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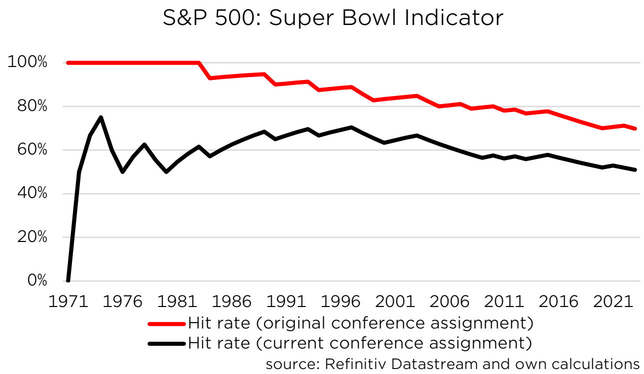
What the Super Bowl has (not) to do with the stock market

As a football fan, you no doubt watched the Super Bowl last weekend. But even if you don't actively follow American football, you were inadvertently provided with match analyses, statistics on absurd ticket prices or clips from the famous halftime show on social networks at the start of the week. What's more, there was at least one colleague in your circle who was philosophizing about the Super Bowl instead of the latest Bundesliga results. Now you are rightly wondering what the Super Bowl has to do with the capital markets - after all, you are not holding the sports page of a daily newspaper in your hand. You'll find the answer in this issue of Economic Situation and Strategy.

The Super Bowl Indicator

For those who don't follow American football regularly, here are the most important facts in a nutshell: The Super Bowl is the annual championship game of the National Football League (NFL) in the USA and takes place at the beginning of February. The winners of the playoffs of the two conferences meet in the final: American Football Conference (AFC) and National Football Conference (NFC). But where is the connection to the capital markets? Sports journalist Leonard Koppett introduced the Super Bowl Indicator in 1978. The idea behind it is trivial: if an AFC team wins, the American stock market will record a negative performance that year. If a team from the NFC wins, on the other hand, the stock market year in the USA is positive.

What started out as an entertaining column has made the headlines every year since. Why is that? Between 1971 and 1983, the Super Bowl indicator demonstrated an impressive hit rate of 100 percent. But even with a hit rate of just under 90 percent, the Super Bowl Indicator achieved a remarkable forecasting quality until 1997. Since then, however, the hit rate has fallen continuously (see chart, red line). The indicator fared particularly badly in the years 2016 to 2020, when it was off the mark five times in a row. However, with a hit rate of around 68 percent at the current margin, the Super Bowl indicator appears to be a better directional indicator for the S&P 500 than a simple coin toss.



However, in order to achieve the high accuracy of the Super Bowl indicator, a modification had to be made: Leonard Koppett classified the teams according to the original conference and not the one they belonged to at the time of their championship victory. For example, the total of six wins by the Pittsburgh Steelers are attributed to the NFC, although the Steelers achieved their victories in the AFC. Based on the conference allocation at the time of the victory, the hit rate of the Super Bowl indicator is significantly worse and has only been 51 percent since 1971 (see figure, black line).

Correlation does not imply causality

If, despite the high accuracy of the original Super Bowl indicator, you have started to wonder how the outcome of the Super Bowl is supposed to determine the direction of the American stock market, then you have a sharp mind. In fact, the Super Bowl indicator has no economically reliable predictive power for the US stock market - not even a psychological explanation can be derived. Why should demand for US equities increase when a team from the NFC wins the Super Bowl? In other words: correlation does not imply causality!

But it gets even more absurd: statistics circulate not only on the basis of conference classification, but also at team level. For example, a win by the Pittsburgh Steelers or the Denver Broncos is considered a particularly good omen for the stock market year, while a win by the New York Giants or the Miami Dolphins is a strong indication of falling share prices. The lottery numbers and the poles in the air, for example, have a similar explanatory power as to why stock markets should perform well or badly. So would you make your investment decision dependent on the outcome of the Super Bowl? Hopefully not.

Does the risk of sunburn increase with increased ice cream consumption?

So-called spurious correlations frequently occur not only in the world of finance, but wherever data sets are used. The high dependency between two variables is not due to a causal relationship, but is purely coincidental or results from the dependency on a third variable. A simple example illustrates the basic problem very clearly: there is a close correlation between ice cream consumption and the proportion of people with sunburn. Does this mean that a high consumption of ice cream increases the risk of sunburn? Or do people with sunburn eat more ice cream? Both theories lack a causal relationship. A third variable, namely the weather or the season, is decisive for the spurious correlation. After all, ice cream consumption and the number of sunburns are significantly higher in summer than in winter.

The list of such bogus correlations is almost endless. David Leinweber's explanations are particularly amusing and impressive. In his book "Nerds on Wall Street: Math, Machines and Wired Markets", he shows that the performance of the S&P 500 Index correlates closely with butter production in Bangladesh. The inclusion of American cheese production as well as the American and Bangladeshi sheep population even improved the accuracy to an incredible 99 percent. Anyone who thinks there is a causal link here or suspects a conspiracy theory will have to get very creative. Tyler Vigen has compiled a whole collection of amusing spurious correlations in his book "Spurious Correlations". For example, he finds a close correlation between per capita cheese consumption and the number of people who have become entangled in their bedsheets and died as a result. The divorce rate in the US state of Maine also correlates very closely with the per capita consumption of margarine.

The risk of overfitting

In principle, a great deal of effort is put into financial research in order to find variables that reliably predict the future development of the stock market. However, in times when data is available in abundance, there is a risk of so-called "overfitting". This means that, with creativity, ingenuity and perseverance, factors can be found that correspond very closely with developments on the capital markets up to the current point in time. Looking ahead ("out-of-sample"), however, the hit rate of the supposedly explanatory variable decreases and the lack of a causal relationship becomes clear by then at the latest. A very good example is the Super Bowl indicator, whose hit rate has been falling continuously since 1984. Even if the Super Bowl indicator has a certain entertaining value, you should not base your investment decision on it. Furthermore, in addition to the Super Bowl indicator, there are numerous spurious correlations circulating on the financial markets that are sometimes more or less obvious - so keep our article in mind.

Simon Landt

Market data

Stock marktes	As of 16.02.2024 09:31	Change versus 09.02.2024 -1 week	15.01.2024 -1 month	15.11.2023 -3 months	15.02.2023 -1 year	29.12.2023 YTD
Dow Jones	38773	0,3%	3,1%	10,8%	13,6%	2,9%
S&P 500	5051	0,5%	5,6%	12,2%	21,8%	5,9%
Nasdaq	15906	-0,5%	6,2%	12,8%	31,8%	6,0%
DAX	17131	1,2%	3,1%	8,8%	10,5%	2,3%
MDAX	26228	1,9%	0,9%	-0,9%	-8,5%	-3,4%
TecDAX	3408	-0,2%	4,7%	9,6%	3,6%	2,1%
EuroStoxx 50	4770	1,2%	7,1%	10,5%	11,5%	5,5%
Stoxx 50	4257	1,0%	4,5%	8,5%	7,8%	4,0%
SMI (Swiss Market Index)	11301	1,9%	0,8%	5,5%	0,3%	1,5%
Nikkei 225	38487	4,3%	7,2%	14,8%	39,9%	15,0%
Brasilien BOVESPA	127804	-0,2%	-2,8%	3,8%	16,6%	-4,8%
Russland RTS	1116	-0,6%	-2,6%	-1,6%	21,9%	3,0%
Indien BSE 30	72497	1,3%	-1,1%	10,4%	18,3%	0,4%
China CSI 300	3365	0,0%	2,6%	-6,7%	-18,4%	-1,9%
MSCI Welt	3290	0,3%	3,9%	10,6%	16,8%	3,8%
MSCI Emerging Markets	1008	1,2%	1,3%	2,5%	0,3%	-1,6%
Bond markets						
Bund-Future	133,61	31	-164	297	-113	-361
Bobl-Future	116,73	-19	-146	9	52	-255
Schatz-Future	105,41	-16	-72	32	5	-114
3 Monats Euribor	3,92	1	2	2	124	4
3M Euribor Future, Dec 2024	2,80	1	35	-27	-22	50
3 Monats $ Libor	5,59	2	1	-4	71	-1
Fed Funds Future, Dec 2024	4,51	20	77	-1	78	68
10 year US Treasuries	4,27	7	31	-29	44	40
10 year Bunds	2,38	3	18	-22	-6	38
10 year JGB	0,73	1	20	-7	23	11
10 year Swiss Government	0,90	-8	6	-14	-49	20
US Treas 10Y Performance	586,12	-0,4%	-2,0%	3,5%	0,0%	-2,5%
Bund 10Y Performance	552,94	0,2%	-0,9%	2,9%	3,8%	-2,2%
REX Performance Index	443,06	0,3%	-0,2%	1,7%	2,5%	-1,1%
IBOXX AA, €	3,37	-4	8	-39	-17	30
IBOXX BBB, €	3,99	-5	5	-53	-37	23
ML US High Yield	8,00	6	11	-77	-48	21
Commodities						
MG Base Metal Index	373,67	0,9%	-0,9%	-2,0%	-11,1%	-4,4%
Crude oil Brent	82,64	1,1%	6,0%	1,8%	-3,2%	6,4%
Gold	2004,53	-0,8%	-2,4%	2,4%	9,3%	-2,9%
Silver	22,41	-0,2%	-3,5%	-4,4%	3,5%	-7,6%
Aluminium	2198,66	0,6%	2,1%	0,0%	-6,4%	-6,3%
Copper	8223,00	2,0%	-0,7%	0,6%	-6,8%	-2,8%
Iron ore	129,17	0,3%	-5,9%	-0,1%	3,9%	-5,3%
Freight rates Baltic Dry Index	1581	2,3%	16,3%	-6,3%	192,2%	-24,5%
Currencies						
EUR/ USD	1,0763	-0,1%	-1,7%	-1,0%	0,6%	-2,6%
EUR/ GBP	0,8554	0,2%	-0,5%	-2,0%	-3,8%	-1,3%
EUR/ JPY	161,67	0,4%	1,3%	-1,1%	13,0%	3,4%
EUR/ CHF	0,9481	0,5%	1,4%	-1,6%	-4,1%	2,4%
USD/ CNY	7,1929	-0,1%	0,3%	-0,8%	5,0%	1,3%
USD/ JPY	149,92	0,4%	2,9%	-1,0%	11,8%	6,3%
USD/ GBP	0,79	0,4%	1,2%	-1,1%	-4,6%	1,3%

Source: Refinitiv Datastream

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