M.M.WARBURG & CO
BANK

Economic Situation and Strategy

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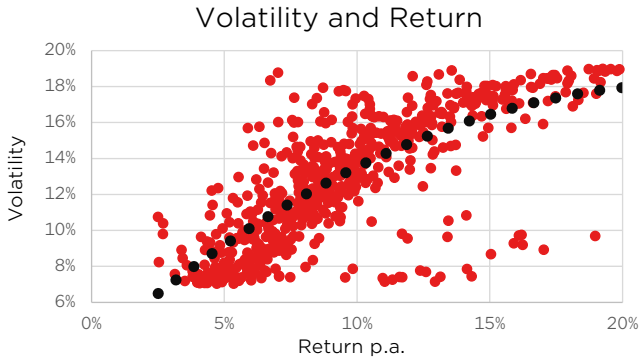
More returns, more risk? Fiddlesticks

At university we learned that risk in the financial markets is measured by the volatility of prices. Statistically speaking, volatility is nothing more than the annualized standard deviation of price changes. Volatility provides information about how strong price fluctuations typically are. The higher the volatility, the greater the price fluctuations. However, volatility says nothing about the direction of prices. A downward wave-like price movement has the same volatility as an upward wave-shaped price movement with the same frequency and amplitude. This is where the first weakness of the volatility concept becomes apparent. Volatility does not provide reliable information about how an investor actually "feels" when experiencing a given level of volatility. The second weakness arises from the fact that there is no convention on how to actually calculate price volatility. You can annualize the standard deviation of daily returns, but you could just as easily annualize the standard deviation of monthly returns. In principle, both options would be logical and effective - although the results can sometimes be quite different depending on the method. This makes the volatility indicator a very academic concept and it is a little surprising that to this day volatility is the dominant risk indicator in both textbooks and asset manager reports. After all, using volatility as a risk metric provides exactly the results one would expect when it comes to the relationship between return and risk. Purely theoretically, one would assume that a higher return always implies a higher risk - and that is also the case if volatility is used as a risk indicator.

To illustrate this point, we used a Monte Carlo simulation to construct 1,000 global multi-asset portfolios, all of which could have existed in exactly the same way over the last five years. In the simulation, it was possible to invest in up to 50 markets, with no restrictions regarding the respective weights for individual asset classes. The result is textbook: as returns increase, the risk increases.



Volatility as an inadequate risk indicator

At this point, however, the question arises as to whether the risk of an investment is even adequately described by volatility. An investor largely does not care about a volatility of 15 percent if it statistically results from temporary dips that are quickly made up again. A volatility of five percent, on the other hand, can feel terrible if it results from a steadily downward price trend that does not involve major fluctuations. Practical experience shows that the "suffering" experienced by customers does not depend on price fluctuations, but rather on losses compared to the previously reached highs. This is also completely logical: every new peak in price development is a success that you don't want to give up. And if you fall below previously reached highs, then the associated "suffering" depends on exactly two factors: the time until you reach the old high again, and the extent of the setbacks

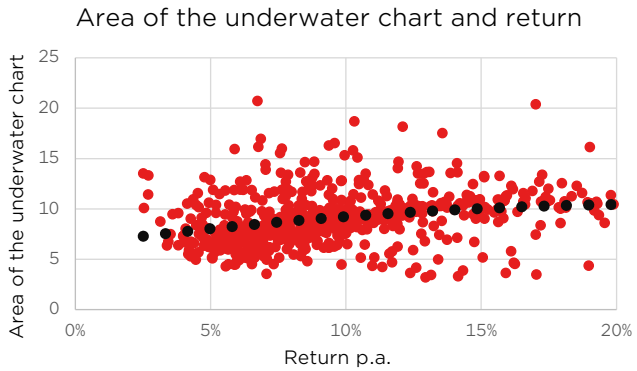
you experience. These two components can only be described very inadequately using the volatility indicator. It is therefore entirely possible to experience extensive and painful setbacks compared to previously reached highs, which, however, have a rather low volatility and would therefore be classified as rather low-risk from the perspective of this statistical key figure.

The area of the underwater chart as a better risk measure

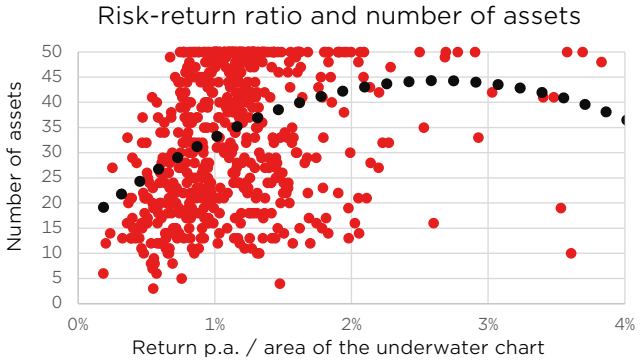
This unsatisfactory situation has led to alternative risk measures coming into focus in recent years. Our preferred key figure is the area of the underwater chart. An underwater chart shows day after day the setbacks of a price development compared to the previously reached highs. The area of the underwater chart results from the extent and duration of the setbacks. The moment old highs are reached or even exceeded, the underwater chart is at zero. Positive values cannot arise in this concept; hence the term underwater chart, because you only look below the waterline, but never above it. Ultimately, reaching new highs is not perceived as a risk by investors - which is why this development is not taken into account here.

Return and area of the underwater chart: almost no connection!

And now it gets exciting: Can the connection between return and risk still be proven if the area of the underwater chart is used as a risk measure instead of volatility? To check this, we calculated not only the volatility but also the area of the underwater chart for each of the 1,000 generated portfolios. The result can be found in the graphic below and completely calls classic findings into question, because it turns out that the area of the underwater chart only increases marginally when the return increases. In other words: At least in the period under review over the last five years, there was virtually no connection between an investor's temporary “suffering” and the investment success that was ultimately achieved!



And we noticed something else: If you take the quotient of return and underwater chart as a key figure to describe the return-risk ratio, this in turn (unsurprisingly) depends to a certain extent on the number of assets used. As a rule of thumb: the higher the diversification, the better the return-to-risk ratio.



What can be derived from these considerations? First of all, the insight that volatility as a risk indicator should be approached with a certain degree of skepticism. And then the insight that as an investor you are doing yourself a disservice in the long term by foregoing returns in order to avoid risks. Good diversification and a long investment horizon are important. Then you can actually sleep very well even with higher return expectations!

Dr. Christian Jasperneite

Market data

Stock marktes	As of 25.01.2024 16:32	Change versus 18.01.2024 -1 week	22.12.2023 -1 month	24.10.2023 -3 months	24.01.2023 -1 year	29.12.2023 YTD
Dow Jones	37955	1,3%	1,5%	14,5%	12,5%	0,7%
S&P 500	4926	3,0%	3,6%	16,0%	22,6%	3,3%
Nasdaq	15562	3,4%	3,8%	18,4%	37,3%	3,7%
DAX	16902	2,0%	1,2%	13,6%	12,0%	0,9%
MDAX	26119	2,2%	-3,1%	6,9%	-8,6%	-3,8%
TecDAX	3341	2,2%	0,5%	16,3%	5,3%	0,1%
EuroStoxx 50	4582	2,9%	1,3%	12,7%	10,3%	1,3%
Stoxx 50	4134	1,8%	1,4%	7,5%	7,0%	1,0%
SMI (Swiss Market Index)	11194	0,1%	0,4%	7,9%	-1,9%	0,5%
Nikkei 225	36236	2,2%	9,2%	16,7%	32,7%	8,3%
Brasilien BOVESPA	128314	0,8%	-3,3%	12,8%	13,5%	-4,4%
Russland RTS	1120	-0,5%	5,9%	1,6%	13,1%	3,4%
Indien BSE 30	70701	-0,7%	-0,6%	9,5%	15,9%	-2,1%
China CSI 300	3343	2,1%	0,2%	-4,1%	-20,1%	-2,6%
MSCI Welt	3204	1,9%	1,6%	14,3%	16,2%	1,1%
MSCI Emerging Markets	982	2,2%	-1,0%	6,7%	-5,5%	-4,0%
Bond markets						
Bund-Future	133,91	-4	-399	535	-442	-331
Bobl-Future	117,86	34	-165	201	2	-142
Schatz-Future	106,02	11	-52	99	13	-53
3 Monats Euribor	3,93	2	3	3	143	5
3M Euribor Future, Dec 2024	2,63	5	33	-68	-3	33
3 Monats $ Libor	5,59	1	-3	-6	76	-1
Fed Funds Future, Dec 2024	4,04	2	19	-67	105	20
10 year US Treasuries	4,13	-1	23	-69	66	27
10 year Bunds	2,29	-2	35	-51	17	29
10 year JGB	0,75	12	12	-7	59	12
10 year Swiss Government	0,87	-3	18	-23	-33	18
US Treas 10Y Performance	588,03	-0,2%	-1,8%	6,2%	-2,2%	-2,2%
Bund 10Y Performance	553,28	0,0%	-2,6%	4,8%	1,2%	-2,1%
REX Performance Index	441,04	-0,1%	-2,5%	2,0%	1,1%	-1,5%
IBOXX AA, €	3,35	-4	31	-67	11	28
IBOXX BBB, €	4,01	-5	28	-89	-17	25
ML US High Yield	7,99	-7	14	-143	-22	19
Convertible Bonds, Exane 25	6620	0,0%	0,0%	0,0%	0,0%	0,0%
Commodities						
MG Base Metal Index	385,27	3,5%	-0,3%	4,6%	-14,5%	-1,4%
Crude oil Brent	81,31	3,3%	2,3%	-7,8%	-5,8%	4,7%
Gold	2018,76	0,2%	-2,1%	2,9%	4,3%	-2,3%
Silver	22,73	0,4%	-6,3%	-0,9%	-3,8%	-6,3%
Aluminium	2191,28	3,4%	-4,0%	1,1%	-16,4%	-6,6%
Copper	8472,49	3,0%	-0,1%	6,1%	-8,8%	0,1%
Iron ore	135,49	-0,4%	0,0%	14,6%	11,1%	-0,6%
Freight rates Baltic Dry Index	1507	11,1%	-28,0%	-22,7%	109,0%	-28,0%
Currencies						
EUR/ USD	1,0840	-0,3%	-1,7%	2,0%	-0,2%	-1,9%
EUR/ GBP	0,8529	-0,4%	-1,5%	-2,0%	-3,4%	-1,6%
EUR/ JPY	159,82	-0,7%	2,0%	0,4%	13,0%	2,2%
EUR/ CHF	0,9399	-0,3%	-0,2%	-1,1%	-6,5%	1,5%
USD/ CNY	7,1690	-0,4%	0,5%	-2,0%	5,5%	0,9%
USD/ JPY	147,51	-0,4%	3,6%	-1,6%	13,3%	4,6%
USD/ GBP	0,79	-0,3%	0,1%	-4,2%	-3,1%	0,3%

Source: Refinitiv Datastream

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