

Economic Situation and Strategy

2 October 2024

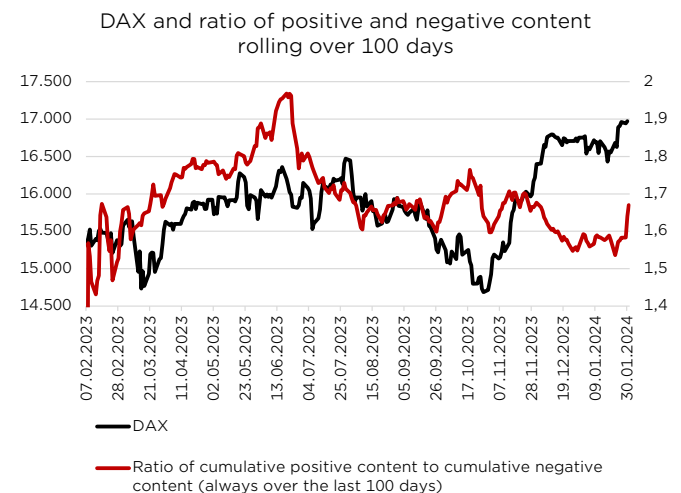
AI-controlled timing of DAX purchases: Is it possible?

Anyone with a little experience of capital markets feels a great deal of humility every day when it comes to achieving added value for clients through good timing decisions. Markets are sometimes extremely ‘noisy’ on a daily or weekly basis; decisions to buy and sell on this time scale often have an accuracy not unlike a coin toss. But just as people have tried to artificially produce gold for centuries, as an investor you are inclined not to give up hope entirely when it comes to timing - even if you are fully aware that success lies in the unknown. And just as alchemists experimented (in vain) with ever new ingredients, investors are always on the lookout for new ways to improve the quality of timing signals.

AI as a solution?

A new way of discovering the secret of good timing may be to use artificial intelligence. To get to the bottom of this question, we have teamed up with the Hamburg-based company Faktenkontor in a small project. Faktenkontor has built up a very good reputation in the field of reputation research and publishes a reputation index for the 40 DAX companies in this context, for example.¹ We have now received a large amount of raw data from Faktenkontor, which provides information on the extent to which positive or negative statements or content about the DAX companies can be found on the Internet. We focused on AI-based evaluations of the globally available content on the topics of product quality, economic suc-

cess and management. If you want to get an initial overview of the data situation, it makes sense to compare the DAX with a time series that shows the highly smoothed ratio of positive to negative news, assessments, statements and analyses for all 40 companies. Purely intuitively, one might assume that a rising (falling) value in the ratio of positive to negative values is more likely to be accompanied by rising (falling) share prices, and this is indeed the case.



However, the correlation is far from perfect - but it has to be, because the performance of the DAX is embedded in international events and is certainly not driven solely by the news situation of the 40 stocks included in the DAX.

But is it even possible to derive timing signals from this very smoothed information? Probably not - much less smoothed data must be used for this. In the next step, we therefore decided to always use the average of the last five days and to check the extent to which clearly positive

¹ [24 der 40 Dax-Konzerne haben eine schwache Reputation \(handelsblatt.com\)](https://www.handelsblatt.com)

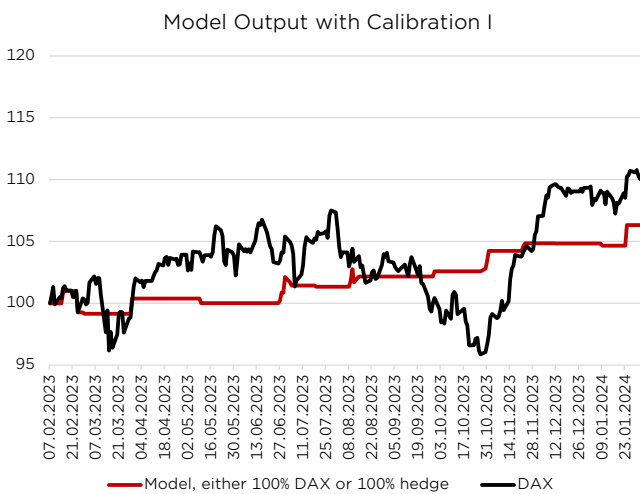
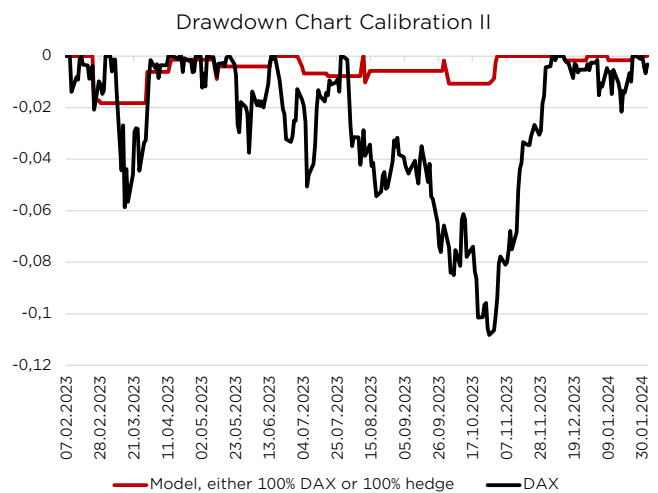
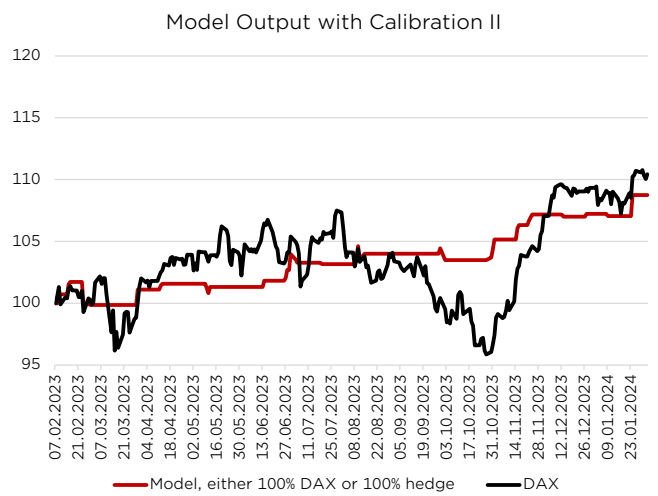
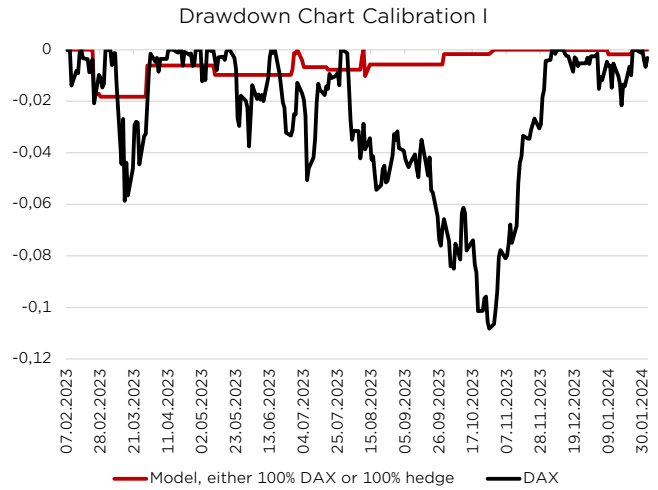
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or clearly negative news situations evaluated by the AI system can be used for buy or sell signals.

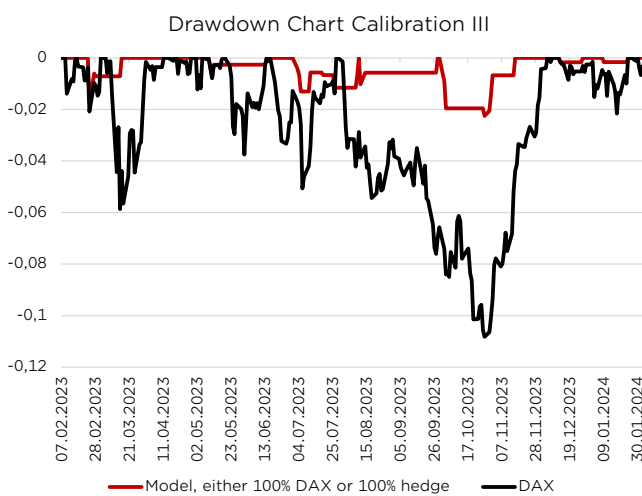
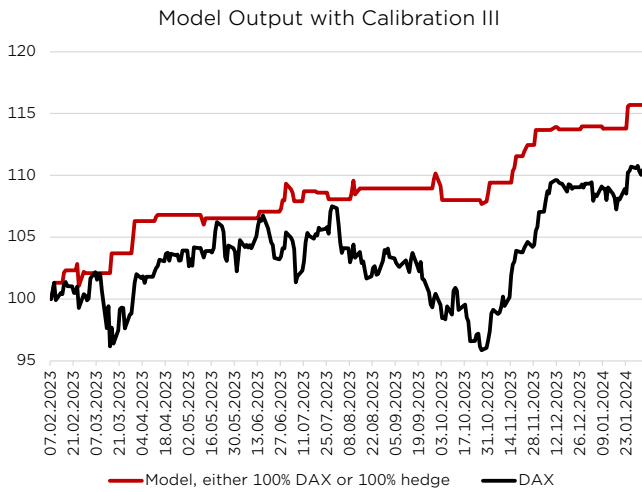
Our working hypothesis was that markets are fundamentally mercilessly efficient. This means that when fundamental changes occur, they are reflected comparatively quickly in prices. Of course, this sometimes leads to certain exaggerations. These extreme moods can therefore be good times to buy or sell. If, for example, the statements and analyses evaluated by the AI indicate a very poor mood overall, which is also significantly below the values of the previous days, then this may also be an expression of an exaggeration that can be used to buy. Conversely, days on which news and analyses with a positive tenor dramatically predominate could be favorable selling opportunities in view of an overly euphoric mood.

Model results

We have now tested this hypothesis with a model. In order to clarify the extent to which the relationships are sufficiently robust, we have calibrated the model in three different ways, each of which is plausible in its own right. Below you will find the results, including the drawdown charts, which provide an insight into the draw-down behavior. In these three examples, the model was able to either invest in the DAX or hedge the position based on the AI-generated data. Short positions were not yet permitted in this run. As can be seen, all three variants lead to an attractive performance profile. The drawdowns are extremely limited and the absolute performance is positive in all three cases. In the third case, the model performance is even better than the performance of the DAX.



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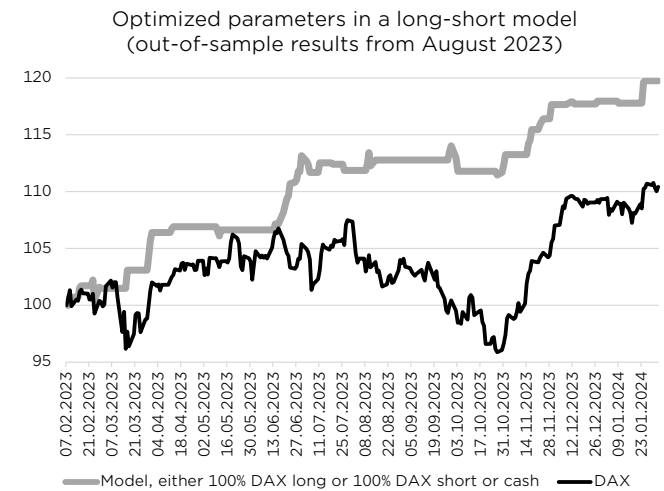


Curve fitting as a danger

Now you have to be very careful not to succumb to the danger of curve-fitting. This danger is always present when you are looking for settings that have turned out to be useful in retrospect. The assumption that such a setting will also work in the future is then often unjustified, as the selected setting was able to explain a specific time phase well without having come across generally valid correlations.

In a final test, we therefore optimized parameters using a very powerful optimizer (an evolutionary algorithm that can actually be classified as AI) and then checked whether the properties of the model remained stable after

the optimization. To further increase the level of difficulty, we also added short positions. The model could therefore invest in the DAX, take a cash position or profit from falling prices with a short position.



Here, too, it can be said that the AI-generated data clearly contains information that promises a certain added value. The model was “trained” with data up to August 2023 and then continued unchanged without any noticeable drop in performance.

Now we used the word humility at the beginning of this text and want to do so again here: it could be that all these promising results are a coincidence, because the database is comparatively short.

Ideally, similar calculations would have to be carried out for other markets and indices in order to confirm the robustness of the findings. However, we already dare to say that there may be a puzzle piece of information here that could help to improve timing decisions.

However, a lot of work still needs to be done to incorporate this information into daily decisions in real time, and setbacks cannot be ruled out. Nevertheless, we will continue to work on this topic and try to be a little more successful in the end than the alchemists who wanted to make gold and then failed.

Dr. Christian Jasperneite

Market data

Stock markets	As of	Change versus				
	04.10.2024 12:08	27.09.2024 -1 week	03.09.2024 -1 month	03.07.2024 -3 months	03.10.2023 -1 year	29.12.2023 YTD
Dow Jones	42012	-0,7%	2,6%	6,9%	27,3%	11,5%
S&P 500	5757	0,3%	4,1%	4,0%	36,1%	20,7%
Nasdaq	17918	-1,1%	4,6%	-1,5%	37,2%	19,4%
DAX	19053	-2,2%	1,6%	3,7%	26,3%	13,7%
MDAX	26846	-1,3%	5,7%	5,7%	6,1%	-1,1%
TecDAX	3342	-3,0%	0,2%	0,3%	12,8%	0,1%
EuroStoxx 50	4933	-2,7%	0,4%	-0,7%	20,4%	9,1%
Stoxx 50	4418	-1,7%	-2,1%	-2,0%	14,7%	7,9%
SMI (Swiss Market Index)	11977	-2,1%	-3,0%	-0,3%	11,3%	7,5%
Nikkei 225	38636	-3,0%	-0,1%	-4,8%	23,7%	15,5%
Brasilien BOVESPA	131672	20965,8%	21176,9%	4,8%	16,1%	21808,7%
Indien BSE 30	81794	7091,0%	7091,0%	2,3%	24,9%	7449,2%
China CSI 300	4018	80,6%	86,9%	16,0%	8,9%	98,2%
MSCI Welt	3676	-1,4%	2,2%	3,2%	31,3%	16,0%
MSCI Emerging Markets	1173	-0,1%	7,6%	7,4%	24,9%	14,6%
Bond markets						
Bund-Future	134,80	3908	3932	385	752	3864
Bobl-Future	119,61	-1520	-1432	357	428	-1761
Schatz-Future	107,02	-1296	-1066	148	205	-1227
3 Monats Euribor	3,24	230	230	-43	-73	231
3M Euribor Future, Dec 2024	2,82	-9233	-9191	-49	-60	-9159
3 Monats \$ Libor	3,41	-1	-26	-217	-227	-48
Fed Funds Future, Dec 2024	4,36	151	133	-60	-45	206
10 year US Treasuries	3,86	11	2	-49	-95	-1
10 year Bunds	2,19	12	-3	-35	-74	19
10 year JGB	0,89	7	-5	-18	14	27
10 year Swiss Government	0,43	-659	-670	-25	-72	-668
US Treas 10Y Performance	572,49	0,0%	1,4%	-3,0%	3,6%	1,3%
Bund 10Y Performance	107,14	0,0%	0,9%	-80,5%	-79,5%	0,6%
REX Performance Index	455,51	-95,4%	-94,8%	3,4%	6,5%	-94,6%
IBOXX AA, €	2,95	-3	-23	-51	-111	-12
IBOXX BBB, €	3,46	-2	-23	-54	-142	-30
ML US High Yield	7,25	1	-36	-86	-208	-54
Commodities						
MGBase Metal Index	446,66	0,8%	10,2%	2,6%	18,5%	14,3%
Crude oil Brent	78,23	9,2%	5,6%	-10,1%	-14,0%	0,7%
Gold	2657,25	0,3%	7,1%	12,4%	45,6%	28,7%
Silver	3336,50	8,1%	19,0%	10807,2%	15616,0%	12,2%
Aluminium	31,86	0,5%	13,8%	-98,7%	-98,6%	31,4%
Copper	2618,58	-0,4%	9,7%	-73,1%	-67,0%	11,6%
Iron ore	108,31	-76,2%	-75,9%	-4,2%	-8,6%	-75,8%
Freight rates Baltic Dry Index	1941	-8,0%	-0,3%	-6,0%	9,0%	-7,3%
Currencies						
EUR/ USD	1,1027	#DIV/0!	#DIV/0!	2,5%	5,3%	#DIV/0!
EUR/ GBP	0,8373	-25,0%	-24,1%	-1,1%	-3,5%	-24,2%
EUR/ JPY	161,47	19265,6%	19046,3%	-7,3%	2,8%	18533,7%
EUR/ CHF	0,9401	-99,4%	-99,4%	-3,3%	-2,7%	-99,4%
USD/ CNY	7,0176	-92,5%	-93,0%	-3,5%	-4,1%	-94,9%
USD/ JPY	146,93	3,3%	1,0%	-9,1%	-1,4%	4,2%
USD/ GBP	0,76	631936,5%	630242,6%	-3,1%	-8,3%	587309,0%

Source: Refinitiv Datastream

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