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S&P 500 vs. Stoxx 600 – Why the leading US equity index has outper- formed its european counterpart

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Abstract

The US benchmark index, the S&P 500, has gone from record to record. While the market values of the companies included in the index have tripled since 2010, its European counterpart, the Stoxx 600, has been stagnating for a decade. One important factor explaining the significant differences in performance is the different sector mix of the indices. For example, more than a quarter of the market capitalisation of the S&P 500 is now accounted for by highly profitable technology companies. While these play only a subordinate role in the Stoxx 600, the performance of the index suffered from the highly weighted financials.

Zusammenfassung

Der US-amerikanische Leitindex S&P 500 eilt von Rekord zu Rekord. Während sich die Marktwerte der im Index enthaltenen Unternehmen seit dem Jahr 2010 verdreifachten, tritt sein europäisches Pendant, der Stoxx 600, seit einer Dekade auf der Stelle. Ein bedeutender Erklärungsfaktor für die deutlichen Unterschiede in der Wertentwicklung liegt im verschiedenartigen Branchenmix der Indizes. So entfallen mittlerweile mehr als ein Viertel der Marktkapitalisierung des S&P 500 auf hochprofitable Technologieunternehmen. Während diese beim Stoxx 600 nur eine untergeordnete Rolle spielen, litt die Entwicklung des Index unter den hochgewichteten Finanzwerten.



Motivation

The state of a country's economy is usually derived from the development of the gross domestic product (GDP). Positive growth rates indicate overall economic expansion, while negative rates of change induce a decline in the goods and services produced in an economy. Labour market data, purchasing managers' indices (PMI) or sentiment indicators such as the IfO business climate index, which is popular in Germany, also serve as indicators of the current and expected macroeconomic situation. In the past, the stock market has proven to be a particularly suitable leading indicator, especially if the country or region has a significant leading index covering many sectors. It is an unwritten law that the stock market anticipates real economic developments with a lead time of about three to six months.

However, when share prices began a very dynamic recovery in late spring of last year after their lows in March, it seemed as if the stock indices had abandoned their function as reliable indicators. Particularly astonishing was the divergence between the stock market and the real economy in the USA: while the pandemic rolled through the country like in no other western industrialised country and caused the economy and the labour market to collapse on a historic scale, the US stock indices soon rushed to new record highs. Yet the duration and consequences of the pandemic were and still are almost impossible to assess. It seemed share prices had simply decoupled from the real economy. Unlike in the case of individual shares, whose prices can move far away from their intrinsic values even over longer periods of time, this is, however, rather unlikely for the market as a whole. If prices were not underpinned by expected profits, arbitrageurs would ensure in the short to medium term that the market would find its way back to an appropriate level.

However, the price developments of the calendar year 2020 are by no means irrational. Rather, two elementary explanatory factors can be cited, which, even if they are not new, have gained considerable significance as a result of the pandemic. The extensive monetary and fiscal aid packages of the states and central banks have led capital market participants to view the ultra-low interest rates as sustainable. Low discount rates cause the present values of expected corporate profits and thus share prices to shoot up. On the other hand, it must be stated that the stock market has not experienced a price upswing across all companies. Rather, market participants have identified sustainable "crisis winners" and "crisis losers" among the companies and sectors. Stock market prices, as early indicators of the real economy, are simply factoring in the post-crisis period by pricing promising business models higher and turning away from dying business segments. However, the



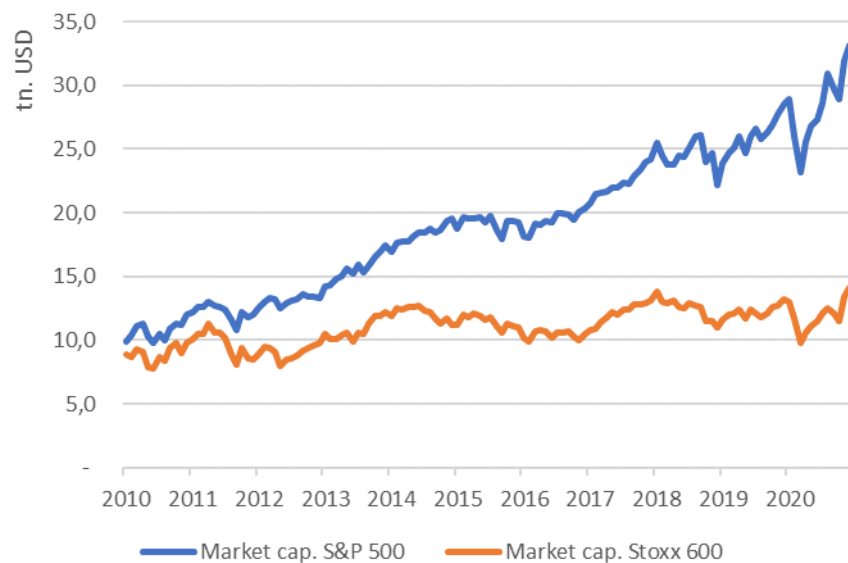
pandemic is not a structural break, but merely a trend accelerator for a consumer and investment behaviour that has been changing for many years.

This study provides clues as to why the US leading index, the S&P 500, is rushing from record to record, leaving its European counterpart, the Stoxx 600, far behind. The S&P 500 contains many highly capitalised companies from sectors that are considered "crisis winners". The weak performance of the Stoxx 600, on the other hand, can be explained by the high proportion of industries with little future potential. An analysis of the profit development of the industries and companies over time shows that the differences in price performance can be explained by the fundamental development.

Development of market capitalization

First, the market capitalization of the S&P 500 and the Stoxx 600 and the sectors included in the respective indices are analysed. Special attention is paid to the development of the index weights of the different industries over time. Since there have been frequent reports recently that the stock market no longer accurately reflects the real economy and that the index development is increasingly attributable to a few companies, an analysis of the index concentration follows. A comparison of the market values and profit shares of different industries concludes the analysis. The period under review covers the period from January 2010 to December 2020.

Figure 1: Market capitalization of the S&P 500 and the Stoxx 600 in trillion USD.*



Source: Refinitiv, as of February 2021.

*Historical performance is not a reliable indicator of future performance.



Figure 1 shows the development of the market capitalisation of the indices under consideration over time. While the indices were roughly at the same level of about 10 trillion US dollars (USD) at the beginning of 2010, the indices have drifted apart significantly since then. While the companies of the Stoxx 600 recently reported an aggregate market capitalisation of USD 13.4 trillion, which corresponds to a value increase of USD 5.3 trillion or 59.2 %, the S&P 500 tripled its market capitalisation to USD 33.2 trillion (+233.9 %) in the same period. The figure shows that the increase is not the result of singular events such as the Corona pandemic, but has been continuous for some time.

The reasons for the divergence are manifold. The main factors that determine prices on stock markets are the overall economic development and the interest rate level. With regard to these criteria, the environment in both regions has been quite comparable over the last decade. Although overall economic growth in the US proved to be somewhat more robust than in Europe, GDP growth rates were also positive in Europe until the outbreak of the Corona pandemic. In turn, European companies benefited from a more accommodative interest rate environment than US corporations. There is no doubt that the latter have recently benefited significantly from the Trump administration's tax cuts. Overall, however, this does not explain why the indices have developed so differently over the last decade.

It therefore makes sense to analyse the respective index composition in detail. Structural differences in the weight and performance of individual sectors are reflected in particular over long observation periods. As **Table 1** shows, the technology sector in the S&P 500 already had the highest share within the index at the beginning of 2010 with 15.7 %, while this sector accounted for just 1.7 % of the European Stoxx 600 at the same time. In absolute terms, the technology sector, with an aggregate market capitalization of 1.56 trillion USD, was already ten times the size of its European pendant, which had a market value of only USD 148 billion. Only the "Real Estate" sector, with a weighting of 1.0 % or a market value of USD 91 billion, was even less important in the Stoxx 600. In contrast, banking and insurance stocks ("Financials") were highly weighted in the European index with 21.2 %. Clear differences can also be seen in the sectors "Basic Materials" (2.4 % S&P 500 vs. 9.7 % Stoxx 600), "Telecommunications" (4.8 % vs. 7.4 %) and "Utilities" (3.8 % vs. 7.8 %).

If one compares the values from 2010 with the most recently observed shares, a clear shift in the relative shares can be observed in both indices. The development of the individual sectors is comparable between the S&P 500 and the Stoxx 600. The technology sector, for example, experienced a significant appreciation in both the S&P 500 and the Stoxx 600 over the last



decade. Most recently, this sector had a weighting of 27.7 % (+12.0 %-pts.) in the S&P 500 and 7.0 % (+5.3 %-pts.) in the Stoxx 600. The share of this sector in the leading European index has thus more than quadrupled over the last decade. The sectors that have also experienced a significant increase in importance include "Discretionary Consumption", "Industry" and "Real Estate".

In contrast, the "Energy" sector in particular has experienced an enormous loss of importance in both indices. For example, the share of the energy sector in the S&P 500 was recently only a good fifth of its weight at the beginning of the last decade (2.2 % vs. 10.8 %). Similarly, the financial and telecommunications sectors have suffered significant losses in both indices.

Figure 2 illustrates the changes over the observation period on the basis of monthly values. It shows that the shifts are the result of a longer process. It can be seen that the technology sector has been able to increase its share quite continuously, while the energy sector has also lost weight.



Table 1: Market capitalization and shares of different industries in the S&P 500 compared December 2020 and January 2010.

in bn. USD	12/31/2020		01/31/2010		Change in bn. USD	Change in Share in %- Pts.
	Market Cap	Share	Market Cap	Share		
Basic Materials	582.6	1.8 %	238.9	2.4 %	343.7	-0.6
Consumer Discretionary	5,506.4	16.6 %	1,231.5	12.4 %	4,274.9	4.2
Consumer Staples	1,921.2	5.8 %	1,054.4	10.6 %	866.8	-4.8
Energy	737.3	2.2 %	1,070.8	10.8 %	-333.5	-8.6
Financials	3,444.9	10.4 %	1,300.2	13.1 %	2,144.7	-2.7
Health Care	4,175.6	12.6 %	1,272.6	12.8 %	2,903.0	-0.2
Industrials	4,582.8	13.8 %	1,188.4	12.0 %	3,394.4	1.9
Technology	9,205.4	27.7 %	1,556.7	15.7 %	7,648.7	12.1
Telecommunications	1,280.2	3.9 %	481.7	4.8 %	798.5	-1.0
Utilities	956.3	2.9 %	381.2	3.8 %	575.2	-1.0
Real Estate	780.3	2.4 %	157.5	1.6 %	622.8	0.8
S&P 500	33,173.0	100 %	9,933.8	100 %	23,239.2	

Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

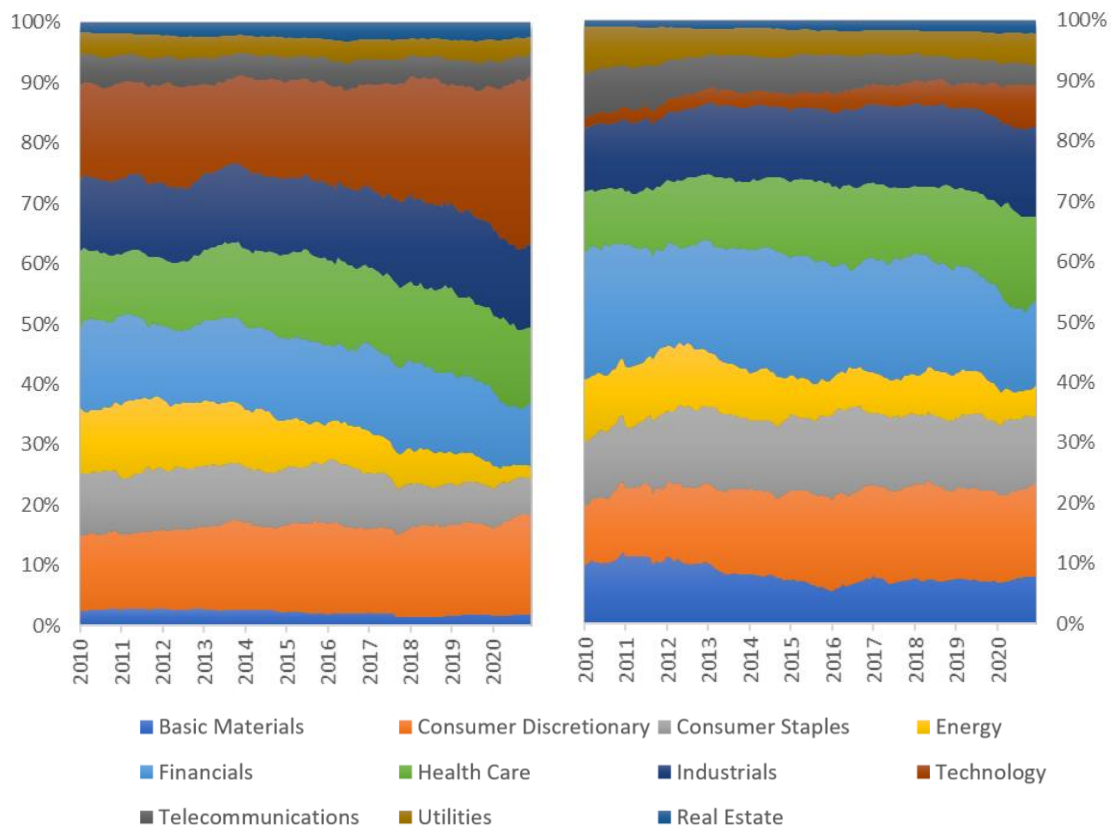
Table 2: Market capitalization and shares of different industries in the Stoxx 600 compared December 2020 and January 2010.

in bn. USD	12/31/2020		01/31/2010		Change in bn. USD	Change in Share in %- Pts.
	Market Cap	Share	Market Cap	Share		
Basic Materials	1,106.2	7.8 %	863.4	9.7 %	242.8	-1.9
Consumer Discretionary	2,218.7	15.7 %	877.7	9.9 %	1,340.9	5.8
Consumer Staples	1,576.1	11.1 %	946.4	10.6 %	629.8	0.5
Energy	687.4	4.9 %	919.2	10.3 %	-231.8	-5.5
Financials	1,987.6	14.0 %	1,888.2	21.2 %	99.4	-7.2
Health Care	1,974.8	13.9 %	875.5	9.8 %	1,099.3	4.1
Industrials	2,107.7	14.9 %	938.8	10.5 %	1,168.9	4.3
Technology	986.7	7.0 %	147.6	1.7 %	839.1	5.3
Telecommunications	459.7	3.2 %	660.8	7.4 %	-201.1	-4.2
Utilities	753.2	5.3 %	693.3	7.8 %	59.8	-2.5
Real Estate	311.4	2.2 %	90.6	1.0 %	220.7	1.2
Stoxx 600	14,169.5	100 %	8,901.5	100 %	5,267.9	

Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.



Figure 2: Relative shares of market capitalization of different industries of the S&P 500 (left) and the Stoxx 600 (right)



Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

Development of market concentration

The previous remarks have made it clear that there has been a considerable shift in the shares of individual industries over the last few years. However, it is questionable whether the concentration within the indices has increased. During the dynamic market recovery in the summer of 2020, it was often said that the recovery was by no means broad-based, but was limited to a few industries that contain many highly capitalised companies.

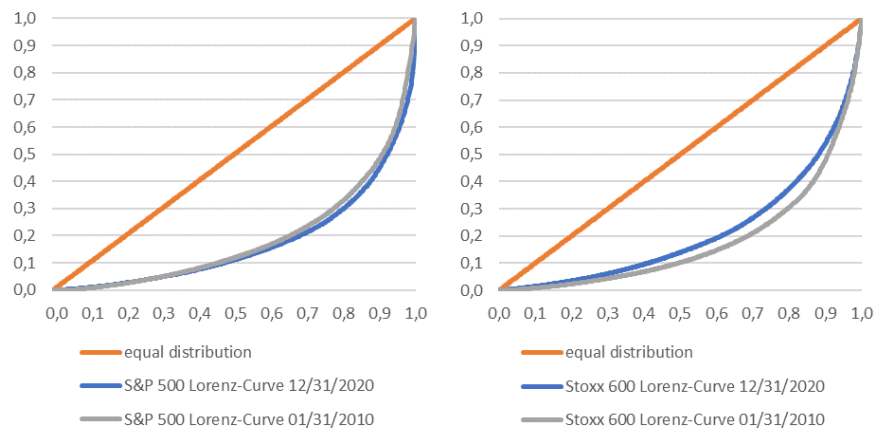
Figure 3 shows the change in market concentration between January 2010 and December 2020 using the Lorenz curve. The larger the area between the respective Lorenz curve and the bisecting angle, the higher the concentration. As the curves show, the concentration of the US S&P 500 has increased slightly over the last decade, while it has actually decreased for the European Stoxx 600. Nevertheless, it should be noted that the overall concentration is quite high compared to other leading indices. This is due to the large number of index members. For example, the smaller half of the companies in both indices last represented about ten percent of the market capitalization. In contrast, the largest ten percent of the companies represent about half of the total market value of the respective index. Nevertheless, this comparison



at two arbitrarily selected points in time is not enough to make a statement about the development of concentration over time.

For this purpose it makes sense to look at the Gini coefficients derived from the Lorenz curves over time (**Figure 4, left**). The Gini coefficient always lies between 0 and 1, with the value 1 representing the maximum concentration. In this case, a company would have the entire market capitalization. The development of the coefficients over the observation period confirms the picture gained from the Lorenz curves. While the concentration of market stocks was initially higher on the European Stoxx 600 than on the S&P 500, this picture has since reversed. The concentration of the European benchmark index fell quite continuously until the outbreak of the pandemic. For the US leading index, this was only true until 2015, since when the concentration has risen significantly. In particular, the outbreak of the Corona pandemic at the beginning of 2020 led to a sharp increase in concentration, which was, however, only temporary for the Stoxx 600.

Figure 3: Lorenz curve of the S&P 500 and the Stoxx 600 in 2010 and in 2020.

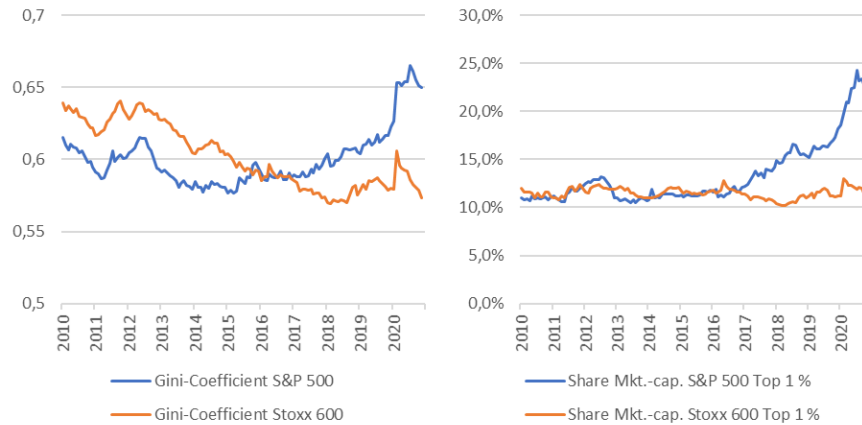


Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

The fact that market development in the USA is determined by a few corporations in particular is underpinned by **Figure 4 (right)**. The graphs represent the share of market capitalization of the largest one percent of the companies (99 % percentile) at the respective time. This percentile comprises five companies for the US S&P 500 and six companies for the European Stoxx 600. While the shares of these companies in the European Stoxx 600 have not changed significantly over the last decade, the share of the largest five companies in the S&P 500 has expanded significantly since 2016. In March 2020, these companies represented almost a quarter of the total market capitalization of the S&P 500.



Figure 4: Gini coefficients (market capitalization) and share of the largest companies in market capitalization of the respective indices.



Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

Market concentration vs. profit concentration

Phases in which individual sectors have a high market weight are not new. For example, the technology sector dominated major indices at the turn of the century before IT companies lost a great deal of weight or disappeared from the stock market altogether in the wake of the bursting of the dot.com bubble. Similarly, the share of the financial industry in the leading indices was very high until the outbreak of the financial crisis, especially in the European indices. As **Table 1** and **2** already showed, the loss of importance that then set in continues to this day.

In contrast to the turn of the millennium, however, the increase in importance of the technology sector seems to be underpinned by fundamental strength. As **Tables 3** and **4** show, earnings performance has kept pace with share price performance. For example, the technology companies in the S&P 500 recently contributed USD 253.2 billion in earnings, 27.3 % of the total reported earnings of USD 926.5 billion.¹ This corresponds quite exactly to the market capitalization-weighted share of these companies at the end of 2020 (27.7 %). The picture is the same for the European Stoxx 600. Although the weight of the industry in Europe is significantly smaller, as already shown, it now makes a significant contribution to earnings (8.4 % in 2020 vs. 1.1 % in 2010). What is astonishing about both indices is that contrary to what the decline in market values would have led one to expect, the "Financials" sector continues to make a large contribution to profits. It amounts to 21.0 % for the S&P 500 and 30.5 % for the Stoxx 600, which clearly exceeds the respective market value shares. It is conceivable that investors do not have

¹ These are the reported consolidated results of the previous 12 months (so-called Trailing Twelve Month (TTM) Net Income).



confidence in the sustainability of the business models of this sector, which weighs on the market values despite any balance sheet profits.

On the other hand, the fact that the "energy" sector has not had a significant market weight recently is hardly surprising in view of the earnings contributions of the groups. The profits of energy companies shrank visibly over the last decade until the companies in the sector represented in the respective index contributed negative earnings at the end of the first half of 2020. These amounted to - \$91.5 billion for the S&P 500 and - \$61.8 billion for the Stoxx 600.

A clear discrepancy can be seen in the "Telecommunications" sector, which has clearly lost influence in both indices in terms of its market weight over the last decade. Consequently, the earnings share of the European Stoxx 600 is significantly lower (3.9 % in 2020 vs. 8.0 % in 2010). By contrast, the sector's profit share in the S&P 500 in 2020 is almost twice the 2010 level (6.7 % in 2020 vs. 3.6 % in 2010).

Overall, the S&P 500 shows a profit increase of around USD 285 billion compared to 2010, while European companies recorded a profit decline of around USD 170 billion. However, these figures are heavily influenced by the profit declines of many companies in the first half of 2020. At the end of the 2019 financial year, the aggregate profits of S&P 500 companies were still USD 1.3 trillion and those of European Stoxx 600 companies USD 709 billion. If one mirrors these values with the development of market values, it becomes clear that there has been a significant valuation expansion in the US, as market capitalisation had almost tripled when profits doubled at the end of 2019. Specifically, P/E ratios have risen from an average of 15.5 to 22.4 (+44.7 %).

In contrast, valuation levels in Europe are only slightly above the level already seen in 2010. At that time, market values of 8.9 trillion USD were offset by profits of USD 523 billion (P/E ratio of 17.0). At the end of 2019, the ratio was around 18.7 (USD 13.2 trillion/ USD 709 billion). The valuation expansion here is therefore just 9.6 % on average. The significant differences in the change in the valuation level are due to the different sector mix within the indices. Obviously, investors consider the business models of some of the highly weighted sectors in the USA to be more promising on average.



Table 3: Earnings and shares of different industries in the S&P 500 compared June 2020 and June 2010.*

in bn. USD	06/30/2020		06/30/2010		Change in bn. USD	Change in share in %-Pts.
	Earnings	Share	Earnings	Share		
Basic Materials	10.8	1.2 %	14.4	2.2 %	-3.6	-1.1
Consumer Discretionary	102.9	11.1 %	79.7	12.4 %	23.1	-1.3
Consumer Staples	70.3	7.6 %	65.0	10.1 %	5.3	-2.5
Energy	-91.5	-9.9 %	77.6	12.1 %	-169.1	-22.0
Financials	194.9	21.0 %	89.5	14.0 %	105.4	7.1
Health Care	142.2	15.3 %	94.3	14.7 %	47.9	0.6
Industrials	119.1	12.9 %	69.8	10.9 %	49.4	2.0
Technology	253.2	27.3 %	92.3	14.4 %	160.9	12.9
Telecommunications	62.3	6.7 %	22.8	3.6 %	39.5	3.2
Utilities	41.9	4.5 %	33.4	5.2 %	8.5	-0.7
Real Estate	20.4	2.2 %	2.6	0.4 %	17.8	1.8
S&P 500	926.5	100 %	641.4	100 %	285.1	

Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

* Historical performance is not a reliable indicator of future performance.

Table 4: Earnings and shares of different industries in the Stoxx 600 compared June 2020 and June 2010.*

in bn. USD	06/30/2020		06/30/2010		Change in bn. USD	Change in share in %-Pts.
	Earnings	Share	Earnings	Share		
Basic Materials	32.0	9.0 %	44.8	8.6 %	-12.9	0.5
Consumer Discretionary	34.2	9.7 %	36.2	6.9 %	-2.0	2.8
Consumer Staples	50.3	14.2 %	46.8	9.0 %	3.4	5.3
Energy	-61.8	-17.5%	49.5	9.5 %	-111.3	-26.9
Financials	108.0	30.5 %	156.5	29.9 %	-48.5	0.6
Health Care	61.5	17.4 %	50.5	9.7 %	11.0	7.7
Industrials	43.1	12.2 %	39.0	7.5 %	4.1	4.7
Technology	29.5	8.4 %	5.9	1.1 %	23.6	7.2
Telecommunications	13.9	3.9 %	41.8	8.0 %	-28.0	-4.1
Utilities	30.4	8.6 %	54.4	10.4 %	-24.0	-1.8
Real Estate	12.4	3.5 %	-2.8	-0.5 %	15.1	4.0
Stoxx 600	353.5	100 %	522.7	100 %	-169.3	

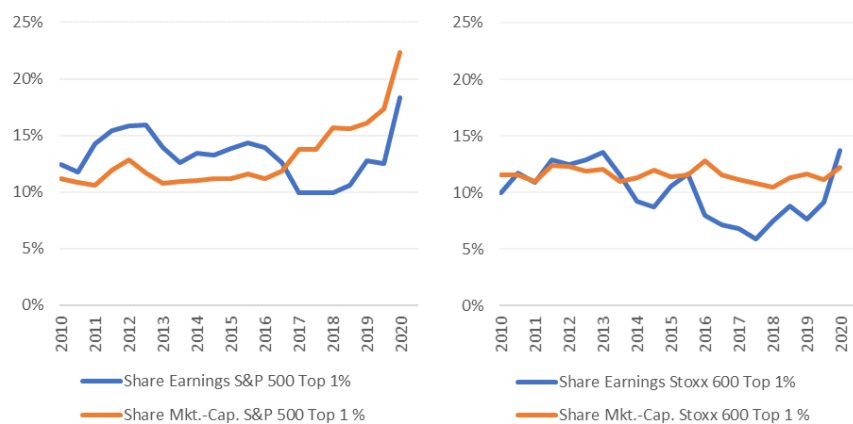
Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

* Historical performance is not a reliable indicator of future performance.



Regarding the largest companies in the respective indices, it can be stated that the respective groups were able to justify their high market values with corresponding profits (**Figure 5**). For example, the five largest US companies by market capitalization (Apple, Microsoft, Amazon, Alphabet, Facebook) contributed 18.3 % to the profits of the overall index with a market value share of 22.4 % at the end of June 2020. In the European Stoxx 600, the profit share of the largest six groups (Nestlé, LVMH, Roche, Novartis, L'Oréal, SAP) was 13.7 %, with a market weight of 12.3 %.

Figure 5: Share of the top 1 % largest companies in market capitalization and earnings of the companies in the index over time.*



Source: Own calculations Flossbach von Storch Research Institute, Refinitiv, as of February 2021.

* Historical performance is not a reliable indicator of future performance.

Conclusion

In the spring of 2020, hardly any market experts would have thought that the stock market year 2020 would end up being a pleasant one. The shut-down of economic activity in many industrialized countries led to the interruption of supply chains, production stops and uncertainty among consumers. It came as no surprise that reported corporate profits also plummeted in the first half of the year. But the rising share prices since then are only logical. The perception that the environment of low interest rates due to the billion-dollar bailout packages must continue for the foreseeable future is becoming more and more widespread. This drives up valuations and makes equities an indispensable component of returns.

However, as this analysis shows, a clear distinction must be made between sustainably successful industries and those with little future. The Corona pandemic acted as a trend accelerator here. The clear outperformance of the S&P 500 compared to the European share index Stoxx 600 can be explained in particular by the high share of technology companies, which are



considered "crisis winners". In contrast, the performance of the European Stoxx 600 suffered from the weak performance of highly weighted financials and the energy and telecommunications industries. The analysis makes it clear that sweeping judgements concerning the attractiveness of the relationship between opportunities and risks of the stock market as a whole often fall short.



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