

PANDEMIC AND ITS IMPACT ON THE CAPITAL MARKETS

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Abstract

Since COVID-19 pandemic hit the world economy we observe diverse movements on the capital markets. After the global downturn in March 2020 the capital markets have shown quick recovery. Some sectors, e.g. technological stocks, have pushed to its historical height. What are the reasons and the consequences of these developments? Is the positive dynamic on the markets a result of expansionary monetary policy of the leading central banks? Or the capital markets are currently creating a next bubble formation similar to one in 2001-2002? Which impact has digital industries – the so called “winners of the pandemic” - on the development of the capital markets? This study aims to analyze the factors affecting the capital markets during pandemic and to compare the technological boom 2000-2002 with the current heights on the stock market.

Keywords: COVID-19, Dot.Com Bubble, growth stocks, value stocks, innovator's dilemma, disruptive innovation

1. INTRODUCTION

The first step by the analysis of the current boom on the capital market, especially on the segment of technological stocks, is to look back to the 2000-2001 technological boom and compare the economic circumstances in order to be able to explain and to forecast the development of the market. At the first glance the market circumstances seem to be similar. Our research though has shown some significant differences.

2. MATERIALS AND METHODS

In our analysis the stock's market relevant data and statistics are used to determine the driving factors behind the tendencies on the capital markets during pandemic. Which of considered factors has major impact? Is this impact of consistent nature? To prove our hypothesis the sample stock analysis were done combined with the comparative analysis of Dot.Com crises and COVID-19 market reaction.

The main analytical source of capital markets data was kindly provided by the Weberbank, Berlin.

3. RESULTS

3.1 Comparative analysis - Dot.Com crises versus COVID-19

The boom of the market of the technological stocks, back in 2000, has its roots into the rapid development of the IT sector throughout the 90th. In 1993, only 15% of the American population owned a computer (www.inforplease.com). In the 1990s hardly someone have had an Internet connection. The entire industry was still in its infancy back then. However, it was an industry that would change the world more than hardly any other. The potential of the IT industry was quickly recognized. Therefore, the entire, newly emerging sector was much hyped. It was also a time of very quick and easily accessible venture capital.

What is important here is the fact that the vast majority of these relatively young IT companies made no profits at all. Still, their stock market prices shot through the roof.

An example of this is Netscape. With “Navigator”, Netscape developed the world's first real Internet search engine. Netscape went public without making a single dollar profit. On the first day of the IPO, the company's value doubled. In a few minutes they were already making \$ 3 billion on Wall Street (blog.hnf.de). The motto of these companies at the time was “Think big!”. There were luxury trips for ordinary employees, no real investments in the future of the company, but around 20% of all Superbowl commercial breaks in the early 2000s - the most expensive advertising spaces in the world - were booked by these same tech companies (Pender, 2012).

Currently, we also observe massive amount of IPOs, especially in its contemporary variation of SPACs, for the growing companies with promising business potential, but without current stability of earnings. Good examples of recent IPOs are gaming platform Roblox with negative financial results of net 253 Mio Dollars in 2020 and south-Korean online platform Coupang with losses of 475 Mio Dollar at the moment of IPO (finanzen.net 2021). Also the IPOs of such renowned companies like Uber, Lyft, Snap, Airbnb, Pinterest have happened without prospective for stable income generation (finanzen.net 2020). The success of mentioned initial public offerings were solely based on growth expectations. This circumstances provide similarities with 2001-2002.

The Dot.Com Bubble burst when Japan slid into recession early 2000s. At that time, the central banks raised the key interest rate, whereupon the demand for conservative forms of investment rose again, while more and more investors withdrew their money from the stock market and growth stocks.

This meant the end of quick venture capital, and thus the end to the flow of money for the tech companies. In March 2001 the USA also slipped into a recession. This was compounded by the effects of September 11th. As the consequence, the large number of companies have filed for bankruptcy.

The image of a supposedly perfect tech industry has thus collapsed. The Nasdaq has lost more than 78% (Alden 2005) of its value – total amount more than \$ 5 trillion (Gaither, Chmielewski 2006).

However, the strongest companies such as Microsoft, Oracle, Amazon, Apple, Google, Netflix have survived the crises and have managed to create the value stability over the large period of time. In the Pandemic those companies outperformed the market being the driving power behind rash development of S&P 500 index.

As we have seen, there are certain similarities in the capital market's dynamics back in 2000-2002 and now. Does it mean, that we currently observe the same bubble formation on the capital market?

When Covid-19 spread throughout the globe, the high-tech industry was already highly developed and established (including Apple, Samsung, Facebook, Google, etc.). The first lockdowns with worldwide travel restrictions took place in March 2020. The ensuing uncertainty among investors and investors resulted in what John Maynard Keynes said, “Animal Spirits” (1936). There was a massive slump in the markets. What followed, however, is the most effective and innovative time to date for the entire global IT sector. The great demand for social distancing solutions provided a huge push for digitization. Amazon emerged as the biggest winner (theguardian.com 2020). Zoom moved to Nasdaq 100 (nasdaq.com 2020). A new hype around the high-tech sector is obviously created. Growth funds like Ark Invest returned profits of up to 732% (theETFstore 2021). Bitcoin has reached the all times high of \$64,899 in April 2021 (statista 2021). Artificial intelligence is also in greater demand than ever before. Then when the reports of the first vaccines - and later the vaccination campaigns - came, the markets experienced another boost. However, the entire market was particularly pushed by a few tech companies.

The Dot.Com Bubble and the COVID-19 crisis are both enormous boom phases for the growth stocks - with an intervening fifteen-year high phase for value stocks (*see Appendix, Exhibit 1*) - there are, however, some clear differences between Dot.Com bubble and current dynamic on the capital markets.

In the early 2000s there were almost only start-ups companies without strong market share and income. Today there are already many established companies in the tech sector (e.g. Google, Apple, Facebook, Netflix), which are highly profitable (*see Appendix, Exhibit 5 – P/E ratios back in 2001-2002 were significantly higher than the S&P 500 index, while in 2020-2021 the index performance is higher*).

The Dot.Com Bubble was an internal shock, caused by mismanagement, which also had to contend with rising interest rates. COVID-19 pandemic is an external event which has global economic impact. The long term economic consequences cannot be foreseen yet. It will definitely have internal impact on the capital market, but the starting point was external. Furthermore, the interest rates in US on the historical low point and even being negative in EuroZone for more than a decade (*see Appendix Exhibit 2 and 3*).

There is also difference in the money supply. At the beginning of the 2000s, the M2 monetary aggregate was three times the value of the S&P 500. Currently, the S&P 500 in relation to the M2 is around twice as high as the M2 aggregate as we can clearly see on the graph (*see Appendix, Exhibit 6*).

Due to the pandemic, the FED has recently decided to pump 14 billion dollars into the economy (reuters.com 2021). The pandemic package of 14 billion dollars directly increased the money supply M1 together with other monetary programs of FED (*see Appendix Exhibit 7*). The purpose of the package was to help the population through the crisis. However, due to the low lending rate of FED, which stands at 0 percent to 0,25 percent, many investors tend to invest this government aid on the capital market. The FED's „cheap money“ strategy has been widely viewed as the catalyst for Wall Street's series of record highs over the past year (Bayly 2021). This only fuels the run on growth stocks. Although the current profits on value stocks are reasonable, the profits of growth funds are potentially enormous.

The good illustration to this fact provides the comparison of the recent performances of the holding Berkshire Hathaway and of the Ark Invest fund.

3.2 Growth versus Value investing during COVID-19 and the role of disruptive innovation

The major shareholder and long-term chief executive of Berkshire Hathaway Warren Buffett is one of the most well-known value investors, who has followed the Benjamin Graham's school of value investing. This focuses on investment into the companies whose value is unjustifiably-severely undervalued in relation to their intrinsic value. These are often very established and matured companies with high material assets and solid revenues. Berkshire Hathaway is considered to be one of the most successful value fund with the investment volume of 873.7 billion US dollars (Bloomberg.com 2020). The Ark Invest though is famous due to the consistent growth investment strategy of its CEO and CIO Cathie Wood. The strategy of Ark Invest relies on the theory of “disruptive innovation”, which suggests that companies can still be profitable investment even if they are extremely overvalued and do not generate earnings yet. Ark Invest is one of the largest actively managed fund with \$ 17 billion in assets under management and 170% annual profit (Fitzgerald, 2020).

The comparison of the cumulated performance of Berkshire Hathaway (Value) and Ark Invest (Growth) in the period of 2015 to 2021 shows that the growth strategies outperform the value investment: Berkshire Hathaway gain was 76.65% , while Ark Invest generates 732.00% return (ycharts.com 2021, *see Appendix Exhibit 8*). These figures are another confirmation of the current boom of the growth stocks.

In this regard the question is reasonable why the growth stock outperforms the value stocks and if this situation on the capital market is sustainable?

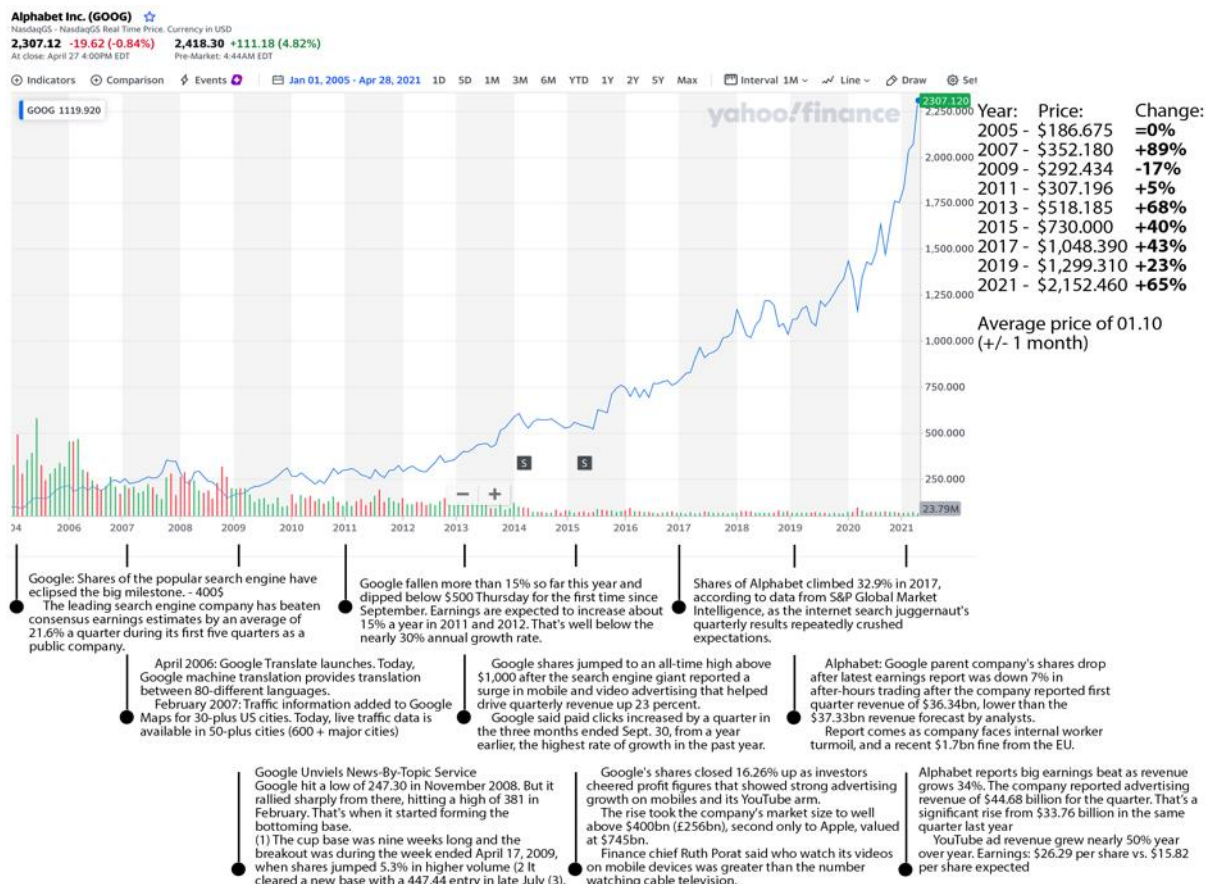
Schumpeter considers the process of creative destruction as the essential fact about capitalism (1942). Later in the 90th Clayton Christiansen has strengthened this point introducing „innovator's dilemma“ as the process in which a smaller company, usually with fewer resources, is able to challenge an established business (1997). How this process works? The smaller innovative companies enter the market at the bottom and continue to move up-market creating innovations to be more appealing to their most demanding and profitable customers. The innovative products and services could be offered often at the reduced cost compared to what is offered by the incumbent. They focus on their niche and on more profitable and fast growing segments. This appeals to the incumbent's “mainstream” customers and it is how disruption is occurred. There is a dilemma faced: great managers at great companies still find a way to fail. Disruptive innovation theory defines executives as negligent of the

arrival of innovations that enter an industry from a niche, often low-end position. Secondly, incumbents overreach their offerings and leave space for simpler, easier offerings. Lastly, executives are proven to invest in sustaining innovations that match their existing profitability, but ignore investing into prospective, even cannibalizing business models. Therefore, digital disruption is deriving of three constitutional aspects: digital ecosystem, digital innovation, and value logic (Christensen 1997). Disruptive innovation generates new markets and values, in order to disrupt existing ones. Expert forecasts about how large the new market will become are always wrong. The planning tools used to understand sustaining technologies does not work when used on disruptive technologies. The process of digital disruption has got a new push during the pandemic. Such disruptive industries like advanced robotics, [SEP] additive manufacturing, augmented reality, internet of things, cloud computing, cyber security, big data analysis experience exponential growth, which reflects in the prices on the stock market (see Appendix Exhibit 1 and Exhibit 4) confirms outperformance of S&P 500 Growth Index related to S&P Value Index). Most of disruptive industries are represented by the companies, which are a part of the 5 Big Tech Holdings of Amazon, Apple, Microsoft, Alphabet (Google) and Facebook. During the pandemic the combined market valuation of these five stocks reached more then 20% of the S&P 500 index (www.marketwatch.com 2021).

3.3 Sample analysis traditional versus growth stocks

In order to analyze the stock price dynamics and the traditional value stock development in the past 2 years, the research team did sample analysis for following stocks Tesla Inc., Alphabet Inc., Facebook Inc. (growth stocks) and Volkswagen AG (traditional value stock).

The stock's price development of each selected company is related to the events, which led to respective decrease or increase of the price.



Facebook, Inc. (FB)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD
303.57 +0.53 (+0.17%) 308.50 +4.93 (0.02%)
At close: April 27 4:00PM EDT Pre-Market: 4:43AM EDT

Indicators Comparison Events May 01, 2012 - Apr 28, 2021 1D 5D 1M 3M 6M YTD 1Y 2Y 5Y Max Interval 1M Line Draw Set



Year:	Price:	Change:
2012	\$24.250	=235%
2014	\$81.160	+89%
2016	\$133.500	+64%
2018	\$165.880	+24%
2020	\$285.240	+72%

Average price of 01.10
(+/- 1 month)

Change Y to Y.

Facebook announced that it has reached an agreement to acquire Instagram, a fun, popular photo-sharing app for mobile devices. Facebook CEO Mark Zuckerberg announced that the network had surpassed 1 billion active users on Oct. 4. There are 7 billion people on the entire planet. Only two countries in the world — China and India — have more inhabitants than Facebook has users. Facebook became a publicly tradable company on May 18. The stock opened at around \$42 dollars per share; but it quickly plummeted, falling to under \$18 by Sept. 4. Prices have recovered somewhat of late; the stock has been hovering around \$25 for

The stock closed down 19% Thursday to \$176.26, which means that investors erased the entirety of the company's 2018 gains. Its market capitalization as of Wednesday: \$630 billion. By the end of trading Thursday, it was worth \$510 billion after close and 170 million shares had changed hands. Facebook's Thursday was the ugliest single-session decline since the company went public in 2012. The fall was triggered by fear of reduced future subscribers due to some political groups leaving the site

Facebook climbed 33% last year, according to data provided by S&P Global Market Intelligence. The social media titan saw its user base and engagement levels rise during the coronavirus pandemic, as people sought ways to remain in contact with family and friends while staying safe. Facebook's daily active users increased by 12% year over year to 1.8 billion in the third quarter. Across its entire family of apps — which includes Instagram, WhatsApp, and Messenger — the social media giant's monthly active users rose 14% to a staggering 3.2 billion. That helped to drive a 22% jump in revenue to \$21.5 billion. Net income, meanwhile, surged 29% to \$7.8 billion, or \$2.71 per share.

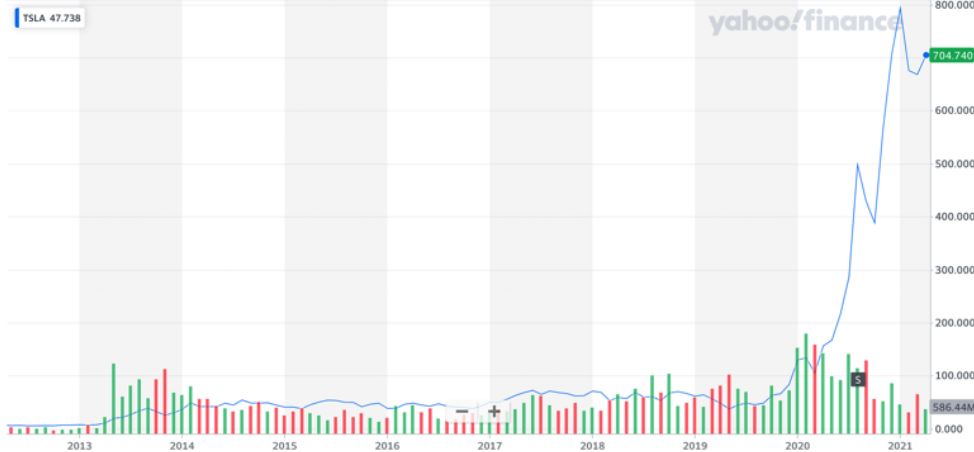
Facebook's record-breaking \$19bn purchase of the messaging service WhatsApp got a mixed reaction from investors, as a sharp sell-off was followed by a rally in the social media company's stock price. In the first quarter, revenue surged 72% year over year, to \$2.5 billion, as Facebook's mobile strategy began to take hold. Mobile monthly active users increased 34%, to 1.01 billion. The effective price per ad displayed increased 118%

Facebook's first big share price fall came in January when the company on announced major changes to news feed, one of its top products. British political consulting firm, had exploited Facebook to collect the data of more than 50 million users without their permission. Cambridge Analytica was then used by the Trump campaign in 2016 to target voters. The day cost Facebook's market cap nearly \$23 billion. Facebook shares ended Tuesday at \$132.43, down nearly 40 percent from its peak in July. Facebook has seen a flurry of top executives leave the company throughout 2018.

Tesla, Inc. (TSLA)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD
704.74 -33.46 (-4.53%) 700.51 -4.23 (-0.01%)
At close: April 27 4:00PM EDT Pre-Market: 4:45AM EDT

Indicators Comparison Events May 01, 2012 - Apr 28, 2021 1D 5D 1M 3M 6M YTD 1Y 2Y 5Y Max Interval 1M Line Draw Set



Year:	Price:	Change:
2013	\$38.846	=0%
2015	\$49.948	+28%
2017	\$72.600	+45%
2019	\$87.062	+19.9%
2021	\$718.720	+826%

Average price of 01.10
(+/- 1 month)

2013: Tesla soars to all-time high after CEO says company is now profitable. Tesla's big plans didn't stop at 20,000 vehicles. In 2013, Tesla revealed that it expected to reach an annualized rate of deliveries of 40,000 by late 2014, thanks to improving production and a rapid global expansion. Then, of course, there is Tesla's expansion into China. With a plan to begin deliveries in the country in the first quarter of 2013, Tesla has already received hundreds of reservations for the Model S in the country, according to China Daily.

Tesla Semi shakes up the trucking industry Musk's "one more thing" at the tail end of the Semi event was a surprise announcement of the new Tesla Roadster. Model 3 Delays - vast majority of the nearly 500,000 reservation holders have been left twiddling their thumbs for months. Tesla announced a voluntary recall for about 11,000 Model X SUVs due to second-row seats that might not stay in place during a crash. Tesla's biggest win of 2017 was its first one. In January, the massive Gigafactory battery production plant started mass-producing battery cells.

Tesla's 2021 delivery guidance pushes new heights as Q1 Earnings Call approaches Tesla reported record net income of \$438 million during the quarter, as well as earnings of 93 cents per share on \$10.39 billion in revenue.

For the second year in a row, Consumer Reports has named the Tesla Model S its "Best Overall" vehicle to buy for 2015. Musk told investors on the company's earnings conference call Wednesday evening that Tesla (TSLA) could be worth \$700 billion by 2025. The optimism from Musk is even more shocking since Tesla's stock plunged 5% Thursday after the company reported a surprise loss and lower sales than expected. Shares are now more than 30% below their all-time high. 2015 Automotive News World Congress: Tesla CEO Elon Musk urges auto industry to accelerate electric-vehicle development: "You won't regret it"

Tesla shares suffered their steepest drop of the year after the electric car maker reported a wider-than-expected loss and disappointing revenue and announced the departure of co-founder and Chief Technology Officer JB Straubel from the executive ranks. The stock plunged 13.6% to \$228.82 at the close. That's the biggest decline since the shares fell 13.9% on Sept. 28, 2018. At times on Thursday, the stock was down more than 14%, which would've been the steepest drop since 2013. "For the bulls this is a disaster story in terms of gross margin," said Dan Ives

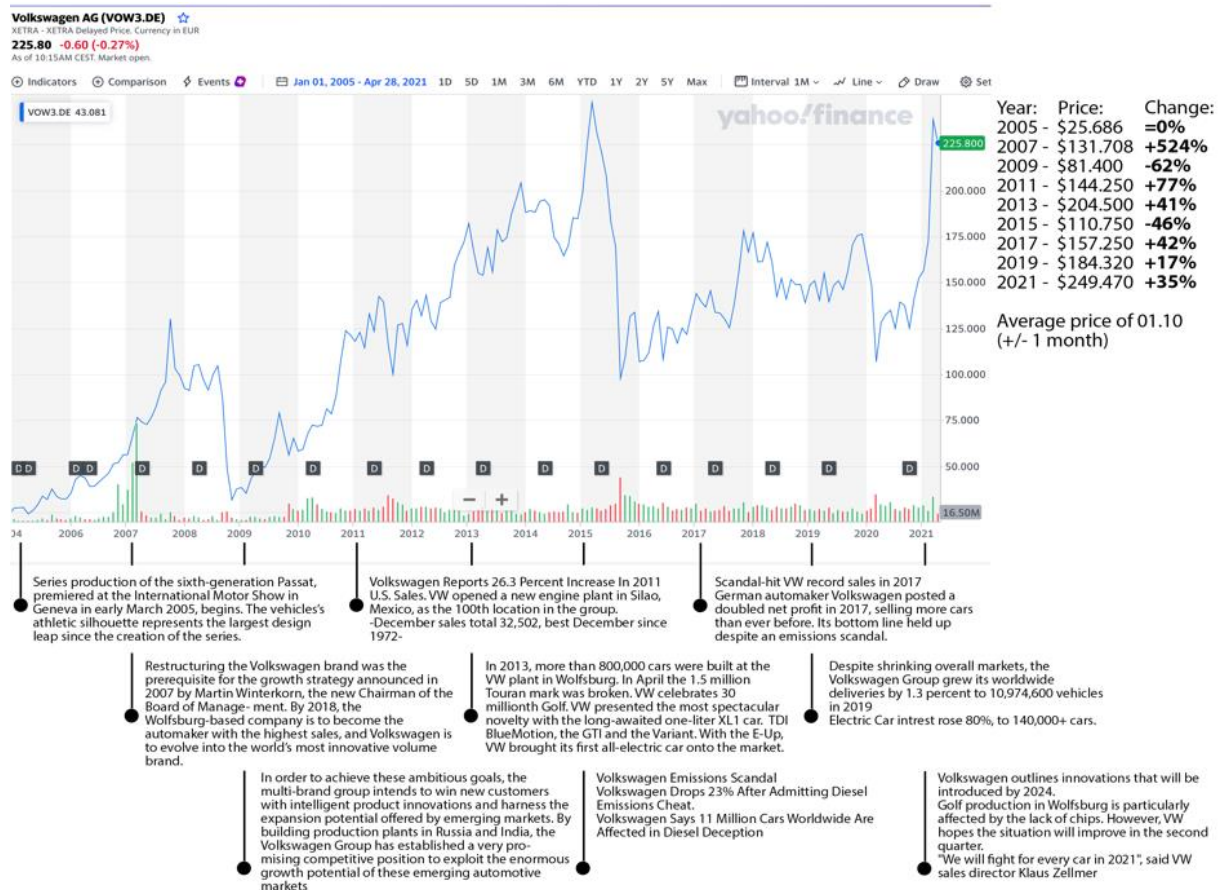


Figure 1

Source: Yahoo Finance

For the growth stocks (Facebook, Alphabet and Tesla) we observe that the majority of events for stock's price increase is related to the adoption of the innovations in the respective area of disruption (according to the CLA method, see Appendix Exhibit 9).

The analysis have clearly shown that the adoption of the innovation by traditional companies are important to sustain on the market and to defend the level of company's stock price (Volkswagen), however only the disruption provides significant growth in the stock prices (Facebook, Alphabet and Tesla). The main surplus on this development has happened in the period after the first lockdown till now. Partially it could be explained by excess liquidity on the capital markets due to the policy of the FED and ECB, but as it showed in our study the main reason for this development is progressing digital transformation.

4. CONCLUSIONS

The results of the research indicate that there are several industries, which benefit during the pandemic and could keep this tendency in future. The key here is the further progress of digital transformation of the economy, which was pushed by the restrictions in the pandemic. Clear trend from value to growth investing is observed on the capital market. How sustainable is this trend under the possible future increase of key interest rates is open. Besides expansionary monetary policy of the central banks, we can state that the disruptive innovation became one of the leading factors in the growth investing on the capital markets. The COVID-19 boom is therefore of significant difference to the Dot.Com bubble.

ACKNOWLEDGMENTS

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APPENDIX

S&P 500 Value vs. Growth

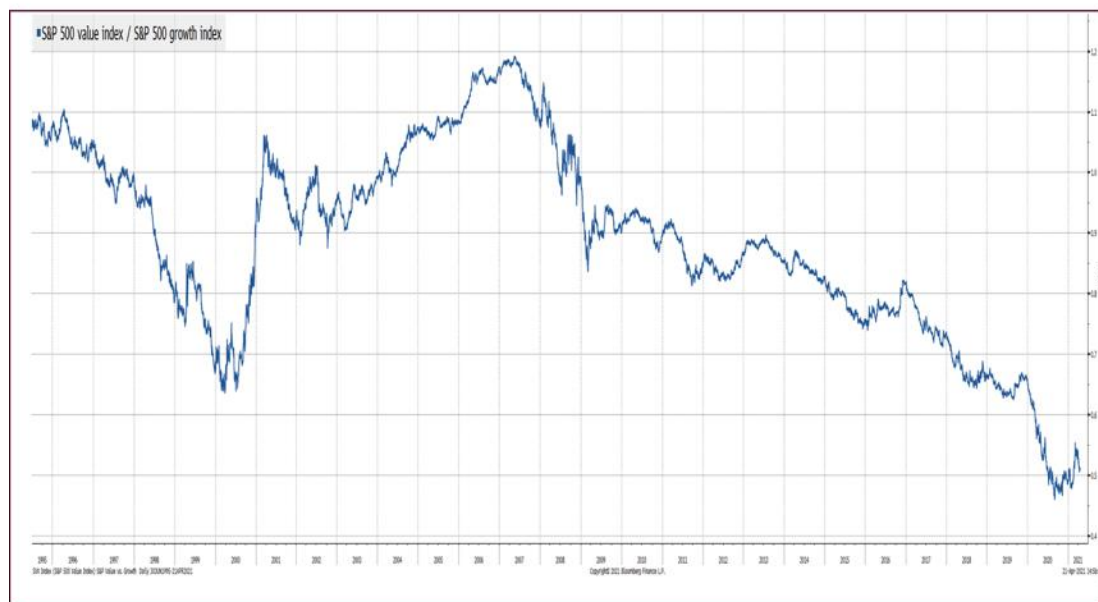


Exhibit 1

S&P 500 Value vs. Growth, 10 Y

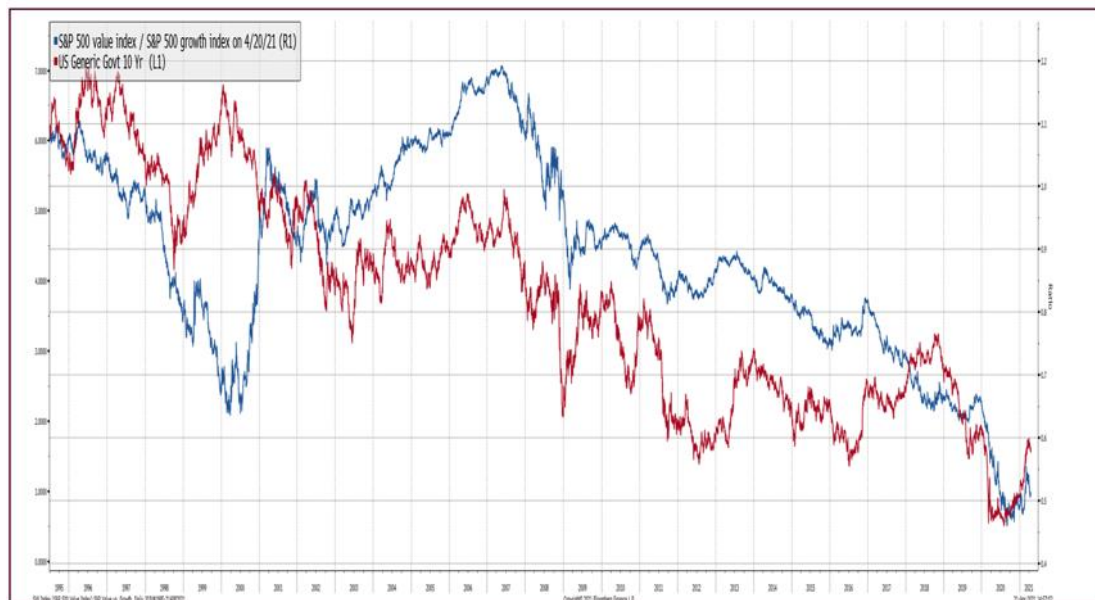


Exhibit 2

Value vs. Growth, 10 Year Treasury

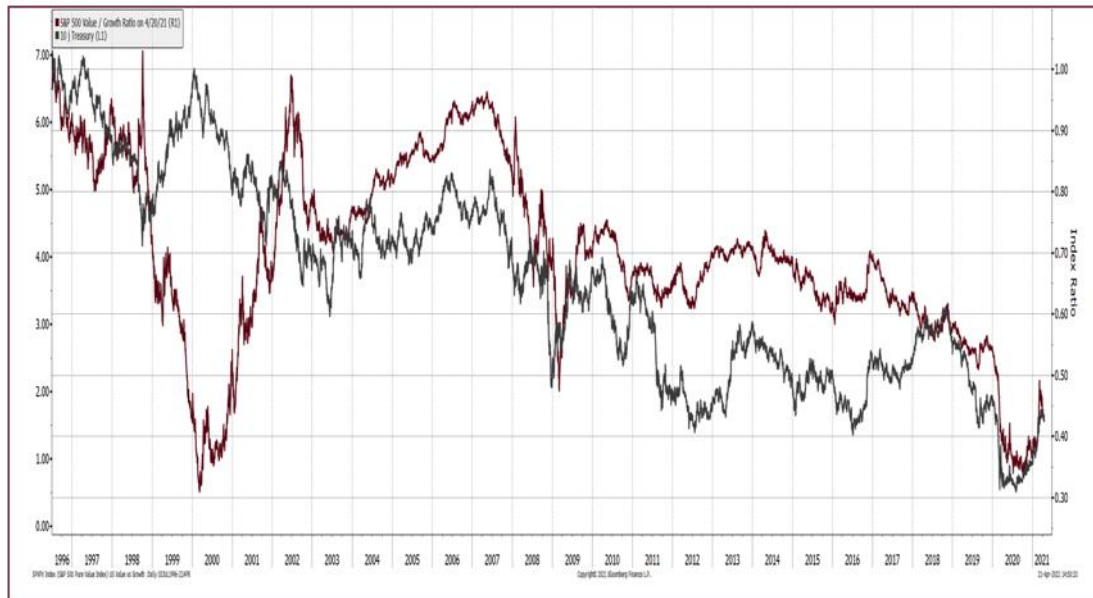


Exhibit 3

Nasdaq / Small Caps vs. Growth/Value

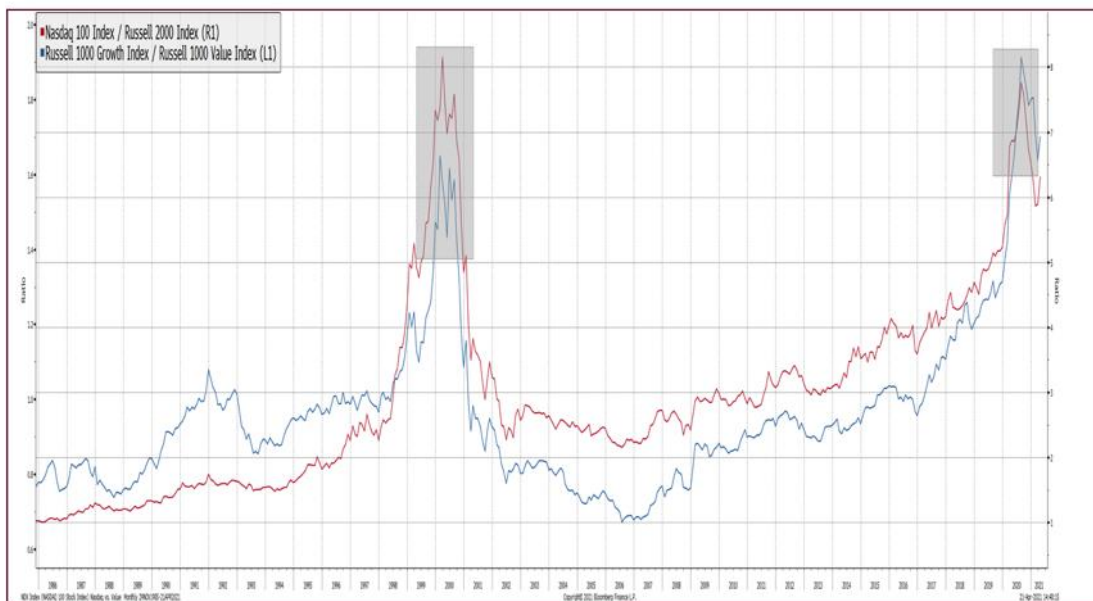


Exhibit 4

S&P 500 vs. S&P 500 P/E

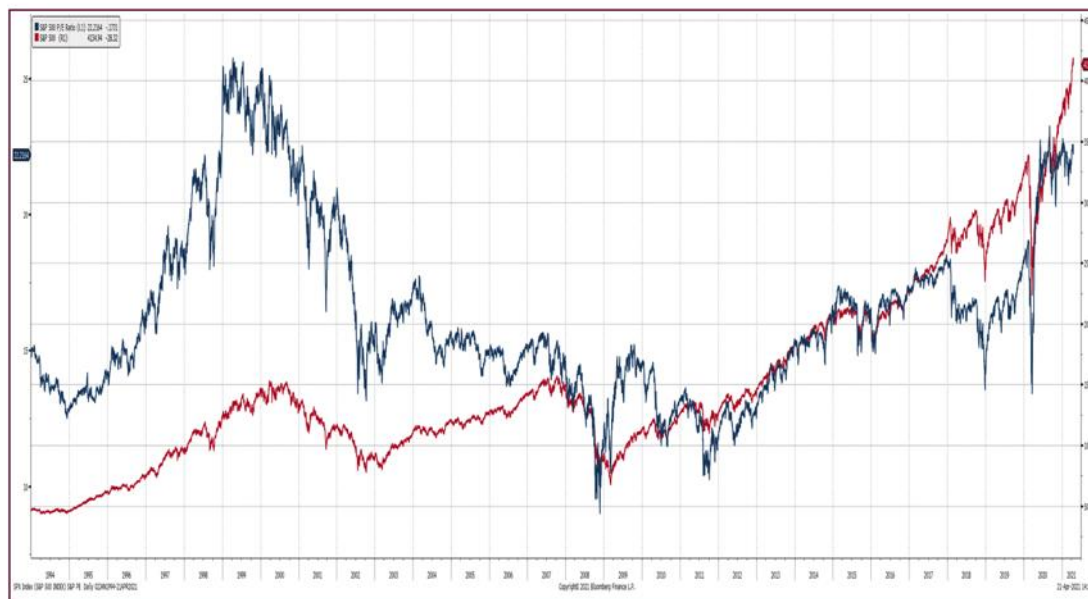


Exhibit 5

S&P 500 vs. S&P 500/Geldmenge M2

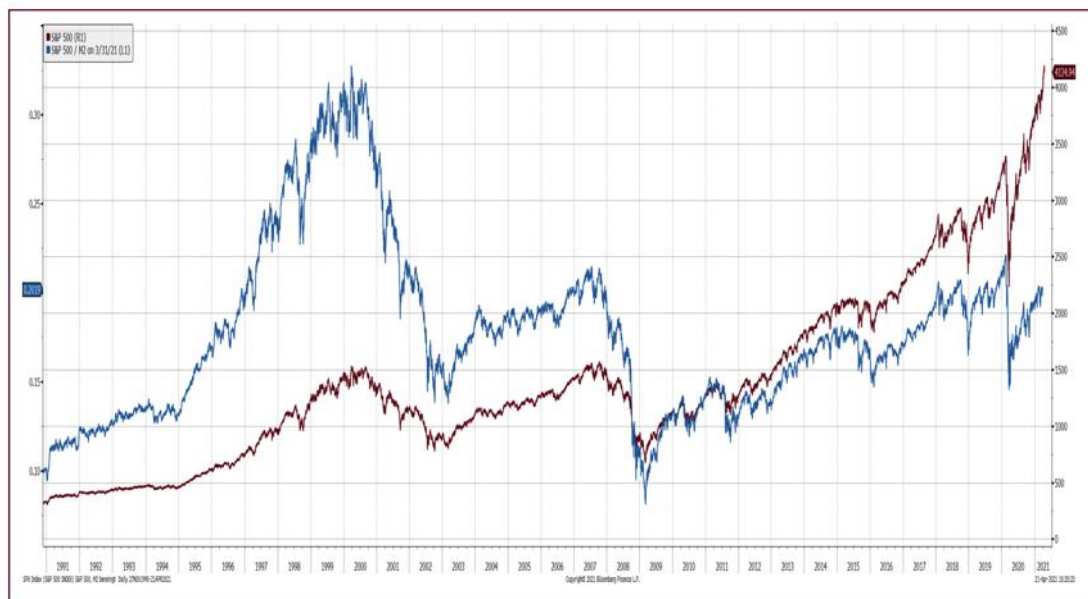


Exhibit 6

Geldmengenwachstum (M1)

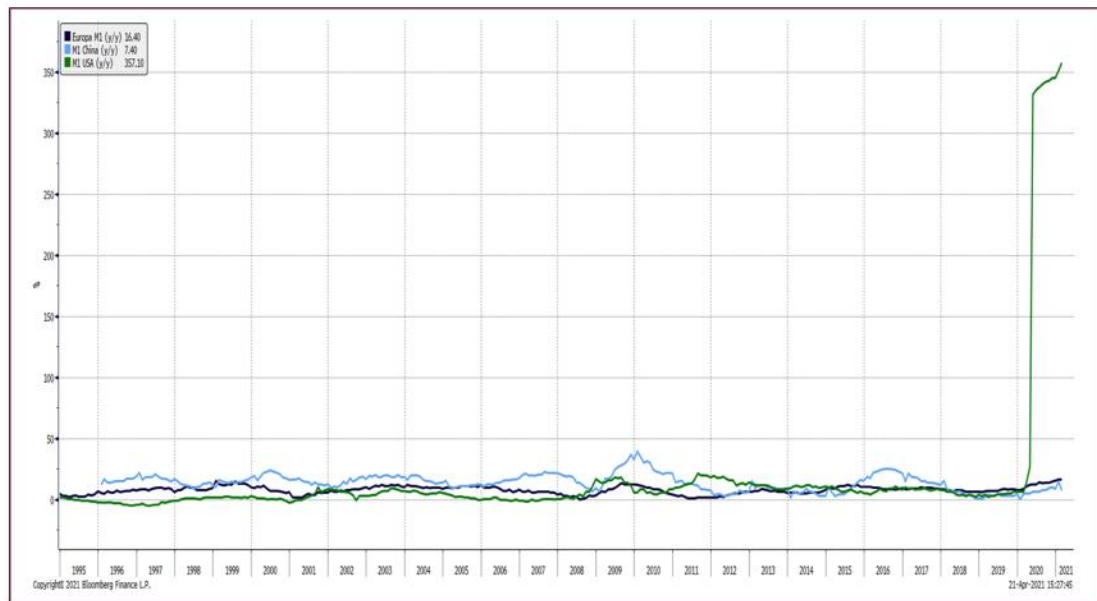


Exhibit 7

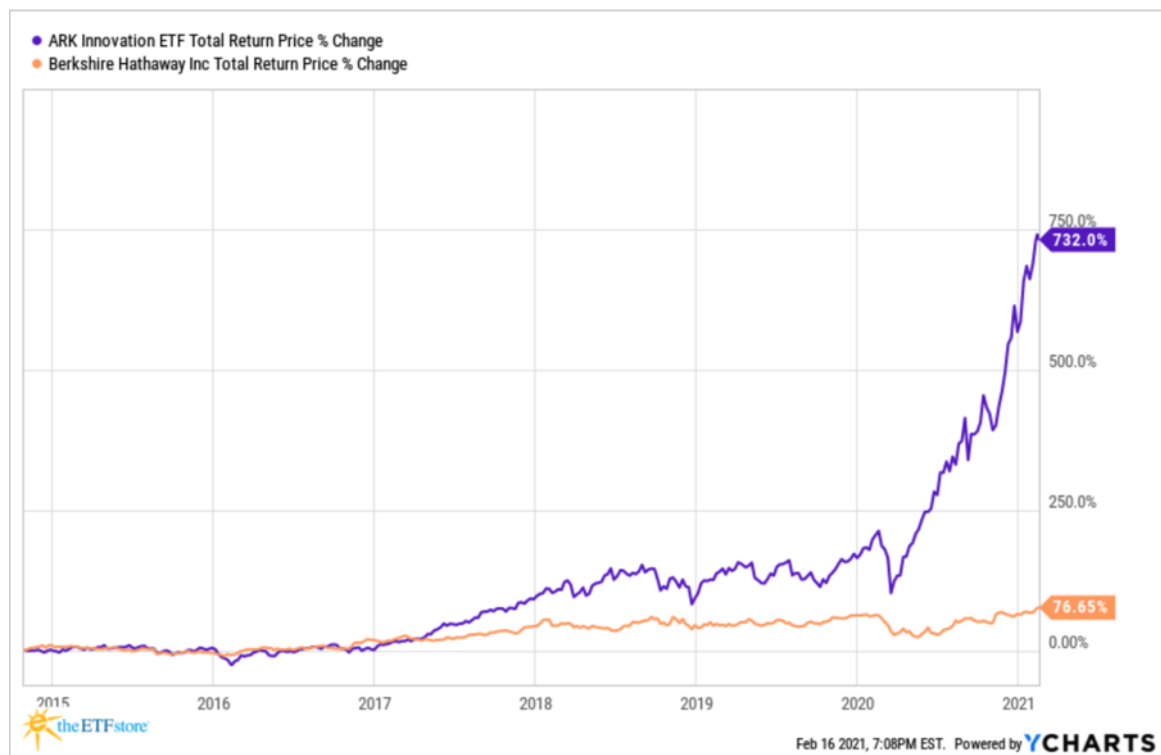


Exhibit 8

CLA LEVEL	Unit of Impact of Change	Technological Objects of Change	Magnitude of Change
Litany	Technological articles	- Increasing amts of cyrpto offerings - Explosion of P2P transactions - Market hype around doge, btc, etc.	Normal Change
Systemic Causes	Socio-technical systems	- Incumbent financial institutions experimenting w/ adopting blockchain - Emergence of services for cross-border money transfer, erosion of incumbents' business - Changing cryptocurrency regulations	Firm-level Disruption
Worldview	Meaning	- Central banks experimenting w their own crypto - Central banks monopoly in issuing money challanged & questioned	Industry-level Disruption
Metaphor	Origins of Meaning	- Decentralized technologies enabling new forms or organizing and agency	Macro-level societal transformation

Exhibit 9

Source: www.metafuture.org