M.M. WARBURG & CO
BANK

ECONOMIC SITUATION AND STRATEGY

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Stock selection: Irrational exuberance or smart money?

Everyone knows the phenomenon: a stock rushes from one peak to the next despite little change in earnings and sales estimates. Or the opposite: a stock declines and declines while analysts are unable to detect any serious worsening of the fundamental data. How is an investor supposed to deal with this? The traditional answer would be to sell the stock on apparent upward exaggerations and buy it on apparent downward exaggerations. The assumption behind this advice is that stocks tend to return to their fundamental equilibrium after irrational price movements. One often hears talk here of a tendency towards "mean reversion." But is this actually a sensible way to proceed? The expectation of a mean reversion assumes that the market has "lost its way" while fundamental data actually made it rather clear what a plausible price trend would have to look like.

This question ultimately touches on the core of asset management, since it concerns how efficient markets are and how humbly one should make investment decisions regardless of the confidence accompanying them. After all, it is in a certain sense tantamount to a pretence of knowledge to make a buy or sell decision contrary to the market on the basis of supposedly objective data. For, every investor (let us hope) has had something in mind when they conducted a transaction and risked losing money on it.

This mechanism is precisely what makes markets and the related information processing so efficient. But could a development that seemed irrational at a given time possibly turn out later to be rational?

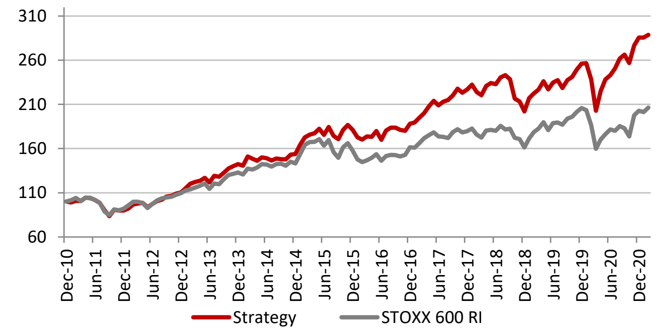
We have attempted to answer this as follows. Regarding every stock, analysts make estimates for many metrics that they keep adjusting over time. One may generally assume that these metrics and their development contain in condensed form all publicly available knowledge about a company. Our first step was to make a list of the stocks included in the STOXX 600 at six-month intervals from the end of 2010 onward. For each, we then sampled the development of previously estimated financial metrics in terms of level for the preceding five years. We only used data that would have been found in a database in a real-time application. The metrics sampled included, for example, earnings per share, cash flow per share, sales per share, and book value per share. These metrics roughly develop in line with stock prices despite temporary disconnects.

We then created for each individual company at each time a regression model that can optimally explain the price of a stock in terms of the available financial data. We made every effort to ensure that only data was used that would have been available in a real-time application. Each calculation is performed totally out of sample and thus perfectly replicates an application in the real world without any knowledge of the future. One can imagine the regression model as roughly equivalent to an investor who optimally understands how a specific company's stock price reacts to changes in the estimation of financial metrics.

Now, it might seem to make sense to use this model to identify exaggerations on the markets and take advantage of them in the expectation of a mean reversion. Concretely, this would mean selling stocks when their prices have significantly overtaken "fair" value as determined by regression analysis. On the other hand, one would have to buy stocks when they are quoting significantly below "fair" value. However, the results show exactly the opposite! Our calculations suggest that outperformance occurs when stocks are bought that already seem very expensive, and stocks are sold when they appear very cheap. That is exactly the reverse of what would be economically intuitive and sensible at first glance. One explanation would be that investors selectively have knowledge that is not generally available and therefore does not entirely figure into analysts' estimates.

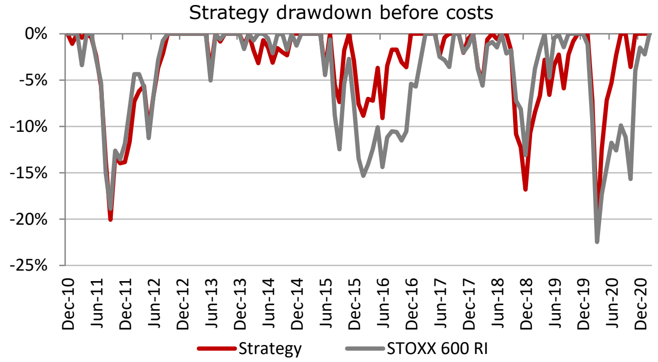
A deviation of a stock price from the supposedly rationally explicable price would then not indicate an irrational movement, but rather selectively present "smart money," meaning that some investors know more than others. In that case, investors would be well-advised to get on the bandwagon instead of trying to buck it. The charts below show how well this strategy would fare.

Strategy backtest and benchmark



Source: Refinitiv Datastream

Strategy drawdown before costs

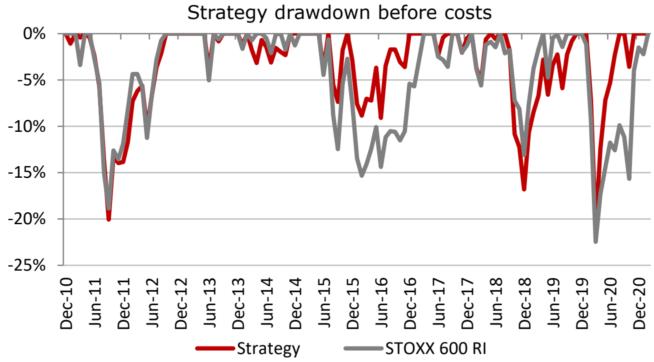


Source: Refinitiv Datastream

It would outperform the benchmark on a comparatively steady basis. And even though the margin would not be huge, there would have only been few periods in which the strategy would have significantly underperformed over a period of one year.

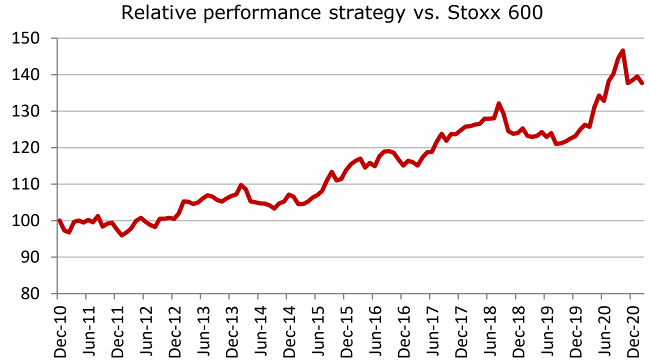
Superficially, one might think that the strategy described above is the same as a momentum strategy. But that is not the case. Stocks that exhibit good performance in *absolute* terms are not bought, but only stocks that perform conspicuously well *relative to* fair value based on financial metrics. Those might also include stocks with poor performance in absolute terms. The results urge caution not to label pronounced stock price movements too hastily as irrational exuberance. Sometimes, some investors have simply been a little "smarter" than others.

Strategy drawdown before costs



Source: Refinitiv Datastream

Relative performance strategy vs. Stoxx 600



Source: Refinitiv Datastream

Market Data

Stock marktes	As of 16.04.2021 14:34	Change versus 09.04.2021 -1 week	15.03.2021 -1 month	15.01.2021 -3 months	15.04.2020 -1 year	31.12.2020 YTD
Dow Jones	34036	0,7%	3,3%	10,5%	44,8%	11,2%
S&P 500	4170	1,0%	5,1%	10,7%	49,8%	11,0%
Nasdaq	14039	1,0%	4,3%	8,0%	67,3%	8,9%
DAX	15427	1,3%	6,7%	11,9%	50,1%	12,4%
MDAX	33267	1,6%	4,6%	7,2%	53,1%	8,0%
TecDAX	3529	1,3%	5,4%	8,2%	26,3%	9,8%
EuroStoxx 50	4017	1,0%	4,9%	11,6%	43,0%	13,1%
Stoxx 50	3404	0,9%	4,4%	6,8%	24,2%	9,5%
SMI (Swiss Market Index)	11199	-0,4%	3,0%	3,0%	20,2%	4,6%
Nikkei 225	29683	-0,3%	-0,3%	4,1%	51,8%	8,2%
Brasilien BOVESPA	120701	2,6%	5,1%	0,3%	53,1%	1,4%
Russland RTS	1490	5,1%	-3,5%	1,1%	42,3%	7,4%
Indien BSE 30	48832	-1,5%	-3,1%	-0,4%	60,7%	2,3%
China Shanghai Composite	3427	-0,7%	0,2%	-3,9%	21,9%	-1,3%
MSCI Welt (in €)	2942	0,3%	3,7%	9,7%	36,6%	12,0%
MSCI Emerging Markets (in €)	1341	0,0%	-0,4%	-0,1%	37,4%	6,4%
Bond markets						
Bund-Future	171,33	-4	-45	-633	-135	-631
Bobl-Future	135,01	-5	-14	-25	-26	-17
Schatz-Future	112,11	0	0	-20	-8	-17
3 Monats Euribor	-0,54	3	3	3	-29	5
3M Euribor Future, Dec 2017	-0,55	2	-1	2	-14	0
3 Monats $ Libor	0,19	0	1	-3	-95	-5
Fed Funds Future, Dec 2017	0,09	1	1	2	-2	0
10 year US Treasuries	1,57	-10	-4	47	93	66
10 year Bunds	-0,28	6	10	29	19	30
10 year JGB	0,09	0	-2	7	8	7
10 year Swiss Government	-0,25	2	2	22	17	25
US Treas 10Y Performance	684,86	1,3%	1,3%	-2,7%	-6,1%	-4,3%
Bund 10Y Performance	668,27	0,0%	-0,4%	-2,3%	-1,4%	-2,4%
REX Performance Index	493,33	-0,2%	-0,2%	-1,2%	-0,5%	-1,2%
US mortgage rate	0,00	0	0	0	0	0
IBOXX AA, €	0,21	0	3	18	-52	19
IBOXX BBB, €	0,65	0	-2	13	-132	9
ML US High Yield	4,73	-4	-21	-17	-351	-25
Convertible Bonds, Exane 25	8363	0,0%	1,9%	0,2%	16,7%	0,4%
Commodities						
MG Base Metal Index	404,53	1,8%	1,8%	11,4%	62,1%	14,1%
Crude oil Brent	67,19	6,6%	-2,6%	21,7%	141,5%	29,5%
Gold	1781,60	2,2%	3,0%	-2,4%	3,7%	-6,1%
Silver	25,96	2,8%	-0,6%	4,6%	68,5%	-1,6%
Aluminium	2322,60	3,4%	5,9%	16,7%	58,1%	17,7%
Copper	9297,25	4,1%	1,5%	17,1%	82,9%	20,0%
Iron ore	173,01	1,6%	2,8%	1,8%	105,4%	11,0%
Freight rates Baltic Dry Index	2323	11,4%	17,1%	32,4%	229,0%	70,1%
Currencies						
EUR/ USD	1,1979	0,8%	0,5%	-1,2%	9,9%	-2,4%
EUR/ GBP	0,8679	0,2%	1,0%	-2,5%	-0,5%	-3,0%
EUR/ JPY	130,38	0,0%	0,2%	3,7%	11,3%	3,1%
EUR/ CHF	1,1015	0,0%	-0,6%	2,3%	4,6%	2,0%
USD/ CNY	6,5200	-0,5%	0,3%	0,6%	-7,7%	-0,1%
USD/ JPY	108,76	-0,8%	-0,3%	4,7%	1,2%	5,3%
USD/ GBP	0,72	-0,5%	0,5%	-1,6%	-9,4%	-0,9%

Source: Refinitiv Datastream

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