Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics

Bachelor Thesis

Evaluation of long-term investment into the US stocks

Pavel Galas

Czech University of Life Sciences Prague
Faculty of Economics and Management

BACHELOR THESIS TOPIC

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Thesis title:	**Evaluation of long-term investment into the US stocks**

Objectives of thesis:	Evaluation of long-term investment into the US stocks stocks, with focus on inflation influence to time value of money over time. Describing the calculations of inflation, SP index, long-term value and compound interest effects on the investment, also use method of correlation in the thesis to evaluate connection between SP index and price inflation rate and other important factors.

Methodology:	Method of corelation between SP index - price inflation, compaud interest calculation. Evaluating effects of inflation to the overall performence of the US stock market. Base on historical data calculate and evaluate the outcome of long term investment in US stocks.

The proposed extent of the thesis:	45 pages

Keywords:	Stocks, Investing, Compaund interest, SP index, long-term investment, Stocks

Recommended information sources:

1. BOGLE, J C. *The little book of common sense investing : the only way to*

guarantee your fair share of stock market returns. Hoboken, NJ: Wiley, 2017. ISBN 9781119404507.

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Dean

Declaration

I declare that I have worked on my bachelor thesis titled "Evaluation of long-term investment into the US stocks" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 30.11.2021   _____

Evaluation of long-term investment into the US stocks

Abstract

Evaluation of investing to the US stock market. Taking close look on effects of inflation. Considering effects on compound interest and long-term investments. Considering exchange rate effect between CZK and USD. Explaining basic strategies and principles of investing. Evaluating differences between investment price entry points. Evaluating effect of investing with given percentage of Czech Republic average wage over time. Accessing correlation between SPY exchange traded funds and stock index S&P 500.

Keywords: Stocks, Investing, Compound interest, SP index, long-term investment, Shares, Inflation, Value of money

Zhodnocení dlouhodobých investic do US akcií

Abstrakt

Zhodnocení investování do akciového trhu Spojených Států Amerických. Bližší se zaměření na vliv inflace. Zvázení vlivu složeného úročení na dlouhodobé investie. Započítání vlivu aktuálního kurzu CZK a USD. Vysvětlení základních strategií a principů investování. Zhodnocení různých vstupních bodů do investice a jejich vlivu na konečné zhodnocení. Zhodnocení dlouhodobého investování a vlivu dané procentuelní části průměrného platu v České Republice. Vliv korelace mezi SPY burzovně obchodovatelným fondem a indexem S&P 500.

Klíčová slova: Akcie, Investování, Složené úročení, SP index, Dlouhodobé investování, Inflace, Hodnota peněz

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List of abbreviations

S&P 500: Standard & Poor's 500

GDP: Gross domestic product

US: United States of America

TVM: Time Value of Money

ETF: Exchange traded fund

1. Introduction

Long-term investment into the US market, currently we are in COVID-19 pandemic so short-term investing is something that is highly volatile, and the risk is increased. Long-term investment is more reliable because you expect to have several market corrections and crisis over the years. We will focus on twenty-five-year period from 1st of January 1996 to 31st of December 2020 and describe various factors that needs to be considered with regards to long-term investment based on buy and hold strategy with some thoughts about how to enter the market cautiously with dollar cost averaging with several options and to help you better understand the investment into US stock market overall.

1.1 Objectives

The goal of this theses should be to provide knowledge about long-term investing. How to invest in today's US stock market with the long-term perspective based on the premise that stock market will be delivering equivalent results as in last twenty-five years and what were the results of the past twenty-five years.

Does it matter if you are twenty, thirty, forty or even fifty years old? Or there is still more than enough time before you retire to consider how do you manage your investments? Can long-term investment be something interesting for most people and what are the factors that affect such investment.

By reading this thesis you should get better understanding how the long-term investment in US stock market works overtime, what are the benefits and the downsides of long-term investing why we need to take inflation and time value of money into consideration. We will also evaluate how the investment will be affected by compound interest. What can be the real expected gains adjusted for the inflation. What are the possibilities to entry the stock market and what factors you might take into consideration before buying in.

My motivation to write this thesis is to provide accurate evaluation of past twenty-five years of long-term investment in the US stock market from perspective of average

earning Czech citizen and how it reflects the common assumptions about the stock market returns.

Last goal is to provide reasonable assumptions of expectations about the performance of the stock market. Evaluate the outcome of twenty-five years long-term investment from the most optimistic assumption and most pessimistic options and break the results down into five segments. To better understand how the investment progress over the years and what we can expect based on the best and worst five-year segments in our timeframe and in the near future we will make forecast for the investment expectations base on the average return of the best five-years, worst five-years average for the whole time period and then average of the last three five-years segments.

1.2 Methodology

We needed market data from S&P 500 Index and SPY ETF equity on monthly basis from 1st of January 1996 to 31st of December 2020 lows and highs of the market and close price for 31st of December 2020.

Low points of the market are the lowest value of the S&P 500 Index and SPY ETF equity in every month of given time period, high points would be the highest points of the market in every month of given time period, average point will be determined as the mean of low and high point, finally we will use the open price of the market in every given month to give us certain benchmark of randomness.

Excel will be used for charts and calculations, based on our needs and the amount of data its best suited for these tasks.

We will also use method of correlation to determine correlation between S&P 500 Index and SPY ETF. Compound interest calculation, inflation adjustment, correlation, and mean calculation.

2 Theoretical part

2.1 Inflation

Inflation more accurately Consumer Price Inflation is phenomenon of money losing its value, opposite effect is called deflation but that is something rare since most of the goods are scares.

In modern world the amount of money you can create is basically infinite since as central bank or government base on the controlling mechanism of money systems in certain nations can print out or just emit infinite amount of money, obviously they do not do it so often because adding huge volume of money in the market undercuts the value and trust in the given currency.

Over time our governments use quantitative easing to increase the inflation and most importantly prevent or revert deflation tendencies. Following Inflation is one of the most important factors of the economy, common definition base on Cambridge Dictionary is: the rate at which the prices of goods and services are rising, or the fact of prices rising.[1] Even if the Quantitative Easing effects cannot be taken for granted, the pressure of

Quantitative Easing is there with a lot of side effects on economy.

strong effects   some effects   uncertain/small effects   *

(QEP)   Zero interest rate
                                    +

| Commitment to maintain zero interest rate | Expansion of BOJ balance sheet (monetary base) | Changes in BOJ asset composition |

(Section 2(1))   (Section 2(2))   (Section 2(3))

Future path of short-term interest rates   +   Risk premium

(Financial markets)   JGB yield curve   Yields of other private financial assets

(Section 3(1))

(Financial system)   Financial institutions' funding uncertainty

(Structural adjustment)   Excess debt (NPLs)

(Section 3(2))   (Section 3(2))   (Section 3(2))

(Section 3(2))   (Section 3(1))

Expectations of economic recovery ----> Inflation expectations

(The economy, prices)

Raise aggregate demand   (Section 3(2))   Raise prices

(Picture 1)

2.2 Time value of money

Value of money in time is the perception of how the money maintain the purchase value over time. The important perspective for everyone who is in any type of money-based economy is the value the money represents in any given moment to him and to others. The connection between the long-term investing and the value of money is simple, money in general lose value of the money over time. The formula below is the basic formula for calculating time value of money. The interest rate will be replaced with the inflation rate for our purpose but the calculations stay the almost the same and the formula will be as follows: FV = PV x (1 – inflation rate) ^ n.

The formula for the time value of money

The basic formula for TVM is as follows:

- FV = PV x [1 + i] ^ n, in which:
    - **FV** is the future value of money.
    - **PV** is the present value of money.
    - **i** is the interest rate.
    - **N** is the number of time periods before you receive the money.

(Picture 2 – Time value of money formula)

Even if we consider that the inflation rate would be as low as 2 % in average, for the twenty-five year period, the value of 100 USD today would be worth only 60,35 USD in twenty-five years. This bring us to the reason why its so important to always consider effects of inflation over time.

2.2.1 Compound interest

Compound interest is phenomenon where the gains from your investment generate further gains, its key component of investing. Usually, the sooner you start to invest the bigger the effect of compound interest manifests. The formula for compound interest is

$X_f = X_p (1 + i)^n$

Where X_f is future amount of money, X_p is present amount of money, **i** is interest rate and **n** is amount of weeks/monts/years based on the interest rate time period.

For some examples we can use the rule of 72. Rule of 72 is broader rule we can use to calculate the time it will take for our money to double its value.

Compound Interest
RULE OF 72

- IT'S A -
MONEY THING®

Here are some interest rates to compare—as you can see, modest increases in rates have a dramatic effect on the doubling time

Years	1.5%	3%	6%	12%
0	$10,000	$10,000	$10,000	$10,000
6				$20,000
12	In times of historically low interest rates, it's especially important to start investing early		$20,000	$40,000
18				$80,000
24		$20,000	$40,000	$160,000
30				$320,000
36			$80,000	$640,000
42				$1,280,000
48	$20,000	$40,000	$160,000	$2,560,000

(Picture 3 – Rule of 72)

2.3   US Stock market indexes

Stock indexes are instruments designed to help economists, investors, and general public with overview of the given underlying equity. Most known indexes would be just to mention few Dow Jones Industrial Average, Nasdaq Composite, Nikkei 225, STOXX Europe 600, FTSE 100, DAX, and S&P 500.[2]

Different indexes may focus on almost any market or just part of some market, for example Nikkei 225 is Japanese index. Nikkei 225 is tracking 225 most significant companies traded on Tokyo exchange.


(Picture 4 – Nikkei 225 chart)

We will be focusing on US stock market. In US there is several worlds know indexes. The top three would be Nasdaq Composite, Dow Jones Industrial Average and S&P 500.

Nasdaq Composite is tracking almost all the stocks traded on Nasdaq stock exchange, it was created in 1971 with base value of 100. Nasdaq stock exchange is based in New York and focuses mostly on technological companies such as Amazon and Google.
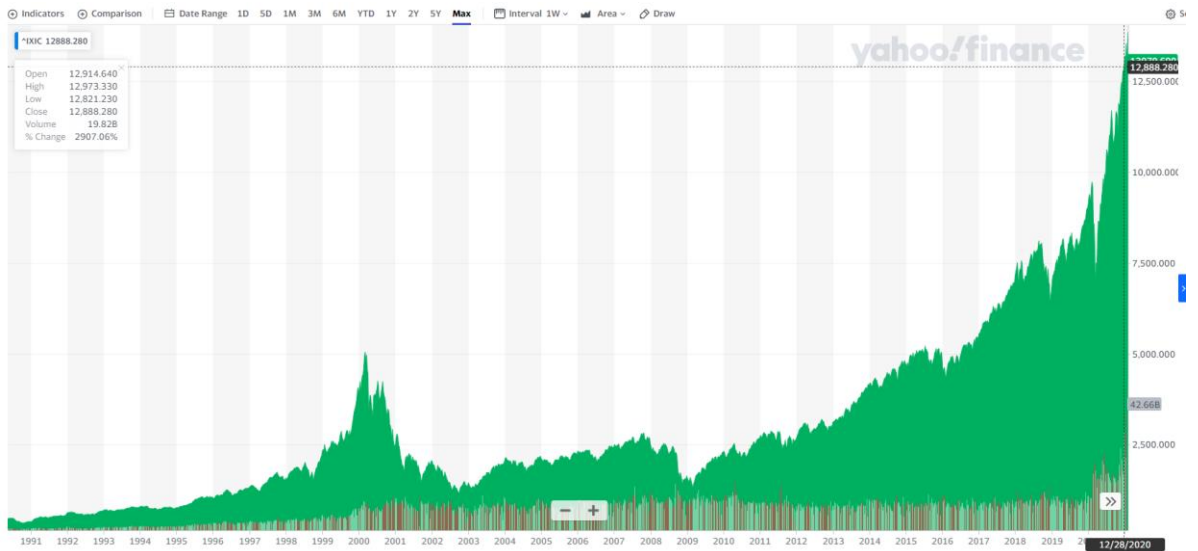
(Picture 5 – Nasdaq Composite chart)

Dow Jones Industrial Average is named after Charles Dow and Edward Jones, it was created in 1896 to track the twelve industrial companies, today the index contains thirty companies with wider range of business focus, especially in the past few years there has been uprise in the service sector. Dow Jones Industrial Average contains stocks from two stock exchanges NYSE (New York Stock Exchange) and Nasdaq.
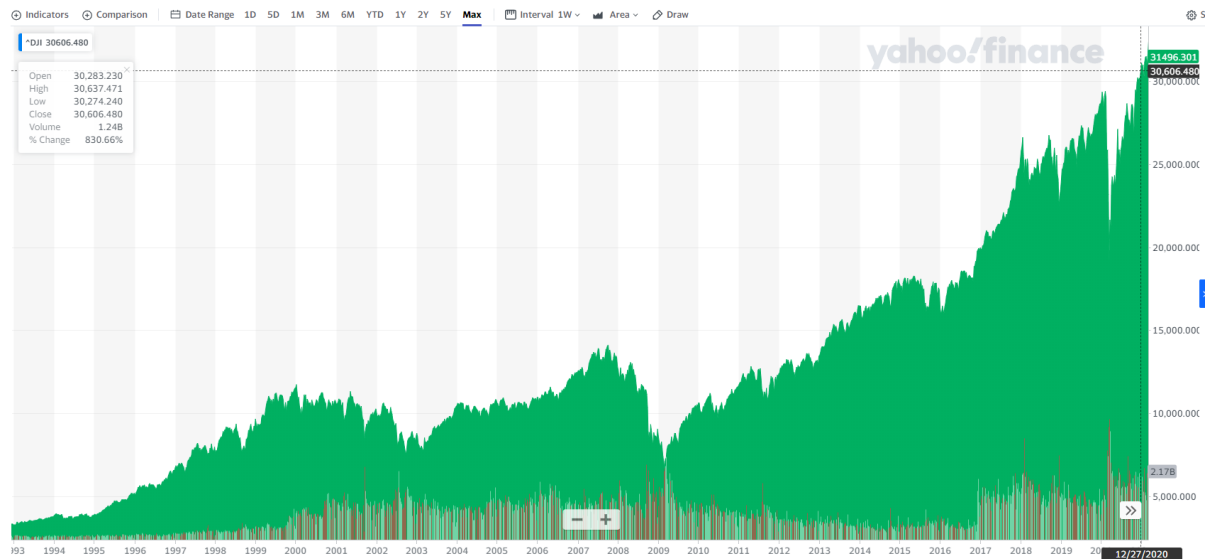

(Picture 6 - Dow Jones Industrial Average chart)

S&P 500 index will be the most important for us, because it's the most know index in the world of financial markets for several good reasons and we will be also focusing on SPY ETF that tracks S&P 500 progress. S&P 500 consists of 500 biggest companies that are publicly traded in US based on market capitalization. History of this index goes back to 1923 when it was created with 233 stocks but later it was further developed to suit better the modern world and development on financial markets. S&P 500 has its stocks composition adjusted based on market value of the companies, the bigger the company is the bigger the effect on the S&P 500 it has. Some companies like Amazon, Microsoft, Google (Alphabet) or Apple can be represented by several percentage points in S&P 500 index but other smaller companies like Hasbro, Ralph Lauren or Fox Corporation are represented by less then 0,05%.

"The S&P 500 index consists of most but not all of the largest companies in the United States. The S&P market cap is 70 to 80% of the total US stock market capitalization. It is a commonly used benchmark for stock portfolio performance in America and abroad. Beating the performance of the S&P with less risk is the goal of nearly every portfolio manager, hedge fund and private investor."[3]

Benefit of S&P 500 is that the number of companies and different field of focus helps us diversify the risk from specific market segments, we can see the difference in dotcom bubble crisis in 2000 on NASDAQ and S&P 500 when the S&P 500 was able to reach its new high in 2008 before the next crash while NASDAQ took much longer to get back on its all times high.[4]
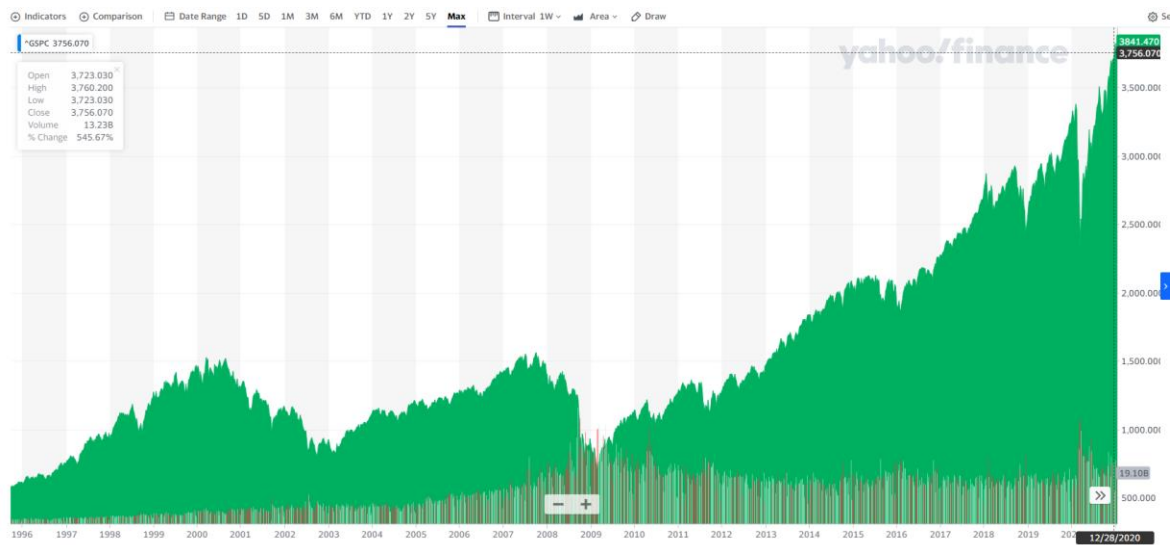
(Picture 7 - S&P 500 chart)

For the mentioned reasons S&P 500 is in my opinion the best fit for long term investment strategy, because of its history, long term gains, diversification in different fields ad adjusting to the market trends based on weight of the companies in its portfolio and over all mechanism. Since the globalism is taking over the whole world, we cannot even confidently say that the geo-political risk is so high as for example in Nikkei 225 in Japan.

2.4 What is long-term investing

What is investing? In many ways the definition can be broad but for our purpose we will use the following description. Putting money aside in financial assets with expectation and certain degree of confidence that the value we will get over longer-period of time is greater even if we adjust it for inflation.

Minimum time period we should be considering if we will be focusing on long-term investing should be at least five years. If we invest for shorter periods of time, there is lower degree of certainty that the value we will receive back from our investment will be grater then the value we put into the investment, also we should be aware of one simple rule that is usually true. The payout and the risk are in close proximity in almost all cases. So the greater the expected return is the bigger risk we undertake.[5]

If we think of long-term investing, we must focus on the value we put into the investment not the nominal value of money because the nominal value of money is generally decreasing over time. Especially in ten to twenty years' time the inflation will have great effect on the investment and investing is something that can be done on more levels, you could invest just to protect your money from losing its value. You could invest to just decrease the value you lose on your money but with almost no risk, or you could invest in higher pay-out assets that tend to be more volatile but have general payouts that exceed the inflation rate and generate more value for the investor but as mentioned with some risk

2.5 How can you invest in financial markets?

How can you invest? There are several ways anyone these days might invest. First think we need to have on mind is SRRI indicator which can be used by anyone to quickly determine what risks might be associated with the investment he is considering, but for some financial instruments outside the EU it might not be calculated since its not required by them.

"The synthetic risk and reward indicator (SRRI) is used to classify investment funds into one of three different risk categories (low risk, medium risk, high risk). It is calculated on the basis of Austrian and European regulatory requirements."[6]

Based on risk to reward assumption, we can now go into more details about financial instruments that are widely available to everyone.

SRRI	Risk category	Volatility intervals
1	Low risk	0% to <0.5%
2		≥0.5% to <2.0%
3	Medium risk	≥2.0% to <5.0%
4		≥5.0% to <10.0%
5		≥10.0% to <15.0%
6		≥15.0% to <25.0%
7	High risk	≥25.0%

(Picture 8 – SRRI)

2.5.1   Bond

What are bonds? Bonds are obligations issued by companies or governments with the aim to improve their cash flow that they can use for growing their business usually, the investor gets his money back with given rate of interest over given period of time. The time period is usually one year or more.

Bonds are usually the safest way to invest with some exceptions, if we were aiming for lower return but safer investment class bonds might be considered, you are given fixed payout and you don't have to consider they market effects that much, only thing investors must be worried about is if the company or government goes bankrupt, then the investor might lose everything he put into the bond.

2.5.2   Stock

Stocks represent part of ownership of company, most important for the financial markets are publicly traded stocks, that anyone can buy. Share is smallest part of specific company; you cannot buy half of share you always have to buy whole share. It gives you right to dividends if there is some. It requires or at least should some knowledge of the companies you invest in, the risk is determined by the given portfolio of stocks you create.

Stock	Share
• **Stock refers to the company that issues it (e.g., Coca-Cola stock).** • **Stock represents non-specific ownership interest in a company.** • **A stockholder owns stock in a company which can mean different things.**	• A share is a unit of measurement of your ownership interest in a company (e.g., one share of IBM stock). • A share represents a specific unit of ownership of a stock. • A shareholder owns shares of stock in a company.

(Picture 9 – Stock vs. Share)

2.5.3 Exchange Traded Funds

Exchange Traded Funds also known as ETFs are now the new modern way of investing, they have been here for last several decades but in the last century they have seen their biggest boom.[7] Since you cannot buy just part of the stock, for some smaller investors is hard to keep track of the markets, what stocks to buy, what sectors to look at and how to have enough money to diversify enough in several companies.

"Exchange Traded Funds (ETFs) are very special type of investment funds. They are listed and traded on stock exchanges and generally represent passive investment. But the development of the ETFs market has caused that actively managed ETFs were introduced. ETFs track the indexes (or portfolios) of particular markets (e.g. geographical, asset classes) and they are tradable in real time during market hours on the particular stock exchanges. The prices of the ETF shares on a stock exchanges are influenced by the forces of supply and demand. Fundamentally the ETF prices oscillate around their underlying values and replicate their changes."[8]

2.6   Entering the market

How to inter the market is one of the widest spread questions around any investors. When should you buy and when you might sell? When is the market highly valued, when is it overvalued and when it is undervalued? What is the right time to enter? Should we even ask this question and how big difference can the timing make? We will partially try to answer this question later on.

2.6.1   Dollar cost averaging

Dollar cost averaging is strategy used by investors to avoid any market spikes that might have bad effect on their investment even if they invest in long term over all growing investment.[9]

In the following example we will be investing 300$ every month, when the price of share is high – 30$ we buy only 10 shares, when the price gets lower to 10$ we buy 30 shares. We are always keeping the amount of money the same, but the amount of money put in the market the same, only thing that differs based on the market price is the amount of shares we buy. In this example we bought total of 87 shares for total price of 1500$, that means we have average price 17,24$/share, compared to the situation where we would put all 1500$ in January we would get only 50 shares for price 30$/share.

Someone might argue that if we bought all shares in February, we would get the best price 10$/share, but future is uncertain, and nobody can for sure how the market will evolve in month or two. If our main goal is to reduce the risk of buying our shares on the highest possible the Dollar cost averaging is reliable strategy.
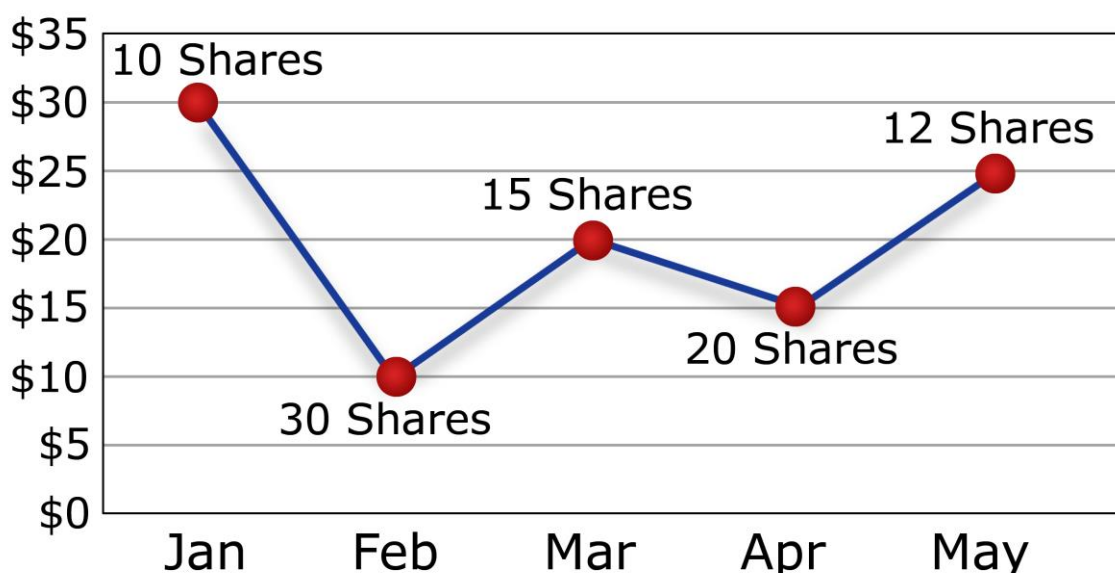
(Picture 10 – Dollar cost averaging)

2.6.2 Buy and hold strategy

Buy and hold strategy is one of the well-known strategies almost anyone can use when investing for longer period of time.[10] It's one of the easiest to execute for anyone interested in investing. Basically, with the expectation that the asset you are buying has probability of long-term growth you are trying to enter the market buy the underlaying asset and hold it as long as you can. Buy and hold strategy can be combined with Dollar cost averaging.

3 Practical part

We are focusing on average Czech citizen and what would be his outcome of his investment of 30 % of his salary and invested it in SPY ETF for 25 years from 1.1.1996 to 31.12.2021. Our investment will be done in four segments to give us better understanding of the market movements and importance of timing of the investment entry points.

Strategy we will be using is Buy and Hold and Dollar Cost Averaging, its easiest to replicate and anyone with almost no knowledge about the stock market is capable of investing this way, even if it might not be the best option for them with regards to risk they would be undertaking.

It's the best strategy for long-term investing if the investor does not want to put time and effort into the equation. Also, for Czech investors is important tax perspective, if you sell any stocks in three years after you bought them, you must pay 15% tax from the profit if the revenue from selling the stocks is over 100 000 CZK.

Exchange rate of Czech crown and United States dollar will be taking into perspective, and we will use respective exchange rate from given time periods issued by Czech National Bank. Four segments will be determined by the investment entry points, we will have four entry conditions that will determine the investment entry point.

3.1 Low price

The best but least probable price anyone is going to buy their investment is the lowest price possible in every given month for the last twenty-five years. It's the best price we could ever get because it's the cheapest and it allows you to buy same SPY ETF. By the consequence you will end up with the same SPY ETF and more money left over you can use in the future for next investment.

(Picture 11 - Low price entry point)

3.2 High price

High price is the worst thing that can happened, but every stock sometime had its maximum. Just because we will enter the market on the highest point of given month it does not mean we cannot have decent gains in the following months. The high price investment entry point will give us the worst result we could achieve by our Dollar cost averaging buy and hold strategy. We will be simply entering the market for the highest possible price every given month.

Stock price in given month

(Picture 12 - High price entry point)

3.3 Average price

Average price entery point will be always determined as mean between the difference of the highest price and lowest price. $(P_h + P_l) / 2 = P_a$, P_h = price high, P_l = price low P_a = price average. Average price is the reasonable assumption on the actual profitability of the investment because it is unlikly that someone would buy SPY ETF three hundred times on the highes or lowest possible price. Its more acurate to assume sometimes you will buy it for the highes price and sometimes for the lowest. So in the end you end up with something around the average price.

(Picture 13 – Average price entry point)

3.4 Open price

High price and low price are hard to assume when they will ocure same goes for the average price, but open price has its time given. Its always the first business day of every month at the start of the market opening. So this is something that is easies to accurately replicate and follow the trend because the correct answer to the market open price is only one. We will be working with Open market price to give fourth and finnal market entery price point for our investment strategy dollar cost averaging and buy and hold.

Stock price in given month

(Picture 14 – Open price entry point)

3.5 Investment entry procedure

Each month the 30 % average salary of Czech Republic will be converted to USD by respective exchange rate issued by Czech National Bank, then it will be added to investment money pool for given price entry strategy. SPY ETF will be bought based on the money in investment money pool and all money that were not invested will be held in investment money pool for next month reinvestment.
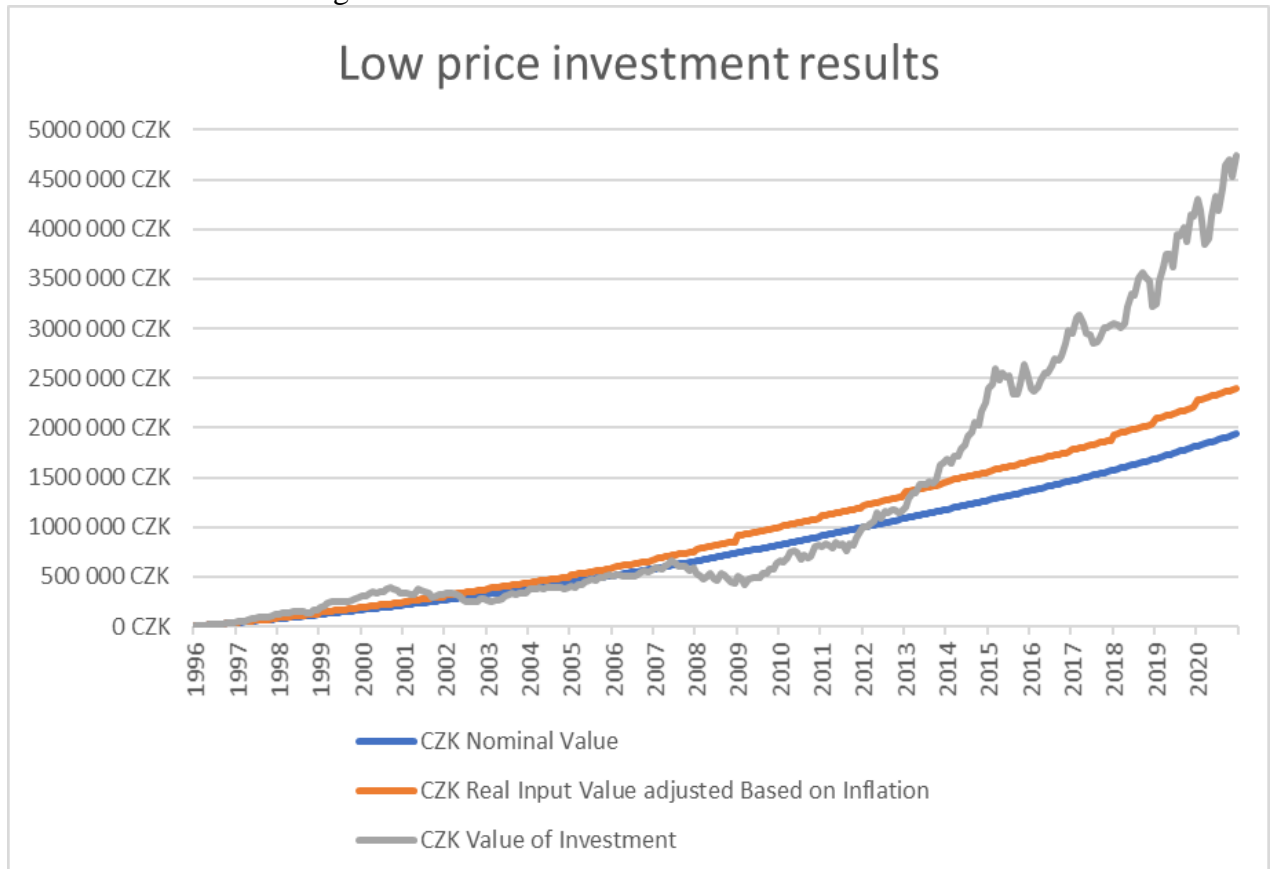
4 Results and Discussion

Even though we invest in USD we must calculate the results in CZK because we are focusing on perspective of Czech investor. The total amount of money we put into our investment money pool in nominal value is 1 934 933 CZK. If we adjust the value of money, we put into our investment for inflation we will end up with 2 395 514 CZK.

The figure adjusted for inflation should be taking into consideration as net zero, because that's the actual value of money we put into our investment in real value. Since we focused on S&P 500 index, it is good to mention that the correlation between S&P 500 and SPY ETF for our time period 1.1.1996 to 31.12.2021 is 0,999963318. We can say without any questions that the correlation is so high that there is no doubt that we can trust the results were almost the same as they would be if S&P 500 index had some option to invest in directly.
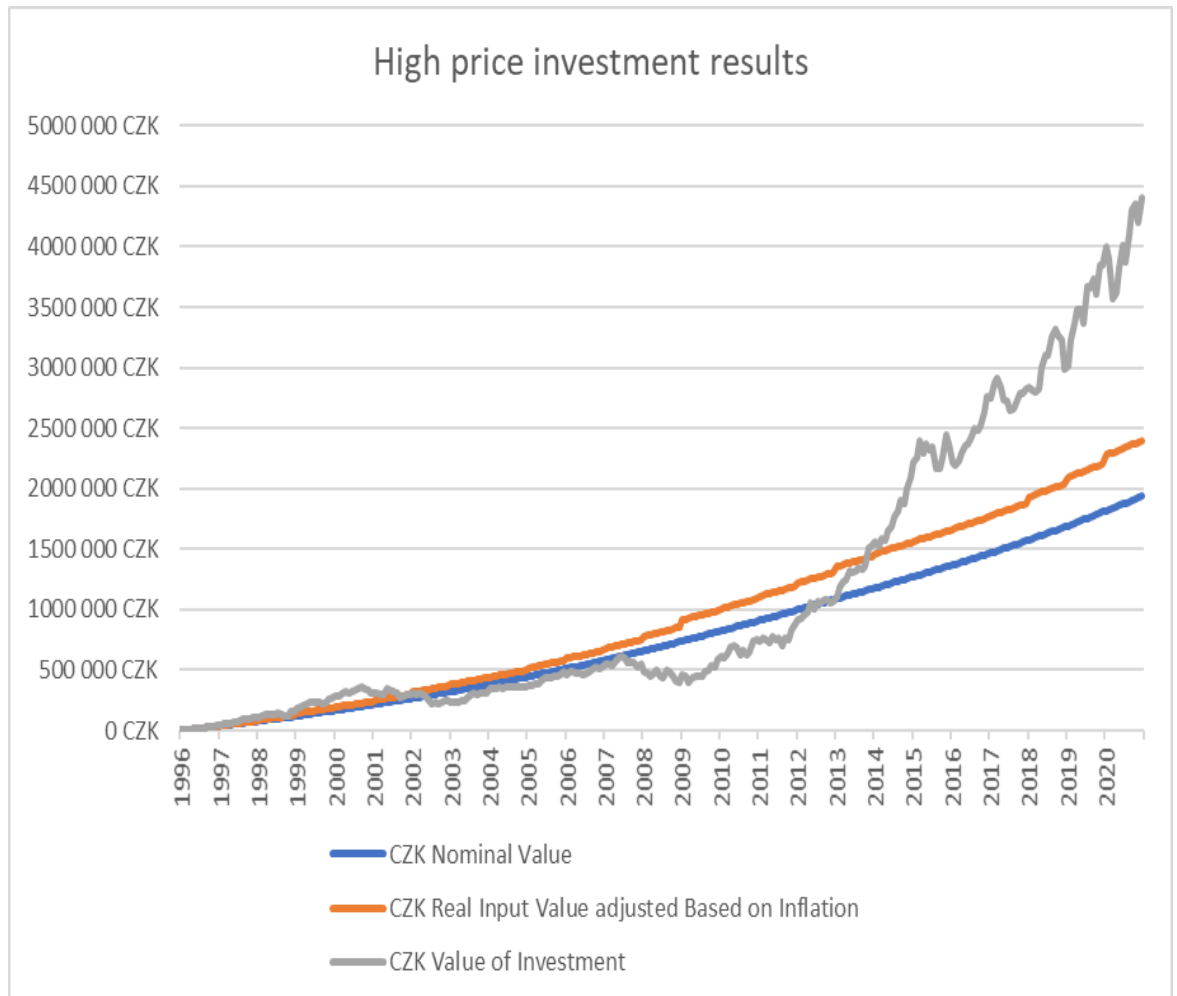
4.1 Low price results and discussion

We will start with the low-price entry point results, it's the best of the four results. Final value of the portfolio 31.12.2021 stands at 4 744 653 CZK and without taking the inflation into consideration the gains would be 145,20 %. With the inflation taken into consideration we would have gains 98,06 %, that is still impressive number because the money input value growth as the Czech Republic developed so the number 98,06 % applies even for money we invested in year 2020 because we evaluated the investment gains as a whole outcome.

(Picture 15 – Low price investment results)
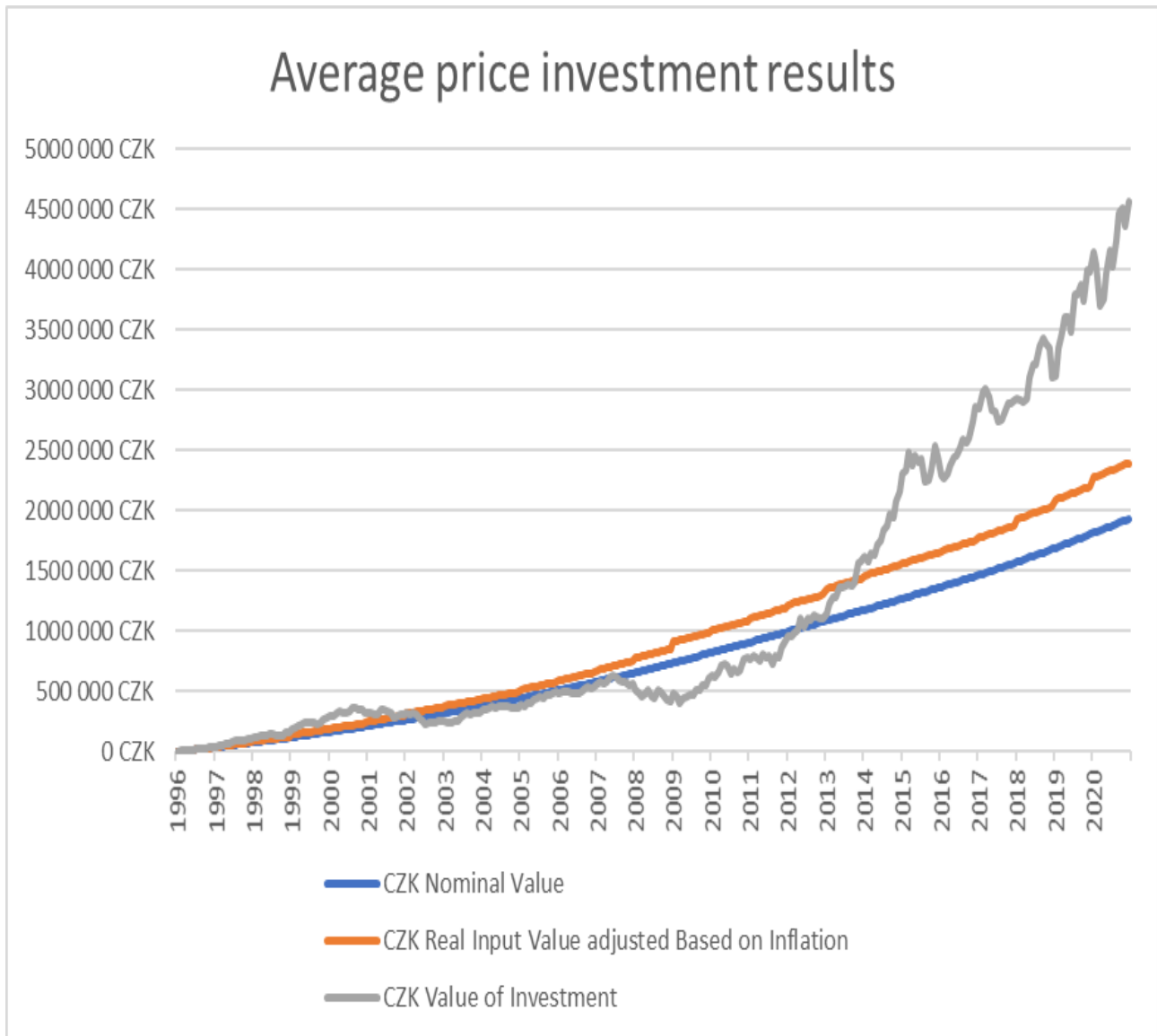
4.2   High price results and discussion

Continuing with high price results, high price is the worst possible outcome. It tracks the outcome of investment strategy as in previous buy and hold and dollar cost averaging. The final value of the portfolio 31.12.2021 stands at 4 398 579 CZK, gains with out adjusting for inflation are 127,32 % and with adjusting for inflation 83,62 %. Since this was the worst possible outcome with our strategy the results are still positive.

(Picture 16 – High Price investment results)

4.3   Average price results and discussion

Average price result was determined by mean price of the difference between high and low price. Final result of average price was 4 562 334 CZK. Gains before adjusting for inflation were 135,78 % and 90,45 % after adjusting money value based for inflation. This is one of the two most probable outcomes of the chosen investment strategy.
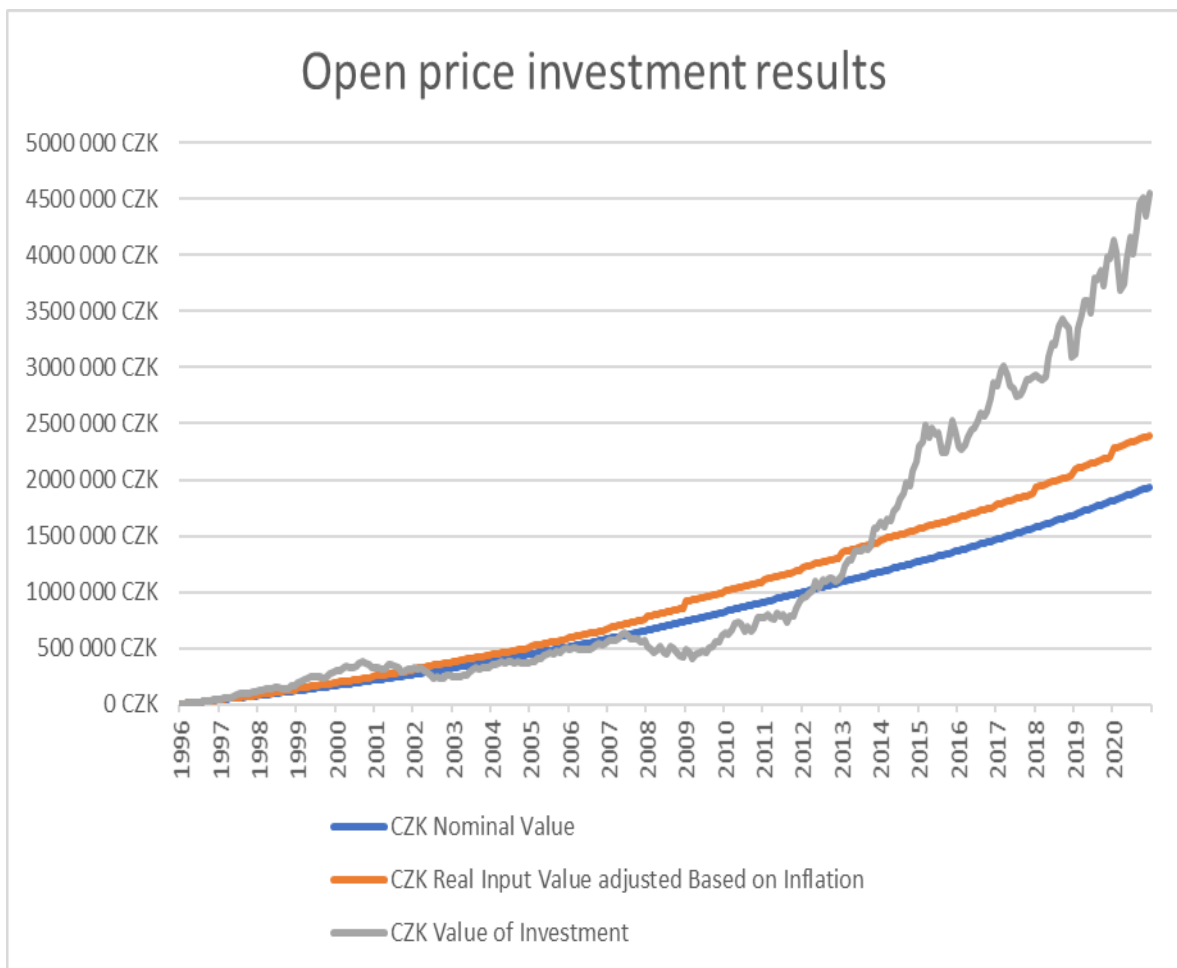

(Picture 17 – Average price investment results)

4.4 Open price results and discussion

Open price result is the second of two most probable outcomes because it is easiest to replicate and since the price is always the open price it also adjusts for the element of unknowing what will the price does in the future. The outcome of the open price method was 4 556 464 CZK. Gains with out adjusting the value of money for inflation are 135,48 % and with adjusting the value of money for inflation 90,21 %.

(Picture 18 – Open price investment results)

4.5 Summarization of results

If we were to rank the outcomes based on the final value of the portfolio it would not be fair to the high and low price. The two most reliable results are average price and open price that have result difference less than 0,3 percentage point.

Both have gains over 135 % with out adjusting for inflation also gains adjusted for inflation are more then 90 % this is the most important part. Even if we invested in the

worst points possible and bought the SPY ETF on the high in every month with our consistent strategy, we would get over 83 % gains adjusted for inflation.

In the investment period time, the price of SPY ETF grew from 1.1.1996 where the market price was in the first month between 59,64 USD and 63,69 USD up to between 362,03 USD and 378,46 USD and close price on 31.12.2021 370 USD. We can say the price went up six times the original price while the value of money decrees only by 51,73 % so the value of money from year 1996 adjusted for inflation would be around double what it used to be while the value of SPY ETF as mentioned grew six times the original value.

If we were to focus only on buy and hold strategy and invest all our money in January 1996, we would come close to making 600 % with out adjusting for inflation and 300 % with adjusting for inflation. But average person makes money over time and invest over time. I think this thesis provides accurate evaluation of the expectations someone might have from long-term investing, and it can be interesting for someone who does not invest because he is too afraid of the risk, or he manages his money some other way.

It was also interesting to notice in the enclosed data sheet that the average wage in Czech Republic grew approximately little bit over 350 % while the money lost its value only by more than 50%, so the nominal but even the real value input into our strategy grew slowly over time as Czech Republic wage grew with it. Back in 1996 the average wage was 9 825 CZK and in 2020 it was 35 662 CZK.
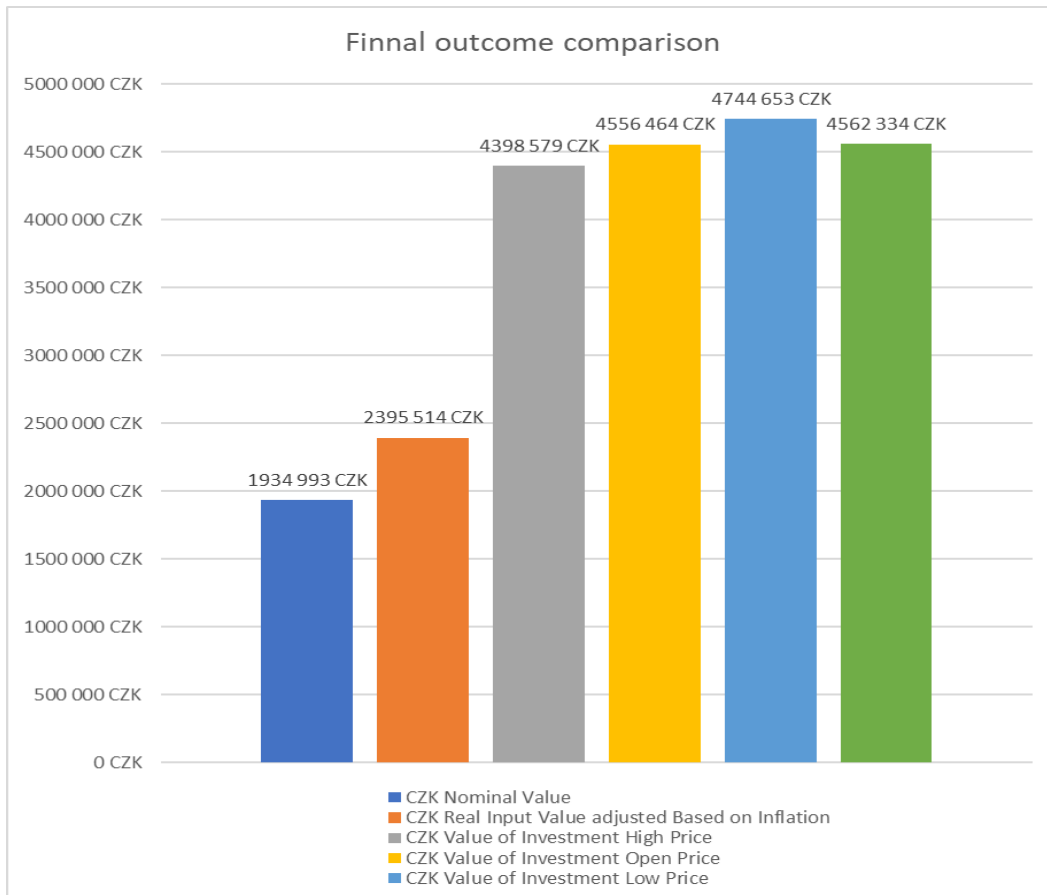
(Picture 19 – Finnal outcome comparison)

5 Conclusion

Our goal was to evaluate long-term investing into US stock market with focus on inflation and the time value of money over time. We did not focus that much on correlation between inflation and price of SPY ETF/S&P 500 because the inflation had no noticeable correlation. Since we did not expect it to be this way it was for the best to leave the correlation of inflation and growth of US stock market with out any further calculation and research.

We can conclude that investing in US stock market long term is reliable way of administrating our money. The range of gains with out adjusting for the inflation were from 127,32 % up to 145,20 %. But we need to adjust it for the inflation to actually know the true gains of value we were able to gain, with adjusting for inflation we would have range of gains from 83,62 % up to 98,06 % it's also important to mention the fact that the gains of 98,06 % apply even to the money we invested in the end of the investing period even in the last month.

We were accessing the investment as one operation and we wanted to find out the results of the final outcome of whole investment. Based on our results and charts we can say that the effect of investing for such long time give us accurate information about investing, long term investing, US stock market, stock indexes, buy and hold strategy, compound interest and effects of inflation on investment results and how to evaluate the decrees of money value correctly.

Investing in US stock market judging from the past is effective and reliable way of simply managing long term investment. By our result we can see that the longer we leave the money work the more compound interest effects manifest.

I would like to thank you for your time and reading my theses I hope it was informative and that you found it interesting to read.

Thank you Pavel Galas.

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7 Appendix

Excel data file: (Pavel Galas excel data file for BT.xlsx) was uploaded into section for appendix on website is.czu.cz