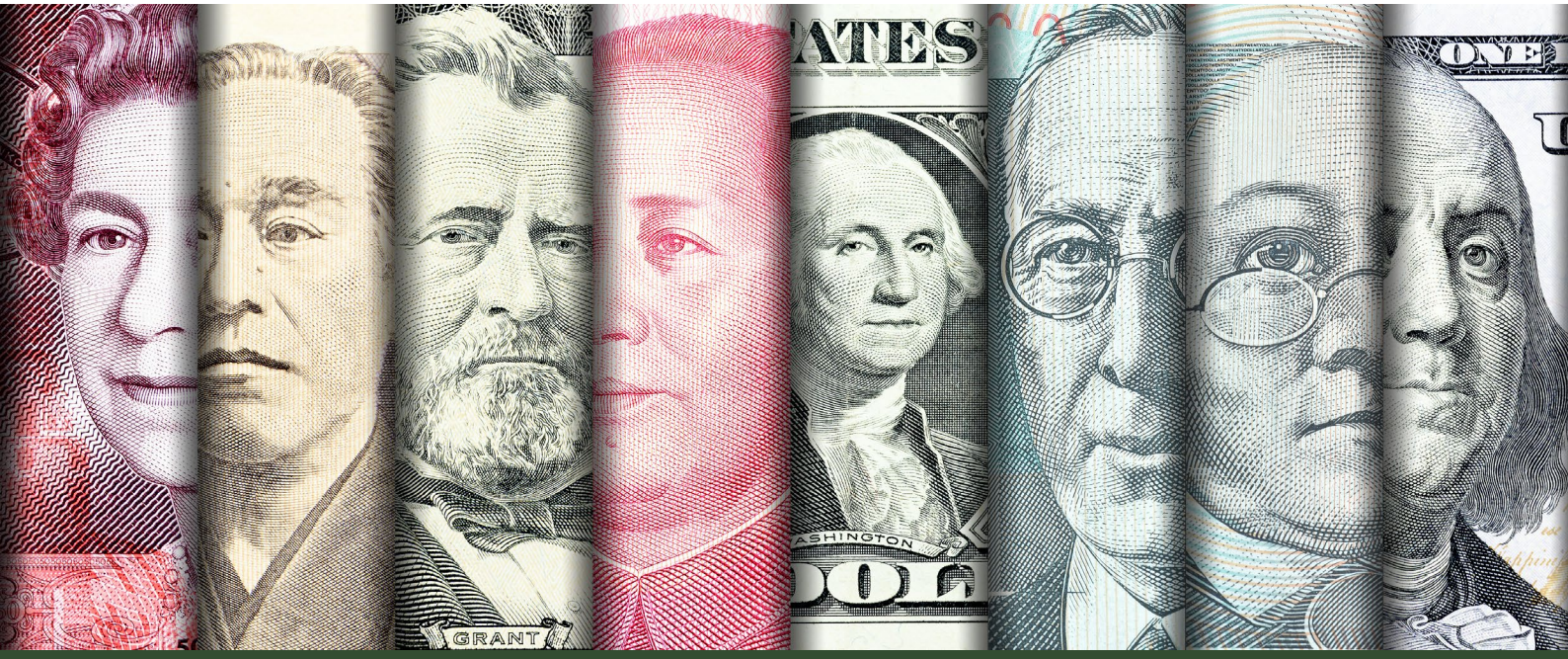
OMBA
ADVISORY & INVESTMENTS

Omba Advisory & Investments Limited



Cash & Currencies in a World of Covid-19 Chaos

"The true currency of life is time, not money, and we've all got a limited stock of that." **- Robert Harris**

June 2020

"Money Printer goes Brrr…"

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OMBA Advisory & Investments Limited is authorised and regulated by the Financial Conduct Authority 775647
OMBA Advisory & Investments Ltd is an authorised financial services provider (FSP No. 49101) in South Africa
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Contents

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1. Overview

How investors view and respond to their foreign currency risk is an important part of the investing process.

- The decision between **exposure currency and measurement (or base) currency** is distinct and differences between these introduce additional volatility (as measured in an investor's base or reporting currency).
- Assessing the currency(ies) to which a portfolio is exposed is complex and is impacted by many factors including **choices regarding currency hedging** as well as the global nature of many companies' sales and expenses.
- An investor's choice of measurement currency is typically their home currency where they will **likely spend their returns from investing** but this can very often differ from their exposure currency.
- The **recent volatility** experienced in broader financial markets has been a strong reminder to investors about the **importance of understanding foreign currency risk** and how portfolios should be positioned to benefit from, or protect against, currency devaluation.

While the possible demise of the importance of the US dollar has been a much loved topic by some who are pro-gold, pro-crypto or pro-Chinese yuan, the versatility and persistence of the US dollar has for the most part not been lost. However, investors should look forward to the medium to long term and consider how the current global order adjusts – driven in part by a rising but controversial (to many) China, a recently confrontational US, and a general global decrease in trust of governments and their monetary and fiscal policies. How investors understand the risks stemming from foreign currency exposure and measurement will have an important impact on how they will be able to meet their investment objectives. This report helps frame the key factors that investors should consider when thinking about foreign exchange exposure and how to measure their portfolio's performance and risk.

2. Understanding Foreign Exchange

Foreign exchange risk, or currency risk, is a type of market risk. There are two important facets: *economic risk of foreign exchange* and *accounting risk of foreign exchange*. In the shorter-term, accounting risk is an important factor to understand as currencies can be volatile and can directly impact reported performance. In the long-term, however, economic risk outweighs accounting risk. While the decision around currency exposure should be responsive to an investor's investment objective and risk, we typically avoid hedging currency exposure of equities in our global portfolios.

Economic risk of foreign exchange

Risk: The purchasing power of a portfolio may decline if the economic value of a currency (to which a portfolio is exposed) weakens. When inflation is high so too is this risk. As the price of goods and services increase in nominal terms, so too does the value of money erode if it does not increase by the same rate.

Mitigation: Diversification into many currencies. Hedging exposure back to your base currency can also help eliminate foreign currency movements for more risky currencies. Hedging can be done passively or using a more active approach with a wide range of hedging instruments available to investors.

Accounting risk of foreign exchange

Risk: This is the risk that the measurement of a portfolio's performance changes purely due to a performance being reflected in a currency that differs to the underlying exposure.

Mitigation: This risk is primarily mitigated by investing only or mainly in assets of your home currency or fully hedging other foreign currency exposures. This does however expose the investor to the economic risk of only one currency which could have its purchasing power decline over time.

An important example – a look at 3 global companies

In a brief look at three global healthcare companies, the complexity in understanding foreign currency exposure is apparent. In the case of GSK and Roche only a tiny percentage of revenue is earned in their home currency. The treasury department of each company will then hedge foreign exchange exposure in line with their respective company policy – which does differ per company. The location and currency in which the company has expenses, assets and liabilities also impacts the true foreign exchange exposure of the investor. The important point is that true foreign currency exposure can be quite different from the currency in which a company's shares trade.

The base or home currency of each company is shown in **RED**, with the revenue split approximating the economic exposure.

GlaxoSmithKline plc

A UK-domiciled company

Listed on the London Stock Exchange

Shares are traded in **GBP**

Revenue breakdown:
- **UK (3%) – country of listing**
- US (41%)
- Rest of World (56%)

Company FX-hedging policy:
- Match local currency income with local currency costs. Foreign currency transaction exposures arising on trade flows are selectively hedged. Manage cash surpluses or borrowing requirements of subsidiary companies centrally to hedge future repayments back into the originating currency.

Roche Holding Ltd

A Swiss-domiciled company

Listed on the SIX Swiss Exchange

Shares are traded in **CHF**

Revenue breakdown:
- **Switzerland (1%) – country of listing**
- Rest of Europe (21%)
- US (48%)
- Rest of World (30%)

Company FX-hedging policy:
- Preserve the economic value of current and future assets and to minimise the volatility of the Group's financial result. The primary focus is on hedging transaction exposures arising through foreign currency flows or monetary positions held in foreign currencies.

Pfizer Inc

A US-domiciled company

Listed on the New York Stock Exchange

Shares are traded in **USD**

Revenue breakdown:
- **US (46%) – country of listing**
- China (9%)
- Japan (8%)
- Rest of World (37%)

Company FX-hedging policy:
- Manage foreign exchange risk, in part, through operational means, including managing same-currency revenues in relation to same- currency costs and same-currency assets in relation to same-currency liabilities. These financial instruments serve to protect net income against the impact of remeasurement into another currency, or against the impact of translation into USD of certain foreign exchange-denominated transactions.

Key Points to Note:

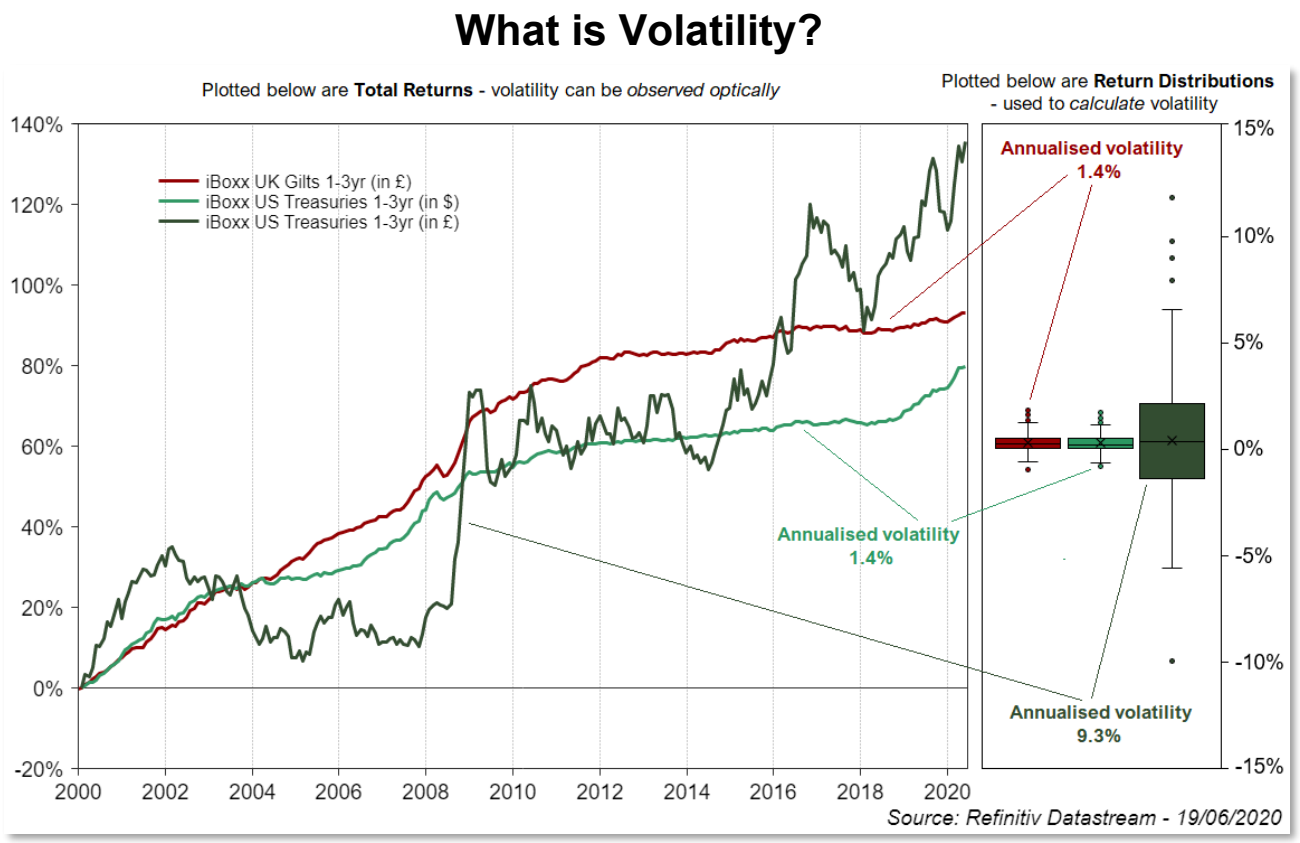
1) Country of domicile does not equal currency exposure of the stock.
2) Currency of listing does not equal currency exposure of the stock.
3) Revenue of multi-nationals is generally diverse and thus the economic currency exposure of stock could differ vastly from the country and currency of listing.
4) This is further complicated by the currency hedging policy of the company.

Thus – does it really make sense to hedge currency exposure of global equities back to one's base currency? We think not. More here on Currency Hedging.

Source: Most recent Annual Report

3. Expanding on Currency and Risk

As we have seen from the opposing definitions of **Accounting Risk** and **Economic Risk,** deciding on a base currency and which currency exposures one wishes to take and/or maintain can be a difficult task. This is becoming increasingly difficult and ever more important in a globalised and inter-connected world. **Ultimately investors need to ensure the long-term appreciation of the buying power of their portfolio.** Thus, it is more important to prioritise taking the appropriate long-term **Economic Risk** over optimising short-term **Accounting Risk**. However, this is not as simple as it may sound given the degree to which the perception of risk can be distorted by accounting treatment – something that investors need to feel comfortable in accepting. In the below chart we show the impact of currency exposure when considering UK Gilts and US Treasuries, measured in US dollar or Pound sterling.



As we know, volatility is a key measure of risk. Realised volatility is a measure of uncertainty and is based on the degree of dispersion of asset returns. The line chart of **Total Returns** above has been compared against a box plot of **Return Distributions**. This demonstrated that large fluctuations in price (caused here by a fluctuating exchange rate) corresponds to a wider range of returns – and hence is deemed to be more volatile. The chart shows only two underlying assets: the **iBoxx UK Gilt benchmark** and an equivalent **iBoxx US Treasury benchmark**. However, the iBoxx US Treasury index is measured in both **US dollars** (its native currency) and **Pound sterling** (which may be appropriate accounting treatment for a UK based investor). We see that:

- The risk, as measured by annualised volatility, is low at 1.4% for both UK Gilts (accounted for in GBP) and US Treasuries (accounted for in USD), as would be expected for these safe haven government bond assets (i.e. the economic risk).

- However, when accounting for US Treasuries in GBP (i.e. a different reporting currency from the underlying asset) the volatility is a staggering 6.6 times more at 9.3% (i.e. accounting risk distorting the economic risk).

Choosing a currency to which you wish to take economic exposure can be a challenging task. Generally, one should match their currency exposure to future expenses and liabilities. This assumes that the currency holds purchasing power, continues to exist, and remains the primary currency in which goods and services are traded in one's respective country. The below table categorizes some currencies into various risk buckets.

A sample fund: 50% US Treasuries, 50% MSCI All-Country World Index

The table on the right breaks out the components of an example fund into its fixed income and equity components. Note that although we are able to measure the fund in both US dollars and Pound sterling (or any currency) the fund itself is unchanged. You will notice that US Treasuries are less volatile in US dollars than in Pound sterling – as expected. What is surprising, however, is that the MSCI All-Country World Index has a higher volatility when measured in US dollars than when measured in Pound sterling! This is likely due to the fact that the US dollar is a "safe haven" currency, meaning that in times of elevated risk (and thus higher volatility) investors prefer to hold it over EM and more pro-cyclical currencies. A "risk-off" rotation out of riskier assets (like equities and commodities) and into less risky assets (like bonds and cash) results in a strengthening of the US dollar as part of the "flight-to-safety". Other safe haven currencies include the Swiss franc and Japanese yen. We explore this further in the chapter of **Safe Haven currencies.** What is also interesting to note, aligned with the previous section, is that the US Treasuries (as measured in GBP) have more than double (at 11.9%) the volatility of the US Treasuries as measured in USD due to GBPUSD FX volatility.

Fund Components		Measured in USD		Measured in GBP	
Price Index	Weight	Price Plot	Vol.	Price Plot	Vol.
US Treasuries (basket)	*50%*		*5.6%*		*11.9%*
MSCI All-Country World Index	*50%*		*21.1%*		*18.5%*
USD Moderate Risk Global Allocation Fund*	**100%**		**8.7%**		**9.1%**

iShares 7-10yr US Treasuries UCITS ETF is used for US Treasuries performance
**Sample fund is not rebalanced after inception. Source: Refinitiv*

"Omba [USD] Moderate Risk Global Allocation Fund" - what does each word mean and how do we think about currency?

- **"USD"** because it has a US dollar base currency. Matching the currency of issuance of the high quality investment grade fixed income component in the fund to the base currency has the effect of reducing risk as bonds of this nature generally perform well in times of stress (inversely to equity). In Omba's case, we primarily invest in US Treasuries and US Corporate debt but

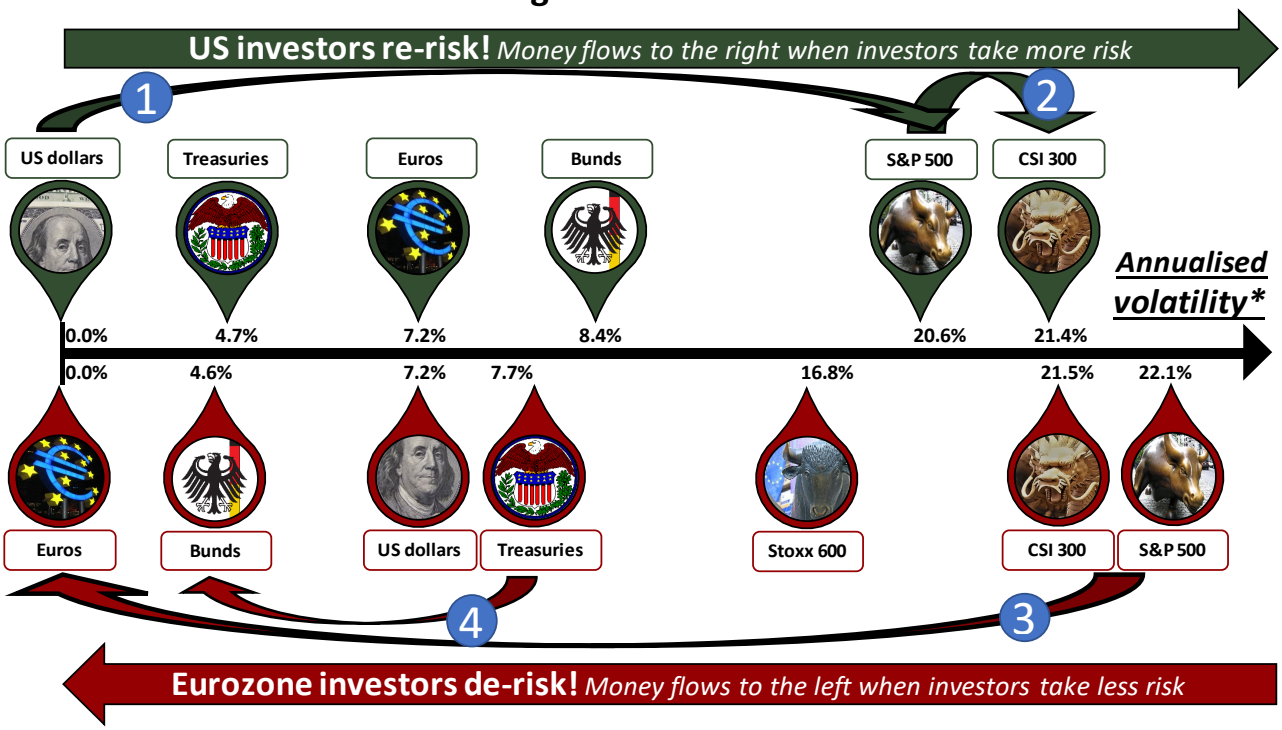
sometimes take on additional fixed income risks. The importance of this is that one's bond allocation should generally be in the base currency of the investor, if not then one would be taking on currency risk in addition to any credit or duration risk.

- **"Moderate Risk"** in this context means the allocation of bonds to equity are centred around a 50% equity - 50% fixed income split, as opposed to a more "Aggressive Risk" allocation which would be closer to 70% equity - 30% fixed income.
- **"Global Allocation"** because the equity component is globally allocated as opposed to being region or country centric. The equity carve-out of the Omba Fund favours a more even split across Americas, EMEA, and Asia-Pacific given it better reflects long-term growth potential, population size, and capital market activity around the world. This differs to most other comparable funds which use the DM-focussed MSCI World or FTSE World Indices as benchmarks, both of which are simple market cap-weighted indices. We prefer to not hedge the currency exposure of equities for reasons further explained here: **website FAQs**[1].
- **"Fund"** is capital from investors that is pooled into one vehicle. Each fund investor has a share of the fund (mutually) which may differ depending on how many units they hold. More on the Omba Moderate Risk Global Allocation Fund can be found here: **www.ombafunds.com**.

4. Safe Haven Currencies

Some currencies demonstrate typical patterns relative to other asset classes. "Safe havens" such as the US dollar, Japanese yen or Swiss franc tend to appreciate in value in times of increased uncertainty or "de-risking" as investors shift capital into assets denominated in these currencies (most often cash and fixed income). As we will see, the size of each currency market, and more generally how much of the global asset base is naturally denominated in each currency (i.e. which countries are wealthy), is central to this discussion. The graphic on the next page looks at two scenarios: a **re-risking (a pro-risk world) for a US dollar-based investor** as compared to a **de-risking (a risk averse world) for a Euro-based investor**. Once again, we measure the annualised volatility (risk) of a variety of assets in two different currencies – plotted on the number line.

Eurozone investors and US investors see different risks, driving cross border FX flows during times of risk re-allocation



*Daily annualised volatility 2017-1Q 2020. Not to scale. Source: Refinitiv

The US dollar safe haven WEAKENS during times of risk taking

1. Investors move from the least risky asset, cash[1], into the riskier S&P 500. Although this trade does not entail an FX leg, it may result in an **increase in global effective supply of the US dollar** as investors free up capital and put it to work. **Looser supply for the US dollar means lower prices.**
2. Investors move out of cash in their native currency and into the CSI 300 (Chinese equity index). In order to do so, the investor must first **sell US dollars and buy Chinese yuan.** This same theme applies around the world as investors move from their home country and currency into other country and currency investments. Because US investors have historically been some of the wealthiest in the world, and the US one of the most powerful countries economically and militarily, the moves into or out of USD-denominated assets have significant impact on global currency flows. Increasing Emerging Market (EM) equity risk during times of growth (i.e. pro risk) is a trade often employed by portfolio managers and is why there is such a strong inverse relationship between the US dollar and EM currencies.

Euro investors reduce risk, driving a STRONGER euro amid a flight-to-safety

3. As we state above, EM markets flourish in pro-risk regimes. A flight-to-safety means Eurozone investors sell foreign assets, and with the proceeds will **sell Chinese yuan and buy Euros**.
4. With Eurozone yields being so low – or negative for most of the "risk-free" German yield curve – many investors hold US government paper (hedged back to Euros) in hopes of benefitting from a yield pick-up. However, as you can see from our volatility measurement, US Treasuries (before

[1] Using volatility to determine market risk, as measured in your base currency.

currency hedging) are much riskier than German Bunds (for a Eurozone investor)! Hence, amid a flight-to-safety, there could be a rotation out of US Treasuries by foreign investors, who may **unwind their treasury exposure and hedges to hold bonds in their home currency and thereby reducing counterparty risk on their hedges**.

Whilst these underlying mechanics explain the ***how***, it is the below factors that explain the ***why!***

The size of a country's investment base

US investors own the largest share of assets across the globe. Why? Simple: they have the deepest pockets and, being a developed economy, have a mature institutional investor base (thus the wealth of the nation is more effectively deployed into capital markets). This means that the flow of assets, relative to the US dollar, will see the greatest pressures (and likely also see the greatest volumes) when investors panic. Although the Japanese yen, and to a lesser extent the Euro, are safe havens, they are less so than the US dollar given the net flow of capital during times of repatriation.

Risky assets like EM stocks would be amongst the first to be de-risked during a crisis. EM assets are sold for the relevant EM FX, the proceeds of which are sold while the US dollar is bought.

Investment attractiveness of a country

The risk-reward dynamics of a foreign market is a large determinant of investor flows. Any factor that changes how investors choose to allocate cross-border risk has implications on currency markets.

Chinese equities – China has been a key source of global growth for over a decade now. Despite GDP "only" growing by 6.1% (to USD 14.2tn) over 2019, the sheer scale of its economic prosperity has made it an engine room of global growth. The yuan receives a bid (buying pressure) from foreign investment demand, although there remain strong restrictions on FX flows via currency and capital controls. These controls are designed to support the export-focussed economy.

Geopolitical risks and political stability

Although this may be intertwined with the aforementioned investment attractiveness of a country, this point is worth highlighting due to its importance.

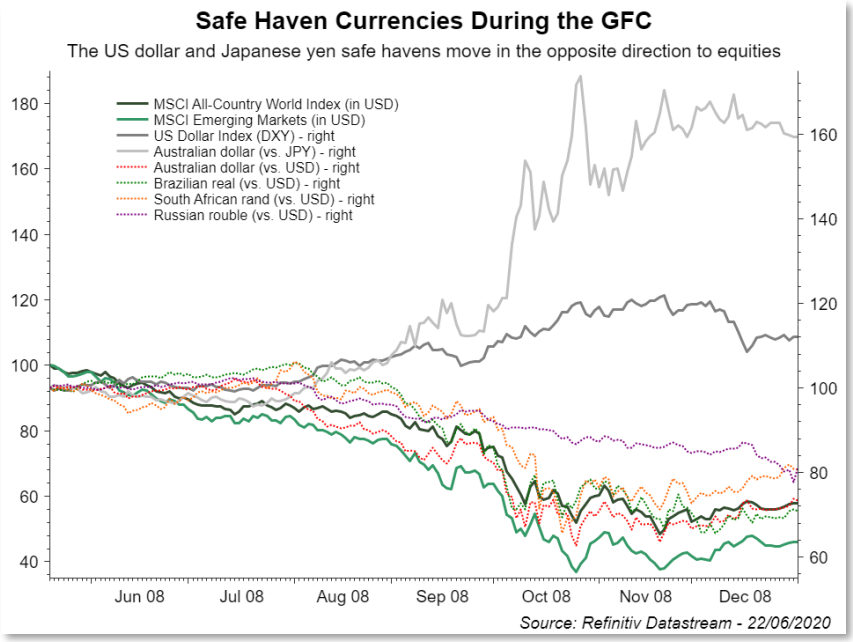
Switzerland and the Swiss Franc (endearingly referred to as the "Swissie") is an example of how investors reward geopolitical security - using the currency to both hedge and speculate on the outcome of global affairs. While Switzerland is a small economy, ranked 20th in the world by GDP, it is politically neutral and largely operates independently from the rest of Europe in terms of governance. For this reason, investors are willing to pay a premium to hold Swiss Francs given the low level of political risk. The opposite was true for the Pound sterling after Brexit.

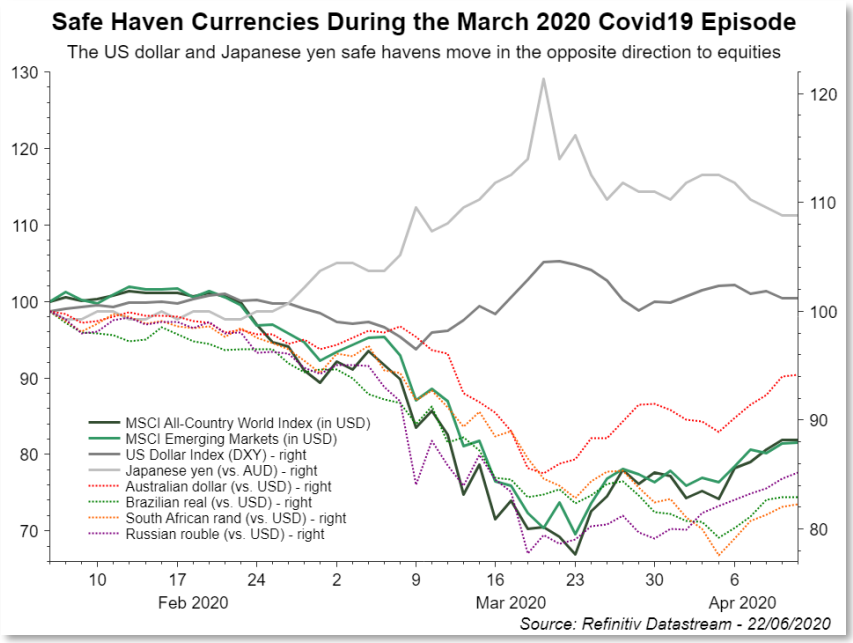
Source: Refinitiv and World Bank

The safe haven property can be summarised in two points:

i. Safe haven currencies increase in value when riskier assets fall in value (and vice versa). This is called **negative correlation**: the magnitude of the returns are related to one another but the directions are opposing.
ii. This relationship of **negative correlation spikes during times of uncertainty.** That is to say the strength of this predictive relationship increases, temporarily, between safe havens and risky assets. Every currency has a different relationship to risky assets, but the safe haven property is generally heightened during times of increased uncertainty.

The two charts below clearly demonstrate the safe haven properties of the US dollar and to an even greater degree the Japanese yen. The US dollar is shown against various pro-cyclical and EM currencies. We can clearly see US dollar (and yen) appreciation against all crosses, with the trade weighted US Dollar Index (DXY) appreciation clearly coinciding with the spike in equity market volatility. It is no coincidence that various currency crosses hit their relative lows on the same day as that of the equity benchmarks.





Commodity Currencies

…are native to important commodity-exporting countries. They demonstrate a **positive correlation to commodity prices and negative correlation to the US dollar (hence pro-risk)** due to trade related cross-border FX flows. All major commodities are priced in US dollars. Hence, if an **Australian miner exports gold**, they need to:

1. ***Sell gold for US dollars***
2. ***Sell US dollars and buy Aussie dollars (leading to AUD appreciation)***
3. ***Aussie dollars are repatriated and used to cover costs (e.g. salaries)***

Exporting commodities goes hand-in-hand with a stronger commodity currency – and so, the cycle goes.

5.Some Economic Theories of Currency Markets

In the following chapter we explore the mechanics of how global currencies wax and wane over time, as well as the nuts and bolts of how the equilibrium between **purchasing power, FX rates, inflation, and interest rates** is maintained over the long-term. Theoretically, provided the currency in question continues to exist, over the long-term the inter-play of these forces means it shouldn't really matter what currency you choose (provided the currency survives and provided you have a long investment horizon!). There are three main currency theories which have been developed and studied for many years explaining the relationship between currencies and the macroeconomic risks:

1. **Interest Rate Parity (interest rates)**
2. **Purchasing Power Parity (purchasing power)**
3. **The International Fisher Effect (inflation)**

Interest Rates and Currency: Interest Rate Parity

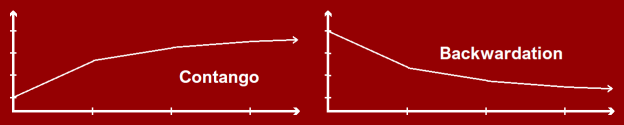
Interest rates are one of the most fundamental concepts in finance and an important driver of currency performance.

An investor could borrow cash in a low interest rate bearing currency, convert the cash proceeds to a higher interest rate bearing currency, and make a profit by earning the higher interest rate. This is called a "carry trade" – because an investor can expect to earn the positive carry which exists in the form of the interest rate differential. Sounds easy but does it pay off? Sometimes, but not always! The reason is that the investor, in this example, takes on unhedged currency risk by buying the higher yielding currency as that higher yielding currency could devalue (i.e. the rate at which the foreign currency which yields more is converted back to your home currency could be worse than the initial rate at inception). Thus, the gain on the higher deposit rate could be offset by a devaluation of the other currency. If the trade is profitable it is an example of **Interest Rate Arbitrage.** The example suggests that over time, due to how interest rate differentials encourage investors to put capital to work (i.e. the flow of capital by selling/buying currencies that have lower/higher interest rates), higher **interest rate** bearing currencies could strengthen. This flow erodes the margins of the carry and alters the risk-reward dynamics of the arbitrage ("arb") opportunity. Efficient markets are constantly moving towards a state of equilibrium given all available information at the time. Thus, the more crowded the arbitrage the thinner the margin becomes - the market

What are currency forwards?

A currency forward is simply a bilateral, over-the-counter agreement to execute a currency transaction at some point in the future at a set price. It comprises **(i)** a currency pair and direction for each party, **(ii)** an FX rate, and **(iii)** a maturity date at which point **(iv)** the notional value must be exchanged for both parties (at the agreed rate).

Contango refers to a forward curve that is upwards sloping, indicating that the price is increasing over time.
Backwardation refers to a forward curve that is downwards sloping, indicating that the price is decreasing over time.



The EUR/USD forward curve is in contango because US deposit rates exceed Eurozone deposit rates! If the forward curve were in backwardation an arbitrage opportunity would arise. Here is how it works:

*The steepness of the EURUSD forwards curve corresponds to the relative interest rate spread (amongst other factors). An investor executes two offsetting EURUSD forward trades: selling near-dated euros, buying far-dated euros. The investor earns a positive carry on higher-paying US interest rates after depositing the proceeds of the near-dated sale of euros. If they were able to buy the euros back at an equal-to-lower price later (guaranteed by an FX forward) they would be able to lock-in a risk-free profit by **(i)** banking the USD interest (carry) received and **(ii)** making zero-to-positive profit on the FX forward legs. Hence, given efficient markets, investors will execute the arb (selling nearby euros, buying further-dated euros) which pushes the forwards curve steeper until the **contango** penalises the trader (on the FX forward legs via buying higher later) and eventually "closes the arb".*

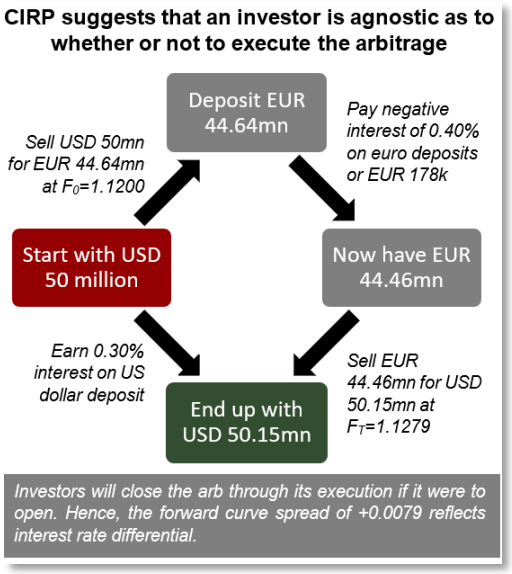
eventually reaches a state of equilibrium and the arb closes (until the information changes and alters the risk-return of the trade).

An investor could also hedge their FX risk on the leg of the currency they bought through what is called **Covered Interest Rate Arbitrage**. This applies the same principal although makes use of currency forwards to lock in a known FX price at maturity. However, due to no-arbitrage principals, currency forward markets reflect any expected carry pick-up (i.e. expected rates spread) and would penalise the investor appropriately on a risk-adjusted basis.

As the example in the ***red box*** on the previous page demonstrates, arbitrage opportunities may exist temporarily and are actionable in the form of **Covered Interest Rate Arbitrage**. Given the high degree of efficiency and modern computing power, arbitrage opportunities in highly liquid markets do not exist for very long.

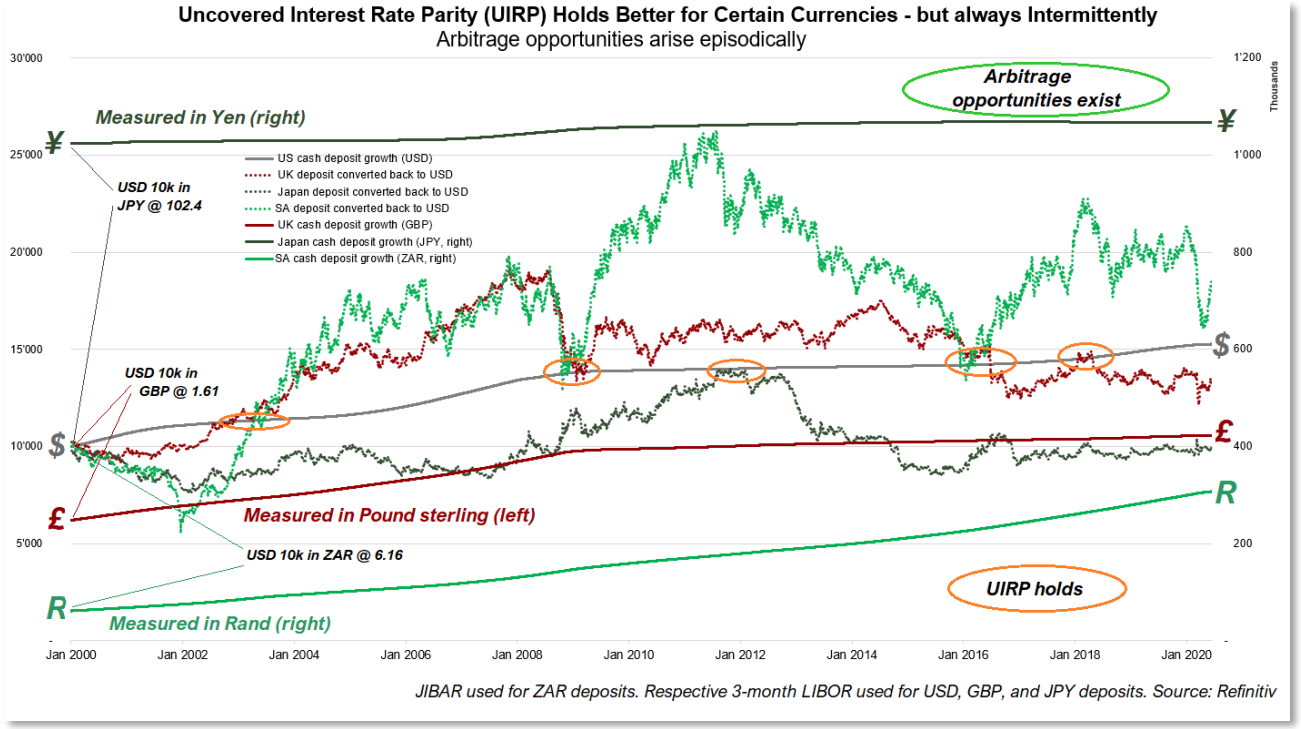
Generalised **Interest Rate Parity** is a concept that suggests that markets are operating efficiently and hence no such arbitrage exists. It is a no-arbitrage principal that dictates that investors are agnostic as to whether or not they execute the arb versus the alternative of doing nothing. As we have discussed this condition can exist in the form of either:

- **Uncovered Interest Rate Parity (UIRP)**
- **Covered Interest Rate Parity (CIRP)**



Academic literature suggests that evidence in support of **UIRP** is mixed and that it generally holds better for longer time frames than shorter time frames[2]. Evidence also suggests that the strength of **UIRP** is more dependent on the currency pair than the time horizon[3]. Academic literature is more supportive of **CIRP** than **UIRP** given that forward rates are more easily observable than expected future cash exchange rates. The principal of **CIRP,** first set out by Keynes in 1923, is found to hold when there are limited capital controls and easily accessible capital markets - although it does not hold precisely[4]. However, large deviations from **CIRP** relationship have been found since the GFC, partly due to heightened counterparty credit risk[5].

The chart on the next page shows an example of how **Uncovered Interest Rate Parity** appears to hold over the long-term for both USDJPY and GBPUSD despite sporadic arbitrage opportunities. The holding of UIRP is sensitive to start and end dates, which can dramatically change the holding of the relationship. When the **red** and **green dotted lines** (i.e. the terminal pay-off of the arbitrage if executed at 2000) reverts to the **grey line** (i.e. the alternative of doing nothing by earning interest on US dollar deposits) it suggests that **UIRP** conditions hold given the arbitrage opportunity has the same terminal pay-off as simply holding US dollars. Although arbitrage opportunities clearly appear episodically, some reversion to **UIRP** conditions occur.



Interestingly, through the lens of a USD investor, investing in GBP, JPY or ZAR local currency deposits over the period 2000 – 1Q 2020 yielded an annual return of 1.3%, -0.1% and 2.7% respectively when converted back to USD at the end of the period. This is not significantly dissimilar (except in relation to JPY) to having stayed invested in USD cash deposits although did come at the expense of increased volatility (as measured in USD) – see the table below.

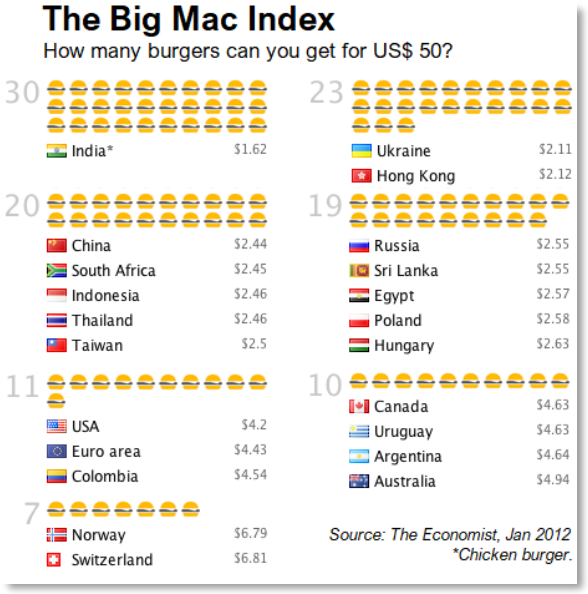
	US cash deposit growth (USD)	UK deposit converted back to USD	Japan deposit converted back to USD	SA deposit converted back to USD	UK cash deposit growth (GBP)	Japan cash deposit growth (JPY, right)	SA cash deposit growth (ZAR, right)
Compound annual return	2.1%	1.3%	-0.1%	2.7%	**2.7%**	**0.2%**	**8.2%**
Annualised volatility	0.1%	**9.4%**	**9.8%**	**17.1%**	0.1%	0.0%	0.1%

JIBAR used for ZAR deposits. Respective 3-month LIBOR used for USD, GBP, and JPY deposits. Source: Refinitiv, 2000 - 1Q 2020

Goods and Currency: Purchasing Power Parity

Purchasing Power Parity (or PPP) is an economic concept that allows one to compare the pricing dynamics, or purchasing power, across different countries. It makes sense that different currencies can afford different things. The Pound sterling is currently stronger than the South African rand and one would expect GBP 1.00 to have a greater purchasing power than ZAR 1.00. However, the **relative purchasing powers of currencies are almost never identical to the exchange rate**.

Purchasing power parity derived exchange rates are assessed by measuring the cost of a *fixed basket* of goods and services across different countries. The ratio between the cost of the fixed basket, in local currency (i.e. the quantity of Yuan, Rand, or Real), is then related to another currency to give a **purchasing power parity derived exchange rate.** The concept is based on the fundamental principle in economics of the "law of one price". This concept states that efficient markets keep the price of a given product or service identical across the world; save for transaction costs, trade barriers, and any other market frictions that interfere in the arbitrage of the good or service between markets. In the current Covid-19 world with increasingly negative trade rhetoric from major governments this theory might not hold too well. A well-known index showing differing costs for the same good is the **Big Mac Index,** shown on the right. The index was created by The Economist in 1986 to make help illuminate and provide context to PPP.



- ***A computer costs HKD 2,700 in Hong Kong.***
- ***That same computer costs USD 600 in the United States.***
- ***PPP-derived exchange rates suggest that the USD/HKD rate should be 4.5 Hong Kong dollars per US dollar (a 2,700:600 ratio).***

In essence the theory of PPP is simple: if you can purchase a good for a lesser amount in another country (as expressed in your own currency) you will sell your home currency to buy the foreign currency and purchase the good or service. Enough demand of this nature would cause the other currency to appreciate. The new exchange rate would cause the attractiveness of the opportunity to disappear. We are sure many readers would have taken advantage of these arbitrage opportunities when travelling on holidays overseas.

The concept of PPP is also often used to compare GDP across countries, which we show in the table on the right. We note that while there is a clear relationship between nominal and PPP-derived GDP, PPP-derived GDP demonstrates a positive bias in favour of EM countries where consumers typically get better "bang for their buck".

	GDP (nominal)		GDP (PPP)		GDP per capita (nominal)		GDP per capita (PPP)	
	Country	US $ mil	Country	Int'l $ mil	Country*	US $	Country*	Int'l $
1st place	United States	20'544'343	China	21'414'904	Switzerland	82'829	Singapore	98'827
2nd place	China	13'608'152	United States	20'544'343	Norway	81'735	Qatar	96'805
3rd place	Japan	4'971'323	India	9'058'692	Ireland	78'583	Ireland	84'460
4th place	Germany	3'947'620	Japan	5'247'581	Qatar	68'794	Switzerland	69'366
5th place	United Kingdom	2'855'297	Germany	4'514'794	Singapore	64'582	Norway	67'640
6th place	France	2'777'535	Russia	4'192'937	United States	62'887	UAE	67'550
7th place	India	2'718'732	Brazil	3'131'944	Denmark	61'391	United States	62'887
8th place	Italy	2'083'864	Indonesia	3'117'334	Australia	57'396	Hong Kong	62'727

Excludes countries with a population less than 1 million. Source: The World Bank, 2018

On the left we show the PPP-derived exchange rate that is based on the cost of ordering a non-branded face mask in the United States, Hong Kong, and Brazil. Unsurprisingly we see that, according to Purchasing Power Parity, both the EM countries are undervalued – which helps explains why these countries are competitive exporters.

How much do a face masks cost around the world?

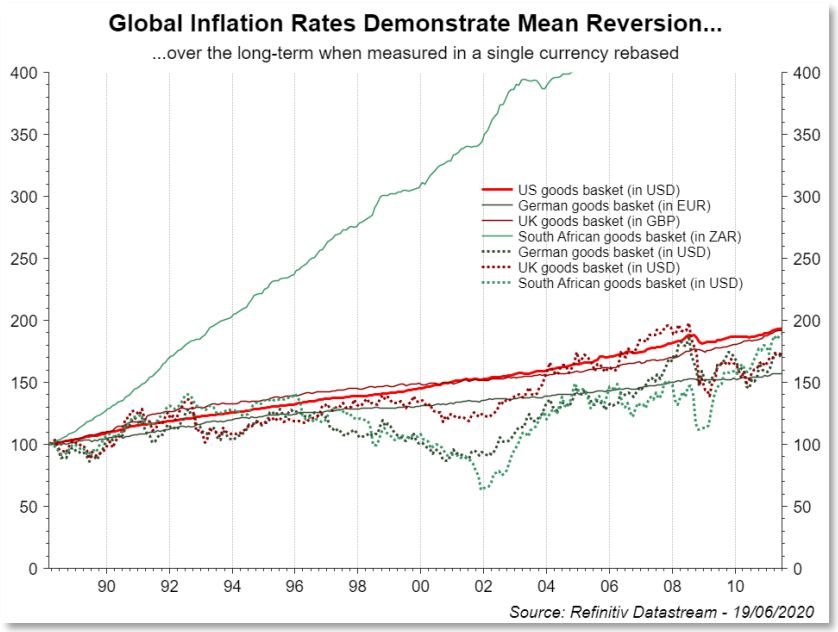
	United States	Hong Kong	Brazil
Source	eBay USA	Alibaba	Mercado Livre
Local currency	US dollar	Hong Kong dollar	Brazilian real
Cost in local currency	5.99	18.61	9.90
Cost in US dollars	$ 5.99	$ 2.40	$ 1.90
Live FX rate to USD	$ 1.00	$ 7.75	$ 5.22
PPP-derived rate to USD	1.00	2.49	3.16
PPP suggests	Overvalued	Undervalued	Undervalued

Sources: Refinitiv, eBay, Alibaba, Mercado Livre, as of 22 Jun 2020 for similar masks

Inflation and Currencies: The International Fisher Effect

The **International Fisher Effect** (or **IFE**) is a principal that relates inflation rates to exchange rates, through the use of nominal interest rates. The hypothesis suggests that countries with higher nominal interest rates will depreciate against currencies with lower nominal interest rates, given the fact that high nominal interest rates reflect the expectations of high inflation. Note the use of nominal interest rates (as opposed to real interest rates, which are inflation adjusted), as the inclusion of inflation adjustment would contradict the **IFE** as mentioned under the section of **IRP.**

On that topic, it is interesting to note that the interconnectedness of inflation around the world. The chart on the right shows that although inflation measured in local currency can differ drastically between countries, given differing growth dynamics and central bank policy, inflation parity appears to hold across countries when measured in the same currency - US dollars in this case. It is clear to see that South African inflation consistently exceeds that of the other countries we considered, whereas German inflation was consistently the lowest. When considering non-US inflation in US dollars, the story is quite similar. In fact, inflation in South Africa, the UK, and Germany all track US inflation remarkably well when considered in US dollars.



The table below summarises the data contained within the chart. It shows that inflation measured in US dollars in the sample countries were similar over the full period. The reflexive nature of markets, through the process of importing and exporting inflation, allows for a similar level of economic risk over the long-term - although at the expense of short-term accounting risk as measured volatility is much higher.

	Measured in local currency				Measured in US dollars		
	United States	Germany	United Kingdom	South Africa	Germany	United Kingdom	South Africa
Annual compounded inflation	2.9%	**2.0%**	**2.8%**	**8.0%**	2.3%	2.3%	2.8%
Annualised volatilty	0.9%	1.4%	1.5%	1.9%	**10.4%**	**10.4%**	**11.7%**

Source: Refinitiv

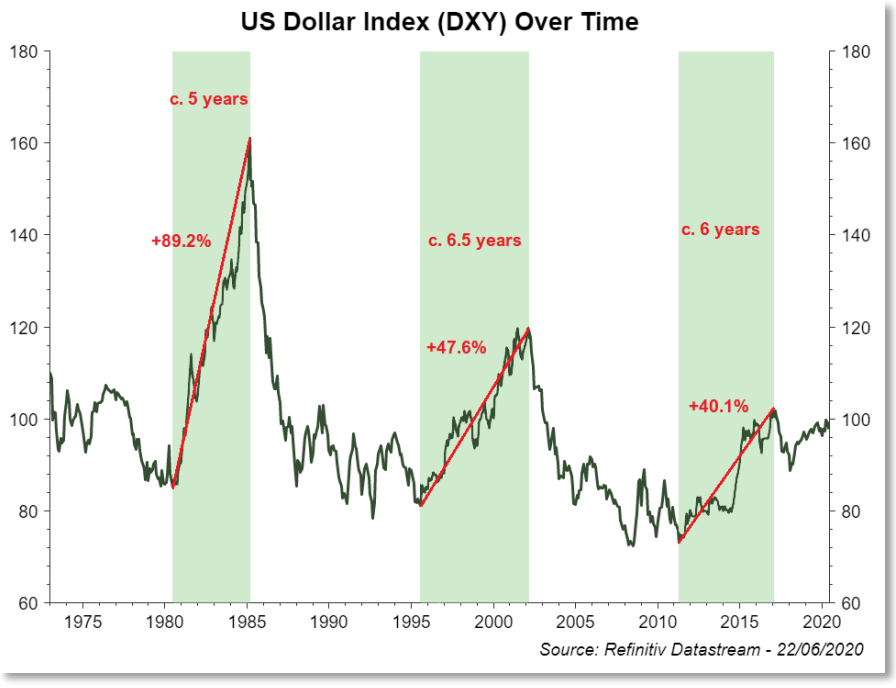
6. Currency Regimes and Where it can go Wrong?

An Interesting History

Currencies are often thought of enduring and that *cash is king* (with the obvious exception of several hyper-inflationary failures like the Zimbabwean dollar). This is the wrong way to think about currencies and there is often a lack of appreciation of risk. While the timeframe to understand the role of currencies is best measured in decades, changes can occur very quickly as seen when currency pegs are broken, or inflation spirals out of control.

For the most part, the classic gold standard was dominant from about the 1870s to start of World War I[6]. During this period currencies were convertible to a set amount of gold, and therefore the rate between currencies was also fixed. The devastation and economic damage caused by World War I largely ended the gold standard. Following the war, a partial resumption of the gold standard in another form ensued, but the Great Depression of the 1930s put severe pressure the on the new system.

In 1944, shortly after World War II ended, 44 countries met in Bretton Woods, New Hampshire. Under the Bretton Woods system which ensued (becoming operational in 1958), countries agreed to keep their currencies fixed to the US dollar, and that the dollar was fixed to gold (at a rate of $35 to an ounce of gold – gold is now trading at $1,700 an ounce). Therefore, the US had the responsibility of adjusting the supply of US dollars to maintain the ability of gold convertibility. The US held about three-quarters of the world's official gold reserves following World War II as Europe and Japan were re-building their economies. In 1971, President Nixon enacted a plan to end the convertibility of US dollars as rising inflation and a potential gold run caused the inevitable end.[7]



After the Bretton Woods Agreement dissolved in 1973 an index called the US dollar Index (DXY) was formed with a base value of 100. The index is made up of a basket of currencies of trading partners of the US and currently includes EUR, JPY, GBP, CAD, SEK, and CHF in differing weight. As shown in the chart on the right, the USD has had periods of strength and weakness relative to these other currencies. Looking at today's DXY index level one would be hard pressed to call the direction of the next move – a stronger or weaker USD? In a world of unique and extreme monetary policy this is even more challenging. Thus, our view – diversify and own growth assets for the long term.

Currency Survival – critical to wealth preservation

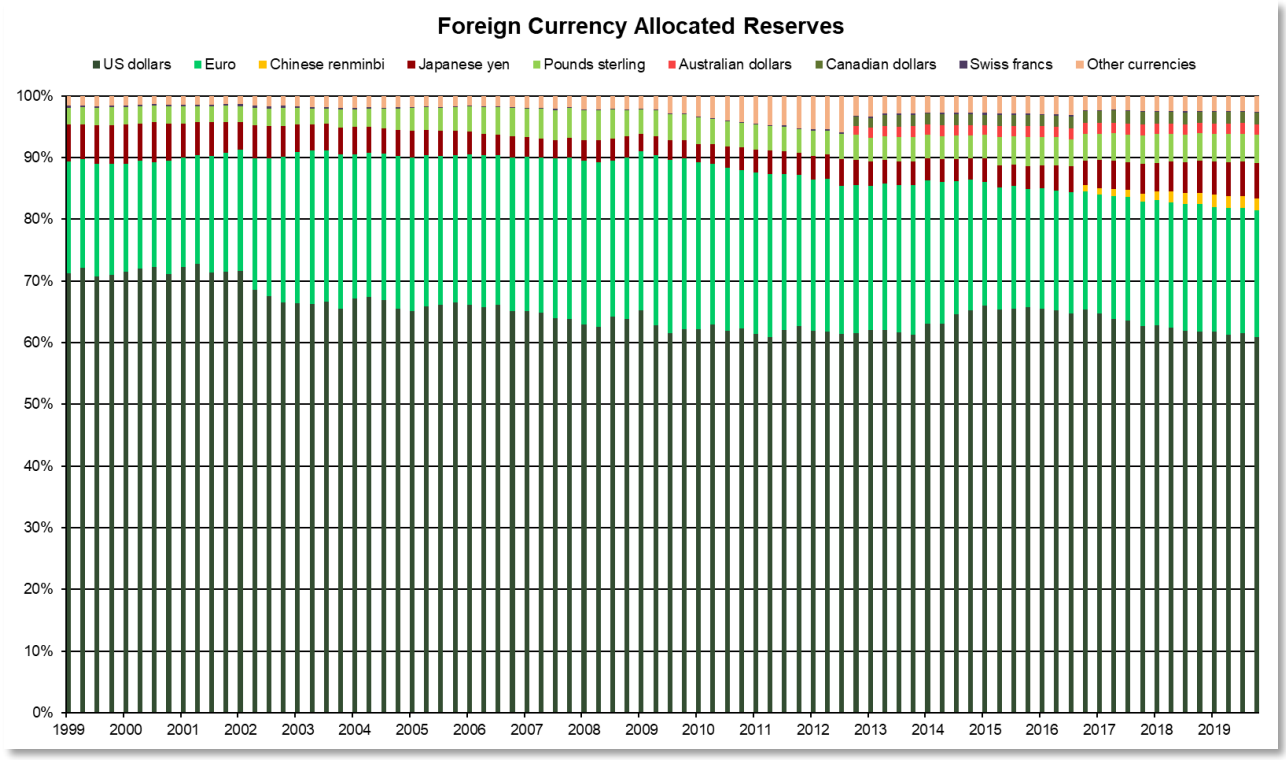
Zimbabwe dollar – Zimbabwe's hyper-inflationary environment, which led to the abandonment of its currency in 2009, is one of the most referenced examples of hyper-inflation. Three re-denominations of the currency took place, in 2006, 2008 and 2009. A total of 25 zeros were taken off the currency from its 2005 level and in 2009 Zimbabwe issued a 100 trillion Zimbabwean dollar note.

Argentine peso - Argentina is no stranger to defaulting, having done so nine times since gaining independence from Spain in 1816 (with three of these being this century). Argentina's currency experienced rapid devaluation with three different currencies being used one after the other in the 1980s. More recently, the relaxation of capital controls in late 2015 saw the peso weaken from 10 to the US dollar to 58 to the US dollar in early September 2019, when capital controls were re-introduced.

Turkish lira – Prior to the current Turkish lira that is in circulation, the previous Turkish lira suffered rapid devaluation. This culminated in 2005 when six zeros were dropped off the end of the currency, in the creation a new Turkish lira. This new Turkish lira has suffered some, but comparatively mild, devaluation (from a rate of 1.4 lira to the US dollar in 2010 to a rate over 7.2 to the US dollar in 2018).

The Reserve Currency of the World

Leading on from the Bretton Woods agreement the US dollar has been dominant. Looking at the split between Foreign Currency Allocated Reserves since 1999 to the end of 2019 one can see that the US dollar has gone from just over 70% of central bank reserves to just over 60%. Although the US dollar has remained a significant reserve currency it is worth noting that the Chinese yuan has become one of the newer reserve currencies entering the foreign currency reserves of the 149 reporting countries. The Canadian dollar and Australian dollar also both entered as relevant reserve currencies in the last decade despite not being included in the Special Drawing Rights (SDR)[8] currency basket as published by the IMF.



Source: IMF

Covid-19 Response

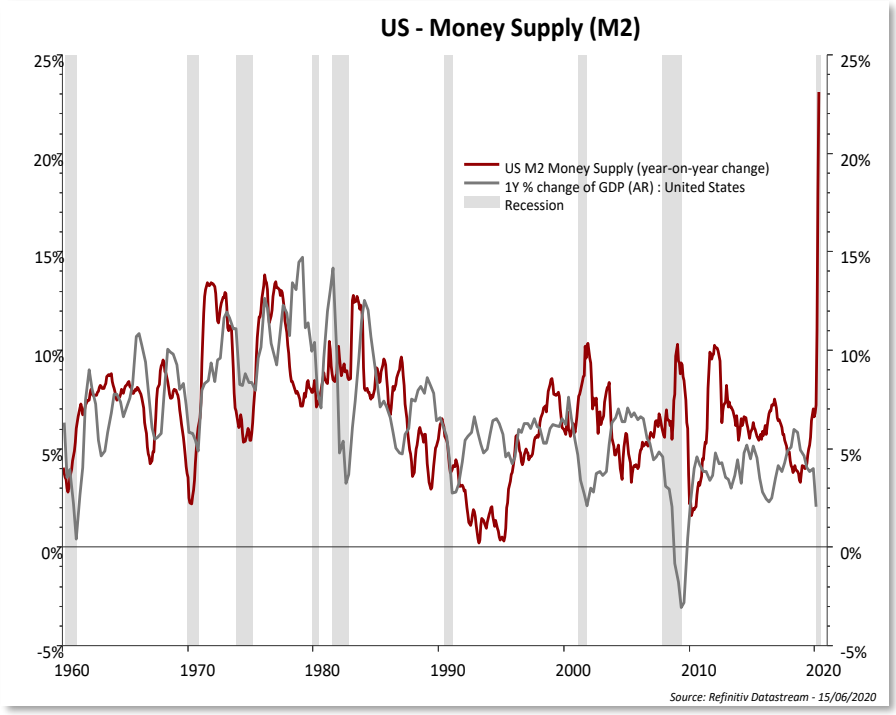
In just 8 days to 19 March 2020, the US dollar index (DYX) strengthened by 8.8% against a broad basket of currencies. Over the same 8-day period the S&P 500 dropped 19% and oil dropped 29%. This almost unprecedented risk-off period in financial markets drove a massive bid for US dollars. At the same time, selling of US dollars was also significantly reduced.

In response to this shortage of US dollars abroad, amongst other measures, the Federal Reserve announced the establishment of temporary swap lines with nine additional[9] (originally five) central banks of up to $60 billion each (Australia, Brazil, Korea, Mexico, Singapore, Sweden, Denmark, Norway, and New Zealand)[10].

This response by the Federal Reserve was vital in supporting the stability of financial markets. With the lack of suitable alternatives, this clear global demand for US dollars and importantly the Federal Reserve's strong response has helped cement the US dollar's hegemony, which has recently been eroded by a number of political decisions taken by the US.

7. Money Supply

The growth in money supply in the US has been unprecedented – and far exceeds the previous largest annual change since data began in 1959. The year-on-year growth in money supply was 23.1% in May 2020. Those that are concerned about a spike in inflation or de-basement of the US dollar point squarely to this chart. In the last 12 months, US inflation has trended towards zero, the Fed Funds target rate cut to a 0%-0.25% range and the US dollar has remained relatively flat against other currencies (as measured by DXY). It is clear that there have been no immediate adverse implications for the US or for the US dollar, but the arguments for impending US dollar weakness have become much stronger.



Money Supply Definition: ***M1*** *includes funds that are readily accessible for spending: currency outside the US Treasury, Federal Reserve Banks, and the vaults of depository institutions; traveller's checks of nonbank issuers; demand deposits; and other checkable deposits.*

M2 *includes a broader set of financial assets held principally by households: M1 plus savings deposits; small-denomination time deposits; and balances in retail money market mutual funds.*[1]

The famous economist, Milton Friedman once said, "Inflation is always and everywhere a monetary phenomenon"[11]. It therefore follows that a massive increase in supply of money should result in a spike in inflation due to the abrupt increase in money that is available to be spent on the same volume of goods and services. This is, however, under the assumption that the increased supply of money is indeed competing for the same goods and services and not being tied up in other financial assets. The velocity of money (the number of times a dollar is spent to buy domestically produced goods and services per unit of time[12]) is also important to consider. In the US this measure has been steadily declining since the late 1990s and is currently just 1.4, its lowest since data began in 1959 (historical average is 1.8)[13].

The US is not alone in an increase in money supply: in the UK, Eurozone and Japan this measure (year-on-year M2 growth) is close to 5%, with China's year-on-year money supply increasing from 8.4% in January 2020 to 11.1% in May 2020.

What impact will this spike in money supply have? Will there be a spike in inflation or a general debasement of the US dollar? The consensus, with which we agree, is that a major spike in inflation is unlikely to occur in the short term, and a broader weakening of the US dollar is appearing more likely. The unique dominance of the US dollar in global financial markets since it became the leading reserve currency, overtaking the Pound around 100 years ago[14], and the pre-eminence of the US in global political and economic facets is likely to provide notable support to the currency despite this view of

weakening. Furthermore, against which currency or asset will the US dollar weaken? It may be against gold, crypto, "other" currencies, or other financial assets like investments in the S&P 500.

8. Conclusion

With yields for US dollar cash (and for many other developed market currencies) being effectively nil, investors are increasingly challenging the role of currencies within their portfolios. From an economic standpoint the holding of cash does provide downside protection but the relative value of a currency should also be considered against a basket of goods and services (for this is what one would spend their cash on), gold (its longevity and ubiquity in society makes it a consistent comparison) and other investments (such as real estate and stocks as these are other stores of value).

The relationship between currencies is complex and the competing influence of factors such as interest rate parity, trade and investment flows, global risk sentiment and local monetary policy decisions can result in difficult to predict currency relationships. For these reasons, the diversity of currency exposure, from an economic point of view (and to a lesser extent accounting or measurement point of view) will continue to be vital for investors to achieve their investment objectives.

9. References

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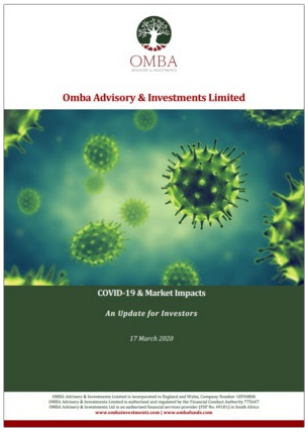
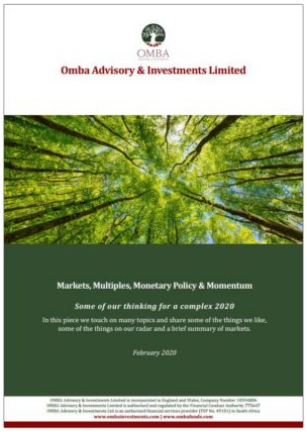


COVID-19: An Update on the Impact on Markets and Economies

February, 1Q 2020 and March, 2Q 2020

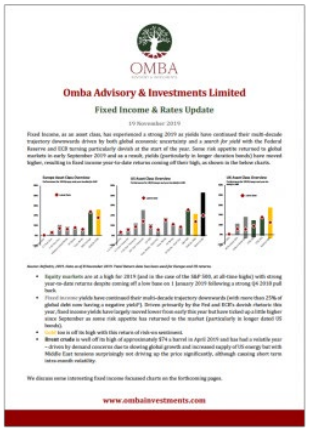
Given the sharp movements in markets this week we thought we would take this opportunity to provide a short summary of the current state of markets and an updated commentary on Coronavirus (COVID-19) itself – attached above. We hope it provides a good summary of the global impact and spread thus far.



Omba 2020 Outlook

February, 1Q 2020

Markets, Multiples, Monetary Policy & Momentum! Some of our thinking for a complex 2020 In this piece we touch on many topics and share some of the things we like, some of the things on our radar and a brief summary of markets.



Fixed Income and Rates Discussion

November, 4Q 2019

We have recently received a number of questions relating to fixed income and interest rates as we now live in a world of unusually low rates and muted inflation in developed countries. Our analysis team have prepared a short discussion document which looks at some of these issues with accompanying charts and notes.

On The Edge

August, 3Q 2019

Commentary on an Unfolding 2019. Following a large correction in markets in 4Q 2018 and a Hawkish Federal Reserve we've had an about turn into a strong 1H market rally and Dovish Fed…how quickly things can change!

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