

ASSESSMENT OF THE POSSIBILITY OF SIGNIFICANT GROWTH OF CORPORATE SHARES WITH LARGE CAPITALIZATION

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Received 06 07 2022; Accepted 26 09 2022

Abstract

In the stock market, there have always been corporations with relatively large capitalization. The main reason for this condition is a significant increase in the value of their shares resulting from an increase in profits and the volume of sales of products (goods, services). The size of the market and the financial capacity of investors have certain boundaries that call into question further substantial growth in the capitalization of such corporations. Under these conditions, the study of the hypothesis regarding the impossibility (or possibility) of a significant growth in shares of the corporations that are already leaders in the level of capitalization in the stock market is important. Confirmation of this hypothesis will lead to the change in the paradigm of investment processes in the stock market, which were significantly influenced by analysts' ratings. The purpose of the work is to assess the possibility of further significant growth in the capitalization of corporations, which are already leaders in terms of capitalization volumes in the stock market. The work used a method of historical comparison, that is, we compared the dynamics of the value of corporate shares of different capitalization levels (relatively large). The factors that both contribute to the corresponding growth and inhibit this process have been determined. A quantitative study of the influence of these factors was carried out through the example of corporations being the leaders in terms of capitalization: Microsoft and Apple. It was found out that the level of growth in such capitalization depended mainly on the level of innovation and consumer utility of the product brought to the market by these corporations. It was revealed that when introducing an innovative product to the market, shares of the corporation of large capitalization can grow significantly, however, compared to the corporations of less capitalization, the growth rate is much lower due to the limited volume of the money supply in the economy. The hypothesis under consideration has not been fully confirmed or completely refuted. The ratio of the total capitalization of the corporation to the GDP of a particular country was not of a significant value. The relation between the growth level in capitalization of the corporation, which is the leader in this indicator, on the volume of the money supply in the economy in various aggregates was indirectly confirmed. The volume of corporate capitalization for 2021 has been specified, which, due to the limited money supply in the economy, restrains its substantial growth by the levels exceeding 100% of the value per year.

Keywords: corporation capitalization; money supply volume; gross domestic product; stock market; shares. *JEL Codes:* E22; E30; E44; G10.

Introduction

In the stock market, there have always been corporations with relatively large capitalization. They exist now. The main reason for this condition is a significant increase in the value of their shares resulting from an increase in profits and the volume of sales of products (goods, services). Shares of some corporations grew notably, at a rate of 100-200% per year. It is such an important growth rate in the past that gets investors interested in further similar growth.

However, the size of the market and the financial capacity of investors have certain boundaries that call into question further substantial growth in the capitalization of such corporations. If a certain product is popular with consumers and, due to its own properties, has occupied the lion's share of the market, then further significant growth in such a share is

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problematic and doubtful due to objective market limitations. In addition, the high level of corporate capitalization results from significant share investments made by numerous investors. Therefore, the additional substantial growth of its shares may be limited by the exhausted financial capabilities of these investors. It seemed that these objective reasons make a notable increase in the value of the shares of corporation and its capitalization such impossible. The uncertainty in the future of a significant corresponding growth for investors reduces the level of expediency of further investments in such corporation. At the same time, it should be borne in mind that at the top of the capitalization level such corporation enjoys maximum investment rating, which, on the contrary, misleads investors and predetermines further share investment in such corporation. In this case, by inertia, shares of such corporation can still grow for a certain time, but slowly and in the future, investors will not see a rapid increase in equity.

For example, the capitalization of Crowdstrike Holdings Inc (USA) in 2020 more than doubled. The company ensures the security of the Internet networks from hacker attacks. In 2021, the capitalization of the corporation amounted to almost 50 billion of U.S. dollars while Microsoft Corporation grew by only 30% during 2020 and in 2021 its capitalization was \$1.8 trillion of U.S. dollars. So, to double the of capitalization Crowdstrike Holdings, investors needed only \$25 billion, while in order to double the capitalization of Microsoft Corporation as much as \$1.4 trillion of U.S. dollars would be necessary.

Under these conditions, the study of the hypothesis regarding the impossibility (or possibility) of a significant growth in shares of the corporations that are already leaders in the level of capitalization in the stock market is important.

Confirmation of this hypothesis will lead to the change in the paradigm of investment processes in the stock market, which were significantly influenced by analysts' ratings. In this case, to increase the equity notably, the investor should ignore such ratings and look for promising corporations with a low level of capitalization. The **purpose** of the work is to assess the possibility of further substantial growth in the capitalization of corporations, which are already leaders in terms of capitalization volumes in the stock market.

The analysis of recent research and publications on the topic of the article [1-21] revealed the scientific interest in investment processes, including factors of influence on the growth of corporate capitalization. In particular, the principles of the stock market and fundamental issues of estimating the value of shares of enterprises are given in the works of Richard A. Brealey of Stewart C. Myers "Principles of Corporate Finance". In addition, the methods for estimating the value of shares of enterprises are systematized in the work of Asvat Damodaran "Investment Assessment: Tools and Methods for Valuing Any Assets". A lot of works [5-21] considered financial, economic and accounting indicators of corporations as the factors of their capitalization growth.

Some works, such as [12], regard intellectual capital to be the factor influencing the corporate capitalization. This capital, in turn, depends on the number and abilities of workers. More than one such work on management and personnel management can be cited, but this is a fundamentally alternative approach to the theory of corporate capitalization growth relative to the purpose of our research. In general, there are several approaches to the factors influencing the corporate capitalization. Some of such approaches are described in [13]. Some works, like [14-15], consider specific and non-standard factors, for example, sports sponsorships or carbon management practices, as reasons affecting the capitalization of the corporation.

Unfortunately, the question of the relationship between large capitalization and the likelihood of further significant growth of such capitalization was not discussed. In addition, the works often ignored the possibility of a significant increase in corporate capitalization resulting from the introduction of an innovative product to the market. In addition, the works on intensification of innovative processes [16] do not consider the result of these processes as possibility of significant growth in the



corporate capitalization. The authors of the work [17] did not mention a positive impact of expenses on research works on the growth of the enterprise's profit, and, accordingly, on its capitalization level. So, innovations, which are mainly the result of such research w, even according to these authors, are wasteful in general.

The work used a **method** of historical comparison, that is, we compared the dynamics of the value of corporate shares of different capitalization levels (relatively large). To refute the hypothesis, it was possible to exemplify a significant growth (by 50-100% per year) in the capitalization of the corporation, which at some

point was the leader in terms of capitalization. Therefore, the work discovered such corporations and studied the dynamics of their capitalization level. Qualitative reasons for a significant growth in the corporation's shares were also found out.

Objective economic indicators - GDP and the volume of money supply in various aggregates (Table 1) - were used to convert the qualitative assessment of the capitalization level of the corporation into quantitative one. The capitalization value of the corporations selected for evaluation was compared with these indicators in dynamics.

Year	US gross domestic product, billion dollars	Money supply of M1 in	Money supply of M2 in
1980	2857.33	January, billion dollars. 383.7	January, billion dollars. 1591.4
1980		409.4	1591.4
1981	3207.03		
	3343.80	442.7	1769.5
1983	3634.03	475.3	1943.2
1984	4037.65	525.3	2133.4
1985	4339.00	555.6	2322.9
1986	4579.63	620.1	2499.6
1987	4855.25	728.5	2745.2
1988	5236.43	753.2	2836.0
1989	5641.60	786.2	2993.8
1990	5963.13	798.3	3164.1
1991	6158.13	825.7	3280.1
1992	6520.33	909.3	3365.7
1993	6858.55	1027.8	3416.8
1994	7287.25	1128.4	3473.9
1995	7639.75	1154.4	3494.1
1996	8073.13	1130.5	3641.7
1997	8577.55	1081.7	3820.2
1998	9062.83	1080.9	4044.8
1999	9630.70	1095.3	4384.0
2000	10252.35	1138.6	4628.0
2001	10581.83	1094.2	4947.5
2002	10936.45	1193.6	5447.1
2003	11458.25	1215.7	5783.3
2004	12213.73	1303.0	6071.0
2005	13036.63	1353.7	6405.0
2006	13814.60	1383.1	6713.0
2007	14451.88	1355.7	7083.9
2008	14712.83	1379.6	7525.5
2009	14448.93	1609.5	8283.0
2010	14992.05	1665.4	8432.0
2011	15542.60	1859.1	8809.0
2012	16197.05	2198.1	9723.9
2013	16784.83	2480.1	10454.5

Table 1. Baseline data for the study

Year	US gross domestic product, billion dollars	Money supply of M1 in January, billion dollars.	Money supply of M2 in January, billion dollars.
2014	17527.28	2694.1	11036.2
2015	18238.30	2930.6	11714.3
2016	18745.10	3079.7	12492.1
2017	19542.97	3388.8	13257.3
2018	20611.88	3581.4	13864.9
2019	21433.23	3717.4	14429.8
2020	20807.27	3975.4	15337.7
2021	-	6741.7	19560.4

*Source: data from investing.com and fred.stlouisfed.org (2021).

Results of the research

It is possible to refute or prove the formulated hypothesis both theoretically and applying quantitative methods of evaluation. First, we will try to form theoretical foundation for the assumptions by stating the reasons for a significant growth to be feasible or not.

The reasons that make it impossible to significantly increase the capitalization of the corporation that is already the leader in this indicator are as follows:

1) limited investment resources (free funds) in the financial market;

2) uncertainty of a substantial growth in market capacity and market share of the corresponding corporation. As a rule, such corporations occupy a significant share of a certain market for goods or services;

3) the principle of reduction in the marginal productivity of the factors of production, that is, the impossibility of a significant increase in profits, when they are already at a high level.

The reasons that make it possible to increase notably the capitalization of a

corporation that is already the leader in this indicator:

1) bringing to the market a fundamentally new innovative product of great demand and a high consumer value;

2) since a significant part of the shares of the corporation is held by investors and owners and practically does not participate in stock trading, the purchase of the portion that is freely traded on the stock market is quite enough for a significant increase in the share price;

3) the financial market is constantly saturated with money according to the exponential model, therefore there are no problems with financial opportunities for buying the shares that are worth it;

4) diversification of markets, globalization of activities, entry into markets of other countries – all these allow to neutralize limitations of existing markets.

As we see, there are arguments in favor of refuting or confirming the hypothesis. So, below is the history of the development of corporations that were leaders in terms of capitalization in 2020 (Table 2).

Table 2. List of corporation	s that were leaders in	n capitalization in 2020

№	Name	Amount of capitalization, US \$ trillion	Type of activity		
1	Apple	2.1	Communications equipment, information technology. USA.		
2	Saudi Aramco	1.6	Oil production. Saudi Arabia.		
3	Microsoft	1.2	Software, cloud technology. USA.		
4	Amazon	1.1	Retail IT, logistics, automated logistics networks. USA		
5	Alphabet	0.8	Selling ads in YouTube. USA.		
6	Alibaba	0.5	Retail IT, logistics, automated logistics networks. China		
7	Facebook	0.5	Selling ads on a social network. USA.		
8	Tencent	0.5	Holding investment company specializing in high-tech business. China.		
9	Berkshire Hathaway	0.4	Holding Investment Company. USA.		
10	Johnson&Johnson	0.3	Biotechnology and medicines. USA.		

*Source: data from investing.com (2021).



In the mean, the capitalization level of a statistically average corporation is 0.8 trillion USD, according to Table 2 This clarification is necessary to convert qualitative evaluation of the capitalization level (high level) into quantitative For this purpose, one. the capitalization volume of an average corporation from Table 2 should be compared with a certain objective base, which can be represented by GDP (for example, that of the United States) and the volume of money supply in US dollars in M1 and M2 aggregates. According to 2020, the share of such corporation in the US GDP amounted to 3.8%, money supply in US dollars in M1 and M2 aggregates was 20% and 5.22%, respectively.

If historically some corporation had similar relative indicators, that is, its capitalization occupied similar shares, and during the year its capitalization grew by 50– 100%, then the hypothesis regarding the impossibility of further significant growth in the capitalization of a corporation (that is already the leader in terms of capitalization in the stock market) can be considered refuted.

For our research, a close study of Microsoft and Apple is almost ideal, since the emission of Saudi Aramco shares on the stock exchange did not take place until 2015, while other corporations have only recently reached the capitalization level of 1 trillion US dollars. Amazon's capitalization in 2020 already exceeded the value of 1.6 trillion dollars, but due to multiplier high values of share prices, many experts expected their decrease as soon as in 2021. The dynamics of Microsoft indicators is shown in Table 3.

Year	Capitalization, billions of US dollars	Growth Index	Share in GDP, %	Share in the value of money supply in M1 aggregate, %	Share in the value of money supply in M2 aggregate, %
1986	1960.98	-	0.04	0.32	0.08
1987	4148.22	2.12	0.09	0.57	0.15
1988	3620.26	0.87	0.07	0.48	0.13
1989	4977.86	1.38	0.09	0.63	0.17
1990	9729.46	1.95	0.16	1.22	0.31
1991	20665.67	2.12	0.34	2.50	0.63
1992	22400.38	1.08	0.34	2.46	0.67
1993	22702.07	1.01	0.33	2.21	0.66
1994	30696.82	1.35	0.42	2.72	0.88
1995	51362.49	1.67	0.67	4.45	1.47
1996	91788.77	1.79	1.14	8.12	2.52
1997	140888.59	1.53	1.64	13.02	3.69
1998	329971.94	2.34	3.64	30.53	8.16
1999	449214.37	1.36	4.66	41.01	10.25
2000	421911.55	0.94	4.12	37.06	9.12
2001	277779.81	0.66	2.63	25.39	5.61
2002	242633.08	0.87	2.22	20.33	4.45
2003	225964.78	0.93	1.97	18.59	3.91
2004	226115.63	1.00	1.85	17.35	3.72
2005	212388.80	0.94	1.63	15.69	3.32
2006	235392.55	1.11	1.70	17.02	3.51
2007	279514.52	1.19	1.93	20.62	3.95
2008	245876.23	0.88	1.67	17.82	3.27
2009	236750.15	0.96	1.64	14.71	2.86
2010	236750.15	1.00	1.58	14.22	2.81
2011	217743.77	0.92	1.40	11.71	2.47
2012	247761.79	1.14	1.53	11.27	2.55
2013	291959.17	1.18	1.74	11.77	2.79

Table 3. Dynamics of Microsoft Indicators

Year	Capitalization, billions of US dollars	Growth Index	Share in GDP, %	Share in the value of money supply in M1 aggregate, %	Share in the value of money supply in M2 aggregate, %
2014	368738.93	1.26	2.10	13.69	3.34
2015	424702.17	1.15	2.33	14.49	3.63
2016	484738.21	1.14	2.59	15.74	3.88
2017	679855.33	1.40	3.48	20.06	5.13
2018	871955.56	1.28	4.23	24.35	6.29
2019	1198910.62	1.37	5.59	32.25	8.31
2020	1747154.28	1.46	8.40	43.95	11.39
2021	1832758.43	1.05	-	27.19	9.37

*Source: data from investing.com (2021).

Graphic image of Table 3 is given in Figs.1 - 4.



Figure 3. Dynamics of Microsoft capitalization ratio (share) in US GDP, %





Figure 4. Dynamics of Microsoft's capitalization ratios or shares in the money supply in M1 and M2 aggregates

According to Table 3, there are two periods of a significant growth in the capitalization of Microsoft Corporation: 1995 – 1999 and 2017 – 2020 when fundamentally new products were brought to the market: Windows in the 90s and cloud Internet technologies in 2017-2020. The decline in capitalization in 2000-2015 is associated with the so-called "dot-com crisis" as well as with the world financial and economic crisis of 2008.

In mid-90s, Microsoft's capitalization grew up to 5% of US GDP, and reached specific gravity values of 41% and 10% in M1 and M2 monetary aggregates, respectively. In the period 2017-2020, the size of the corporation's capitalization exceeded the level of 5% of US GDP, but stopped at 43% and 11% in monetary aggregates M1 and M2. respectively. The value of the share or ratio to the money supply in the amount of 45% and 15% in M1 and M2 aggregates accordingly became an unsurpassed border for the corporation. On the other hand, the growth rate of these aggregates has greatly increased recently, so the impossibility of crossing this line is caused by the rapid increase in the volume of money in circulation resulting from the corresponding soft policy of the Federal Reserve System.

Therefore, if we consider the reasons for the impossibility of a significant increase in capitalization the corporation, which is already the leader in terms of capitalization, the first of these should be accepted. However, the ratio to GDP is not substantial.

Considering the dynamics of Microsoft capitalization change indices (Fig.2), it should be noted that after 2000 the index value has never exceeded the level "2". This principle can be explained both by the hypothesis of the impossibility of significant growth in the capitalization of the corporation, which is already the leader in capitalization, and by the fact that the innovation level of the corporation's product before 1999 and after was really different. In the 90s, the Windows operating system was a fundamentally new product, while in 2017 cloud technologies were already actively used by Microsoft competitors, so in recent periods the corporation does not have a notable advantage in terms of the level of product innovation over competitors.

For comparison, in recent years Apple Corporation, on the contrary, has been pampering the market with fundamentally new products with a high level of innovation. Apple's indicators are shown in Table 4.

Year	Capitalization, billions of US	Growth Index	Share in GDP, %	Share in the value of money supply in M1	Share in the value of money supply in M2
1000	dollars			aggregate, %	aggregate, %
1980	2686.10	-	0,09	0.70	0.17
1981	1678.81	0.63	0,05	0.41	0.10
1982	2350.33	1.40	0,07	0.53	0.13
1983	1846.69	0.79	0,05	0.39	0.10
1984	2182.45	1.18	0,05	0.42	0.10
1985	1678.81	0.77	0,04	0.30	0.07
1986	3021.86	1.80	0,07	0.49	0.12
1987	6379.48	2.11	0,13	0.88	0.23
1988	6043.71	0.95	0,12	0.80	0.21
1989	5204.31	0.86	0,09	0.66	0.17
1990	6379.48	1.23	0,11	0.80	0.20
1991	8226.17	1.29	0.13	1.00	0.25
1992	8897.69	1.08	0.14	0.98	0.26
1993	4364.90	0.49	0.06	0.42	0.13
1994	5875.83	1.35	0.08	0.52	0.17
1995	4700.67	0.80	0.06	0.41	0.13
1996	3525.50	0.75	0.04	0.31	0.10
1997	2014.57	0.57	0.02	0.19	0.05
1998	6211.60	3.08	0.07	0.57	0.15
1999	15445.05	2.49	0.16	1.41	0.35
2000	4532.79	0.29	0.04	0.40	0.10
2001	6715.24	1.48	0.06	0.61	0.14
2002	4197.02	0.63	0.04	0.35	0.08
2003	6211.60	1.48	0.05	0.51	0.11
2004	19306.31	3.11	0.16	1.48	0.32
2005	43145.41	2.23	0.33	3.19	0.67
2006	50867.93	1.18	0.37	3.68	0.76
2007	119867.01	2.36	0.83	8.84	1.69
2008	51371.57	0.43	0.35	3.72	0.68
2009	126414.36	2.46	0.87	7.85	1.53
2010	193398.87	1.53	1.29	11.61	2.29
2011	242755.87	1.26	1.56	13.06	2.76
2012	305543.35	1.26	1.89	13.90	3.14
2013	335761.92	1.10	2.00	13.54	3.21
2014	478460.74	1.43	2.73	17.76	4.34
2015	441862.69	0.92	2.42	15.08	3.77
2016	486183.26	1.10	2.59	15.79	3.89
2017	710304.34	1.46	3.63	20.96	5.36
2018	655743.03	0.92	3.18	18.31	4.73
2019	1216297.56	1.85	5.67	32.72	8.43
2020	2227612.46	1.83	10.71	56.03	14.52
2021	2216028.67	0.99		32.87	11.33

Table 4. Dynamics of Apple's Indicators

*Source: data from investing.com (2021).



Graphic image of Table 4 is given in Figs.5 - 8.



Figure 5. Dynamics of capitalization of Apple Corporation in million US dollars



Figure 8. Dynamics of Apple's capitalization ratios or shares in the money supply in M1 and M2 aggregates

The capitalization of Apple Corporation since 2019 exceeds that of Microsoft. If the hypothesis regarding the impossibility of a significant growth in the capitalization of the corporation, which is the leader in this indicator, is correct, then the growth rate of the test indicator in relation to Apple cannot exceed the corresponding progress in relation to Microsoft Corporation. However, in 2019 and 2020 this did not happen, the level of capitalization growth at Apple exceeded the corresponding figure of Microsoft. Therefore, the hypothesis was not confirmed 100%. But Figure 6 shows that since 2010, the index value has not exceeded the level "3" in any year, despite the level of innovation and revolutionary character of the Apple product in recent years. That is, the corresponding hypothesis cannot be ignored 100%.

Considering Apple's capitalization growth chart (Figure 5), we can note a correlation with the level of innovation and popularity of the company's product in the market. Therefore, it is this factor that determines the growth rate of capitalization. As for Microsoft, the ratio to GDP is not significant.

When considering GDP as an influence on the level of growth of corporate capitalization, it should be clarified that both Microsoft and Apple operate in the global market, and not only the United States, while only the US Federal Reserve System affects the amount of money in the US.

Figure 8 as well as the case of Microsoft demonstrate a rapid decrease in the share (ratio) in the money supply due to the significant growth of the latter. That was purposefully done by the Federal Reserve System to overcome the consequences of the crisis caused by COVID-19. However, Apple has crossed the line that for Microsoft turned out to be unattainable in the study time interval. Therefore, for 2020 and 2021, the limited financial resources were no longer the reason for the increase in the value of corporate shares of large capitalization.

Conclusions

The comparison of the capitalization dynamics of Apple and Microsoft corporations showed that the level of growth of such capitalization mainly depended on the level of innovation and consumer utility of the product that these corporations brought to the market. At the same time, the ratio of the total capitalization of a corporation to the GDP of a particular country (share in GDP) is not significant at all, since such corporations operate on the world market. However, the dependence on the volume of money supply in the economy in various aggregates was indirectly confirmed.

If a corporation brings an innovative product to the market, then the hypothesis that it is impossible to significantly increase the capitalization of a corporation that is the leader in this indicator is not 100% confirmed. However, compared with corporations of lower capitalization, the growth rate is much lower. In turn, the growth rate of such capitalization is lower due to the limited volume of money supply in the economy. The changing policy of the US Federal Reserve System from March 2020 towards easing and saturation of the economy with the money supply minimizes this barrier to the growth of capitalization of corporations that are already leaders with this indicator.

The capitalization level of the corporation in US \$2 trillion for 2021 is a value, which, due to the limited money supply, made it problematic to increase its capitalization at a rate exceeding 100% per year.

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