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PORTFOLIO MANAGEMENT

i)

Cyclical economical growth is natural and unavoidable phenomenon, at the same time the less amplitudes of economical cycles fluctuations are, the more attractive economy of a country. Countries sustain ultimate difficulties when financial crises happen in a certain country. Latterly such crises mostly come into play as the prices bubble burst.

The current financial crisis started from the crisis sub-prime mortgage crisis in the USA. After prices bubble burst it has spread worldwide and unavoidably claimed following victims: crashed two most famous underwriting banks of the world Lehman Brothers and Merrill Lynch, two biggest mortgage banks of the USA Fannie Mae and Freddie Mac, substantially fell down all stock indexes. It is evident that the world realizes the extent of this problem and probable results because similar crises had place during XX century: Great Depression, the Asian-Russia financial crisis, 1997-1998; the 2001 dot-com bubble; and the recent sub-prime mortgage crisis. It's evidence that they have a strong impact on economical and political regional course.

Under certain conditions an investor's choice of a portfolio can be reduced to balancing two dimensions—the expected return of the portfolio and its risk (measured by its variance). Thus, Markowitz showed that the risk of an asset that really matters is not the risk of each asset in isolation but the contribution that each asset makes to the risk of the aggregate portfolio. With this insight Markowitz reduced the complicated and multidimensional problem of portfolio construction with respect to a large number of different assets, all with varying properties, to a conceptually simple two-dimensional problem known as "mean-variance" analysis.

Financial bubbles

A financial bubble is a market aberration manufactured by government, finance, and industry, a shared speculative hallucination and then a crash, followed by depression. Bubbles were once very rare—one every hundred years or so was enough to motivate politicians, bearing the post-bubble ire of their newly destitute citizenry, to enact legislation that would prevent subsequent occurrences.

Recent financial crisis

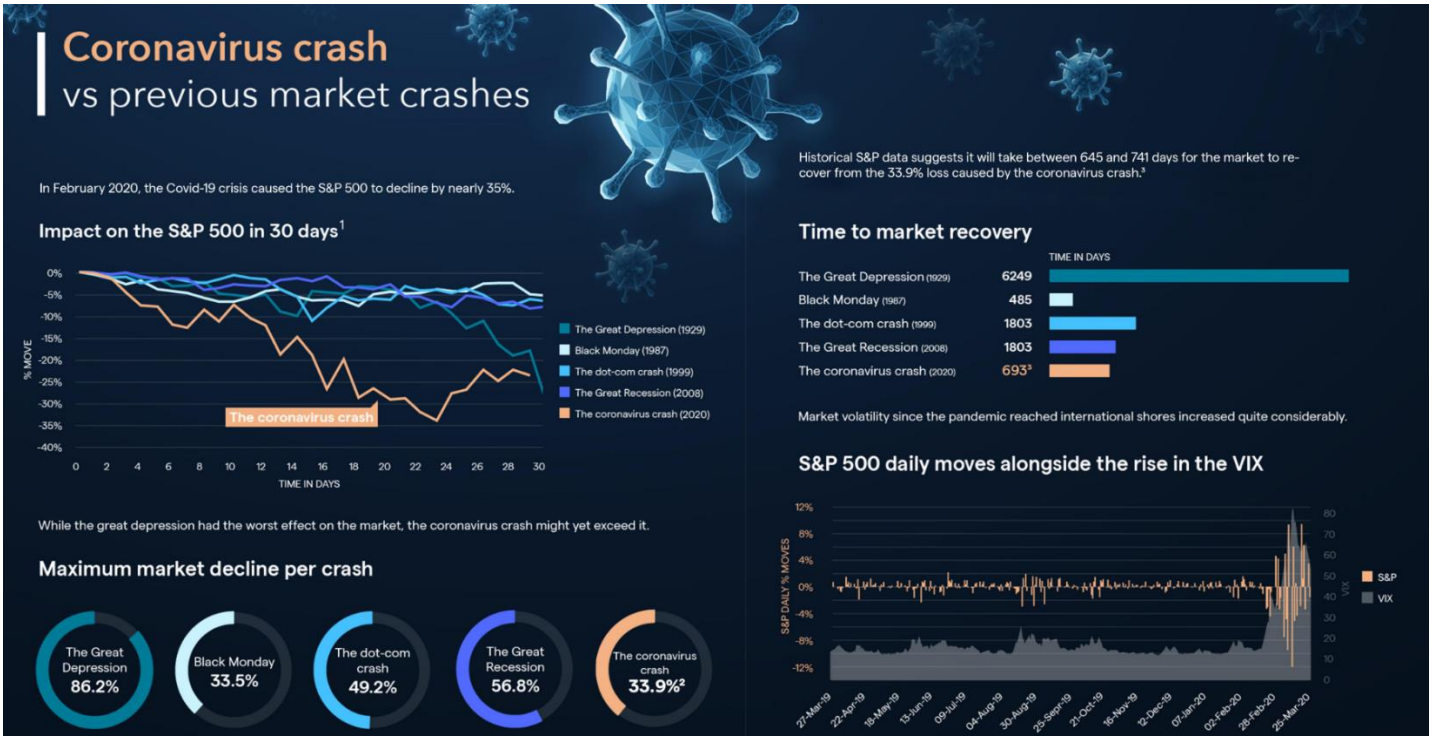
Usually, as we know, asset bubbles lead to deep financial crisis. History doesn't lie: Tulipomania, Mississippi and South Sea company bubble, dot-com and recent housing bubble. In all cases asset prices, was based not on it fundamental value, but rather on to much optimistic view for future prices. When market collapse, everyone suffers:

within 2 years the shock from American housing sector spread worldwide, sector by sector, economy by economy. Now almost everyone agrees that housing bubble and dot-com have something in common.

Dot-com companies' strategy at that time could be called "get big quickly", because they expected to build enough brand awareness to charge profitable rates for their services later. Time showed that it was horrible mistake. Crisis become clear when FED rates during 1999 was raised 6 times, money became expensive, investors started to sell stocks, because the smell of liquidity in the market become tangible. After the bust FED was aimed to stimulate the economics is order to soften the outcomes of dot-com bubble, and again lowered reserve rates. Aggressive strategy of the bank's let to borrow for everyone, all most for free, some part of the time. Bust in IT sector let to outflow some money from financial to more natural housing sector. Houses became investment tool. Even people with bad credit history there able to get sub-prime credit. Again everything was fine, while interest rates was low, people there able to pay their mortgages. Rate raise from 1 % in 2004, to 4,29 % in 2006 led to housing bubble bust, as people begin default with their debts.

Coronavirus impact on the stock market

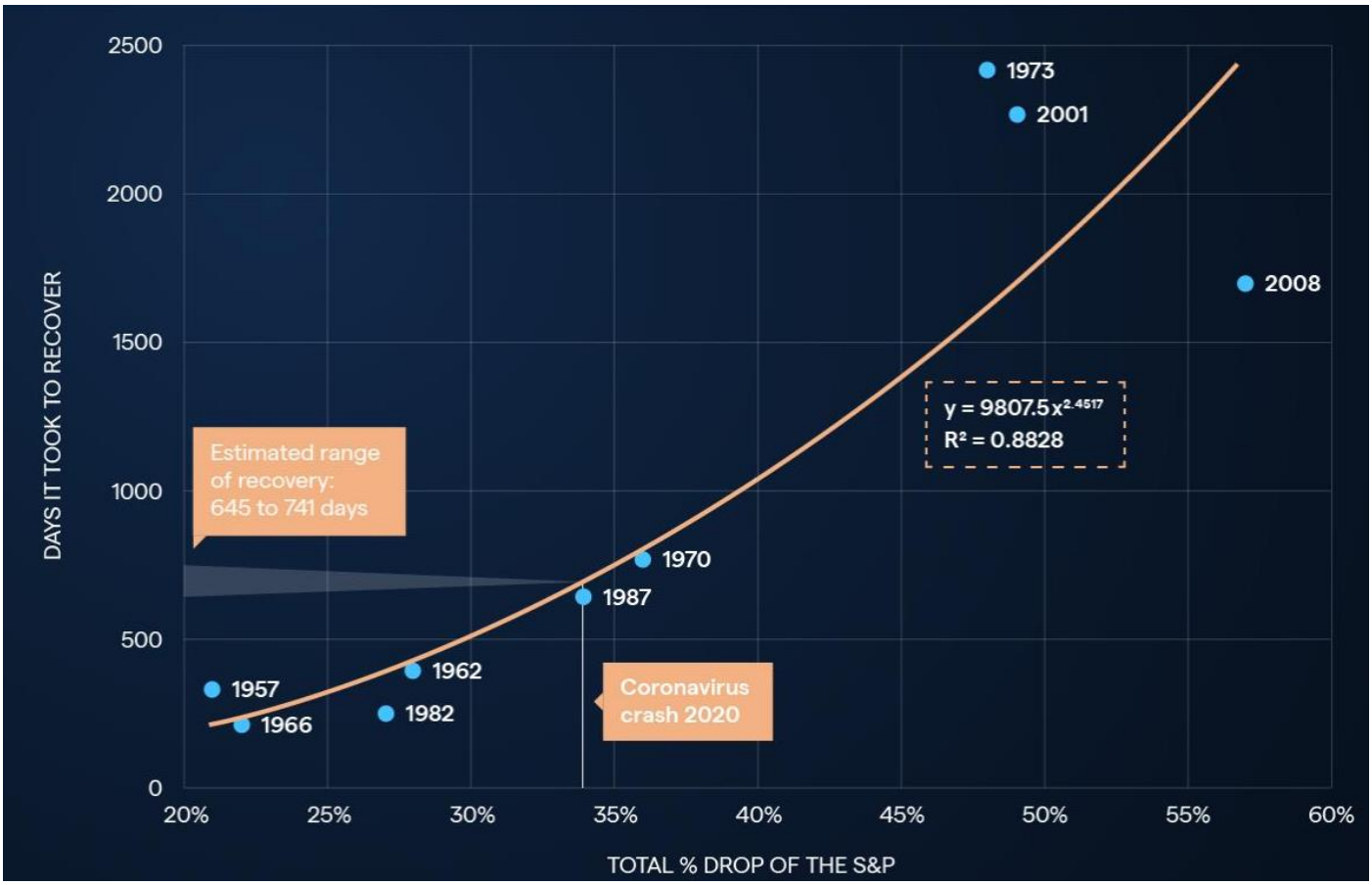
In 2020, the coronavirus ignited global panic as hundreds of thousands of people were infected, businesses closed and share prices tumbled. Here, we outline statistics on Covid-19 and its effect on the stock market.



The potential S&P 500 recovery rate

Making a prediction about the S&P 500's rate of recovery following the coronavirus crisis can be challenging, as there are many variables to consider. However, we can look at historical events and identify the statistical likelihood of the index rebounding within a certain amount of days.

Firstly, is there a correlation between the past speed of market sell-offs and the subsequent rate of recovery? The short answer is no, because markets generally continue to fall after the initial 20% sell-off. However, it would make sense to look at percentage moves to understand how losses can be regained.



ii)

Portfolio formation process

Portfolio construction can be used one of the four portfolio theories: Markowitz, capital assets pricing theory, arbitrage pricing theory and factorial model, commonly know as improved APT. Modern portfolio theory focuses on the techniques and implications of efficient diversification, and we devote considerable attention to the effect of diversification on portfolio risk as well as the implications of efficient diversification for the proper measurement of risk and the risk–return relationship.

Markowitz portfolio theory can generalize the construction problem to the case of many risky securities and a risk-free asset. As in the two risky assets example, the problem has three parts. First, we identify the risk-return combinations available from the set of risky assets. Next, we identify the optimal portfolio of risky assets by finding the portfolio weights that result in the steepest CAL. Finally, we choose an appropriate complete portfolio by mixing the risk-free asset with the optimal risky portfolio.

Risk versus return are the reason why investors invest in portfolios. The ideal goal in portfolio management is to create an optimal portfolio derived from the best risk–return opportunities available given a particular set of risk constraints. To be able to make decisions, it must be possible to quantify the degree of risk in a particular opportunity. The most common method is to use the standard deviation of the expected returns. This method measures spreads, and it is the possible returns of these spreads that provide the measure of risk.

There are several different factors that cause risk or lead to variability in returns on an individual investment. Factors that may influence risk in any given investment vehicle include uncertainty of income, interest rates, inflation, exchange rates, tax rates, the state of the economy, default risk and liquidity risk.

The goal is to hold a group of investments or securities within a portfolio potentially to reduce the risk level suffered without reducing the level of return. To measure the success of a potentially diversified portfolio, covariance and correlation are considered. Covariance measures to what degree the returns of two risky assets move in tandem. A positive covariance means that the returns of the two assets move together, whilst a negative covariance means that they move in inverse directions.

Correlation is vital for successful portfolio diversification, because it shows two securities movement direction. If correlation is positive, securities prices moves same direction and diversification isn’t efficient. So we came to conclusion that diversification is beneficial then securities prices are uncorrelated or negative correlated, then one security price move opposite direction to other. When correlation coefficient between two securities is 0, it may or may not create a diversification effect. However, it still better to be in this position than in a perfect positive correlation situation. The extended concept of H. Markowitz mean-variance concept, often called Sharpe ratio measure. Extending this concept to investment strategies, you could look at the payoff to each unit of risk taken by dividing the return earned using the strategy by the standard deviation of return.

iii)

According to various portfolio formation techniques during financial crisis investor should allocate his investment portfolio during different classes of asset.

Especially in a such investment period the main attention should be paid to fixed income securities or commodities. From the other side of view the best time to invest is when the prices of stocks are quite low.

But during crisis it is a very risk strategy because we can‘t know were is the bottom of the prices. So if the price seems to be quite low today it doesn‘t matter that it won‘t be lower the next day.

When economic variables is very low and prognosis is not good for some year (it depends on the exact region) the best way is to invest continiously – it can be named as diversification of time. To invest in gold or other commodities is good disicion but only when the stock markets are going down. But during financial crisis we have some periods when stocks are growing and the price of gold than is decreasing. So the main conclusion can be done that the best way during financial crisis is to take long investment horizont and always monitor portfolio positions.

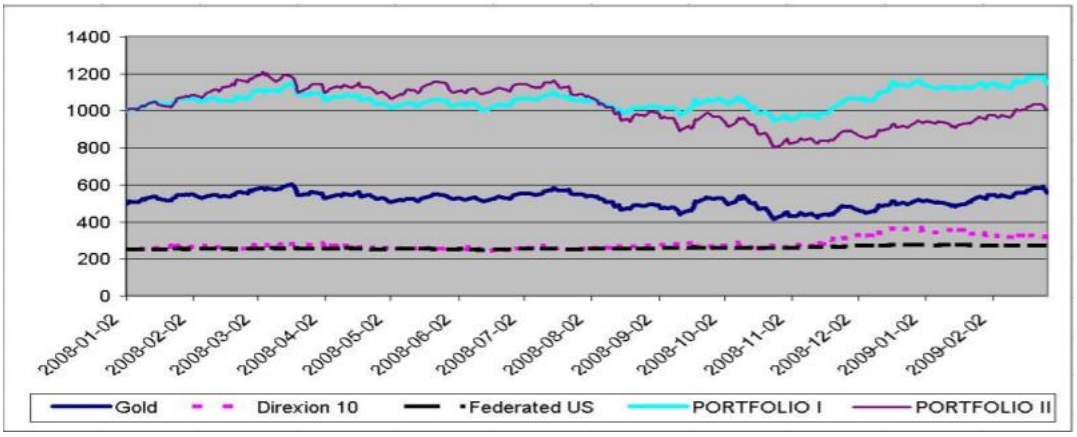
Portofolio formation

Investors always want to get as much as possible return from their investments – that is natural, but then crises take place very often come a question: how to create a portfolio that is least risky and gives some return. Most simple answer would be to place a deposit account in the bank. On the other hand investments into portfolio helps to reduce unsystemic risk, that comes form the bank. Thanks to diversification effect country risk also is divided into separate parts, which make investment less risky.

In recession time companies and even governments a forced to beg: companies can’t promise a share of its future profits, government’s wants to stimulate economics, because of borrowing demand increase, the level of return gets higher.

Below is an example of portfolio management from “portfolio construction and management during the period of financial crisis”.

They constructed two different portfolios, based on commodity and bond prices: first was divided into three parts: half to gold, quarter to Direxion 10 Year Note Bull 2.5X Inv and rest to the Federated U.S. Govt: 2-5 Yr Instl. mutual funds; ½ gold, ¼ platinum and rest of assets to Federated U.S. Govt: 2-5 Yr Instl. mutual fund. They made the presumption that portfolios were created in the beginning of 2008, within base value of portfolio 1000.



Values of constructed portfolios have varied during the time: first portfolio almost all the time was profitable, while second regain its beginning value only on the end of the period. It's clear that second portfolio were more affected by platinum prices changes in commodity market, standard deviation of around 81 from the index average 243 value, is a main source for second portfolio instability. Because first portfolio is more profitable we analyze it in detail.

	Return	Average return	Standard deviation	Covariance between Portfolio and Nasdaq
Gold	11,50%	3,76%	7,83%	-0,367003802
Direxion 10	27,08%	12,76%	13,11%	
Federated US	8,58%	4,07%	3,16%	
PORTFOLIO I	14,66%	6,09%	5,09%	

The above table characterizes each portfolio part individually by average return and standard deviation. Mutual fund Direxion 10 risk was highest, because standard deviation more then 13 percent from average, meanwhile gold Federated US mutual fund only 4,07 percent, because of great amount of risk a Direxion 10 return premium was the highest 27,08 percent. To be sure about performance of our virtual investment we calculated correlation between it and NASDAQ index. Average negative reliance from NASDAQ mean's that our portfolio has opposite trend in the market. To say the truth negative correlation is helpful for diversification, when we want to protect portfolio from market changes. If return from Direxion 10 is bigger then from other part's of portfolio, maybe we need to change investment proportion.

So, they have calculated an effective edge which shows most effective combination of our portfolio.

	Max Return	Min Return	Max Risk	Min Risk
	26,74%	8,79%	12,87%	2,69%
Composition				
Gold	1	1	1	21
Direxion 10	98	1	98	1
Federated US	1	98	1	78
	12,87%	3,20%	26,74%	9,37%
	Risk		**Return**	

From above table it is easy to see that the biggest return are almost 27 percent with a risk of 12,87 percent. Portfolios with a minimum return and minimum risk also shown in the table , interesting fact that least risky portfolio gives more than 9 percent return. Their portfolio would have been most effective if we have invested 1 percent into the gold, 98 to Direxion 10 and rest to Federated US. So according to the nowadays economical situation of all regions for a period of about one year the best investments were to fixed income securities and commodities. The authors think that despite the crisis deep there always are any profitable investments but also the main attention should be paid to investors goals and monitoring of his portfolio. When stocks' prices decrease and GDP is showing bad signs investors must look through their portfolios in order to increase the part of safe instruments as government's bonds and for the period of crisis – commodities.

The process of managing an investment portfolio never stops. The main attention should be paid to portfolio monitoring and updating the status of instruments and investor‘s needs. Constructions of different portfolios and calculations of maximum returns and risk have showed that the best investment for a one year period was investing in gold and commodities. But such a portfolio is not suitable for a long time and especially when the situation of stock markets will be getting better. So, the key of profit form investing is a good monitoring of economics and the region markets psychology. Extraneous events may well influence the price, if believed by other participants to do so, it means that crowd psychology becomes an important determinant of prices. Crowd psychology is very important in nowadays when the biggest stock markets dictate the rules for the rest ones. There are many reasons for nowadays financial crisis. Usually analysts exclude such as derivatives, excessive pay for bank officers, poor government regulation and a lack of transparency about investments so that risk was not correctly assessed.

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