M.M. WARBURG & CO
BANK

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Fundamental EUR/USD signal in real-time test: It works!

Flexible exchange rates are both a blessing and a curse for economies and companies. On the one hand, they are fundamentally necessary so that there is an equalization mechanism for the fact that national economies and currency areas can have extremely different productivity paths over time. For example, Germany performed significantly better economically than Italy after the war until the start of European monetary union. As a result, the German mark appreciated almost constantly against the Italian lira. As a result, Italian products remained sufficiently competitive. At the same time, German tourists were able to enjoy cheap holidays in Italy with their strong German mark. Even today, exchange rate fluctuations between countries and currency blocs are the expression of differences in economic development, but also the result of differences in interest rates and purchasing power. Ultimately, they are the necessary lubricant and hinge for the exchange of goods, services and capital in a dynamic and globalized world without causing major imbalances and distortions.

The challenges of flexible exchange rates

But wherever there is light, there is also shadow. This is because exchange rates sometimes move comparatively erratically. It is not always possible to gain the impression that the development of exchange rates is based solely on fundamental reasons. In addition, it is often only possible to understand why the exchange rate has moved in a certain direction in hindsight. This makes dealing with exchange rates a challenging matter for both the real economy and the financial sector. For example, European investors who buy US securities are taking on exchange rate risks in addition to the actual risks of shares and bonds, the extent of which is difficult to assess. Flexible exchange rates also make it extremely difficult for companies operating in export and import markets to plan future sales. After all, a German car manufacturer, for example, cannot constantly adjust its prices in the USA simply because the euro/US dollar exchange rate moves.

There are basically two ways of dealing with these challenges. On the one hand, it is possible to argue that short-term fluctuations balance each other out in the long term and that the resulting exchange rate-related advantages and disadvantages simply have to be ‘endured’ by companies. However, it is also possible to hedge exchange rate risks. Those who are unable or unwilling to take on exchange rate risks can, for example, enter into forward exchange transactions to mitigate or completely eliminate the effects of flexible exchange rates. Of course, there is no ‘free lunch’ here. The price for this hedging is - roughly speaking - the interest rate differential between the currency areas concerned. Each player must ask itself whether it is prepared to pay this sometimes very high price for hedging.

Dynamic hedging as an alternative

One way of avoiding the costs of static hedging might be to work with dynamic hedging, which only enters into hedging transactions when they appear particularly promising. If, on the other hand, the exchange rate trend is in favor of an investor or a company, hedging would be counterproductive. Unsurprisingly, dynamic hedging of exchange rate risks is therefore something of the ‘Holy Grail’ of the financial sector. If it were possible to act here with a high hit rate, investors and companies could be spared some high costs and additional profits could be realized. It would also be important to generate signals with a frequency that is not too high. This is because an excessively high frequency of signals also drives up costs and is rarely in good proportion to the expected result.

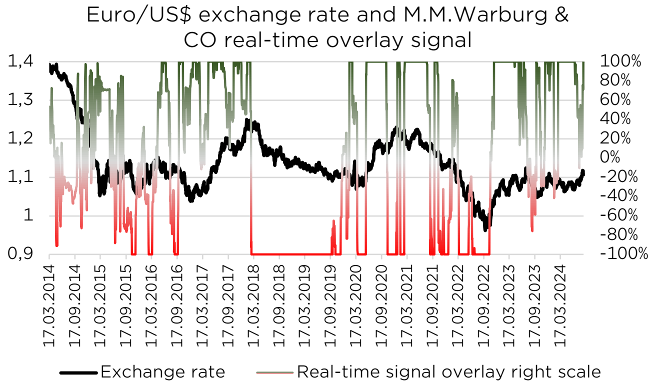
The Warburg Overlay Model

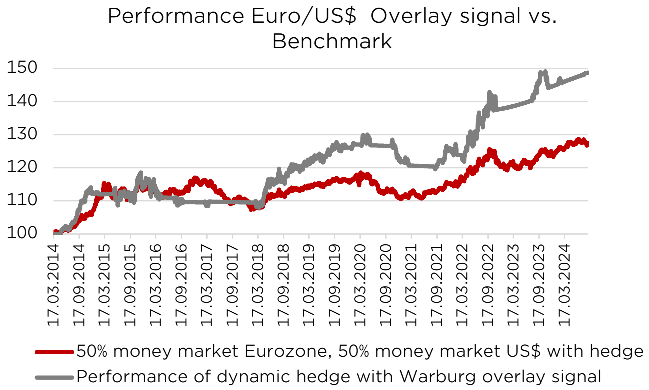
At Warburg, we therefore tried to develop a euro/US dollar overlay model around eleven years ago that fulfils several requirements: Firstly, the signal frequency should not be too high, so that the model can develop added value for clients in practice, even after costs. Secondly, the hit rate had to be high enough to ensure that a verifiable, systematic added value for customers could be achieved over several years of implementation. Finally, we had written it into our specifications to work with a model that is not like a black box, but leads to comprehensible and easily explainable results at all times.

Our main model, which we have not changed at any point since it was developed around eleven years ago, works as follows: Every night, a large number of economically relevant European and US data is automatically imported. A long-term trend is determined for each of these time series so that we know comparatively precisely at the current edge which value of the time series would be comparable with a cyclically neutral situation. In a second step, we then determine the extent to which the actual data deviates from the cyclically neutral data. For each economic area, we calculate an indicator that provides overall information on whether and to what extent the currency area is above or below a cyclically neutral situation.

In a further step, we then derive the currency overlay signal from the difference between these two indicators. Since 17 March 2014, this real-time signal has been published daily on the intranet (for all those who have access to it: It is model no. 3 in the currency overlay section). This model is supplemented by models that can optimise the timing decision, as the fundamental difference model is only ‘trimmed’ to evaluate fundamental trends without determining the optimal day for a signal change. Nevertheless, after more than ten years of real-time experience, we were interested in finding out to what extent the low-frequency and non-timing-orientated basic model alone worked in real time.

The result in two words: very good. A static benchmark consisting of 50% US$ money market without hedging and 50% with hedging would have performed significantly worse than a US$ money market investment with dynamic management.





The good results cannot be a coincidence. We used a random generator to generate 10,000 signal structures with the same frequency and amplitude and were only able to achieve a better performance with random signals in 12% of cases. The risk characteristics are also too good to be a random result. For example, the recoil risks (we measured these risks over the area of underwater charts) were significantly higher when random signals were used than when the overlay signal was implemented.

In addition, the result can only be marginally improved by taking our real-time timing signals into account. This is actually a good result for economists: it shows that analyzing fundamental data can still deliver added value if it is done systematically and over the long term.

Market data

Stock marktes	As of 06.09.2024 11:38	Change versus 30.08.2024 -1 week	05.08.2024 -1 month	05.06.2024 -3 months	05.09.2023 -1 year	29.12.2023 YTD
Dow Jones	40756	-1,9%	5,3%	5,0%	17,6%	8,1%
S&P 500	5476	-3,1%	5,6%	2,3%	21,8%	14,8%
Nasdaq	17128	-3,3%	5,7%	-0,4%	22,2%	14,1%
DAX	18456	-2,4%	6,4%	-0,6%	17,0%	10,2%
MDAX	25227	-1,9%	5,3%	-6,4%	-8,8%	-7,0%
TecDAX	3259	-4,2%	2,0%	-4,6%	3,8%	-2,3%
EuroStoxx 50	4785	-3,5%	4,7%	-5,0%	12,1%	5,8%
Stoxx 50	4386	-3,6%	3,6%	-3,2%	10,6%	7,1%
SMI (Swiss Market Index)	11961	-3,8%	3,6%	-1,6%	9,1%	7,4%
Nikkei 225	36391	-5,8%	15,7%	-5,5%	10,2%	8,7%
Brasilien BOVESPA	136502	0,4%	9,0%	12,4%	16,3%	1,7%
Indien BSE 30	81072	-1,6%	2,9%	9,0%	23,2%	12,2%
China CSI 300	3231	-2,7%	-3,3%	-10,1%	-15,4%	-5,8%
MSCI Welt	3567	-2,6%	6,7%	2,4%	20,0%	12,6%
MSCI Emerging Markets	1076	-2,2%	5,9%	1,3%	9,2%	5,1%
Bond markets						
Bund-Future	134,52	61	-67	382	295	-270
Bobl-Future	118,24	57	-11	163	274	-104
Schatz-Future	106,41	17	-6	128	147	-14
3 Monats Euribor	3,47	-18	-19	-44	-33	-41
3M Euribor Future, Dec 2024	3,01	-2	12	-31	-21	71
3 Monats $ Libor	5,26	-2	-14	-34	-40	-34
Fed Funds Future, Dec 2024	4,44	-9	14	-51	-3	61
10 year US Treasuries	3,70	-22	-8	-59	-57	-17
10 year Bunds	2,16	-7	4	-32	-42	16
10 year JGB	0,84	-6	5	-15	19	22
10 year Swiss Government	0,45	-1	7	-37	-53	-24
US Treas 10Y Performance	624,02	1,5%	0,7%	5,5%	8,5%	3,8%
Bund 10Y Performance	567,90	0,7%	0,0%	3,2%	6,0%	0,4%
REX Performance Index	452,36	0,2%	-0,3%	2,7%	4,4%	1,0%
IBOXX AA, €	3,12	-6	-5	-33	-66	5
IBOXX BBB, €	3,63	-5	-8	-36	-100	-12
ML US High Yield	7,50	3	-56	-53	-111	-29
Commodities						
MG Base Metal Index	402,98	-4,0%	4,1%	-8,7%	4,1%	3,1%
Crude oil Brent	72,72	-7,8%	-4,9%	-6,0%	-19,3%	-6,4%
Gold	2519,06	0,6%	4,6%	7,1%	30,6%	22,0%
Silver	28,74	-0,8%	5,7%	-3,9%	18,6%	18,5%
Aluminium	2361,04	-2,6%	7,9%	-8,1%	10,1%	0,7%
Copper	8978,71	-1,5%	2,4%	-8,4%	5,8%	6,1%
Iron ore	91,30	-7,5%	-12,4%	-14,7%	-22,1%	-33,0%
Freight rates Baltic Dry Index	1919	5,8%	14,4%	3,6%	80,5%	-8,4%
Currencies						
EUR/ USD	1,1108	0,2%	1,3%	2,2%	3,5%	0,5%
EUR/ GBP	0,8434	0,1%	-2,0%	-1,0%	-1,1%	-2,7%
EUR/ JPY	158,54	-1,6%	1,6%	-6,6%	0,2%	1,4%
EUR/ CHF	0,9354	-0,7%	0,5%	-3,6%	-2,0%	1,0%
USD/ CNY	7,0850	-0,1%	-0,7%	-2,3%	-3,0%	-0,3%
USD/ JPY	143,46	-1,9%	-0,5%	-8,1%	-2,9%	1,7%
USD/ GBP	0,76	-0,2%	-3,1%	-3,1%	-4,6%	-3,2%

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