687	2,159,430	53.02	42.48
	April	4,132	127,437	245,489	1,384,180	2,676,948	1,731,478	48.73	39.41
	May	3,918	120,011	230,305	1,624,902	3,006,949	1,988,681	56.75	45.06
	June	4,411	135,005	261,984	2,006,805	3,800,082	2,423,901	62.93	51.10
	July	4,482	136,302	265,223	2,284,423	4,568,810	2,740,535	65.93	56.55
	August	4,499	136,575	265,766	2,270,490	4,505,292	2,709,904	64.78	55.39
	September	4,467	135,701	264,098	1,958,831	3,705,035	2,408,766	60.35	47.77
	October	4,296	130,271	252,934	1,612,160	3,060,503	2,015,594	53.28	41.89
	November	3,646	115,874	220,486	1,154,630	2,085,854	1,473,853	45.41	33.99

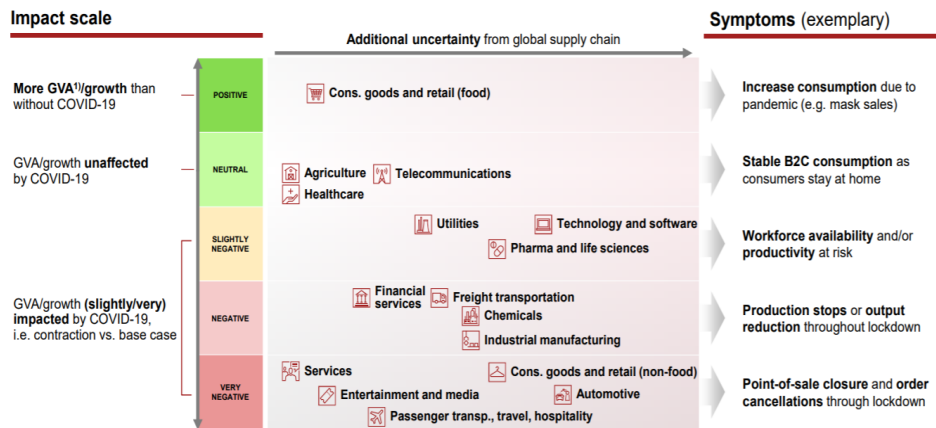
2020	December	4,230	133,018	258,258	1,381,913	2,850,132	1,802,438	47.74	39.15
	Total of the year	...	...	...	...	...	...	...	...
	January	4,163	132,605	257,824	1,328,894	3,016,116	1,931,832	48.38	38.88
	February	4,146	132,477	257,461	1,342,777	3,312,404	2,003,406	52.95	45.09
	March	4,174	133,788	259,896	496,239	1,264,231	830,537	23.73	18.74
	April	2,063	64,151	121,442	51,479	204,564	151,125	8.28	5.93
	May	3,074	85,472	164,636	307,372	625,054	410,163	17.17	13.68
	June	4,086	118,664	232,610	716,421	1,443,065	916,043	27.45	22.14
	July	4,286	129,465	253,679	1,539,928	3,361,942	1,913,067	48.39	43.40
	August	4,322	132,657	258,988	1,525,425	3,241,364	1,900,435	46.83	40.89
	September	4,311	131,982	257,592	1,291,992	2,663,475	1,654,927	42.60	35.19

Source: Federal Statistical Office of Switzerland

Appendix 2

Severe COVID-19 industry impact in Switzerland expected in industries with high additional uncertainty from supply chain

Impact on industries: overview



Appendix 2: Swiss industry perspectives (Strategy and PwC network) 18 June 2020

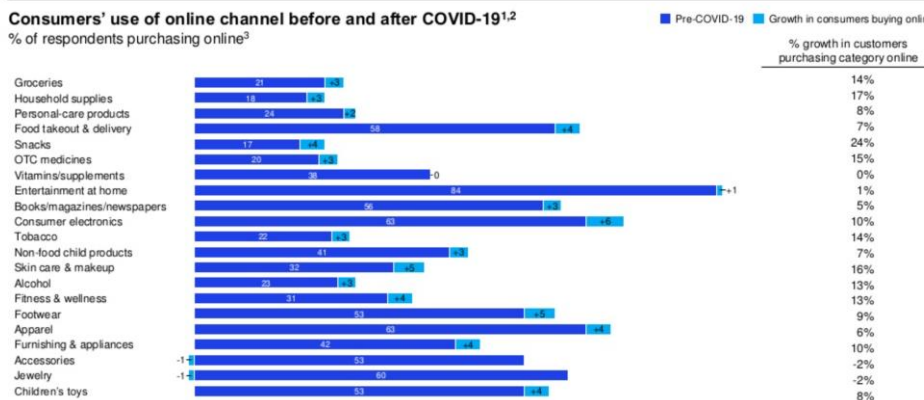
*GVA= Gross value added. I.e., an industry's contribution to the GDP

Appendix 3

More Swiss consumers expect to make a portion of their purchases online post-COVID-19 than before

Consumers' use of online channel before and after COVID-19^{1,2}

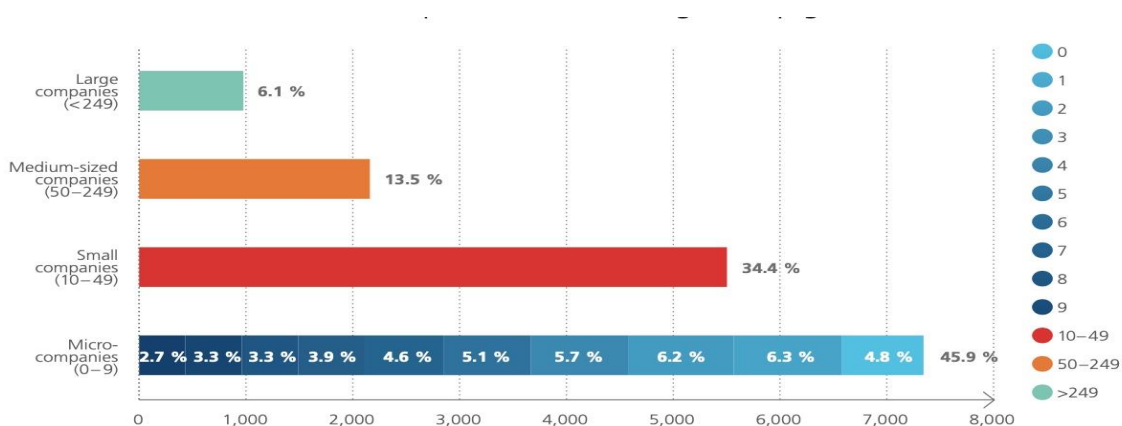
% of respondents purchasing online³



Q: Before the coronavirus (COVID-19) situation started, what portion of your purchases in this category were online vs from a physical store/in person?
Q: Once the coronavirus (COVID-19) has subsided, tell us what portion of your purchases in this category you think will be online vs from a from a physical store/in person?
Source: McKinsey & Company COVID-19 Switzerland Consumer Pulse Survey 6/18-6/21/2020, n=607, sampled to match Switzerland's general population 18+ years

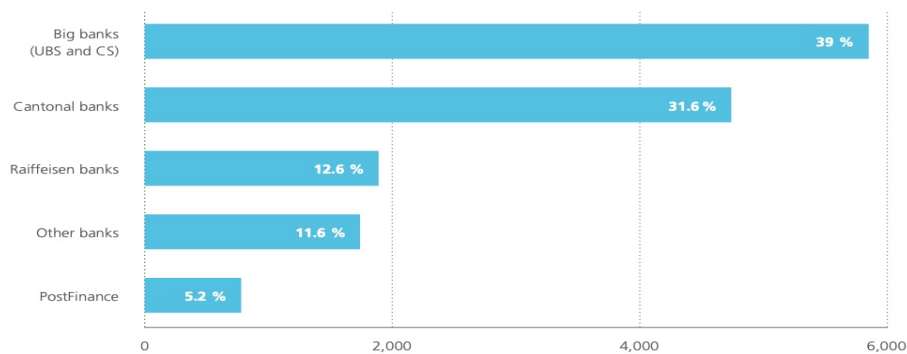
Financing by debt – supporting figures

Appendix 1 Loan volume by company size



In CHF mn, company size in terms of full-time equivalents (FTE), as at 25 June 2020, COVID-19 loans and COVID-19 plus loans, excluding startup guarantees

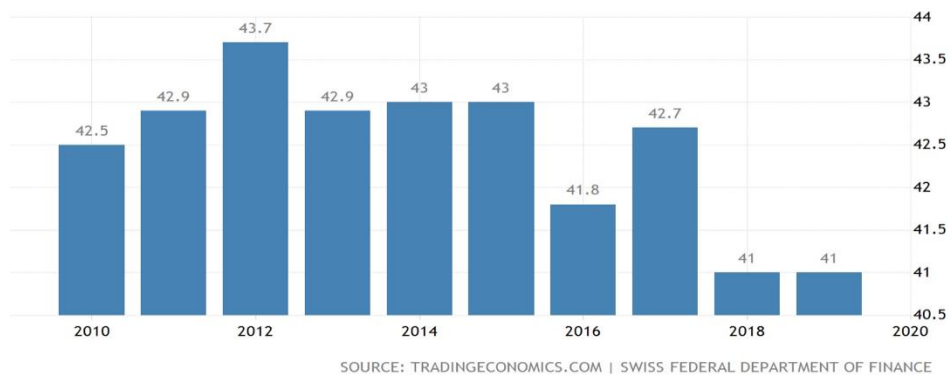
Appendix 2 Loan volume by bank category



In CHF mn, as at 25 June 2020, COVID-19 loans and COVID-19 plus loans, excluding startup guarantees

Source: SwissBanking - Banking Barometer 2020, n.d. URL https://www.google.com/search?client=safari&rls=en&q=SBVg_Bankenbarometer_2020_EN.pdf&ie=UTF-8&oe=UTF-8 (accessed 11.22.20).

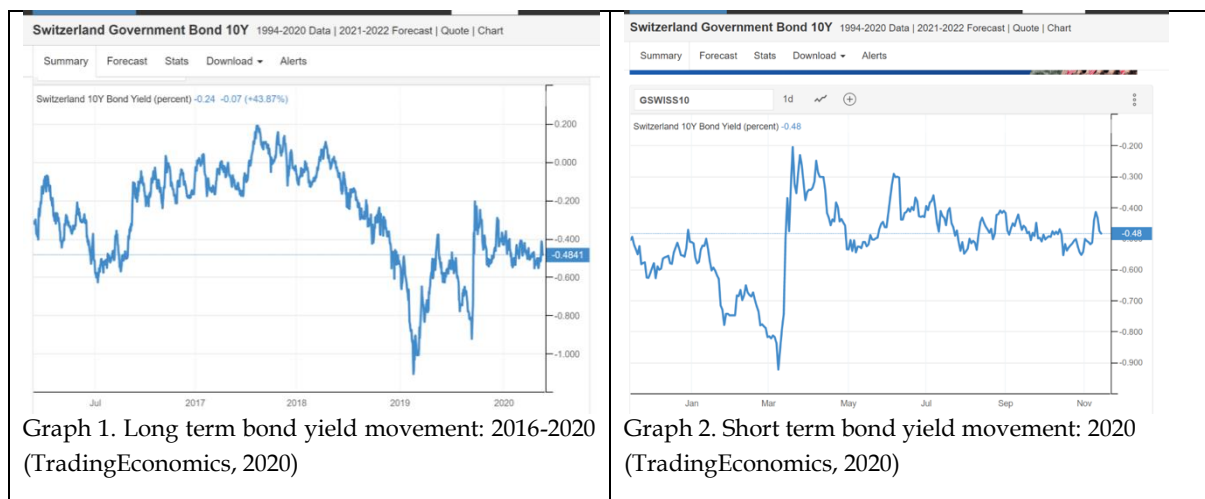
Appendix 3 Switzerland Government Gross Debt to GDP



Switzerland General Government Debt | 1980-2019 Data | 2020-2022 Forecast | Historical [WWW Document], n.d. URL <https://tradingeconomics.com/switzerland/government-debt> (accessed 11.22.20).

Financial sector – Bloomberg supporting data

Financial analysis. Gvt bond part



When the Real Economy gets COVID-19, the financial system starts coughing? The Case of Switzerland in the interaction between Financial System and the Real Economy during the current Pandemic



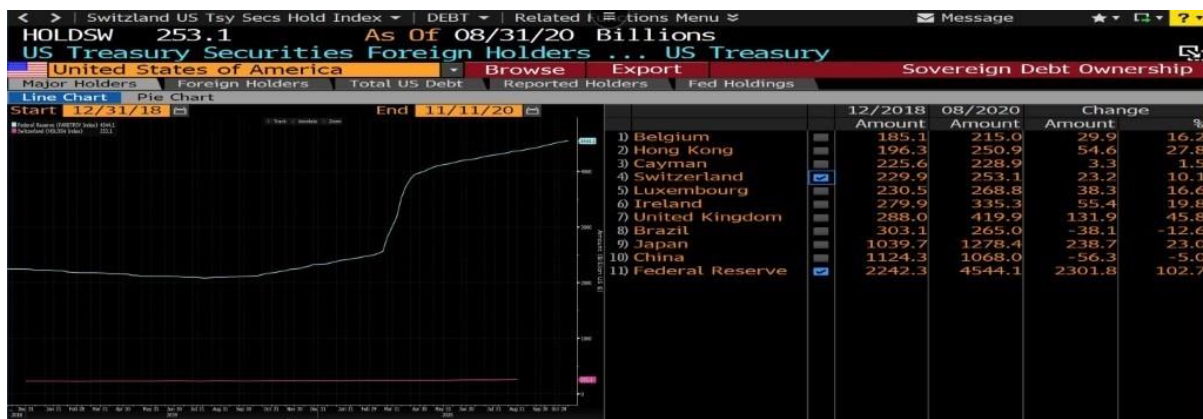
Graph 3. Swiss bond yield curve given maturities (Bloomberg, 2020)

Enter # <GO> for details														
Chart		Export	Disclaimer		Page 2/2 Bond Yield Forecasts									
Region	Rate	Western Europe	Spread	2 Year - 10 Year										
			Market Yld	Q4 20	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22	Q1 23	
Spain														
1)	Spain 10-Year		0.11	0.21	0.32	0.38	0.42	0.39	0.51	0.65	0.73	0.74	0.89	
2)	Spain 2-Year		-0.57	-0.41	-0.44	-0.41	-0.37	-0.35	-0.33	-0.30	-0.26	-0.20	-0.15	
3)	3-Month Euribor		-0.51	-0.47	-0.46	-0.44	-0.43	-0.42	-0.40	-0.39	-0.39	-0.38	-0.36	
4)	ECB Main Refinancing Rate		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	
5)	ECB Deposit Rate		-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.48	-0.49	-0.48	-0.48	
	2 Year - 10 Year Spread		0.68	0.62	0.77	0.79	0.80	0.74	0.84	0.95	0.99	0.94	1.04	
Sweden														
6)	Sweden 10-Year		0.00	-0.08	-0.04	0.03	0.11	0.08	0.21	0.32	0.45	0.32	0.00	
7)	Sweden 2-Year		-0.42	-0.30	-0.27	-0.27	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	
8)	Sweden Repo Rate		0.00	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	0.00	
	2 Year - 10 Year Spread		0.41	0.22	0.23	0.30	0.31	0.28	0.41	0.52	0.65	0.52		
Switzerland														
9)	Switzerland 10-Year		-0.50	-0.50	-0.44	-0.41	-0.36	-0.39	-0.30	-0.23	-0.17	-0.23	-0.01	
10)	Switzerland 2-Year		-0.81	-0.70	-0.70	-0.40	-0.65	-0.61	-0.47	-0.25	-0.25	-0.20	-0.20	
11)	Switzerland 3-Month Libor		-0.77	-0.73	-0.72	-0.72	-0.72	-0.73	-0.73	-0.72	-0.70	-0.70	-0.68	
12)	SNB Sight Deposit Rate		-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.65	
13)	SNB Policy Rate		-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.65	
	2 Year - 10 Year Spread		0.31	0.20	0.26	-0.01	0.29	0.22	0.18	0.02	0.08	-0.03	0.19	

Table 1. CDS and yield curves expectations (Bloomberg, 2020)

Developed Markets												
Country	Debt (USD)	Debt (MM)	5 Yr1 Time	%Chg	S&P	Moody's	Fitch	Price	Time	%Chg	Rate	Def%
2) Italy	2,560,188	109.46	11/13	+0.75	BBBu	Baa3u	BBB-	1.1834	11/13	+0.24	-0.48	-1.60
3) Iceland	15,557	57.71	11/13	+0.07	A	A2	A	136.4800	11/13	-0.48	1.00	-6.35
4) Spain	1,350,702	49.13	11/13	+0.66	Au	Baa1	A-	1.1834	11/13	+0.24	-0.48	-2.90
5) Israel	221,808	48.49	11/13	-0.24	AA-	A1	A+	3.3700	09/29	+0.02	-0.08	--
6) Portugal	274,667	43.00	11/13	+2.03	BBBu	Baa3	BBB	1.1834	11/13	+0.24	-0.48	+1.10
7) Hong Kong	174,652	42.71	11/13	-0.26	AA+	Aa3	AA-	7.7533	11/13	+0.01	-0.32	+2.24
8) Canada	1,035,099	25.54	11/13	+0.06	AAA	Aaa	AA+	1.3137	11/13	-0.03	-0.49	-4.87
9) Ireland	210,486	18.99	11/13	-1.43	AA-	A2	A+	1.1834	11/13	+0.24	-0.48	+5.50
10) United Kingdom	2,475,042	18.81	11/13	-4.15	Au	Aa3u	AA-	1.3189	11/13	+0.54	-0.05	-2.30
11) France	2,575,467	17.17	11/13	-1.97	AAu	Aa2u	AA	1.1834	11/13	+0.24	-0.48	-3.00
12) United States	20,751,989	15.89	11/13	+1.37	AA+u	--	AAA	1.000			-0.22	-15.51
13) Japan	11,345,297	15.78	11/13	-0.94	A+u	--	A	104.63	11/13	-0.48	-0.08	-7.39
14) New Zealand	94,207	14.80	11/13	+0.07	AA	Aaa	AA	6845	11/13	+0.06	-0.27	--
15) Australia	598,598	14.14	11/13	+1.36	AAu	Aaa	AAA	7.270	11/13	+0.53	-0.02	-6.80
16) Belgium	472,325	13.65	11/13	+1.37	AAu	Aa3	AA-	1.1834	11/13	+0.24	-0.48	-1.90
17) Germany	1,846,945	10.82	11/13	-3.91	AAu	Aaa	AAA	1.1834	11/13	+0.24	-0.48	+1.50
18) Norway	103,137	10.58	11/13	+0.19	AA	Aaa	AAA	9.1658	11/13	-0.09	-0.42	+6.39
19) Finland	159,476	10.48	11/13	-6.81	AA+	Aa1	AA+	1.1834	11/13	+0.24	-0.48	-1.00
20) Netherlands	427,266	9.99	11/13	+5.27	AAu	Aaa	AAA	1.1834	11/13	+0.24	-0.48	+1.70
21) Austria	327,581	9.99	11/13	+5.38	AA+	Aa1	AA+	1.1834	11/13	+0.24	-0.48	+0.70
22) Sweden	132,745	9.60	11/13	-20.16	AAu	Aaa	AAA	8.6914	11/13	+0.49	-0.11	+5.50
23) Denmark	122,006	8.23	11/13	+1.73	AAu	Aaa	AAA	6.2953	11/13	-0.22	-0.23	+3.80
24) Switzerland	89,153	7.26	11/13	+0.28	AAu	--	AAA	9.127	11/13	-0.22	-0.77	--
25) Singapore	270,492				AAu	--	AAA	1.3479	11/13	-0.12	-0.40	--

Table 2. Government bond ratings (Bloomberg, 2020)



Graph 4. Debt level (Bloomberg, 2020)

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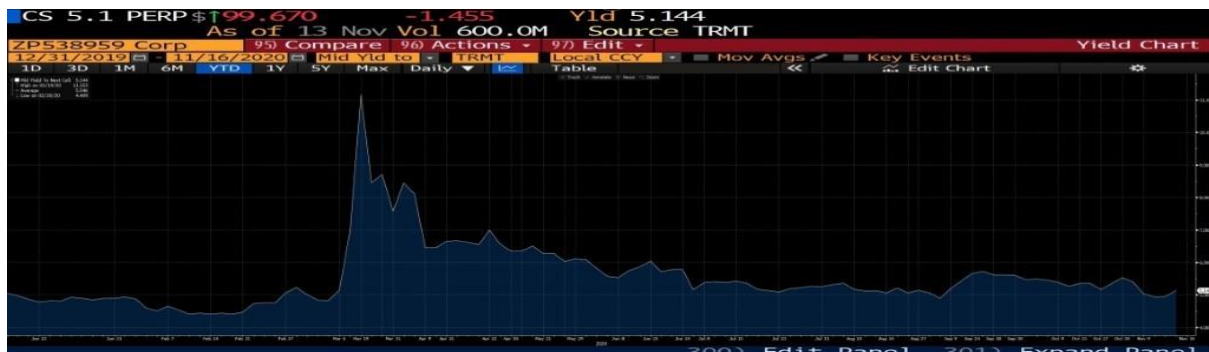
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Sovereign CDS Monitor

N	Name (5Y CDS)	Spread	Change	#SD	Low	Avg	High	Avg	1 Year	1Y Chg
					Historical Range					
					Avg		+/-			
					Now					
9	United States	18.46	+0.22	+0.4	15.5	29.6	21.3	-2.9	+2.6	
10	Brazil	184.60	+5.13	+0.8	94.5	397.3	210.3	-25.7	+57.4	
11	Colombia	100.94	+3.71	+0.7	71.0	366.7	143.8	-42.9	+8.1	
12	Mexico	100.31	+2.21	+0.4	74.0	315.8	146.4	-46.1	+6.0	
13	Canada	30.22	+0.02	--	23.5	39.5	28.9	+1.3	+4.2	
EMEA										
19	United Kingdom	20.77	-0.81	-1.3	19.2	52.2	27.2	-6.4	-2.1	
20	France	19.30	-0.32	-0.8	18.6	54.4	29.1	-9.8		
21	Germany	12.06	-0.45	-1.0	11.6	31.2	18.0	-5.9		
22	Italy	111.20	+0.81	+0.3	97.6	279.6	155.9	-44.7	-26.4	
23	Spain	51.12	+0.32	+0.2	34.5	178.3	70.3	-19.2	+9.1	
24	Portugal	46.02	+0.85	+0.8	32.0	182.6	65.7	-19.6	+6.0	
25	Sweden	12.73	-2.43	-5.7	11.0	24.4	14.8	-2.0	+0.4	
26	Netherlands	12.03	+0.50	+1.1	10.9	25.9	15.4	-3.4	-1.0	
27	Switzerland	8.79	+0.02	+0.1	8.6	17.1	11.7	-3.0	-2.4	
28	Greece	122.25	+0.90	+0.3	99.9	427.6	170.6	-48.3	-33.6	
Asia/Pacific										
28	Japan	18.80	+0.07	+0.1	16.7	50.0	24.6	-5.8	-4.5	
29	Australia	14.84	+0.19	+0.4	14.4	57.3	22.2	-7.4	-3.1	
30	New Zealand	17.35	+0.01	--	17.3	48.2	23.5	-6.2	-3.0	
31	South Korea	22.39	+0.56	+0.7	21.2	64.9	29.2	-6.8	-5.2	
32	China	33.08	+1.26	+0.7	29.0	91.6	44.5	-11.4	-6.2	

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Table 5. Credit default Swap (Bloomberg,2020)

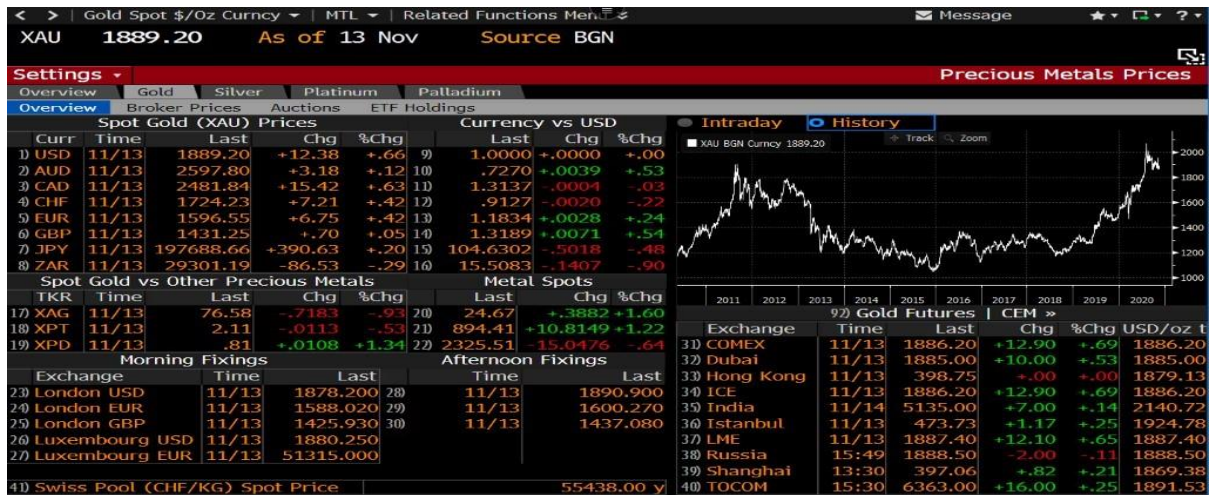


Graph 6. CS corporate bond yield (Bloomberg,2020)

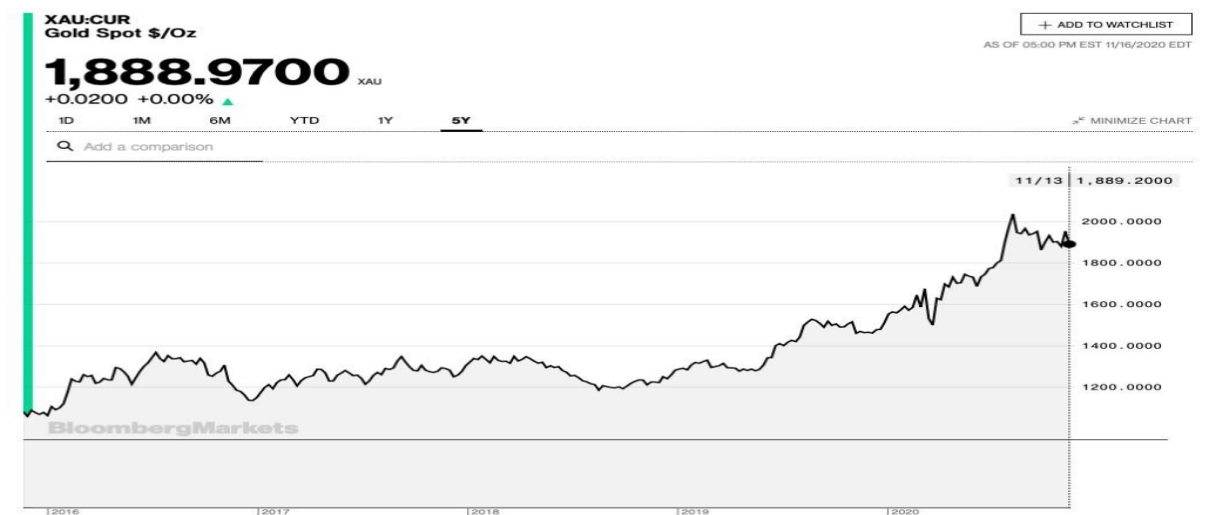
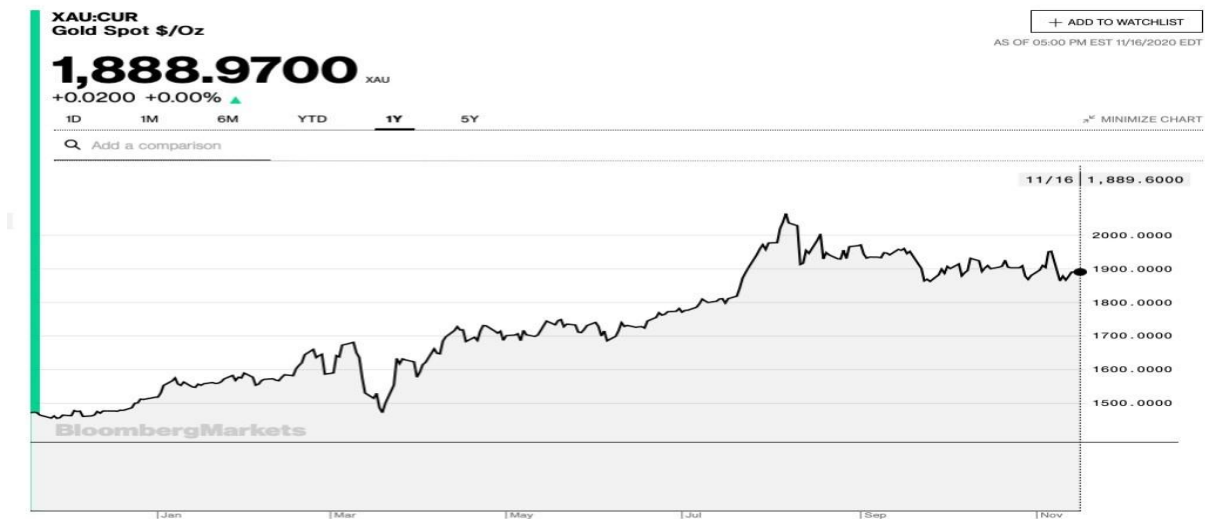
Commodities - Bloomberg supporting data

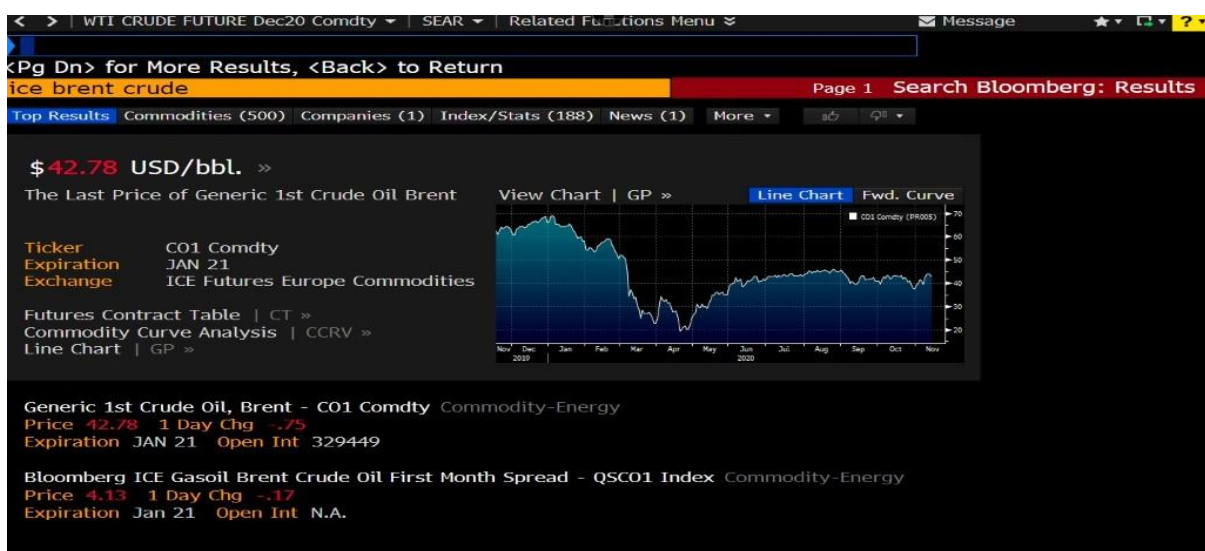
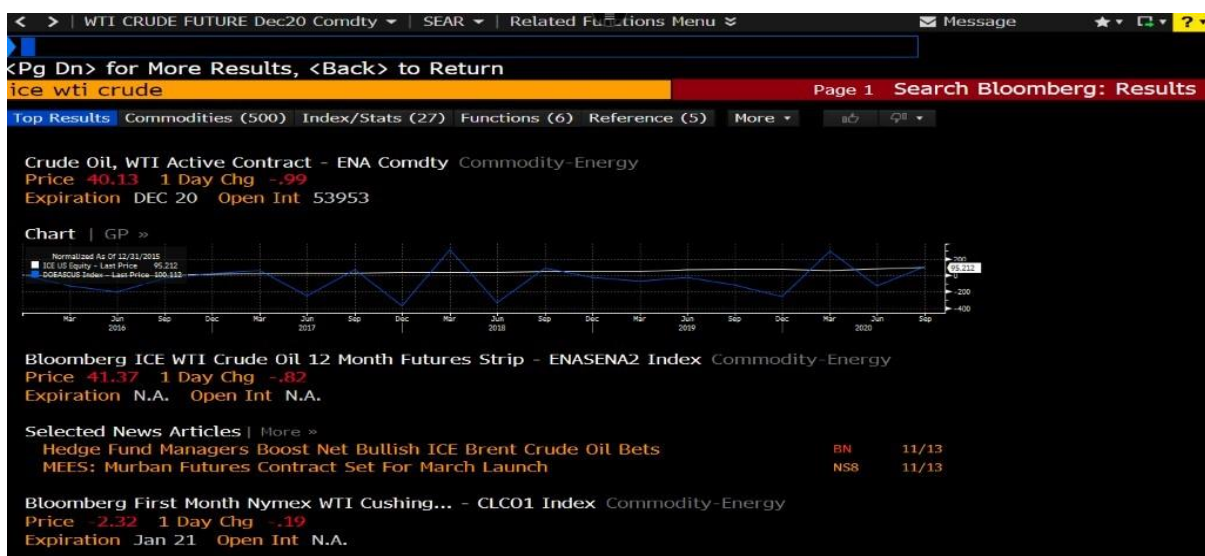


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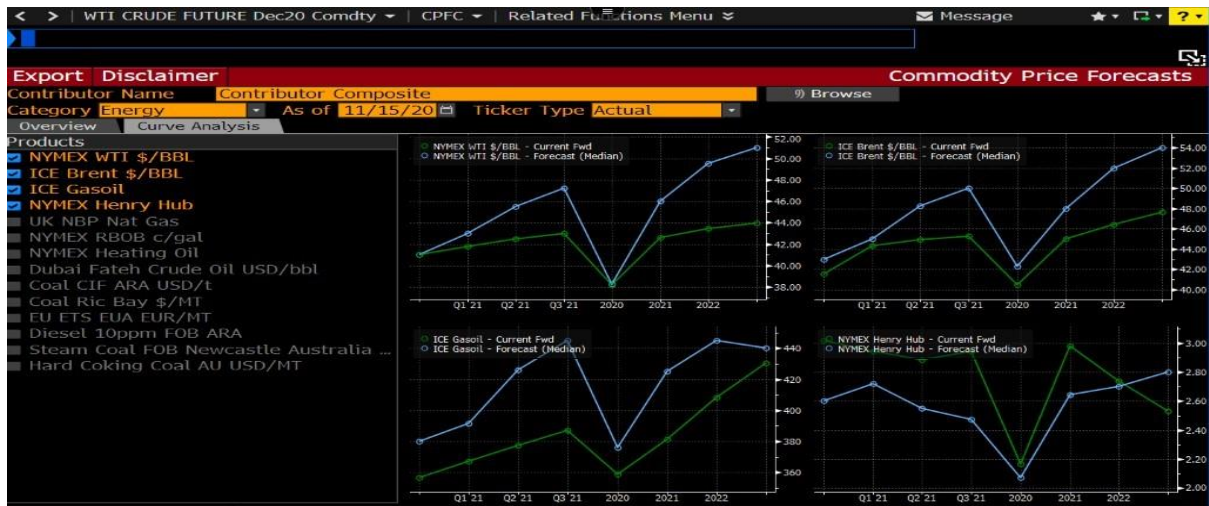


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When the Real Economy gets COVID-19, the financial system starts coughing? The Case of Switzerland in the interaction between Financial System and the Real Economy during the current Pandemic



Fear & Greed Index

What emotion is driving the market now?

