Project based on Germany

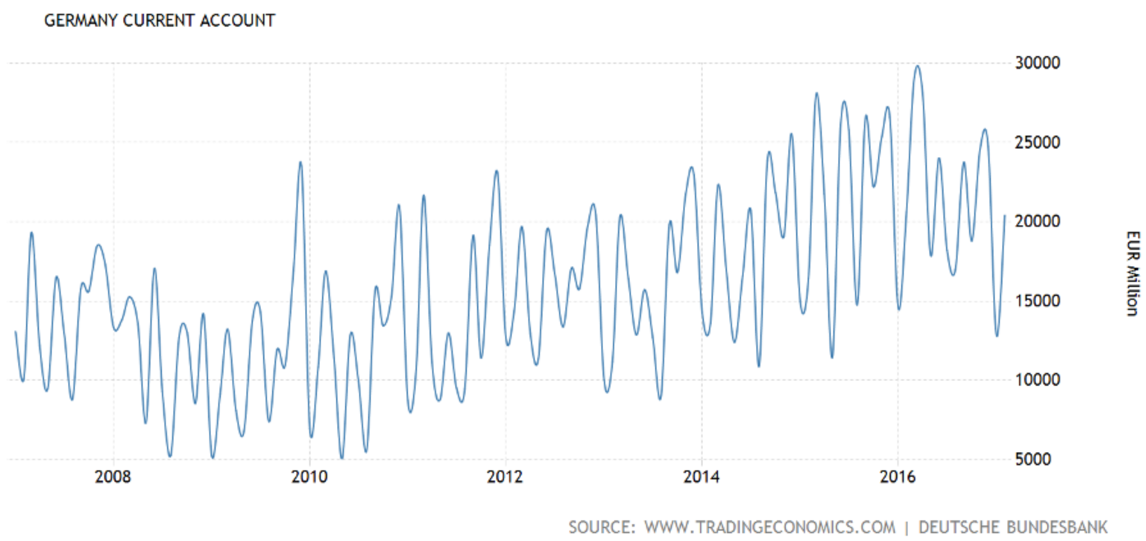
I. Country Analysis

The following paper presents a country analysis and an investment analysis. I did not only chose Germany, because it is my home country, but moreover I was curious to know which effects being part of the EU has on the German economy.

First of all, I will start with the macroeconomic trends and risks.

a) *The Balance of Payments* shows the record of a country's international transactions over a certain period of time. It is presented in the form of a double-entry bookkeeping. Transactions are either recorded as credit or as debit. The major three accounts of the Balance of Payment is the current account, the financial account and the official settlements account.

The current account is the balance of international trade, net unilateral transfers and net income receipts from abroad. If the imports exceed the exports, then a country is running a trade deficit, vice versa a trade surplus.



As it can be seen in the graph[1], Germany only had current account surpluses for the past years. The current account surplus declined during the crisis of 2009 as Germany was exporting less to other countries due to recession.

As Germany exports a lot, others demand euro at the FOREX market and this demand for the euro creates a pressure for the euro to appreciate.

The current account surplus seems to be a problem for various reasons. Peter Navarro, the economic advisor of Donald Trump accused Germany of currency manipulation, as they reported their largest current account surplus on February 9th with 270 bn euros.[2] He says that Germany makes their exports more competitive by having a weak euro, compared to the old Deutsche Mark. However, Germany says that even though the European central bank is based in Frankfurt it makes no sense that Germany deliberately tries to weaken the euro, as Mario Draghi is keeping the interest rates near zero and buying bonds in order to stimulate economies outside of Germany. According to the economist, the real problem Germany has started a decade ago when employers and unions agreed to restrain wage growth, which resulted in a devaluation of Germany within the euro zone. The best way out of the imbalance would be to not to keep cutting wages in down-and-out countries like Greece, but to let them increase in Germany.

The financial account determines the difference between the capital inflow and capital outflow.

[1] http://www.tradingeconomics.com/germany/current-account
[2] http://www.economist.com/news/europe/21716641-not-reasons-donald-trump-thinks-it-germanys-current-account-surplus-problem

Germany had a capital and financial account surplus of 9718.91 million euro in February 2017.[3] In this year Germany exported more than it imported, thus running a current account surplus.

As the European central bank sells domestic currency and buys foreign currency from the market the domestic currency weakens. This will be further explained in the next point.

The *Exchange rate* is the price of one currency in terms of another. The foreign exchange market is where buying and selling of different currencies takes place.

The German economy seems set for a solid first quarter in 2017, as the data suggests that Q4's momentum extended into the new year.[4] In December Germany was experiencing some contractions due to seasonal factors, however industrial production swung back to expansion in January. Business sentiment indicators are still showing signs of strength, implying industrial production growth and a recovery in business investment. In March households experienced

[3] http://www.tradingeconomics.com/germany/capital-flows
[4] https://www.focus-economics.com/country-indicator/germany/exchange-rate

some higher inflation, however generally German households are in a sound financial position, benefitting from low indebtedness and a healthy labor market.

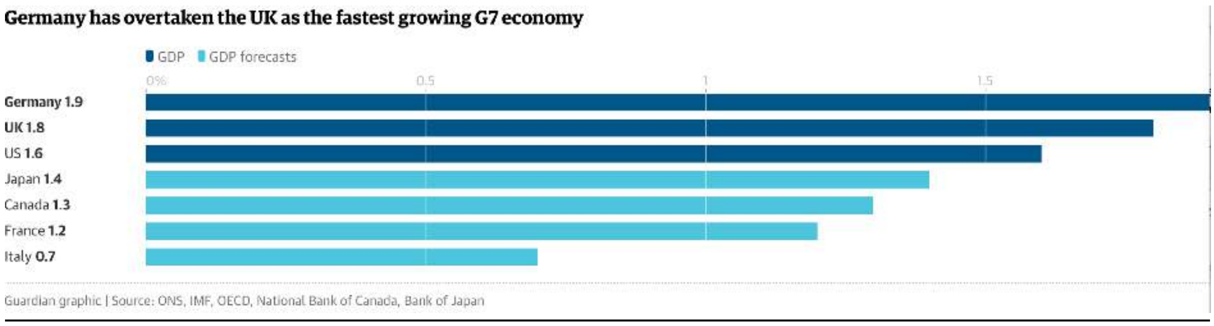
In regards to the Euro there should be a distinction between short term and long term investments. Currently with the new presidential elections in France, where LePen would be against the EU, and also the Brexit last year, the euro was, or still is, in great risk. However, in the short term the euro might actually get stronger again. This is due to the EZB, which wants to end its QE-program (buying government bonds) by the end of this year.[5] Last time in 22.01.15 when they introduced the QE-program the euro dropped from 1.40 to 1.05, so it might actually rise again now. However, in the longer term there are still great risks, because there is uncertainty if France will also leave the euro and the whole impact Brexit has is still not clear.

[5] http://www.onvista.de/news/trotz-vieler-euro-risiken-der-euro-wird-ueberraschend-staerke-zeigen!-60244295

As an investor there would be more advantages to buy bonds in the US rather than in the EU, as in the US they have higher interest rates and also the permanent rise in the USD.[6]

However, for export firms in Germany it is a huge advantage to have a weak euro, as this increases the demand for products in the US, especially in the automobile industry. Furthermore, the euro gained 1.4% to $1.0861 on Monday following Emmanuel Macron's victory in the first round of the French presidential election.[7]

The next thing I would like to consider is the *GDP growth*.[8]



Germany is the fifth largest economy in the world and largest within the euro zone.[9] Also it is the second largest exporter and its exports account for more than one-third of national output. Therefore, the export of high added value products has been the main driver of growth in recent years. On the expenditure side: household consumption (55%), gross capital

[6] http://www.faz.net/aktuell/wirtschaft/waehrung-euro-verliert-an-wert-chance-oder-risiko-13369251.html
[7] http://www.tradingeconomics.com/germany/currency
[8] https://www.theguardian.com/world/blog/2017/feb/23/germanys-gdp-shows-19-rise-over-last-year
[9] http://www.tradingeconomics.com/germany/gdp-growth

formation (20%) and government expenditure (19%). Exports account for 46% of the GDP, while imports account for 39%, adding 7% to total GDP.

Increase in home real income (real GDP) growth leads to higher return on home assets and results in appreciation of home currency.

Germany overtook the UK by showing growth of 1.9% last year, which was mainly due to consumer spending. Economists say that government and state spending will be the main drivers of growth in the upcoming quarters. However, external factors such as Brexit, US trade policy and upcoming elections increase uncertainty and could harm investment, which would have an effect on the GDP growth.

The following diagram shows the *Inflation* rate of Germany.[10]

In February Germany experienced one of the highest inflation rates since August 2012. The reason for this is an increase in oil and energy prices. Another reason was an increase in food prices, which rose by 4.4%.[11] This created pressure on the European Central Bank as the

[10] http://www.tradingeconomics.com/germany/inflation-cpi/forecast
[11] https://www.tagesschau.de/wirtschaft/inflation-deutschland-105.html

increase in inflation was close to ECB's definition of price stability of just under 2%, providing ammunition for some officials pushing for a gradual exit from unconventional stimulus. An increase in home inflation leads to depreciation of home currency using relative PPP. As goods in the home country become more expensive, country import more and this creates a downward pressure on the home currency.

However, many say that oil and energy prices will not increase any further, so that inflation will drop again and stay between 1% and 1.5% in the long term.

The objective of the *Monetary policy* of the ECB is to ensure price stability.[12]

Commenting on consistent criticisms from Germany about the bank's persistently low interest rates, Draghi was resolute, saying: "Low rates are necessary now to get higher rates in the future... The recovery of all of the Eurozone is the interests of everyone, including Germany."[13]

Since the ECB announced that all of its key interest rates, as well as the scale of its quantitative easing program remain unchanged, just with a bit of a decreased rate (from 80 billion euro/month to 60 billion euro/month), this is not in the interest of Germany. Foreign investors will not invest in a European country as this policy makes it more favorable to invest in countries like the USA, as Germany has low interest rates and investors make more revenues in the US. Furthermore, the monetary policy changes affect the exchange rates the following way. Monetary expansions lead to lower interest rates and exchange rate depreciation. And vice versa, monetary tightening leads to higher interest rates and strengthening of the currency. In the case of Germany, they experience a depreciation in the euro, as they don't

[12]https://www.bundesbank.de/Navigation/EN/Tasks/Monetary_policy/Monetary_policy_decisions/monetary_policy_decisions.html

[13] http://www.businessinsider.com/european-central-bank-monetary-policy-decisions-january-2017-1

have their own central bank, which could raise interest rates again.

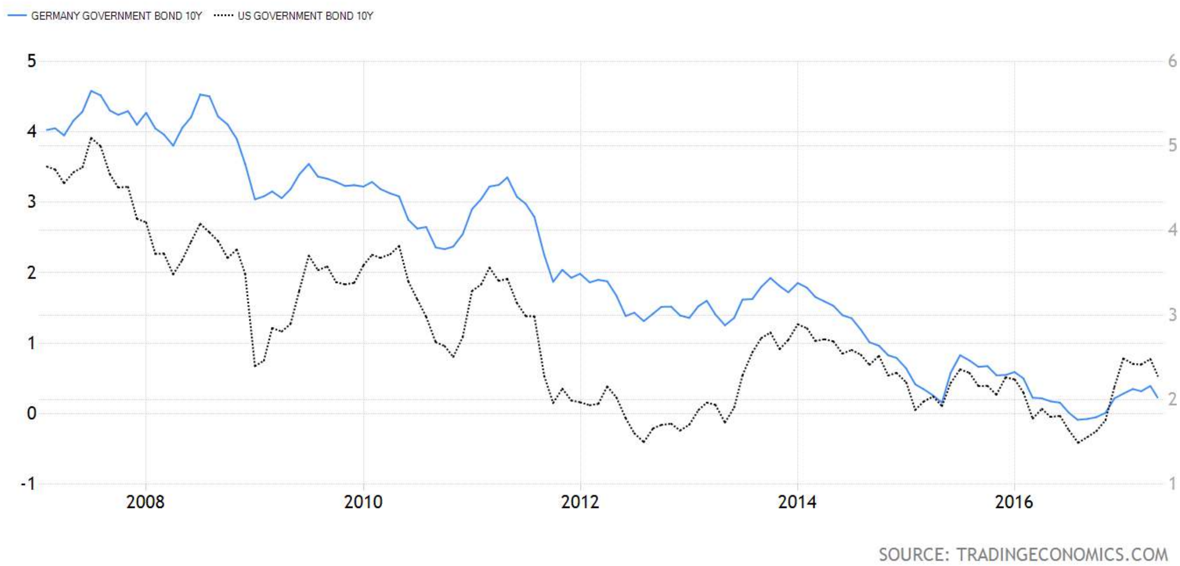
The next point I would like to discuss is the *Fiscal surplus*, which Germany is currently experiencing.[14]

For the last three years, Germany only had a budget surplus. This means that Germany took more money in (taxes and other fees) than it spent (purchases and transfer payments). The German government recorded a net lending of 23.7 billion euros at the end of 2016, which was the biggest surplus recorded since German reunification, as revenues grew to 1,411.4 billion euros, due to a large increase in income tax and property tax payments and in social contributions. Because of the economic boom and high exports, the wages rose which lead to higher tax revenues. Many politicians demand a decrease in the tax rate and Germany should start investing the money and not just use it to pay of old debts.[15] Germany should spent more

[14] http://www.tradingeconomics.com/germany/government-budget
[15] http://www.manager-magazin.de/politik/deutschland/deutschland-haushaltsueberschuss-des-bundes-a-1129671.html

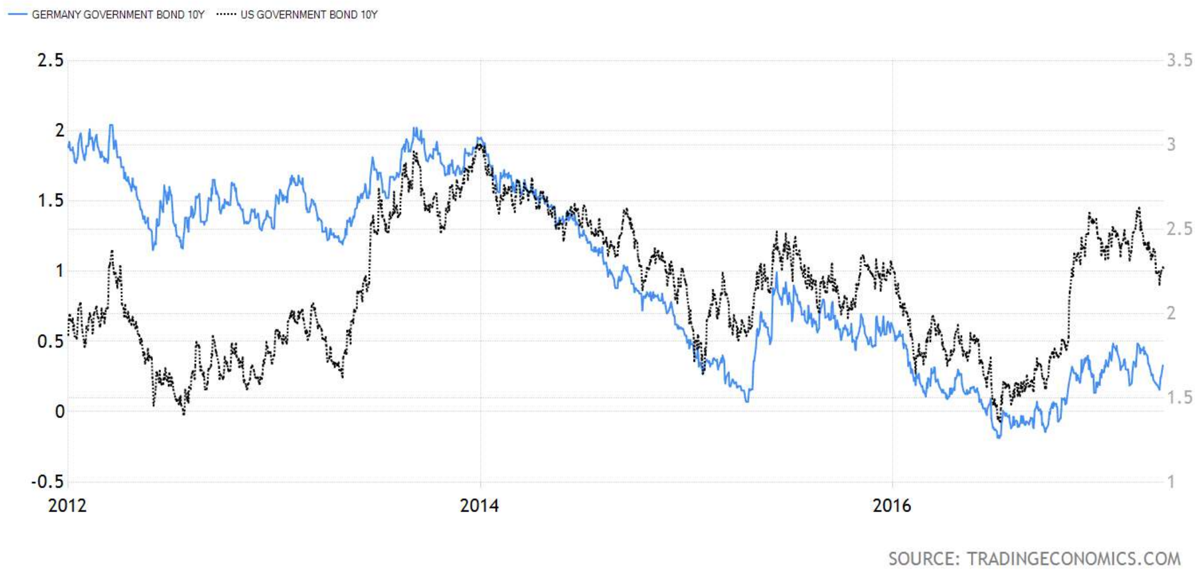
to boost domestic demand, so that Germans buy more goods from abroad and help to reduce its criticized trade gap with the rest of the world.[16]

The last macroeconomic risk concerns the *Yields on government bonds* compared to the US Treasury bonds for the last 5-10 years.



Germany's 10Y increased 0.08% to 0.33 on April 24, 2017. The US reached 2.27.[17] The Germany Government Bond 10Y reached an all-time high of 10.80 in September of 1981 and a record low of -0.19 in July 2016.

[16] https://www.ft.com/content/7a06d15e-f9db-11e6-9516-2d969e0d3b65
[17] http://www.tradingeconomics.com/germany/government-bond-yield



US 5Y was lately 1.802, which was much higher compared to Germany which has -0.352. However, it is very difficult to compare the US bonds, which are priced in dollars with the German bonds, which are priced in euros. Both have different expectations of inflation and a relative value of each currency. However, generally the main factors which are responsible for this big difference in yield are the expectation for inflation and currency changes. People would demand a higher yield in a country which has more expected deflation and currency depreciation. There are arbitrage opportunities which make sure of this, called interest rate parity. However, as long as the European Central bank is still using its bond-purchase stimulus program and creating low interest rates, the yield on government bonds from Germany will stay low, compared to the USA. Therefore, it makes no sense for investors currently to buy bonds.

b) First of all, I would like to consider some general restrictions and openness information upon foreign investment in Germany. Germany is very open to foreign investment and supports foreigners. Foreign investment has been a considerable contributor to Germany's economic growth and prosperity. For example, the 1956 U.S.-FRG Treaty of Friendship, Commerce and Navigation, affords U.S. investors national treatment and provides for the free movement of capital between the US and Germany.[18] The investment problems foreign companies might face are usually the same domestic firms have to deal with, for example high marginal income tax rates and labor laws which impede hiring and dismissals. One huge advantage is the reliable legal system. The legal framework is solid and the judiciary is independent. Before starting a business, companies have to register themselves in the commercial register and the trade office register. "While Germany's Foreign Economic Law contains a provision permitting restrictions on private direct investment flows in either direction for reasons of foreign policy, foreign exchange, or national security, in practice, restrictions have only been imposed in the sectors of air transport, maritime transport, inland waterways, and rail transport. Additionally Germany limits the foreign provision of employee placement services, such as providing temporary office support, domestic help, or executive search services."[19] In general under German law a foreign owned company which is registered as a GmbH or AG is treated the same way as a German-owned company. However, Germany also has a strict competition law, which fights against cartels, merger control and monitoring abuse. Other benefits would be that Germany has a huge resource of developed infrastructure, a great transportation system, one of the most technologically advanced countries, a highly educated labor force and a very low level of corruption.[20] However, there are also some current risks to consider. The member ship in the European Union brought Germany many advantage over the last years, but it also causes some recent problems in the

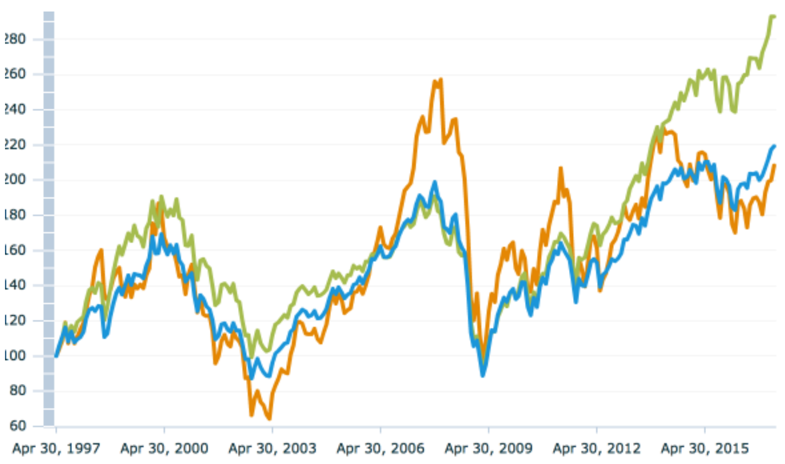
[18] https://www.export.gov/article?id=Germany-Openness-to-and-Restrictions-upon-Foreign-Investment
[19] https://www.export.gov/article?id=Germany-Openness-to-and-Restrictions-upon-Foreign-Investment
[20] http://www.investineu.com/content/germany-–-major-destination-foreign-investment

wake of the European sovereign debt crisis. European Union bailouts have high costs (for example Greece) and if more countries face this issue then this will have a negative effect on Germany's economy and balance sheet. Brexit last year should also be considered. Many industries, especially the automobile industry, will have some serious struggles with new trade restrictions and customs duties. For 28% of the companies the profit margins already declined, because imports were more expensive due to the low pound.[21] Furthermore, France has some new elections now and if LePen would win and France would also leave the EU then this will also have a huge impact on the German economy. Right now it would probably be better to invest in the US, as investors make more profit there with higher interest rates, as I already stated when talking about the low exchange rate.

II. Investment Analysis

After discussing all of the macroeconomic trends and risks it is now important to analyze Germany's stock index in comparison to the US and the world.

The following graph shows the performance for the last 20 years of Germany in dollars, relative to the USA index return and the MSCI world index return.[22]



[21] http://www.manager-magazin.de/finanzen/artikel/brexit-treibt-auslaendische-investoren-verstaerkt-nach-deutschland-a-1132449.html
[22] https://www.msci.com/end-of-day-data-country

The following screenshots show the monthly data on Germany's major stock index return in local (euro) currency *r(€)*and in USD *r($)*.

M
Germany return r_Germany(euros)
0,026
0,066
0,156
-0,118
0,056
-0,095
0,059
0,061
0,046
0,055
0,087
0,005
0,072
0,054
0,008
-0,172
-0,065
0,031
0,073
0,009
0,050
-0,052
-0,012
0,086
-0,048
0,066
-0,053
0,030
-0,023
0,067

I	J	K
Germany return r_germany($)	**USA return r_usa($)**	**World return r_world($)**
0,041	0,055	0,060
0,043	0,044	0,049
0,097	0,078	0,045
-0,100	-0,061	-0,068
0,076	0,051	0,053
-0,071	-0,028	-0,054
0,034	0,047	0,016
0,041	0,014	0,011
0,029	0,012	0,027
0,063	0,069	0,066
0,066	0,051	0,041
0,036	0,011	0,009
0,079	-0,021	-0,014
0,041	0,042	0,023
0,023	-0,011	-0,003
-0,165	-0,140	-0,135
-0,014	0,064	0,016
0,041	0,076	0,089
0,051	0,067	0,058
0,024	0,058	0,048
0,016	0,042	0,021
-0,083	-0,029	-0,028
-0,028	0,040	0,041
0,064	0,035	0,038
-0,062	-0,024	-0,038
0,055	0,053	0,046
-0,017	-0,033	-0,004
0,016	-0,007	-0,003
-0,015	-0,031	-0,011
0,053	0,064	0,051
0,027	0,020	0,027
0,170	0,069	0,080
-0,036	-0,054	-0,058

G	H	I	J	K
	Spot Exchange Rate			
MMM YYYY		USD/EUR		**Exchange Rate Return**
Apr 97	112.792	1,12792		
May 1997	114.494	1,14494		0,0151
Jun 97	113.185	1,13185		-0,011
Jul 97	110.036	1,10036		-0,028
Aug 97	107.095	1,07095		-0,027
Sep 97	109.895	1,09895		0,026
Oct 1997	111.926	1,11926		0,018
Nov 97	114.180	1,1418		0,020
Dec 1997	111.300	1,113		-0,025
Jan 98	108.716	1,08716		-0,023
Feb 98	108.938	1,08938		0,002
Mar 1998	108.613	1,08613		-0,003
Apr 98	109.389	1,09389		0,007
May 1998	111.094	1,11094		0,016
Jun 98	110.231	1,10231		-0,008
Jul 98	110.028	1,10028		-0,002
Aug 98	110.445	1,10445		0,004
Sep 98	115.844	1,15844		0,049
Oct 1998	120.279	1,20279		0,038
Nov 98	116.868	1,16868		-0,028
Dec 1998	117.617	1,17617		0,006
Jan 99	115.950	1,1595		-0,014
Feb 99	112.054	1,12054		-0,034
Mar 1999	108.867	1,08867		-0,028
Apr 99	106.981	1,06981		-0,017

a) The following table demonstrates the mean, standard deviation and the Sharp ratio for Germany, the USA index return and ACWI. The 3-month T-bill were used as a risk-free asset.

Results for returns in USD			
	Germany	USA	World
average annual returns	6,59%	6,59%	5,17%
standard deviation (annual)	23,83%	15,27%	15,50%
average annual risk-free rate (3 month tbill)	2,09%	2,09%	2,09%
Sharpe Ratio	0,19	0,29	0,20

For the last 20 years German stock market offered the same average annualized USD return of 6.59% as the USA, which was slightly more than the 5.17% of the World.

At the same time the volatility risk (standard deviation) for Germany was higher than the one from the USA and the World. Germany has a standard deviation of 23,83%, whereas the USA has 15,27%, similar to the World with 15,50%. In this sense it would be better to invest in the US than in Germany, as there is less risk. The Sharp ratio of return to risk is less for Germany with 0,19, than the Sharp ratio for the USA or the World with 0,29 and 0,20. This would also mean the USA is more favorable with a higher Sharp ratio. However, the Sharp ratio of Germany is close or nearly similar to the World sharp ratio.

Results for returns in Euros	
German average returns in local currency (Euro)	6,38%
German exchange rate average return (annualized)	-8,92%

Germany has been going through two main crises during the last 20 years. In 2008 was the big financial crisis, which sent exports into a tailspin and 2011 the euro crisis. The average loss in the euro exchange rate was 8.92% per year.

b) In order to answer the question whether it is beneficial from an international diversification point of view, to invest into Germany for an investor holding only the USA index portfolio, it is important to look at the correlation between Germany and the USA.

The following table shows the correlation between Germany's stock index return and the USA index return.

Correlation (Germany, USA)	0,82
Correlation (Germany, World)	0,89
Correlation (USA, World)	0,96

Usually it is always good for an investor to have diversification, as this increases the sharp ratio and reduces the nonsystematic variance. However, it is important to have a low correlation in order to benefit from the diversification. As the correlation between Germany and the USA is 0.82, it would not be beneficial for an investor to invest into Germany. Countries like Japan would be better for the portfolio, as they give more diversification.

Summary

It is very difficult to say, whether it would be good to invest in Germany's stock index for the next five years. Even though Germany has a lower sharp ratio, this does not mean that you shouldn't invest in it. In order to achieve portfolio diversification and increase sharp ratio it is good to invest into various markets. However, an important component of diversification is international return correlations. The higher the correlation the higher the volatility of the portfolio. Germany and USA have a very high correlation, which means less benefit to diversification. Furthermore, the bond buying program of the European Central Bank will further create a downward pressure on the euro. As an export-led economy Germany may be well-positioned to benefit from both the ECB's actions and the continued depreciation of the euro. U.S. dollar based investors could seek to mitigate the risk of a depreciating euro through either a single-country play on Germany(currency-hedged) or broad regional exposure to Europe (currency-hedged).[23] However, hedging can also reduce or eliminate gains. With the QE program, bond purchases have driven sovereign yields to zero or even negative numbers. This means it would be better to turn to stocks, but as an investor a country like the USA with high interest rates and a developing currency is much safer and more profitable. Even though Germany has a current account surplus and one of the highest GDP growth I think the key factor to consider is currently the political situation. England will leave the EU at the earliest in two years, so the whole impact this has is not clear yet and France election are also not finished. Being part of the EU means for Germany that it is very dependent on the other country's situation and the decisions of the ECB. All in all, with the unstable situation in the EU I would not recommend to invest in the stock index for the next five years.

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[23] https://blackboard.pace.edu/bbcswebdav/pid-3154077-dt-content-rid-8258913_1/courses/FIN-358-20099.201720/Investment%20in%20Germany%20%26%20Eurozone_%20Blackrock%284%29.pdf