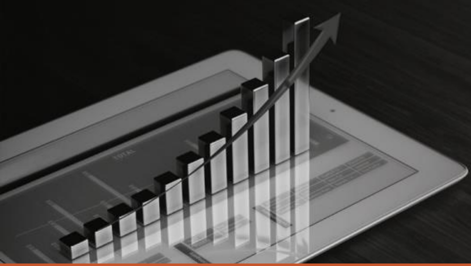

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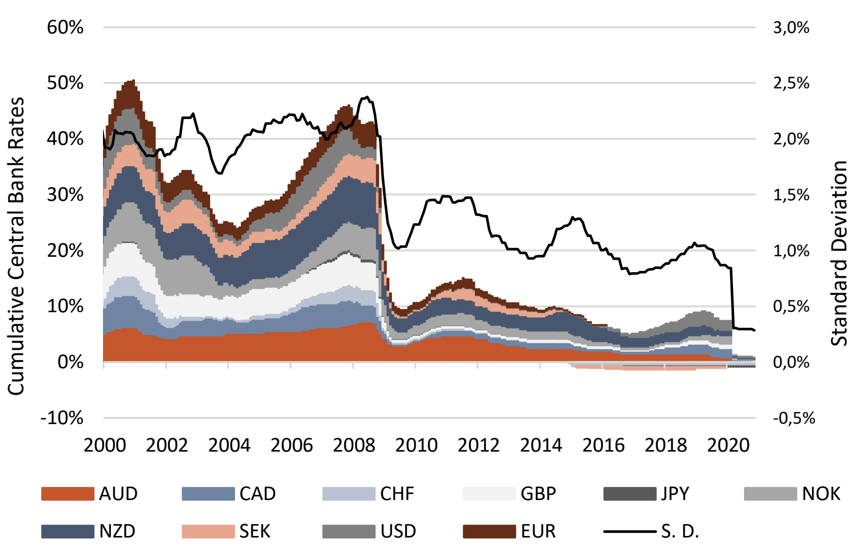
A BRIEF HISTORY OF FX

The world has flattened, and many currency managers have struggled to achieve satisfying results. Why is this the case? This note looks at the major economic events and regimes of the past 20 years and categorises their effects on the performance of the core currency strategies that dominated the timeframe: Momentum, Carry and Value. We discuss why a diversified balance of these strategies was historically appropriate and whether the differentials these strategies require to thrive are disappearing. Spoiler – they are, for Carry and Value in particular. We see what we might learn from the past and assess where future differentials may lie.

Fig. 1 - G10 central bank rates and their relative standard deviation (S.D.)



Source: Bloomberg, Berenberg. As of: 31.12.2020

In Figure 1, we see how central bank policy rates have evolved over the past 20 years. When stacked as they are, the effect of the Global Financial Crisis (GFC) on the magnitude of interest rates is plain to see, it is also worth noting the downward trend in their standard deviation. We can see that the general backdrop to our current environment is one of low yields and little differentiation between the G10 nations. This particularly affects Carry strategies that rely on interest rate differentials for their signals.

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*Within **Insights** we provide you with a deeper understanding of our investment philosophy and thinking.*

A mix of Momentum, Carry and Value strategies has historically shown good results, but is currently losing its chances of success.

The ultra-low interest rate policy that was introduced worldwide in 2008 deprives the Carry strategy of the prerequisite for success.

The sub-periods that we will look at are categorised and brifly described as follows:

2000-2001 Early 2000's recession. This period saw the European Union and the newly minted Euro endure a difficult transition period. The U.S. saw 10 years of economic expansion come to an end along with the bursting of the dot-com bubble. The September 11th attacks in 2001 also precipitated an environment of geopolitical instability. Dollar strength against the other majors was an expression of risk aversion. The Japanese Yen weakened more than most, with Japan mired in a decade (1991-2001) of economic stagnation and deflation. The Bank of Japan cut interest rates to zero and attempted to cultivate liquidity - this may sound familiar.

2002-2006 Economic expansion. In the U.S. Alan Greenspan lets the good times roll with low interest rates and limited financial regulation. The U.K. saw Gordon Brown 'claim' an end to the process of boom and bust economics, ushering in long-term stability. The Euro was strong, the Pound was strong and the Dollar - and hence Dollar funding - was cheap. The Yen stayed weak and with interest rates so low, it was the carry trade of choice. 2005 saw this author begin a career in financial markets and start paying back student loans. What could go wrong?

2007-2009 GFC. Needing little introduction, the events triggered by the bursting of the U.S. housing bubble led to a debt crisis, a banking crisis and a global recession. Governments and central banks responded with stimulus measures and large-scale rule changes designed to reduce the risks taken by the banking sector - who had required a bailout. The Dollar strengthened and functioned as a safe haven again, this time joined by the Japanese Yen. Japan already having had deep experience of the stimulus measures now deployed by the other major economies.

2010-2012 European sovereign debt crisis. This period saw the market forced to question the value of developed sovereign debt and whether the Eurozone would stay together, as several Eurozone member states were unable to make their repayments, or to refinance their debt without external bailouts. This was ultimately mitigated in 2012 by the ECB offering unlimited support for all Eurozone countries involved in a bailout. Despite a tilt toward Euro and Pound weakness, there was no clear currency direction over this period and volatility remained elevated.

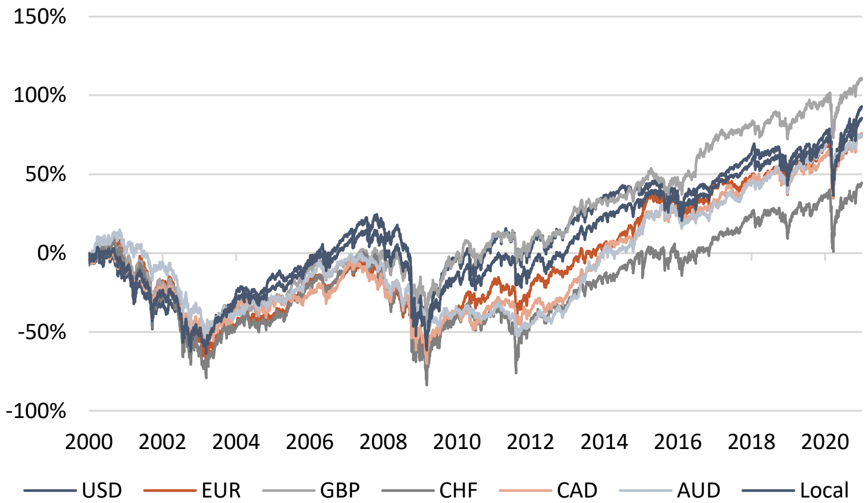
2013-2015 The age of accommodation. The effects of the GFC and European sovereign debt crises gave rise to a tranquilised age of low volatility and low rates where markets relied on predictable central bank moves. The Dollar strengthened steadily against the other majors. The end of this age began with the SNB removing the floor in EURCHF proving there's no such thing as a sure thing.

2016 The year of political shocks. Brexit was unexpected, Trump being elected was even more so. These events showcased that the drivers used to measure expectations were far different than those that governed outcomes. The Pound fell, the Euro took a hit and the Dollar was up.

2017-2019 The age of uncertainty. If fake news is real news, is real news fake news? Volatility was low, currencies oscillated slowly, with USD strength from 2018 onwards and interest rate differentials slowly filtering back in as this period progressed.

2020 Covid-19. The great lockdown pushes the world into recession and rapidly accelerates change in the adoption of new tech, altering the way we live and work. The Dollar did not function in its usual safe haven manner, but a pandemic is new to this timeframe. The Euro and Pound strengthened after the initial shock, interest rate differentials disappeared again.

Fig. 2 - MSCI World Developed Index, local cumulative performance and re-priced to different base currencies.



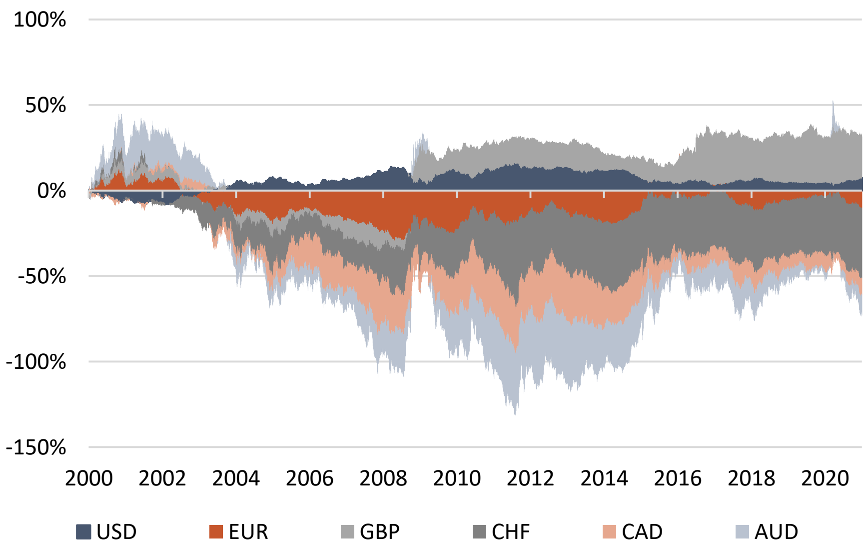
Source: Bloomberg, Berenberg. As of: 31.12.2020

Figure 2 shows the effect on performance when the Local return of the MSCI World Developed index is converted into different investor base currencies. The Local return represents the theoretical performance of an index without any impact from foreign exchange fluctuation. Thus we can isolate the currency impact by observing the difference between a Local index and the same index in a specific base currency. We see that after the compression following the GFC, we now have the greatest differential between the outliers.

In the aftermath of the GFC, exchange rate developments among the major currency areas have converged, while outliers have continued to drift away.

This FX effect becomes more evident when looking at chart 3 (below), which shows the stacked cumulative performance differential relative to the local return when repriced to base currency.

Fig. 3 - MSCI World Developed Index, stacked performance differential to the Local index when re-priced to different base currencies.



Source: Bloomberg, Berenberg. As of: 31.12.2020

We can see that toward the end of the period the differentials are steady, indicating lower exchange rate fluctuation. But also U.K. investors have gained by holding foreign equities due to the weakness of GBP whilst the opposite is true for Swiss investors due to the strength of CHF. The volatility of returns for AUD and CAD investors is also worthy of note as is the relative consistency in USD and EUR through much of the period.

In the above figures on global rates and global equity, we can start to see a picture of how markets reacted to the events that mark the sub-periods we have defined, but now let us map this more clearly and look the effects on currency investment strategies.

Strategies

As markets evolve over time, the catalyst for change is often only understood with the benefit of hindsight. Differences in participants, products, technology and rules are amongst the main factors to consider, but their relative impact is not so easily predicted. Creating a novel strategy to benefit from a structural change in market conditions is a worthy but elusive goal. If such a strategy becomes validated through performance and adopted through replication, then it becomes an established fixture of the investment landscape. Investor differentiation over time will see different flavours of this strategy emerge, but the core components will remain the same. As markets change, the structures these strategies require to thrive will themselves shift, sometimes to extremes that stop such strategies being viable. Additionally, large scale adoption of a strategy can see a reduction in the efficiency of return as it can begin to influence the very market it is trying to measure.

For currency markets, we consider the performance of the following strategies:

Momentum:

Market moves are directional and the potential for return occurs via follow-through over different time frames.

Carry:

Interest rate differentials provide the opportunity to earn return whilst also benefitting from relative risk premia.

Value:

Currencies revert to fair value over time, providing an opportunity for return when they are significantly under- or overvalued.

The good, the bad and the ugly: A Timeline

This is intended to look at general strategy performance, particularly within the G-10 space where much of the markets currency exposure lies. Whilst different managers will have differing performances, this is intended to represent the aggregate performance of a style and what the market experienced overall.

Green = Good; Red = Bad; Blue = Hard work; Yellow = Specific Action; Grey = Uncertainty

<table>
<tr><th>Year</th><th>Regime</th><th>Momentum</th><th>Carry</th><th>Value</th></tr>
<tr><td>2000</td><td rowspan="2">Early 2000's recession</td><td rowspan="5">The growing strength of Momentum</td><td rowspan="8">The golden age of Carry</td><td>Buy Low - undervalued theme</td></tr>
<tr><td>2001</td><td rowspan="4">The only way is up -value adds value</td></tr>
<tr><td>2002</td><td rowspan="5">Economic expansion</td></tr>
<tr><td>2003</td></tr>
<tr><td>2004</td></tr>
<tr><td>2005</td><td rowspan="3">Momentum works hard for it's money</td><td>Sell High - overvalued theme</td></tr>
<tr><td>2006</td><td rowspan="2">The only way is still up - value starts to suffer</td></tr>
<tr><td>2007</td><td rowspan="3">Global Financial Crisis</td></tr>
<tr><td>2008</td><td>Momentum roars</td><td>The trial of Carry</td><td>Payday</td></tr>
<tr><td>2009</td><td rowspan="6">Back to working hard</td><td>The doubt of Carry</td><td rowspan="5">The search for the new normal – lack of a value theme to work with</td></tr>
<tr><td>2010</td><td rowspan="3">European Sovereign Debt Crisis</td><td rowspan="4">The silver age of Carry</td></tr>
<tr><td>2011</td></tr>
<tr><td>2012</td></tr>
<tr><td>2013</td><td rowspan="3">The Age of Accommodation</td></tr>
<tr><td>2014</td><td rowspan="6">The uncertainty years</td><td>Sell High Again – found a theme</td></tr>
<tr><td>2015</td><td>Momentum roars again</td><td rowspan="2">The only way is down - value adds value</td></tr>
<tr><td>2016</td><td>Political Shocks</td><td rowspan="4">Back to work, identifying trends is harder than before</td></tr>
<tr><td>2017</td><td rowspan="3">The age of uncertainty</td><td rowspan="4">The themes have gone again</td></tr>
<tr><td>2018</td></tr>
<tr><td>2019</td></tr>
<tr><td>2020</td><td>Coronavirus Recession</td><td>Tough first-half, strong year-end</td><td>Where have the rate spreads gone?</td></tr>
</table>

Momentum

For Momentum-based strategies, the periods of sustained performance over time became much shorter and trend identification more difficult.

Momentum strategies tend to perform in periods that exhibit steady medium to long-term trends. They also add performance when trends are shorter, but this requires focus and careful calibration.

In currency space, momentum benefitted from trending markets from 2000 through to the end of 2004, however a trend reversal over 2005 made things difficult for momentum strategies that had seen success by following the prior long-term trend. Trendiness resumed from 2006 into 2008 and performance more than recovered. The experience of 2005 had given rise to a more reversal sensitive approach. This bore fruit in 2008 where the sharp reversal in trend brought about by the GFC was severe enough for momentum models to rapidly switch and so benefit in both directions and perform strongly. After this, 2009 through to 2014 saw markets search for the new post-GFC normal and enter a mean-reverting state categorized by short sharp trends to both the upside and downside. Momentum strategies had to work hard to perform as success in mean-reverting markets requires a continual focus on identifying and timing turning-points. The end of 2014 saw confirmed breaks in mean-reverting channels resulting in a medium-term trend over 2015, the ever more sophisticated momentum strategies had been looking for this signal and were able to perform well over this period. Then things became hard again, with confirmation signals becoming harder to map as a lack of differentiation in the market led to low conviction and sudden spikes.

Carry

The ongoing homogeneous central bank decisions worldwide hardly allow for reliable positioning based on Carry strategies.

Carry strategies perform well in markets when there are interest rate differentials, but low volatility. They are a slow build strategy and a risk event can cause savage unwinds. The period from 2000 through to 2008 saw a rapid rise in the popularity of carry strategies. Interest rate differentials were plentiful and post the early 2000's recession, they functioned as leading indicators of the currencies that stood to benefit from their risk premia. This combined with markets exhibiting trend and lower volatility saw a golden age for carry strategies as they racked up returns. This came to an abrupt end in 2008 as the GFC saw investors undertake a flight to safety with a risk unwind that rapidly erased the risk premia gains built up by carry strategies. As this was the first real trial of carry in currency space, many strategies were unable to react to the speed and severity of the move and faced large drawdowns. The post GFC world was initially difficult for carry strategies as interest rate differentials had begun to collapse as the major nations undertook very similar stimulus measures - rate cuts. Whilst the new carry signals of the period did prove to be effective, after the large drawdown it was understandably difficult to allocate risk back to the strategy and this meant missing out on some of the initial performance. Nevertheless through 2010 to mid-2014, the mass stimulus measures produced a low volatility environment that saw carry strategies benefit, though this time a tilt toward the remaining interest rate differentials rather than risk premia saw a more modest performance that defined the silver age of carry. The spike in volatility towards the end of 2014 associated with equity market selloff's and geopolitical risk saw an end to carry performance as the strategies retracted, having become far more sensitive to risk episodes after the 2008 experience. Relatively elevated volatility over 2015 and 2016 saw a familiar reluctance to return to carry strategies and although 2016 onward saw the USD become an attractive carry earner, the political surprises that defined the beginning of this period led to uncertainty in a strategy that is sensitive to shocks. It should be noted that whilst carry was low on an absolute basis, it was large on a relative basis, given where interest rates had been. Carry was featuring in more and more discussions. And then there was covid-19 and interest rate differentials all but disappeared.

Value

Value is tied to the correct assessment of a currency's fair value, currencies and assets often spend a significant amount of time either overvalued or undervalued, but tend to slowly revert to fair value, or snap back to fair value during a risk event. Value strategies performed well from 2000 with their big payoff coming in 2008. The early 2000's recession allowed them to pick up some bargains, they suffered a little as they generally tried to take profit or open positions a little too soon in 2005 - with the prior move having had plenty of magnitude behind it - but 2008 was the big payoff as the GFC caused the huge correction value strategies had been waiting for. The overshoot to such a correction also allowed value to profit from 2014 to 2016 as the age of central banks pushed the world away from the disaster scenarios priced in after the GFC. Now value finds signals hard to come by. Could this be because we are generally close to Fair Value in a world that has been flat for so long?

The differences between the currency areas recently offered little potential for significant over- or undervaluation - value strategies lack themes.

Strategy conclusions

Often when looking at cover during this period, we see many recipes that follow a similar premise: the construction of an overall strategy that balances certain flavours of the three core strategies in such a way as to give the most stable and attractive solution. But why is this really the case and why was this balance not necessarily achieved over the period?

The Momentum strategy is based on backward-looking components, while Carry and Value largely rely on forward-looking elements.

As to why this is the case, much of it has to do with the diversification of forward-facing and backward-facing elements of a strategy. By this, we mean the parts of a strategy that predict price movements before they occur and the parts of a strategy that predict price movements whilst they occur. Momentum has strong elements of a backward-facing strategy, once prices have started to move in a certain direction, you look for this to continue. This relies on the premise that a move begins occurring for a reason and this reason will lead to follow-through. The reason could be structural, or rooted in behavioural-finance, nevertheless you need to observe it before you can profit from it. Although you might miss the appetisers, you aim to arrive at the party in time for the main course. Carry and Value are both comprised of more forward-facing elements. In the case of Carry, you benefit from the current interest differential, but you also believe that this differential exists as an indicator of a risk-premia that you can harvest in the future. In the case of Value your indicator is the fair-value of an asset and you believe a significant deviation from this is unsustainable in the long term - thus you expect to profit from a future correction. Forward facing may see you arrive at the party in time for all the fun, or you might arrive early and perhaps the venue may have changed. It is the mix of forward facing and backward facing elements that help these strategies maintain stability over time. The mix of hypothesis and confirmation.

As to why this balance was not necessarily achieved over the period, this is likely to do with human-nature and our attraction to bubbles. Unbalanced strategies show greater potential for return, but also greater potential for loss. Carry strategies are an example of this as they performed so well in the run up to the financial crisis that they were significantly overweighted. The drawdown was therefore painful for a range of investors. When constructing a strategy, it is important to learn from the mistakes of the past, having a sensible allocation between forward and backward facing elements whilst not being tempted by over-risking.

What does this mean for the future?

The overall conditions for the success of a Carry or Value strategy are currently not present and will not be for the foreseeable future. Momentum is still justified, but requires hard work.

In the present environment, we need to consider whether there is currently an edge in strategies such as Carry and Value. As we have seen, the events post the GFC have led to a flatter world with fewer differentials. There is certainly not much Carry around when you look at the interest rates in Figure 1. An argument can also be made that the similar monetary responses to similar economic problems, especially across the G10, means that any deviations from fair-value are harder to rationalize as is the construction of fair-value itself. On the backward-facing side, Momentum has had difficulties adjusting to the more sideways nature of the market - momentum still works, but you have to work harder for returns - identifying moves requires faster responses and greater accuracy, so you have to take greater care and respond faster.

The combination of exponentially increasing data volumes and improved computing power enables the development of new trading strategies with high explanatory power for exchange rate movements.

But then, the whole world is faster - information is transmitted faster and there is a lot more of it, whilst the speed of processing it also increases. It is through this technology driven change that we can see the potential emerging for new strategies. The political shocks of 2016 in many ways marked a defining change in the way expectations were measured. Events such as the Brexit vote and the U.S. election turned out to be markedly different to what the predictive analysis indicated. But it was not a surprise to everyone, there is new data out there and people had already started to find new ways of capturing and analysing it, they had found a new edge.

In our next note, we will discuss data-driven strategies and their potential to act as forward-facing indicators in an increasingly data driven world. Whilst the measurement and use of alternative data signals is nothing new, the explosion in data and news has transformed the depth of information that these strategies contain.

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Berenberg Currency Overlay

IMPORTANT NOTICE

Date: 3/25/2021

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