Specifics of IT sector companies capitalisation assessment

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Abstract. The paper discusses the problems and features of IT sector companies' capitalization. It also raises theoretical issues related to the assessment of the main indicators involved in the company cost estimating on the stock market. We analyse the specificity and interpretation of the Graham coefficient and identify the main factors influencing the company capitalization. The results of the study are as follows: high sales growth rates for IT sector companies; high ROS and ROA; the smallest variation is available in terms of capitalization/profit and ROS; developer companies, contract manufacturers, and major manufacturers do not differ from each other; the share of equity has a significant range; the contract manufacturers have high and stable profitability of sales; a high degree of capitalization according to the main indicators of capitalization/profit, capitalization/revenue.

Keywords: capitalization, multipliers, comparative analysis, cost estimating, IT sector.

JEL codes: G35, G11, G12

Introduction

The issues of assessing the company cost estimating are key in financial science. The most famous representatives of the theory and practice of investments are B. Graham, W. Buffett, D. Dodd, A. Domodoran, et al. Companies in the IT sector are the drivers of the modern economy development. They have also been the leaders of growth and capitalization in the stock market for the last 20 years. The most expensive company in the world is Apple with a capitalization of about $ 3 USD trillion. This paper analyzes the cost estimating of microelectronics companies. For analysis there were identified three groups of companies:

1. Development of processors

Companies are: AMD, NVIDIA, Qualcomm. These companies are in the category of factory-free. Intel has also been added to this group. The company has its own production facilities, but places some orders through contract manufacturers. In addition to processor development, companies are engaged in other types of IT activities.

2. Contract Manufacturers

Here we present TSMC, UMC (Taiwan), GlobalFoundries (USA, former production assets of AMD and IBM), STMicroelectronics (European manufacturers). GlobalFoundries made IPO in 2021. Therefore, there is no capitalization dynamics based on the results of 2022/2019.

3. The IT companies with the largest estimating cost are Apple, Meta Platforms Inc. (Facebook Inc.)[1], Microsoft Corporation, Alphabet Inc., and Amazon.

The companies are different in their activity. Indeed, they have been added to the sampling for comparison. They can be combined on the hypothesis of large companies certain similarities.

It is quite difficult to categorise these companies. For example, Intel can be classified both as a non-factory company and as a manufacturing one. However, it cannot be classified as a microelectronics company only. STMicroelectronics produces its own design commodities. Apple is developing its own components. The business is quite diversified. In turn, Amazon is not a classic IT company, because a significant part of its income and expenses are not directly related to the production and sale of software and microelectronics.

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[1] *Included into the list of public associations and religious organisations with respect to which a court has issued an final and binding decision on liquidation or prohibition of activity by Federal Law No. 114-FZ on 25 July 2002 «On Countering Extremist Activity»*

However, a significant part of Alphabet Inc. (Google) expenses are directly related to the creation of IT. Nevertheless, it is a controversial issue what kinds of companies are in the IT sector. Indeed, Amazon was also added for comparative analysis and sample diversification.

Main part

We conduct an analysis for 2019-2022. However, 2019 was the year before the COVID-19 epidemic. Therefore, in 2020, many companies indicators extremely low.

Meanwhile, characteristic feature of companies in the IT sector is a more rapid increase in capitalization and share price (Fig. 1).
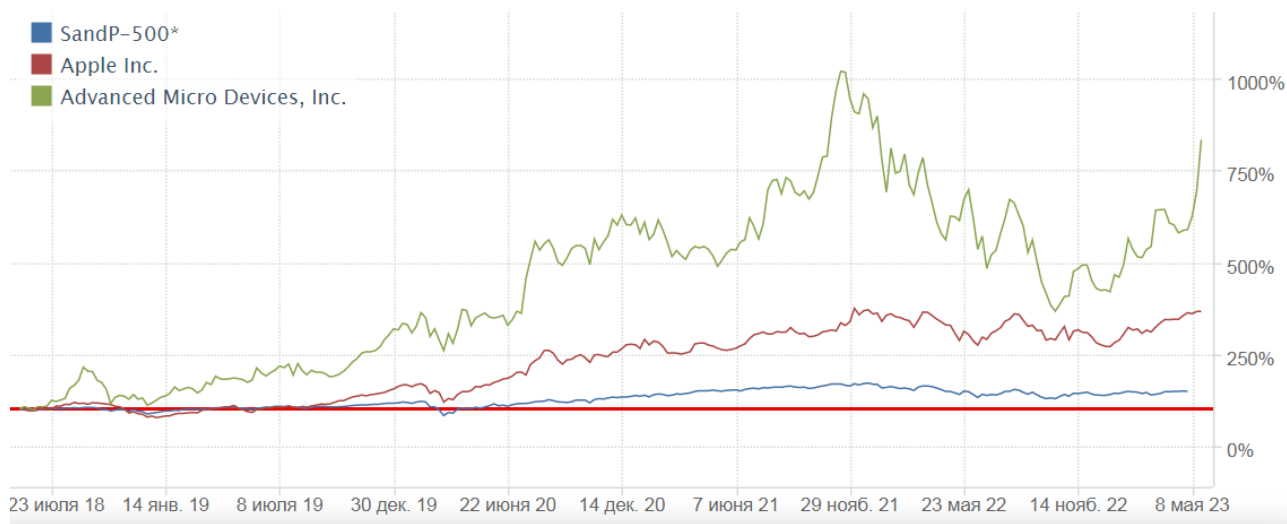

Figure 1. Dynamics of the stock price of Apple, AMD, and S&P 500

Source: www. finam.ru

According to this dynamics, Apple and AMD have significant growth compared to the traditional economic sector.

Table 1 – Summary table of indicators of IT sector companies, 2022

	Revenue ($ USD, bn).	Net profit ($ USD, bn).	Capitalization ($ USD, bn).	P/E	P/S	Revenue dynamics	Capitalization dynamics	Return on sales (ROS)
						2022/2019	2022/2019	
Processor developers								
Intel	63	8	108	5.5	1.4	1.1	0.41	0.25
AMD	23	1.3	177	76.5	4.4	3.4	2.0	0.06
NVIDIA	26.9	9.7	506	117.7	18.8	2.3	5.2	0.16
Qalcomm	44	12.9	136	10.5	3.1	1.8	1.5	0.29
Contract Manufacturers								
TSMC	75.5	33.8	386	11.4	5.1	2.1	1.3	0.45
UMC	8.2	2.6	16.3	6.3	2.0	1.4	3.7	0.32
GlobalFoundries	8	1.4	25	17.9	3.1	1.4		0.18
STMicroelectronics	16	4	32	8	2	1.7	1.3	0.25
Largest companies by capitalisation								
Apple	394	99	2439	24.6	6.2	1.5	2.4	0.25
Meta Platforms Inc[2]	116	23	315	13.7	2.7	1.7	0.5	0.20

[2] *Included into the list of public associations and religious organisations with respect to which a court has issued an final and binding decision on liquidation or prohibition of activity by Federal Law No. 114-FZ on 25 July 2002 «On Countering Extremist Activity».*

	Revenue ($ USD, bn).	Net profit ($ USD, bn).	Capitalization ($ USD, bn).	P/E	P/S	Revenue dynamics	Capitalization dynamics	Return on sales (ROS)
						2022/2019	2022/2019	
Microsoft Corporation	198	72.7	1925	26.5	9.7	1.6	3.3	0.37
Amazon	514	-2.7	855		1.7	1.8	1.5	-0.01
Alphabet Inc	282	60	1184	19.7	4.2	1.7	2.0	0.21

Source: Compiled on the basis of companies annual reports, 2019-22.

According to the table, all companies have a good return on sales (ROS), except AMD. However, AMD is showing great capitalization dynamics. The reason is the high dynamics of revenue (the largest in this sampling).

The challenge with the capitalization/profit ratio is the instability of the profit indicator. For instance, Amazon. Despite revenue growth, the company reported losses in 2022. But it does not mean the company value had to be lost. Formally, a company with a loss is not worth anything. The reason is the presence of value which means the investors assuming the company to be profitable one. In 2021, the company had a maximum profitability ratio of 7%, (the largest in 4 years). In 2022, the capitalization dropped to 855 $ USD bn against 1628 $ USD bn in 2021 (Table 2). Applying the capitalisation/earnings ratio as in 2022 i.e. 50, the expected return to investors is approximately $ USD 16 bn.

Table 2 – Amazon's performance for 2018-2022

Years	2018	2019	2020	2021	2022
Revenue ($ USD, mln).	232,887	280,522	386,064	469,822	513,983
Net profit ($ USD, mln).	10073	11588	21331	33364	-2719
ROS by net revenue	4.3%	4.1%	5.5%	7.1%	-0.5%
Capitalization ($ USD, mln).	731,459	912,833	1,628,465	1,687,176	855,876
Capitalization/profit	72.6	78.8	76.3	50.6	-

Source: composed by the author

Table 3 – Indicators of ROS by net profit (net profit/revenue)

	2019	2020	2021	2022
Processor developers				
Intel	31%	27%	25%	13%
AMD	5%	26%	19%	6%
NVIDIA	35%	26%	26%	36%
Qalcomm	18%	22%	27%	29%
Contract Manufacturers				
TSMC	32%	39%	37%	45%
UMC	4%	16%	26%	31%
GlobalFoundries	-23%	-33%	-4%	17%
STMicroelectronics	4%	7%	13%	27%
Largest companies by capitalisation				
Apple	21%	21%	26%	25%
Meta Platforms Inc[3]	25%	34%	33%	20%

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[3] *Included into the list of public associations and religious organisations with respect to which a court has issued an final and binding decision on liquidation or prohibition of activity by Federal Law No. 114-FZ on 25 July 2002 «On Countering Extremist Activity».*

	2019	2020	2021	2022
Microsoft Corporation	31%	31%	36%	37%
Amazon	4%	6%	7%	-1%
Alphabet Inc	21%	22%	30%	21%

Source: composed by the author

During the research we consider the performance indicators of ROS by net profit for all companies in the sampling (Table 3). However, many companies have consistently high profitability, except Amazon and GlobalFoundries. The first one has the specifics of business (sales) initially involves low margins and profitability. GlobalFoundries had a start-up phase, and 2022 was profitable with high margins for it.

There some indicators related to the valuation of assets and equity, for instance, the Grem coefficient. Indeed, there is an issue of assets valuation.

According to the table, companies have different ROS. It can be explained by the specifics of the companies' activities; the valuation of assets could be underestimated or overestimated. The largest contract manufacturers have minimal differences. In terms of capitalization/equity (as a variant of the Grem indicator), the differences are more significant. Thus, the share of equity in companies varies. Accordingly, return on equity (ROE) will also be more different as opposed to ROS. Moreover, the volatility in terms of ROS will be lower. This variation in performance is one of the reasons why Warren Buffett's Berkshire Hathaway Company has abandoned the approach of measuring the company's capitalisation to balance sheet ratio in favour of operating income[4].

Table 4 – Indicators Revenue/assets and Capitalization/equity indicators for 13 IT sector companies in 2022

	Capitalization/equity capital	Revenue/ assets
Intel	1.05	0.43
AMD	1.87	0.34
NVIDIA	23.00	0.66
Qalcomm	7.56	0.90
TSMC	3.93	0.46
UMC	1.46	0.46
Global Foundries	2.50	0.45
STMicro electronics	2.54	0.80
Apple	48.78	1.12
Meta Platforms Inc[5]	2.52	0.63
Microsoft Corporation	11.60	0.54
Amazon	5.86	1.11
Alphabet Inc	4.63	0.77

Source: composed by the author

By the diagram (Fig.2), the range of values is very large. It depends on the large difference in the revenue / assets indicator and the spread of ROS.

The relationship between capitalization/revenue and revenue growth, 2019-2022. The idea of this chart is to estimate the level of capitalization of companies depending on the rate of revenue growth. The capitalization/revenue indicator is chosen as a more stable one, since revenue is less volatile in contrast to

[4] *Warren Buffett's letter to shareholders in 2019. Available at: https://www.buffett.online/annual-letter-2019 (accessed 08.10.2022).*
[5] *Included into the list of public associations and religious organisations with respect to which a court has issued an final and binding decision on liquidation or prohibition of activity by Federal Law No. 114-FZ on 25 July 2002 «On Countering Extremist Activity».*

profit[6]. However, this indicator is taken for 2019. We believe investors anticipated revenue growth and expect capitalization growth to establish a higher value for 2019 revenue. Accordingly, a positive dependence should be observed.
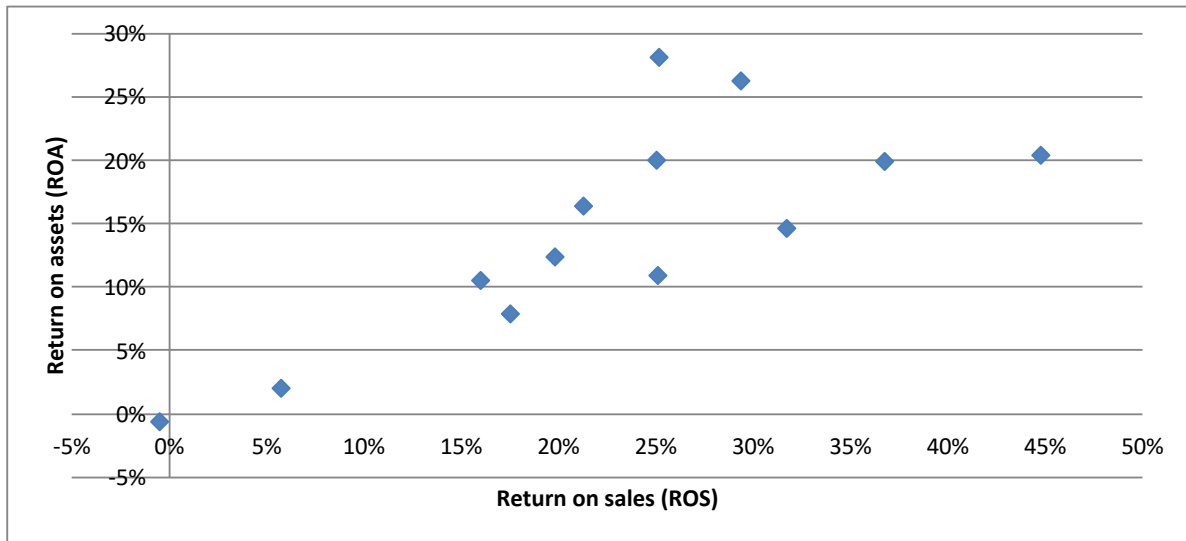

Figure 2. The ratio of ROS and return on assets (ROA), 2022
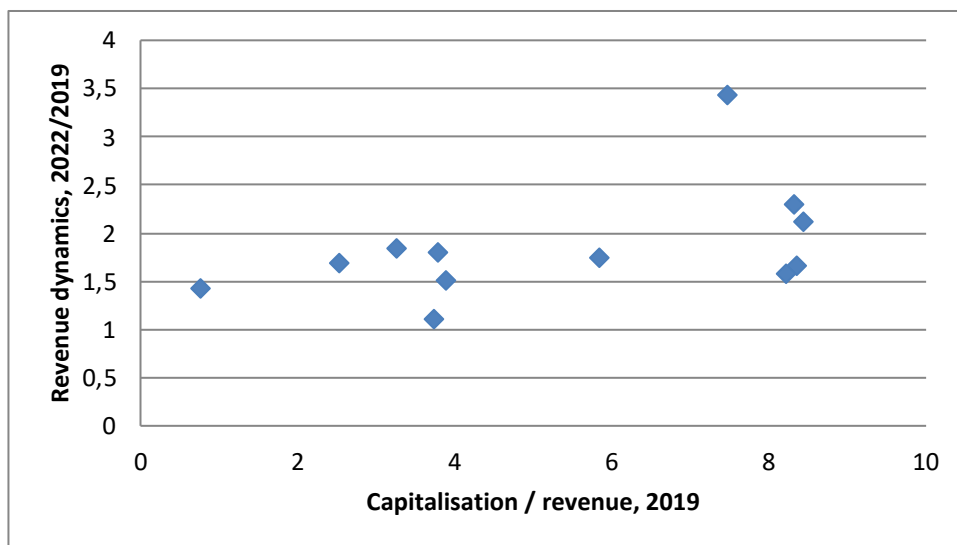
Source: composed by the author

Figure 3. The relationship between capitalization/revenue and revenue growth, 2019-2022

Source: composed by the author

However, the graph does not show any dependence. Moreover, if some data is deleted, the dependency will not change significantly. Additionally, two clusters can be highlighted on the graph: companies with a high value of capitalisation/revenue and a different value of dynamics. Thus, most companies had revenue growth of 1.5-2 times, but at the same time a large range of capitalization /revenue indicators. This range can be explained by investors' incorrect expectations of individual companies' revenue growth, as well as by different profitability indicators. Moreover, companies with good revenue growth rates can have low profitability. It indicates overestimated investor expectations on the concept: more revenue – more profit. For example, AMD has the highest revenue growth rate, but low ROS. However, the company can increase profits both through revenue and profitability growth. Meanwhile, Microsoft Corporation has almost depleted its profitability growth potential – 37%. But its revenue growth factor remains (as evidenced by the high Capitalisation/revenue multiple of 9) stable. Therefore, the company has a relatively high capitalisation/

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[6] *Revenue is a more stable indicator than profit. However, it assumes the profitability level of the compared companies is approximately comparable.*

profitability multiplier at this high level of profitability. AMD has a high capitalisation/profit ratio of 76 and an average capitalisation/revenue ratio of 4. It suggests the company will increase its earnings primarily through profitability growth (in 2020 it was 25%, and in 2022 it was 6% (Table 3)).

NVIDIA multipliers are the most overestimated, especially the indicator for capitalization / revenue of 18.8. This indicator is related to the high prospects of the company for investors. The outsider of our sampling is Intel. The company has a very low revenue growth rate – 1.1. The multiplier Capitalization/revenuer is also the lowest one – 1.4. It is largely due to the company's failures in developing new products and the loss of competitive advantages in comparison with AMD. However, the company maintains a high ROS of 25% and will continue to be one of the two leaders in the development of central processing units (CPU). Indeed, investors believe the dynamics of revenue in the IT sector to be a key indicator. There no stable slow growth, such as in mechanical engineering. The situation therefore remains controversial. A company can follow IBM strategy (Fig.4).

Figure 4. Dynamics of IBM shares, 1995-2022

Source: www. finam.ru

In the 80s, IBM was the market leader in computer manufacturing, but then the problems have emerged. In 1986, it lost its positions in the PC production. Lately, the company sold the production facilities, and become a factory-free. Currently, the company focuses on software development and consulting. In 2021, software provided 41% of revenue.

The high revenue growth is typical for the IT sector and high-tech companies. The pharmaceutical company Pfizer, Inc., had a revenue increase of 100% for 2019-2022. But the Johnson & Johnson company has 14.5% revenue growth rates for the same period. Walmart is the leader of American retail (non high-tech). Its revenue growth for 2019-2022 was 11%.

Conclusion

Hence, the following features of companies in the microelectronics and IT segment can be summarised as follows.

1. High sales growth rates.

2. High ROS and ROA. However, there has been a loss for companies such as GlobalFoundries and Amazon.

3. The smallest variation is available in terms of capitalization/profit and ROS.

4. Developer companies, contract manufacturers, and major manufacturers do not differ from each other.

5. The share of equity has a significant range.

6. The contract manufacturers have high and stable profitability of sales (18%- 45%).

7. A high degree of capitalization according to the main indicators of capitalization / profit, capitalization / revenue.

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