

A C O M P R E H E N S I V E G U I D E T O

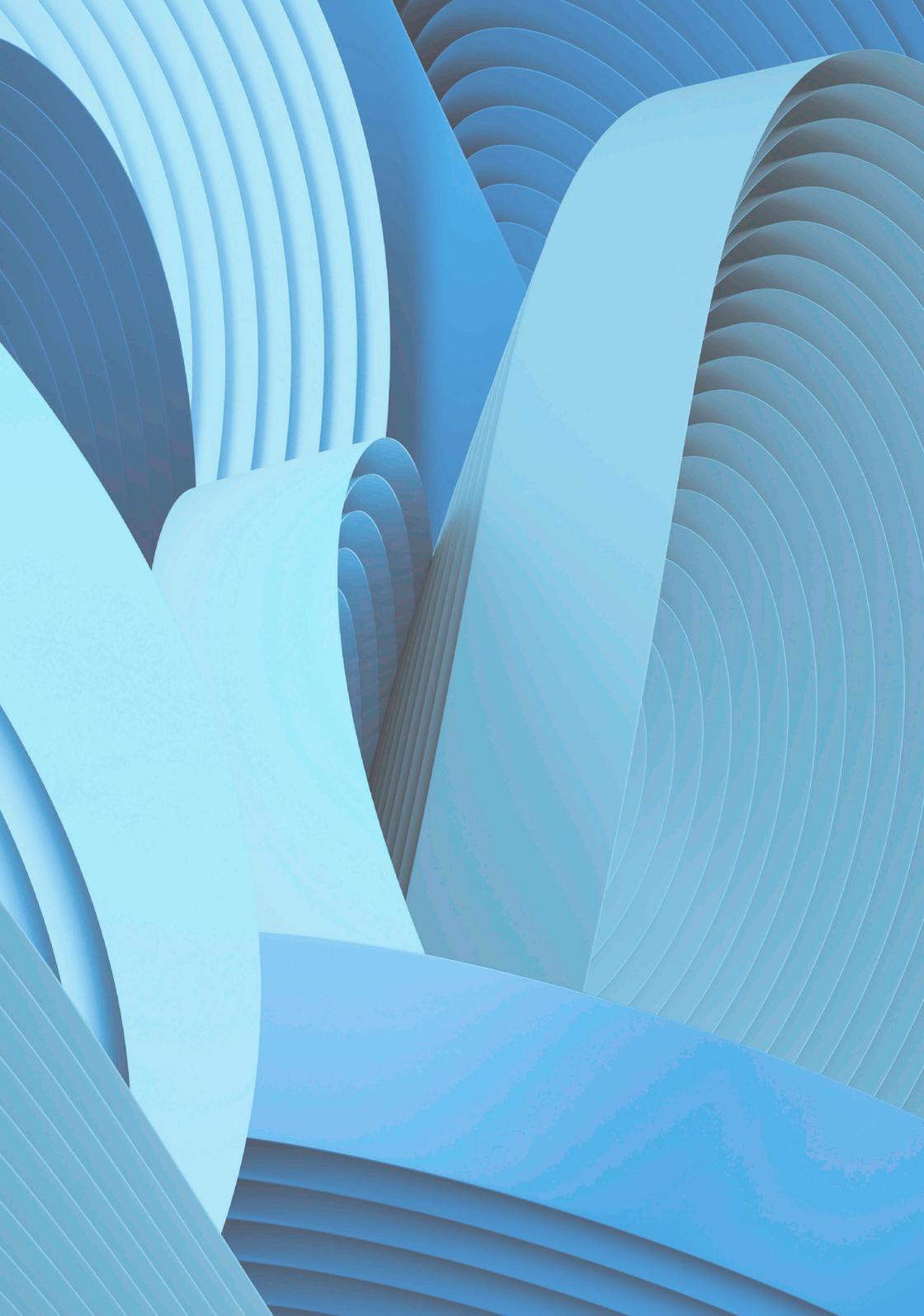
# CURRENCY ISSUES FOR INSTITUTIONAL I N V E S T O R S



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# INTRODUCTION

## Currency Management for International Investors

Institutional investors are progressively increasing their exposure to foreign assets in order to diversify their portfolios and gain access to new opportunities for higher returns. Currency exposures are an unavoidable part of that process. Today, for most institutional portfolios, currencies are the second highest contributor to risk in the total portfolio behind equities.

As a result, currency risk matters and its impact is too big to be ignored.

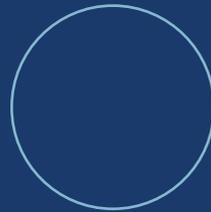
This book is designed to be both a primer on the currency market for those engaging with it for the first time and a guide to introduce and explain the options available for managing currency risk for those with a good working knowledge of the subject.

It is a market quite different in size and scope to traditional asset classes and has a terminology all of its own which can be indecipherable to investors without daily familiarity. Most particularly, it exhibits behavioural traits altogether different from traditional asset markets. The purpose of Section 1 is to demystify all these aspects of the global currency market.

Section 2 focuses on the options available to manage currency risk as there is no one-size-fits-all solution. The strategy that suits you best will come from an assessment of your underlying investment objective, your institutional risk appetite and your familiarity and comfort level with the topic. This section is designed to give you that familiarity and comfort so that you can confidently engage in deciding upon the most effective currency management solution to meet your institutional and fiduciary needs.

Section 3 explains the practicalities of implementing a currency programme including “best execution” and operational issues.

# OVERVIEW



## SECTION 1:

THE FUNDAMENTALS OF THE FOREIGN EXCHANGE MARKET

### CHAPTER 1

The Global Currency Market

### CHAPTER 2

Symbols, Conventions and Pricing

### CHAPTER 3

The Behaviour of Currencies

## SECTION 2:

HOW TO MANAGE CURRENCY EXPOSURE - THE DIFFERENT APPROACHES

### CHAPTER 4

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### CHAPTER 5

Passive Currency Hedging

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### CHAPTER 8

Addressing Emerging Market Currency Exposure

## SECTION 3:

THE PRACTICALITIES OF IMPLEMENTATION

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The Importance of Best Execution

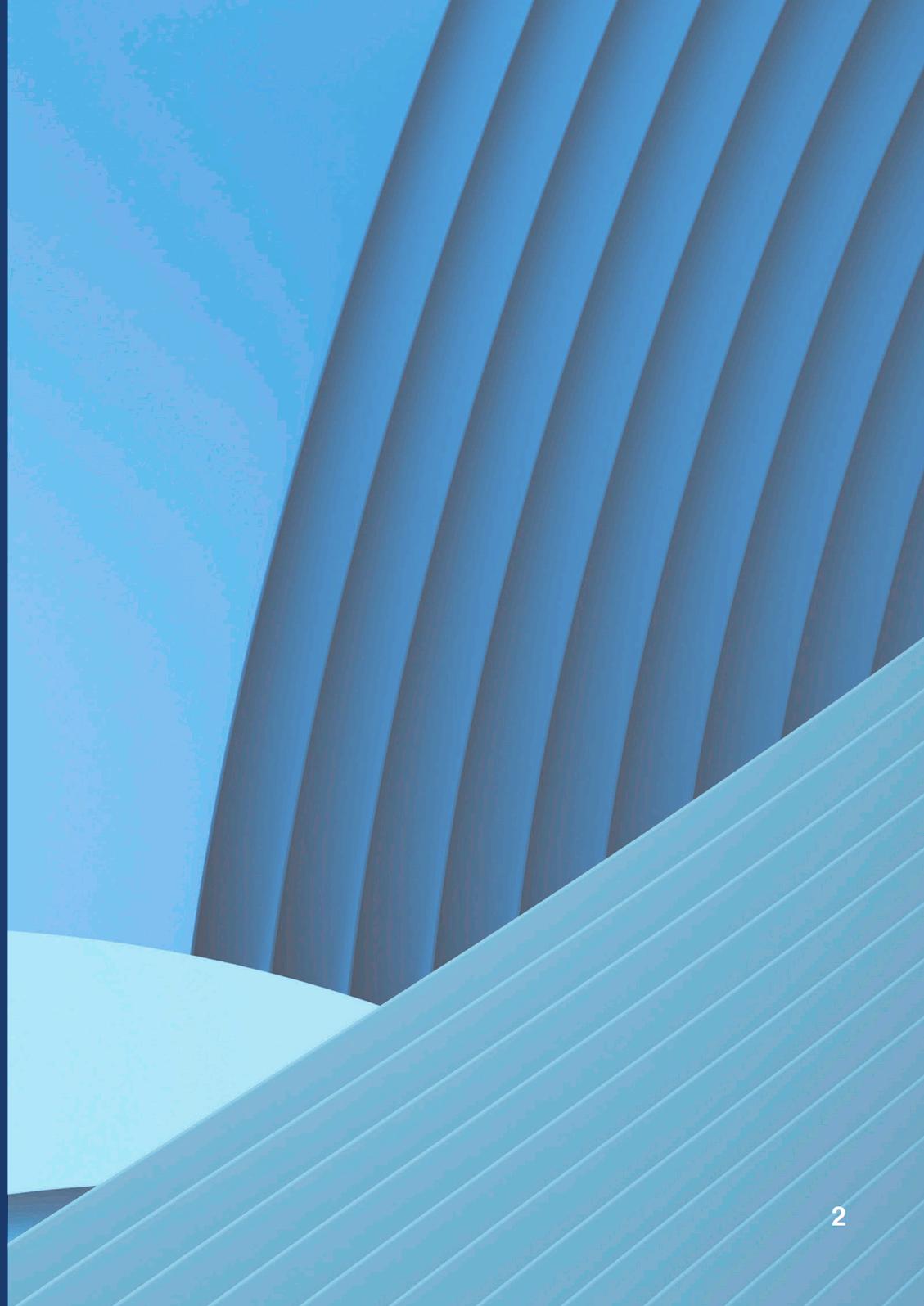
### CHAPTER 10

Managing a Currency Programme – The Mechanics

## SUMMARY

**APPENDIX** : A Brief History of Sterling

# CHAPTER ONE



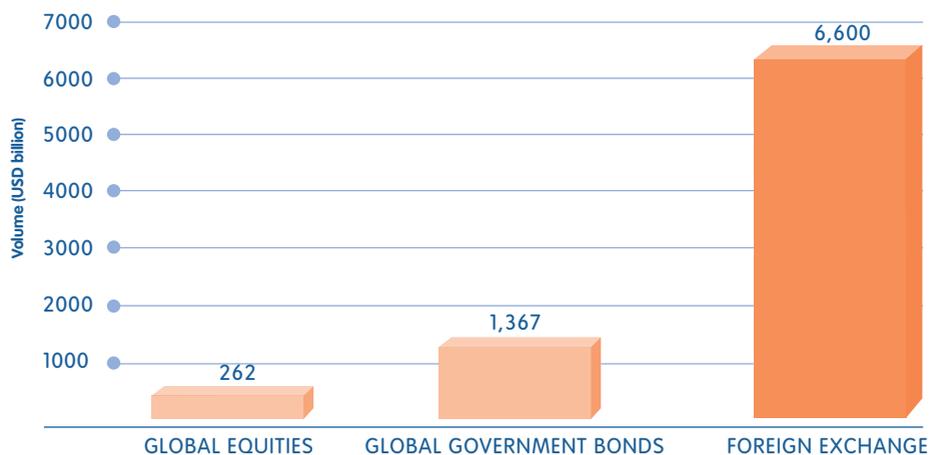
# THE GLOBAL CURRENCY MARKET

The foreign exchange market is a global, decentralised, over-the-counter market for the trading of currencies. It is comprised of a global network of financial centres that transact 24 hours each business day in which prices are offered principally by large international banks to facilitate trade between buyers and sellers of currencies.

The market “moves with the sun” throughout the trading day commencing each week on Monday morning in Wellington, New Zealand and finishing on Friday evening in New York, USA..

The market is unique versus other financial markets due to its gargantuan trading volume, deep liquidity, geographic dispersion and low transaction costs. Daily annual turnover in global currency markets dwarfs that of global equity and sovereign fixed income markets.

COMPARISON OF AVERAGE DAILY TRADING VOLUME IN GLOBAL FINANCIAL MARKETS



Source: Foreign Exchange turnover - Bank for International Settlements Triennial Central Bank Survey (April 2019) . Global Equities turnover - World Federation of Exchanges (2018) divided by 260 days. Global Bonds turnover - Securities Industry and Financial Markets Association (2018) and Millennium Global

The Bank of International Settlements Triennial Central Bank Survey is the most comprehensive source of information on the size and structure of the global foreign exchange market. (The survey takes place every 3 years and volume statistics were first gathered in 1989).

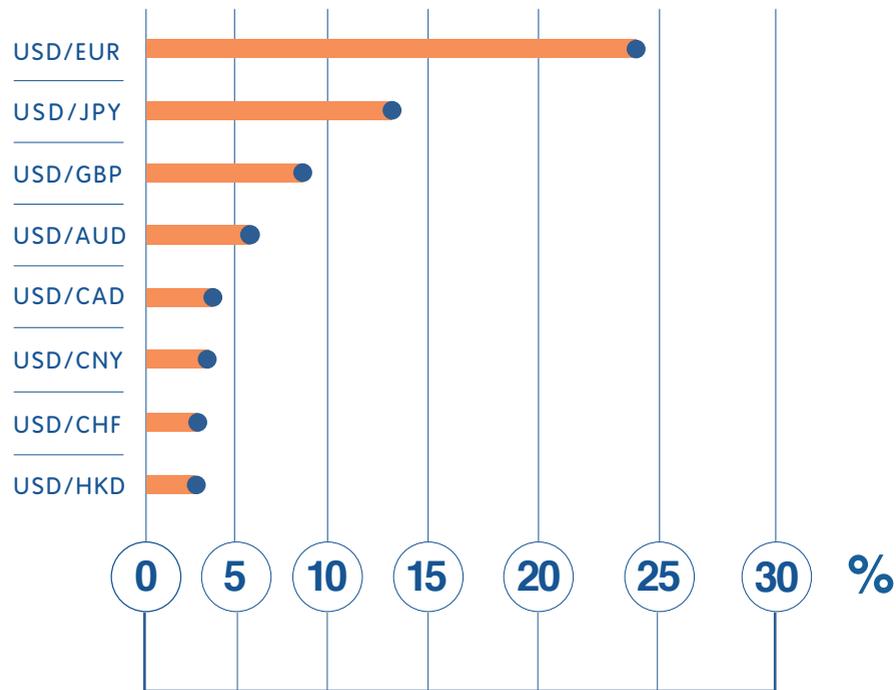
## KEY FACTS (April 2019)

<b>DAILY TURNOVER - USD 6.6 TRILLION</b>
<b>TURNOVER ROSE BY ALMOST 30% IN 3 YEARS FROM USD 5.1 TRILLION IN 2016.</b>
<b>THE US DOLLAR IS THE WORLD'S DOMINANT CURRENCY BEING ON ONE SIDE OF 88% OF ALL TRADES</b>
<b>THE NEXT 3 LARGEST CURRENCIES BY TURNOVER ARE: EURO 32% - JAPANESE YEN 17% - BRITISH POUND 13%</b>
<b>BRITISH POUND MAJOR CROSSES: US DOLLAR = 9.6%, EURO = 2.0%</b>
<b>EMERGING MARKET CURRENCIES IN AGGREGATE SUM TO 25% OF TOTAL TURNOVER</b>
<b>THE CHINESE RENMINBI IS THE 8TH MOST TRADED CURRENCY INVOLVED IN 4% OF ALL TRADES</b>

# DAILY FX TRADING VOLUME

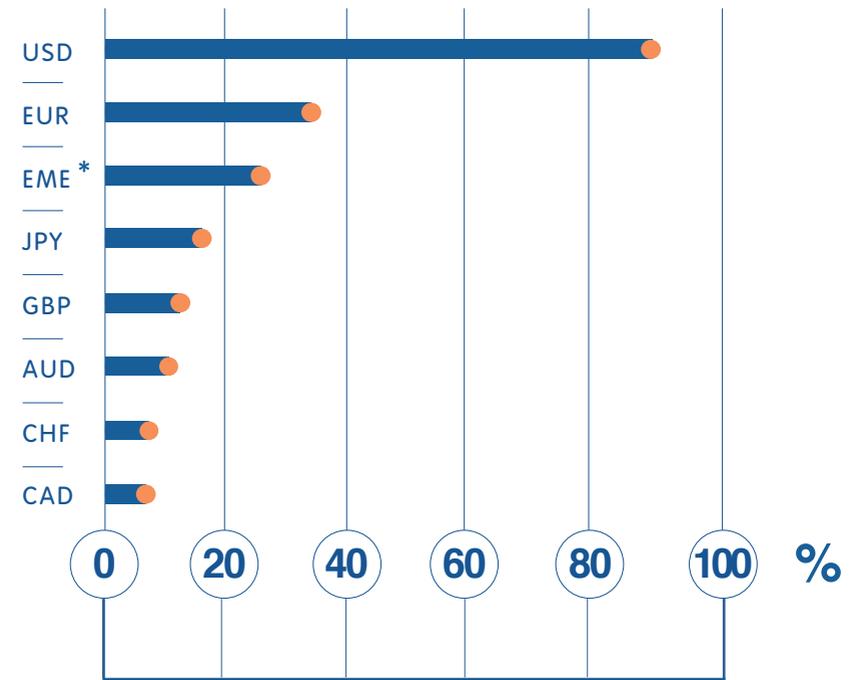
There are approximately 180 recognised currencies in the world although the major currencies make up the vast majority of daily turnover.

OTC FOREIGN EXCHANGE TURNOVER BY CURRENCY PAIR



Source: BIS Triennial Central Bank Survey Foreign exchange turnover in April 2019.

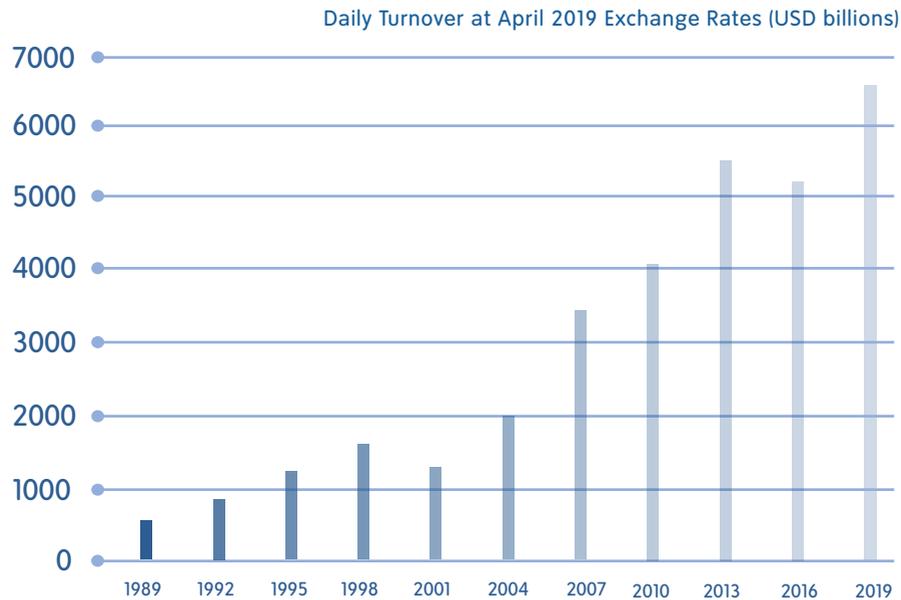
CURRENCY DISTRIBUTION OF OTC FOREIGN EXCHANGE TURNOVER



Source: BIS Triennial Central Bank Survey Foreign exchange turnover in April 2019.

\*EME = All emerging market currencies

# GROWTH IN DAILY FX TURNOVER



Source: BIS Triennial Central Bank Survey Foreign exchange turnover in April 1989 to April 2019.

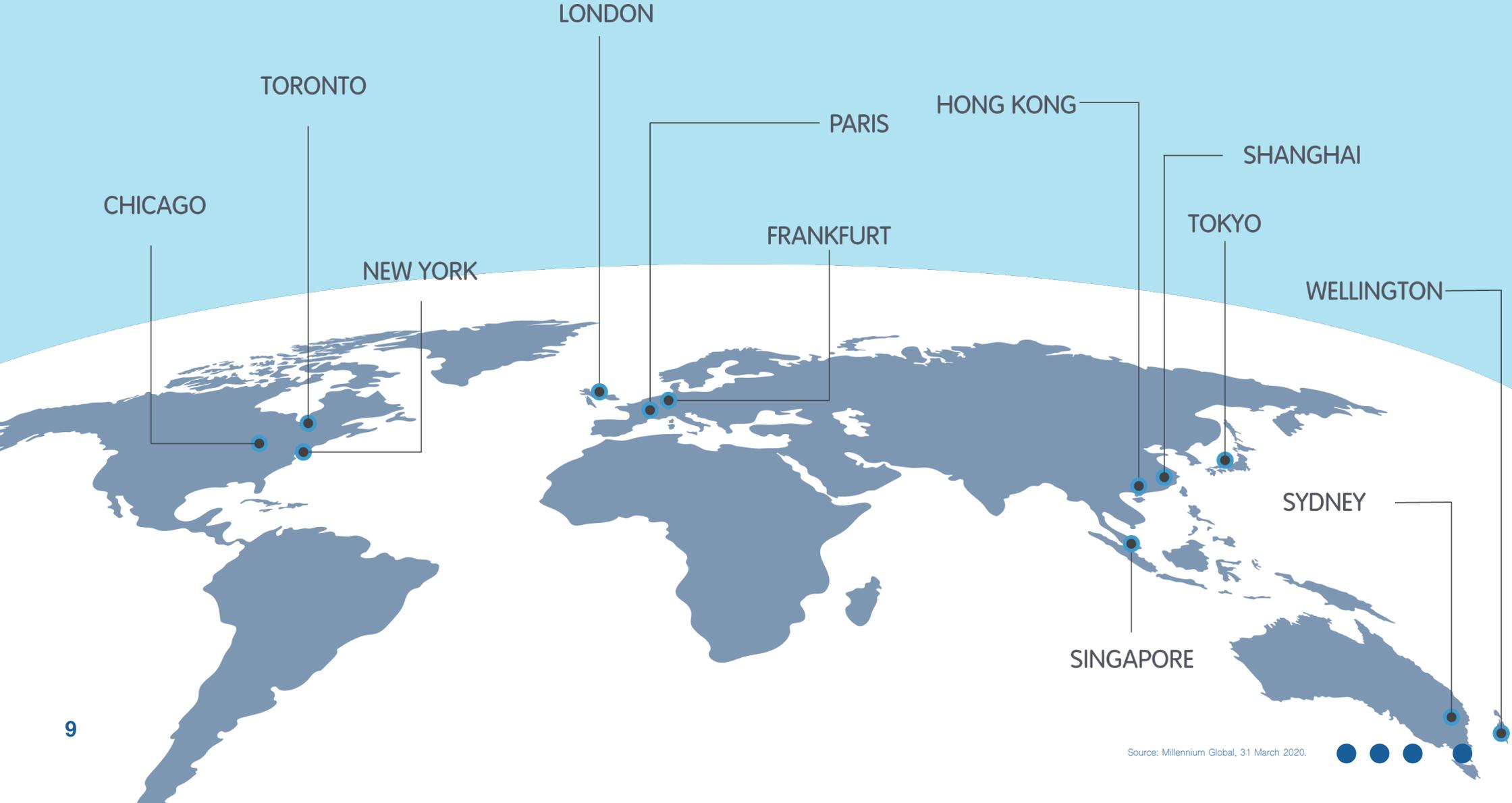
## MARKET LIQUIDITY AND COST

In a normal trading day at the most liquid time, a GBP 10 million trade exchanging British pounds for US dollars will involve a bid-offer spread of approximately 1.3 basis points or 0.013%. On a trade size of GBP 100 million, the spread will be around 7.0 basis points or 0.07%. Similar, albeit very slightly wider, spreads are charged when exchanging British pounds for Euros even though volumes are about 5 times smaller in the Euro market than the US dollar market. (In times of financial crisis, these spreads have historically widened significantly as is the case for all financial assets.)

If traded at the official WM Reuters “fixing rate” at 4pm London, most banks are charging around \$15 per USD 1 million traded hence, the cost is 0.0015% when traded at the official “fixing rate”.



MAJOR GLOBAL  
TRADING CENTRES  
OF THE FOREIGN  
EXCHANGE MARKET



CHICAGO

TORONTO

NEW YORK

LONDON

FRANKFURT

PARIS

HONG KONG

SINGAPORE

TOKYO

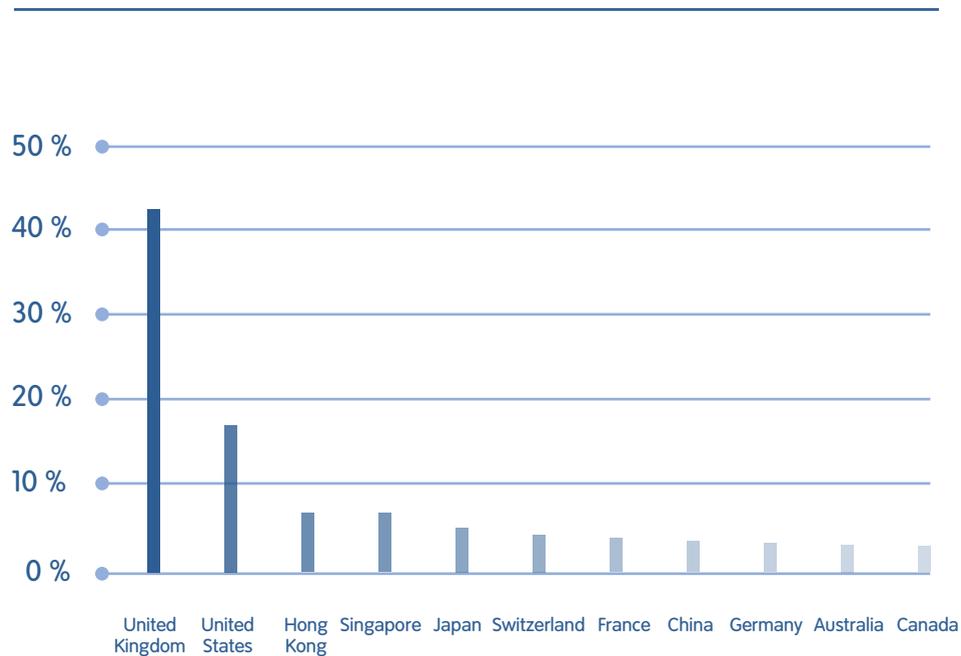
SHANGHAI

SYDNEY

WELLINGTON

## GEOGRAPHICAL DISTRIBUTION OF FOREIGN EXCHANGE TURNOVER (% OF TOTAL)

London is the centre of the foreign exchange market as 43% of all transactions take place there. Given the market's global dimension and London's time zone position in the middle of the global trading day, it benefits from connections to both the end of the Asian trading session and the start of the North and South American trading day.



Source: BIS Triennial Central Bank Survey Foreign exchange turnover in April 1989 to April 2019.



## WHO ARE THE PARTICIPANTS IN THE GLOBAL CURRENCY MARKET?

Anyone who makes a cross-border transaction is involved in the global currency market including:

<b>CORPORATIONS MANAGING THEIR TRADE FLOWS</b>
<b>PENSION FUNDS AND INSURANCE COMPANIES INVESTING THEIR ASSETS OVERSEAS</b>
<b>FOUNDATIONS AND ENDOWMENTS MAKING FOREIGN INVESTMENTS</b>
<b>CENTRAL BANKS AND FINANCE MINISTRIES MANAGING ECONOMIC POLICY</b>
<b>COMMERCIAL AND INVESTMENT BANKS MANAGING THEIR GLOBAL OPERATIONS</b>
<b>HEDGE FUNDS AND PRIVATE EQUITY COMPANIES SEEKING FOREIGN INVESTMENT OPPORTUNITIES</b>
<b>MIGRANT WORKERS REMITTING WAGES TO THEIR HOME COUNTRY</b>
<b>TOURISTS VACATIONING OVERSEAS</b>

As global trade has grown and cross border investment has expanded everywhere, the size and importance of the market has increased and continues to do so at a rapid rate. Formally, referred to as the Foreign Exchange Market it is often shortened to "Forex Market", "FX Market" or simply the "Global Currency Market".

# KEY TAKEAWAYS

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1) THE MARKET IS LARGE, LIQUID AND TRANSPARENT AND DWARFS THE SIZE OF TRADITIONAL ASSET CLASSES.

2) THE US DOLLAR DOMINATES TRANSACTION TURNOVER WHILE THE BRITISH POUND IS THE 4TH MOST TRADED CURRENCY.

3) AS A RESULT OF THE DEPTH IN LIQUIDITY, TRANSACTION COSTS ARE VERY LOW.

4) IT IS A MARKET CENTRED IN LONDON BUT IS OPEN THROUGHOUT THE GLOBAL TRADING DAY.



# CHAPTER TWO



## SYMBOLS, CONVENTIONS AND PRICING

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All currencies trade in pairs and prices are quoted as an amount of one currency per unit of another hence, each individual currency is quoted in a relative terms. While within fixed income, equity and property markets, prices can all rise or fall in unison, an absolute rise or fall for all currencies simultaneously is impossible because currencies trade in this relative universe. One currency rising will always infer that another currency is falling.

There is a standard market convention for the way currency pairs are quoted and a standard language in which they are referenced.



# CURRENCY QUOTES

The British pound sterling has its highest turnover versus the US dollar which constitutes almost 10% of all daily volume traded. The following conventions apply:

<b>SYMBOL:</b>	GBP/USD (British pound/US dollar)
<b>LANGUAGE:</b>	"STERLING-DOLLAR " or "CABLE"
<b>BASE CURRENCY:</b>	<p>This is always the currency on the left hand-side of the symbol. The other currency is known as the Counter Currency.</p> <p>The Base currency is the unit in which the amount of the other currency is expressed e.g. how many units of US dollars can be exchanged for 1 unit of British pounds</p>
<b>PRICE QUOTES:</b>	<p>GBP/USD = 1.3500</p> <p>This means that 1 pound can be exchanged for 1.3500 US dollars</p> <p>(The inverse of this is that 1 US dollar is worth <math>1/1.3500 = c.0.7407</math> British pounds)</p>

GBP/USD is colloquially known as "Cable" as in the nineteenth century, exchange rate quotes began to be transmitted between the UK and the USA by a submarine communications cable.

# THE RANKING ORDER IN CURRENCY PAIRS



The prevailing forex market quotation convention gives precedence to certain currencies over others and this determines whether they are quoted as the base currency or the counter currency in a currency pair.

This established priority ranking for seven of the most commonly traded currencies is as follows:

**1 EUR > 2 GBP > 3 AUD > 4 NZD > 5 USD > 6 CHF > 7 JPY**

For example, according to this established ranking order, the foreign exchange market quotes "GBP/USD" rather than "USD/GBP" with the British pound as the base currency and "EUR/GBP" rather than "GBP/EUR" with the euro as the base currency. The British pound is always the base currency versus every currency except the euro, principally for historical reasons from when sterling was the world's reserve currency.

The primary market for the British pound is versus the US dollar in terms of volume although the euro-sterling market is also liquid. When market makers quote prices on currencies other than the US dollar or the euro, they will typically "triangulate".

What this means is that when a market price is quoted on, for example, GBP/AUD, ("sterling-Aussie") it will be calculated via the GBP/USD and AUD/USD markets as this is where the liquidity resides.

As such, the calculation comes out of the "triangular" relationship between GBP/USD, AUD/USD and GBP/AUD, the prices for which must all reconcile at every moment in time.

If they became misaligned a risk-free profitable arbitrage would be available and so capital flows between each currency to ensure that this relationship holds at all times.

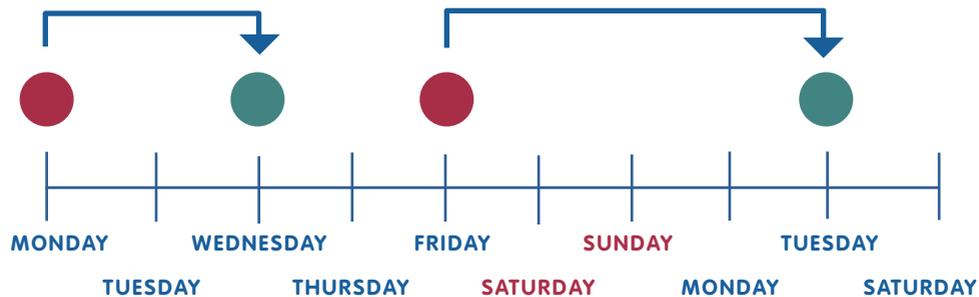
# SPOT FOREIGN EXCHANGE TRANSACTIONS

The current price of a financial instrument is called the spot price.

It is the price at which an instrument can be sold or bought at immediately (literally, it is the price “on the spot”). The foreign exchange spot rate is the prevailing quote for any given currency pair. Foreign exchange spot contracts are usually for delivery in two business days.

SPOT DATE (IN RED)

SETTLEMENT DATE T+2 (IN GREEN)



# FORWARD FOREIGN EXCHANGE CONTRACTS

A forward foreign exchange rate, on the other hand, is the settlement price of a transaction that will not take place until a predetermined date in the future; it is a forward-looking price.

The difference in price of a forward contract versus a spot contract takes into account the time value of the payment, based on the relevant interest rates and time to maturity. In the case of foreign exchange, the inter-bank interest rate differential between the two currencies is used for this calculation.

Forward currency contracts are a staple of the foreign exchange market whereby a market participant contracts to buy one currency versus another at a price set today but to be exchanged at some predetermined date in the future (hence, “forward contract”).

These are typically 1 or 3 months but it is not uncommon to extend over years e.g. where a corporate has known receivables in several years time and wants to hedge the currency risk today. With over-the-counter contracts rather than standardised futures contracts with set amounts and expiries, they can be tailored to exact amounts and any desired expiry date for maximum convenience.



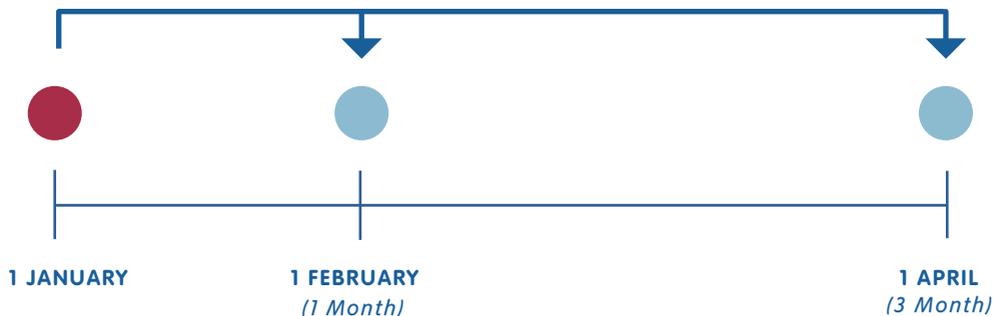
## FORWARD CONTRACTS ARE CAPITAL EFFICIENT

These contracts are typically undertaken on an “unfunded” basis meaning that the currency which is being sold is not required to be delivered until the settlement day and so no capital is required to secure the contract (although in certain cases a small “initial margin” is required to support the contract and/or “variation margin” which accounts for the daily profit or loss accrued on the contract).

This structure enables investors to gain exposure to currencies for investment or speculative purposes and for hedgers to implement hedging strategies with very limited capital commitment.

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TRADE DATE (IN RED)  
AND SETTLEMENT DATES (IN BLUE)



# CASE STUDY

## FORWARD CONTRACT PRICING DOES NOT INCLUDE FUTURE INVESTOR EXPECTATIONS

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It is very important to note that forward prices are not impacted by the future expectations of investors but solely by the relative interest rate differential.

The reason for this is that if the forward price did not reflect the interest rate differential there would be a risk free profitable arbitrage between the spot rate, forward rate and currency interest rates.

Capital flows trying to exploit this arbitrage ensures that forward foreign exchange rates do not deviate from this pricing in normal times.

### EXAMPLE:

A British investor has GBP 1,000,000 to invest for a year.

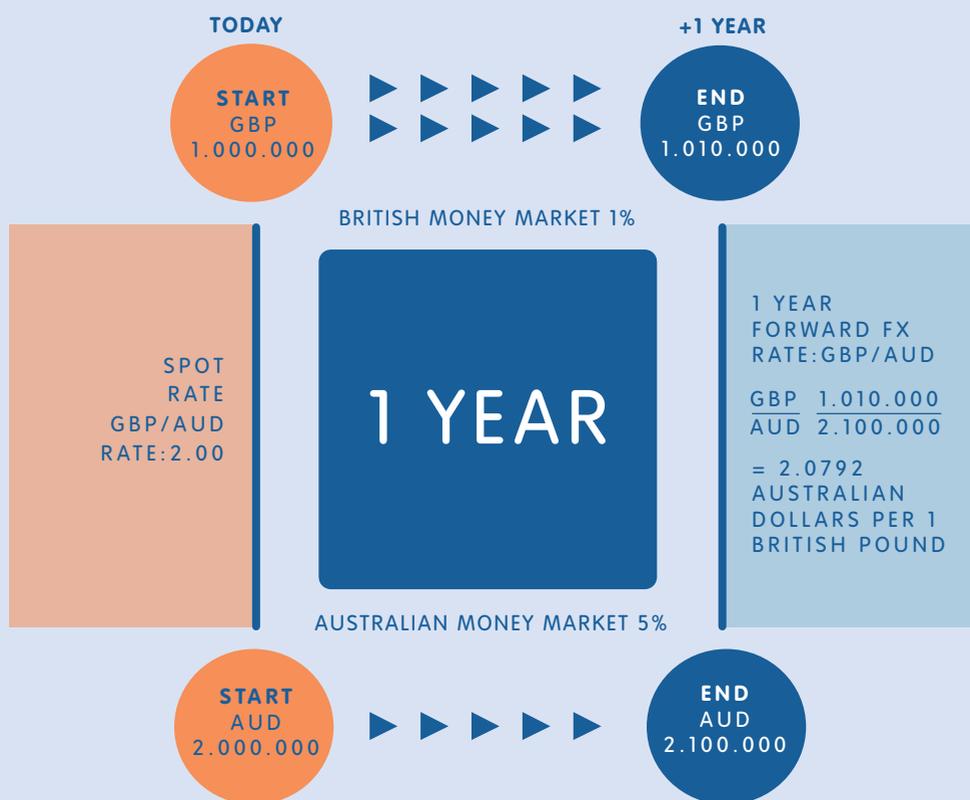
There are two options to consider which have an identical level of risk:

- A)** To invest in the British money market with a 1 year maturity.
- B)** To invest in the higher yielding Australian money market and hedge the currency exposure for 1 year.

(The interest rates shown are for illustrative purposes only).



# THE RELATIONSHIP BETWEEN FORWARD FX RATES AND MONEY MARKET INTEREST RATES



## OPTION 1.

The investor can invest this money in a local bank in London and earn an annual return of 1% to receive GBP 1,010,000 in 1 year's time.

## OPTION 2.

Alternatively, the investor could do the following:

- 1** Convert the British pounds to Australian dollars at a spot rate of AUD/USD 2.00 giving AUD 2,000,000 and place a AUD deposit in Sydney earning 5% so as to receive AUD 2,100,000 in 1 year's time.
- 2** Given that the base currency is British pounds, currency risk can be eliminated by executing a forward contract today to sell the Australian dollars in 1 year's time.
- 3** If the forward rate was the same as the spot rate, the AUD 2,100,000 could be converted at an exchange rate of 2.00 to provide GBP 1,050,000 and make a profit over Option 1 of GBP 40,000 (1,050,000 – 1,010,000).
- 4** In practice, this does not happen because the forward foreign exchange rate adjusts via capital flows to exploit this potential arbitrage so as to exactly offset the difference in interest rates in each country.
- 5** The forward foreign exchange rate today for 1 year settlement will be  $2,100,000 / 1,010,000 = 2.0792$  (rounded) so that when the Australian dollars are sold forward into British pounds today at 2.0792 the investor will receive 1,010,000 British pounds in 1 year's time – exactly the same return as placing the sterling funds on deposit in London.

This relationship between interest rates, spot FX rates and forward FX rates is known as "Covered Interest Rate Parity" and is a feature of forward foreign exchange markets. The result of Option 1 and Option 2 above are the same.

Note that this relationship between forward exchange rates and interest rates means that there is no element of the future expectations of investors in forward exchange rates.

If investors are bearish (bullish) on a currency, their capital flow will drive the spot price down (up) but the relationship to the forward price will only be determined by the interest rate differential between the two countries.

## “EXCEPTIONS TO THE RULE”

The so-called “foreign exchange basis swap rate” reflects the difference between the interest rate in the money market and the implied interest rate from the FX forward market where someone implicitly borrows one currency by pledging another currency as collateral.

A negative basis means that borrowing a currency through FX swaps is more expensive than borrowing in the money market. In tranquil times, the basis is close to zero as described above, as an arbitrageur can exploit the basis and supply one currency in the FX swap market in order to pocket the difference. However, during periods when bank balance sheet capacity is scarce, the basis need not be squeezed to zero

In particular, a large negative basis reflects a scarcity of currency funding. The basis swap tends to widen sharply during financial crises and sometimes modestly at month-end or quarter-end.

## HEDGING CARRY COSTS AND BENEFITS

There are several important practical consequences regarding forward foreign exchange pricing when considering hedging foreign currency exposure.

**1.** If the British interest rate is lower than the foreign interest rate, there is a hedging cost or “carry cost”. due to selling a higher yielding currency to buy a lower yielding currency The British based hedger will receive less British pounds in the forward market than they would do by selling the foreign currency in the spot market today.

**2.** If the British interest rate is higher than the foreign interest rate there is a “yield benefit” to the hedge. The British based hedger will receive more British pounds by selling the foreign currency in the forward market than they would by doing so in the spot market today.

When trading forward foreign exchange contracts – either when hedging foreign currency exposure or increasing foreign currency exposure – the profit or loss on the investment is not only due to the change in the spot rate over time but is also impacted by the interest rate difference over the period of the investment.

Importantly, both the spot change and the relative interest rate impact need to be measured in order for the profit or loss on the forward contract to be calculated at expiry.



## EXAMPLE OF HEDGING COST CALCULATION

Using the British pound/Australian dollar exchange rates from the case study above, if a British investor purchased GBP 1 million worth of the Australian equity market, it would cost AUD 2 million at the spot exchange rate of 2.00. If the British investor was then to hedge the currency risk for 1 year by buying British pounds and selling 2 million Australian dollars 1 year forward, they would receive 1/2.0792 British pounds for every 1 Australian dollar sold today for settlement in 1 year's time thereby summing to GBP 995,025 (rounded).

When the forward hedge was closed in 1 year's time 2 million Australian dollars would need to be purchased to offset the 2 million sold 1 year ago. If the spot rate had not moved during the year, i.e. remained at 2.00, it would cost 1 million British pounds to buy 2 million Australian dollars. This would leave a net loss of GBP 4,975 on the forward settlement due to the lower interest rate earned in British pounds over the year reflected in the forward exchange rate.

In order for the hedge not to lose money it is necessary for the GBP/AUD spot rate to appreciate over the year to offset the impact of UK interest rates being lower than Australian interest rates. For example, the Sterling-Aussie spot rate would have to rise by 3.96% (moving from 2.00 to 2.0792) over a 1 year period to ensure that the hedge would not cost money. Converting the GBP 995,025 received in the 1 year forward hedge at a spot rate of 2.0792 would provide AUD 2,000,000 to settle the hedge at expiry. In this way, the implicit interest rate cost is offset by the spot exchange rate rise.

In summary, lower yielding currencies trade at a premium in the forward market and higher yielding currencies trade at a discount. In the example above, sterling is the lower yielding currency and is stronger in the 1 year forward market than the spot market. This is a direct consequence of ensuring that "Covered Interest Rate Parity" is maintained such that no riskless arbitrage is available between the spot and forward markets.

# KEY TAKEAWAYS

**1) THERE ARE STANDARD CONVENTIONS AND LANGUAGE USED IN DESCRIBING THE FOREIGN EXCHANGE MARKET.**

**2) SPOT AND FORWARD MARKET PRICES DIRECTLY RELATE TO EACH OTHER VIA THE RELATIVE INTEREST RATE DIFFERENTIALS RELEVANT TO EACH CURRENCY PAIR.**

**3) THERE ARE NO INVESTOR EXPECTATIONS OF THE FUTURE EMBEDDED IN THE FORWARD EXCHANGE RATE.**

**4) FORWARD MARKET PRICING IS AN IMPORTANT ELEMENT TO CONSIDER WHEN INCREASING EXPOSURE TO OR HEDGING CURRENCY EXPOSURE.**



# CHAPTER THREE

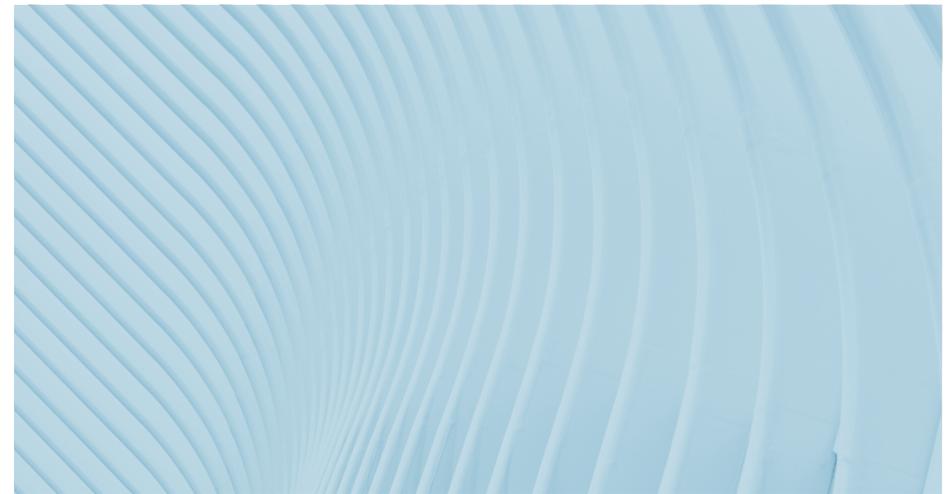


## THE BEHAVIOUR OF CURRENCIES

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In order to gain a perspective on the options for the effective management of currency exposure, it is useful to first understand how currencies tend to behave in comparison with the traditional asset classes of global equity and government fixed income markets.

Having identified this contrast, some key elements of the various approaches to managing this exposure will emerge.



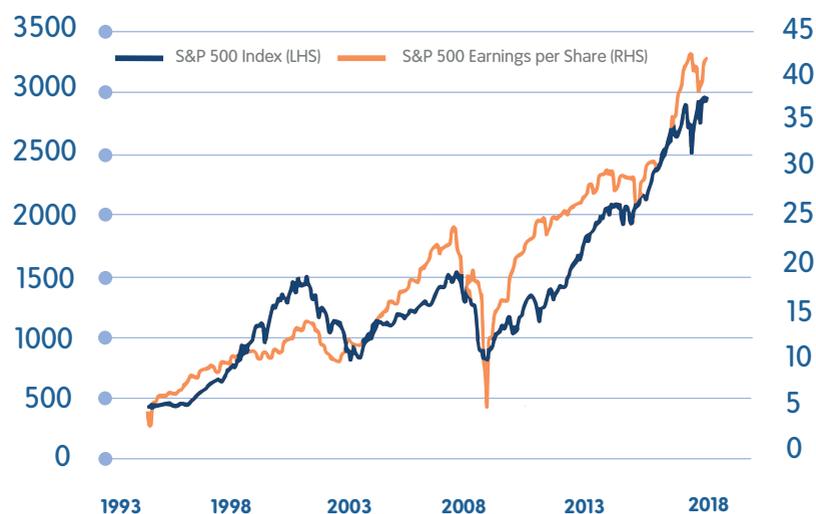
## GLOBAL EQUITY MARKETS

Equity markets are essentially a growth process related to the macro economy – GDP growth – and micro economy – corporate earnings – along with a valuation mechanism.

A stake in a publicly traded corporation is an ownership of the future earnings stream and dividend potential of the business which is valued according to its earnings sustainability, volatility and growth prospects.

This growth process can be seen clearly in the chart below which shows the relationship between US corporate earnings and stock prices over the past 25+ years.

S&P 500 vs S&P 500 EARNINGS PER SHARE



## GOVERNMENT FIXED INCOME MARKETS

Behaviourally, these markets are principally tied to the inflation cycle as this is the key driver in the setting of short-term interest rates by central banks upon which the government yield curve is anchored.

Longer term yields on the coupon curve e.g. US Treasury Notes and Bonds, also include adjustments for:

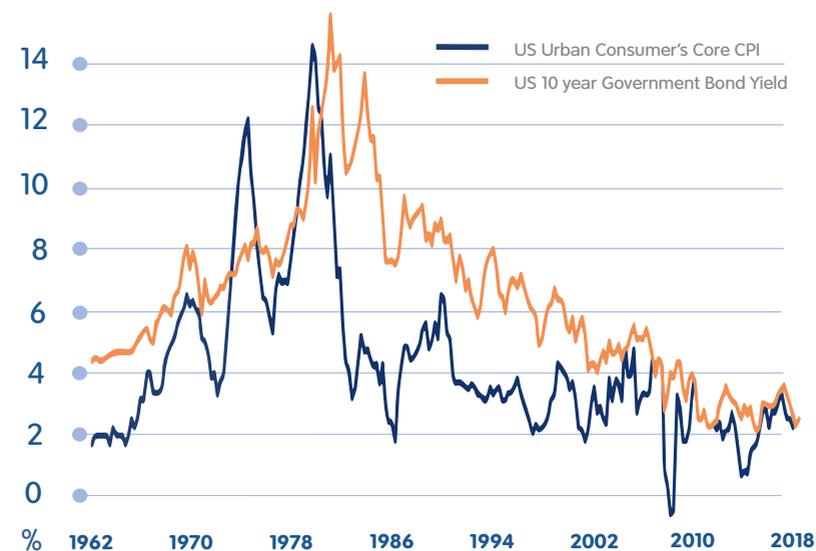
### 1 FUTURE CENTRAL BANK INTEREST RATE EXPECTATIONS

### 2 TERM PREMIUM FOR TIME TO MATURITY

As most central banks have a legal mandate to manage inflation as part of or as the sole focus of their responsibility, future inflation expectations are a fundamental driver of both the expected path of short-term rates and the degree of term premium built into longer term yields.

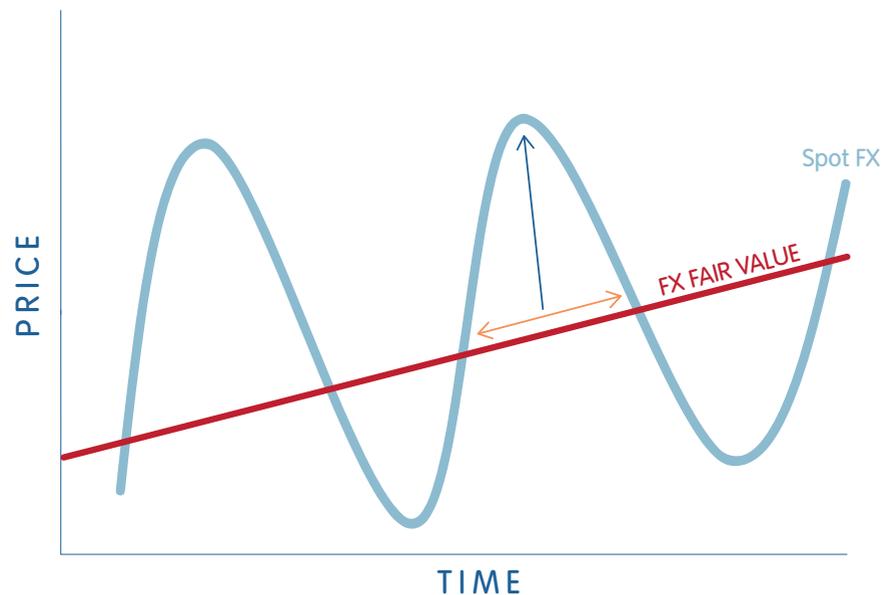
The relationship between US inflation and US Treasury Note yields can be seen in the chart below over the past 50+ years.

US 10 YEAR NOTE YIELDS VS. INFLATION



# THE FOREIGN EXCHANGE MARKET

The essential nature of currency market behaviour is quite different from either equity or fixed income markets and is illustrated by the stylised chart below.



Source: Millennium Global.

There are two key driving forces in medium and long term currency market behaviour, namely:

- 1) COMPETITIVENESS FAIR VALUE.
- 2) CYCLICAL ECONOMIC FACTORS.

**1. COMPETITIVENESS FAIR VALUE** provides an anchor to currency prices around which spot prices tend to oscillate. Levels of competitiveness change over time driven by the relative change in two primary variables.

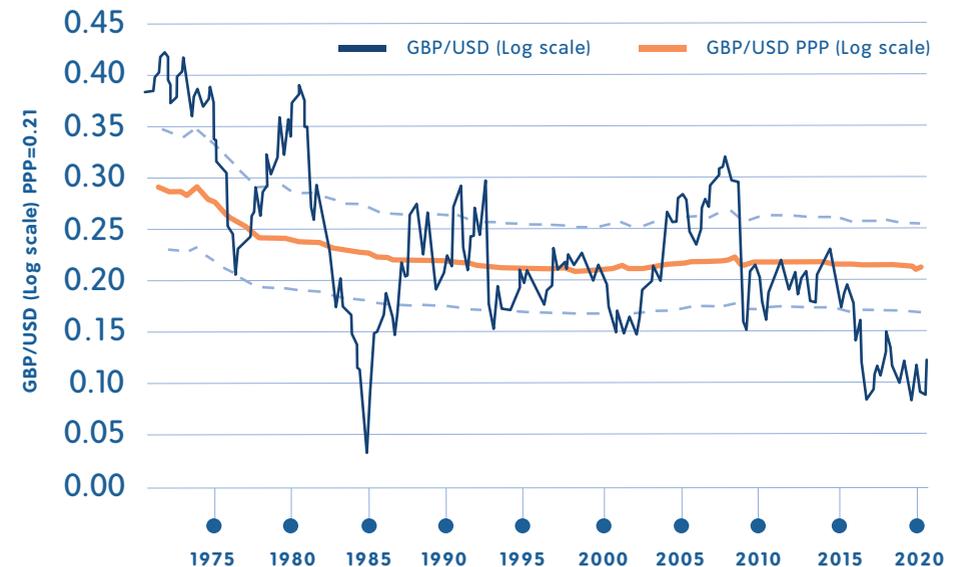
A. INFLATION

B. PRODUCTIVITY

**2. CYCLICAL ECONOMIC FACTORS** such as the level of interest rates and bond yields (both real and nominal), trade balances, fiscal policy and economic growth, all interact to drive the currency towards or away from its competitive fair value level. The movement of currency prices around fair value can be a) large and b) long lasting, due to the interaction of the economic cycle in each country or region versus its trading partners.

The chart below of the British pound/US dollar pair since 1971 bears out this behaviour as it shows both the structural drift in Purchasing Power Parity (PPP) fair value and the cyclical movements around this measure. (A log scale is used to show percentage changes more clearly). The British pound's relationship with other currency pairs shows similar variability.

LONG TERM PERFORMANCE OF BRITISH POUND VS US DOLLAR



Source: Millennium Global and Bloomberg, 1971 to 2020.

# KEY TAKEAWAYS

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1) THE BEHAVIOURAL NATURE OF CURRENCY MARKETS IS FUNDAMENTALLY DIFFERENT FROM BOTH EQUITY AND FIXED INCOME MARKETS.

2) THE LONG TERM COMPETITIVENESS OF COUNTRIES EVOLVES WITH INFLATION AND PRODUCTIVITY DIFFERENTIALS AND HENCE, CURRENCY "FAIR VALUE" CHANGES OVER TIME.

3) CURRENCIES TEND TO EXHIBIT CYCLICAL BEHAVIOUR AND THESE CYCLES CAN BE LARGE AND LONG LASTING OVER MULTI-YEAR PERIODS.

# CASE STUDY

## HOW DO CURRENCY MOVEMENTS IMPACT THE TOTAL RETURNS OF INTERNATIONAL ASSETS IN STERLING TERMS

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When investing in domestic financial markets, an investor is subject to one source of risk and return – the volatility and change in price of the domestic asset.

When investing in international financial markets, an investor is subject to two sources of risk and return – the volatility and change in price of the foreign asset and the volatility and change in price of the foreign currency.

The total return of the foreign asset in British pound terms is an aggregation of the return on the foreign asset in local currency terms and the change in the currency value versus the British pound.



## EXAMPLE 1:

A UK based investor wishes to buy the US equity market seeing it as a good value investment opportunity.

The following table shows the impact of investing GBP 1,000,000 into the US equity market by separating the two sources of return to a sterling based investor.

### NEGATIVE CURRENCY IMPACT ON AN EQUITY PURCHASE

UK Investor BUYS US Equities	Start Date: Purchase of US Equities	Value Change	End Date: Sale of US Equities	Summary
GBP Investment Amount: £1,000,000	US Equities Value: \$1,500,000	+15%	US Equities Value: \$1,725,000	US Equities Appreciate 15%
Exchange Rate: GBP/USD 1.50				GBP Appreciates 10% (USD depreciates by 9.1%)
USD Investment Amount: \$1,500,000	GBP/USD Rate 1.50	+10%	GBP/USD Rate 1.65	
GBP Portfolio Valuation	GBP 1,000,000	+4.5%	GBP 1,045,454	GBP Investment Return 4.5%

Source: Millennium Global.

**RESULT 1:** While buying the US equity market was a good decision in US dollar terms, it was a significantly less successful in sterling terms due to the US dollar's weakness.

Therefore, making an overseas investment, it is very important to make an assessment of the currency outlook as well as the outlook for the international asset. To make an effective decision, these should be analysed separately.

## EXAMPLE 2:

An UK based investor wishes to invest in the German stock market believing that it is a growth opportunity.

The following table shows the impact of investing GBP 1,000,000 into the German equity market by separating the sources of return to a UK based investor.

### POSITIVE CURRENCY IMPACT ON AN EQUITY PURCHASE

UK Investor BUYS German Equities	Start Date: Purchase of German Equities	Value Change	End Date: Sale of German Equities	Summary
GBP Investment Amount: £1,000,000	German Equities Value: € 1,250,000	+12%	German Equities Value: € 1,400,000	German Equities Appreciate 12%
Exchange Rate: EUR/GBP 0.80				EUR appreciates 10% (GBP depreciates 9.1%)
EUR Investment Amount: € 1,250,000	EUR/GBP Rate 0.80	+10%	EUR/GBP Rate 0.88	
GBP Portfolio Valuation	GBP 1,000,000	+23.2%	GBP 1,232,000	GBP Investment Return 23.2%

Source: Millennium Global.

**RESULT 2:** While buying the German equity market was a good decision in euro terms as it rose 12% in value, it was not as good as the return made in the US equity market which rose 15% in local terms.

However, buying the German equity market was a far superior investment in sterling terms as the euro currency appreciated as well as the underlying equity market.



## SUMMARY

In both cases, the international equity markets rose in value in local currency terms. In this example, the US market performed better than the German market, in local terms.

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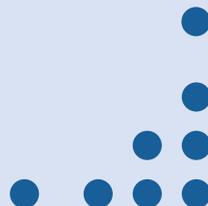
However, the US dollar depreciated while the euro appreciated versus sterling and so the returns in sterling terms were much more favourable in the case of the German equity market investment.

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The currency impact was a major determinant in the success of the choice of investment as the currency movements mattered greatly in the calculation of sterling returns.

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In conclusion, when making an international investment decision, the currency implications ought to be carefully analysed and addressed as a key factor in the decision.



## SECTION 2: HOW TO MANAGE CURRENCY EXPOSURE – THE DIFFERENT APPROACHES

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There are essentially 3 possible answers to the question of how to manage currency exposure:

**1) DO NOTHING**

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**2) ADOPT A HEDGING PROGRAMME – PASSIVE OR DYNAMIC**

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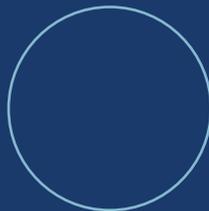
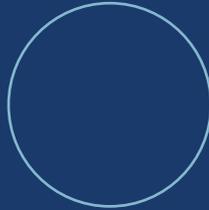
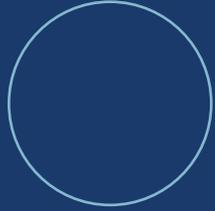
**3) TRANSFORM THE EXPOSURE THROUGH AN ACTIVE CURRENCY OVERLAY**

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WE SHALL EXAMINE THE PROS AND CONS OF EACH APPROACH IN THE CHAPTERS CONTAINED WITHIN THIS SECTION.



# CHAPTER FOUR



## THE DANGER OF DOING NOTHING

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### ARGUMENT 1.

“It is a zero-sum game and it all comes out in the wash”

Given that each currency transaction involves a currency pair with a buyer of one and a seller of the other, the holder of the currency which appreciates has an equal and opposite gain to the holder of the currency which depreciates. As such, the sum of the gain and loss is zero hence, a “zero-sum game”.

Further, since currencies exhibit cyclical behaviour it is sometimes claimed that the long-term return impact is close to zero and therefore the impact can be ignored as “it comes out in the wash”.

Let’s examine the evidence.

### RETURN IMPACT OF THE “DO NOTHING” APPROACH

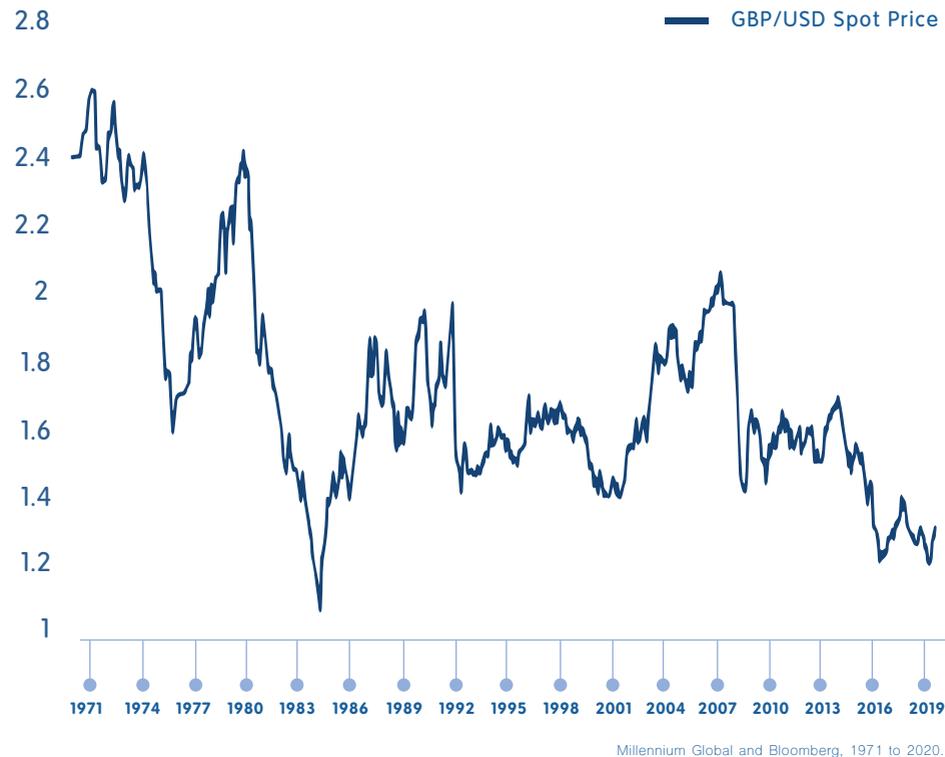
Over the last 50 years, there is clear evidence of secular depreciation in sterling versus the US dollar with significant cyclicity over multiple time frames. From its peak of USD2.65 per pound in March 1972 it declined almost 50% to the end of 2020 at USD1.35 per pound in nominal terms.

Within this combination of the secular and the cyclical, the magnitude of the movements in both directions has been substantial as shown in the chart and table below.

The aggregation of these movements may be zero sum when combining all investors but the impact on any given investor is large and certainly does not come out in the wash even on a multi-decennial basis.



# MAJOR GBP MOVES



## MAJOR GBP MOVES

	Period	Percentage Move
1	May 1972 - Feb 1985	- 58.7 %
2	Feb 1985 - Aug 1992	+84.3 %
3	Aug 1992 - Feb 2002	- 28.8 %
4	Feb 2002 - Oct 2007	+46.9 %
5	Oct 2008 - Oct 2016	- 41.2 %

Not only are currency movements meaningful on a monthly or quarterly horizon but also significant over a multi-year time frame. In general, only over the very long term do the inherently cyclical dynamics of the currency market mitigate the return impact for an international portfolio.

Given the historical evidence it is a weak argument to suggest that “it all comes out in the wash” because currencies can trend and move significantly in either direction over long time frames. Indeed, while sterling has oscillated between both expensive and cheap valuations during these cycles, the movements are so large that the impact is significant for international portfolios on a multi-year time frame.

### ARGUMENT 2.

“If you like the international asset, you should also like the currency”

The idea here is that if an international equity market is believed to be an attractive investment opportunity, the expected high return on capital in the equity market will drive capital inflows which will also lead to an appreciation of the underlying currency.

If this were true, then there would be no need to manage or hedge the currency exposure as leaving the currency exposure unhedged would result in the best return outcome as both the asset and the currency appreciate in unison.

However, the empirical evidence does not support this theory and the theory itself is flawed.

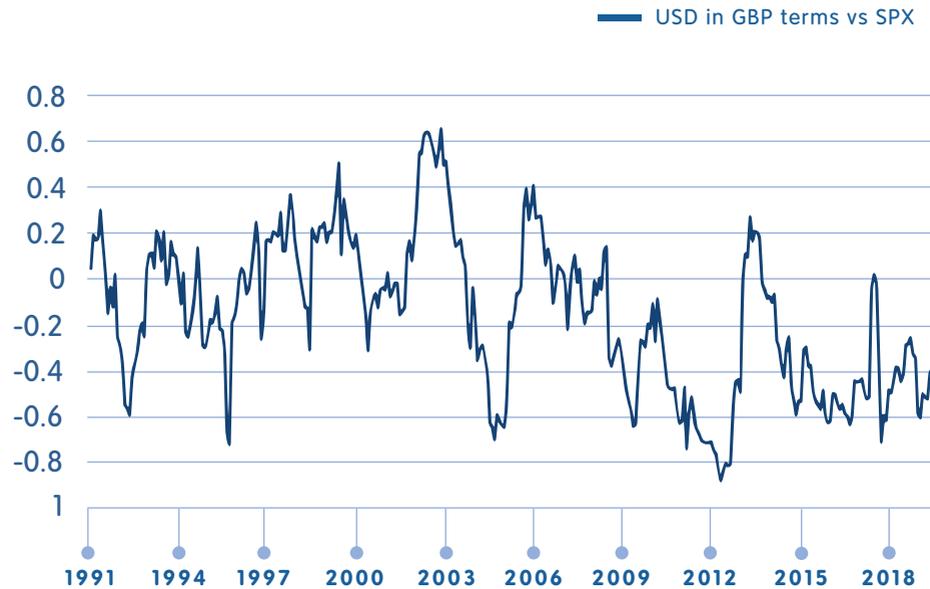
### EXAMPLE: US Equities and the US dollar.

The correlation between the S&P 500 Index and the US dollar in sterling terms has been frequently negative and often significantly so. This means that there have been times when the US equity market has been strong while the US dollar has been weak and so the currency loss has reduced the return from the investment into US equities in sterling terms.

## CORRELATION OF THE US DOLLAR AND US EQUITIES



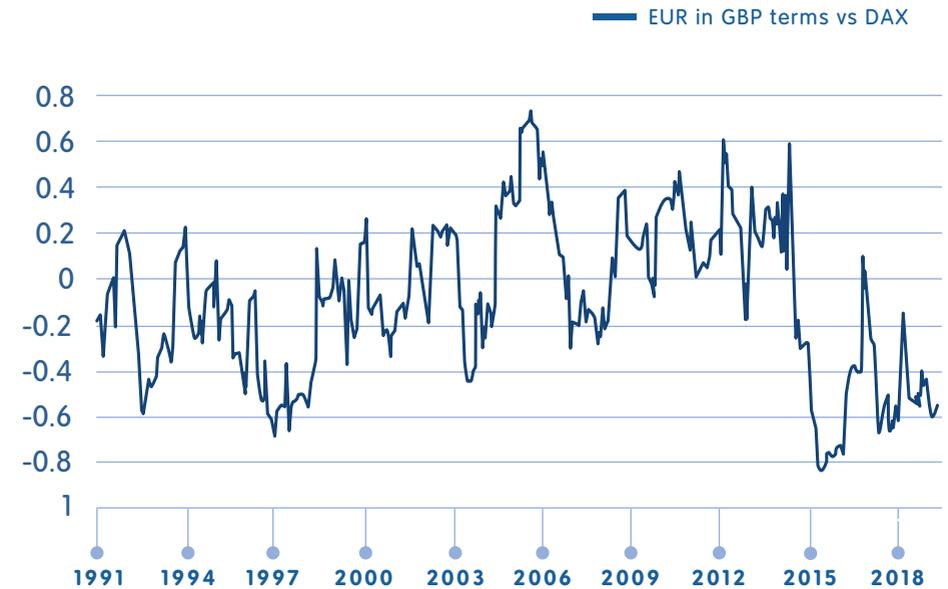
THE CHART BELOW ILLUSTRATES THIS VARIABLE AND OFTEN NEGATIVE CORRELATION.



## CORRELATION OF THE EURO AND GERMAN EQUITIES



A SIMILAR STORY IS EVIDENT IN THE RELATIONSHIP BETWEEN GERMAN EQUITIES AND THE EURO CURRENCY.



In fact, there is a very good reason why there is often a negative correlation between an equity market and the associated currency.

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When a currency depreciates, e.g. the US dollar, US exporting companies get a boost as their products become cheaper to sell in overseas markets (if the US dollar price is held constant it will translate to a lower price in sterling) and sales volumes go up accordingly. Alternatively, exporters can raise their prices in US dollars but keep the sterling prices constant and expand their profit margins. Either way, corporate profits get a boost which will support equity prices. Hence, it is often the case that there is a causal link between a strengthening equity market and a weakening domestic currency because a weaker currency provides a pricing advantage to exporting firms. In this example, a depreciating US dollar may be associated with a strengthening US equity market but this will reduce equity returns in sterling terms.

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While a depreciating US dollar may be associated with a strengthening US equity market, this will reduce equity returns in sterling terms and therefore it is important to take into account the management of these currency exposures when making international investments.

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This is where the “Do Nothing” approach can be a poor choice as gains from foreign equity market appreciation can be offset by currency depreciation.

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The following case study provides a dramatic historical example of this phenomenon.

# CASE STUDY

## HOW A GREAT ASSET ALLOCATION DECISION ALSO NEEDED A CURRENCY STRATEGY.

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In the 22 months from January 2006 to 30 October 2007 the S&P 500 Index returned 24.1% in US dollar terms. However, the dollar fell substantially versus sterling and so in GBP terms, the index rose by only 2.9%.

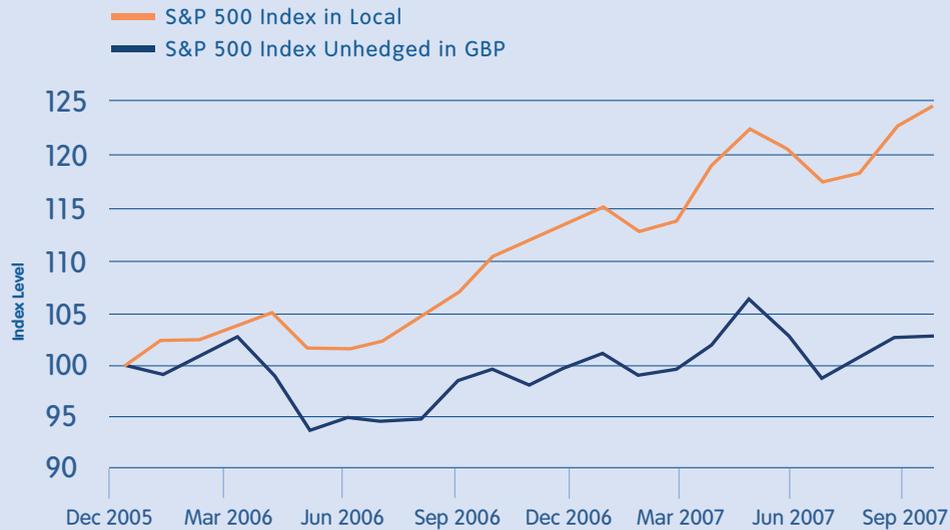
The US equity market was appreciating during what was known as the “Great Moderation” characterised by a stable macro-economic environment, significant M&A corporate activity and robust company earnings. Coincidentally, the US dollar was weakening against its major trading partners as the market started to anticipate the end (and a potential reversal) of the Fed’s tightening cycle and at the same time, the Bank of England raised interest rates by 50 basis points and was priced to do more. In sum, a relative easing in monetary policy expectations both boosted the US equity market and undermined the US dollar.

In this period therefore, the relationship between the US equity market and the US dollar was inverse.



# INVESTMENT IN US EQUITIES

## HEDGED VERSUS UNHEDGED CURRENCY RISK



	S&P 500 Index in USD (Rebased to 100)	S&P 500 Index Unhedged in GBP (Rebased to 100)
31 December 2005	100.00	100.00
31 October 2007	124.12	102.87
Return	24.12%	2.87%

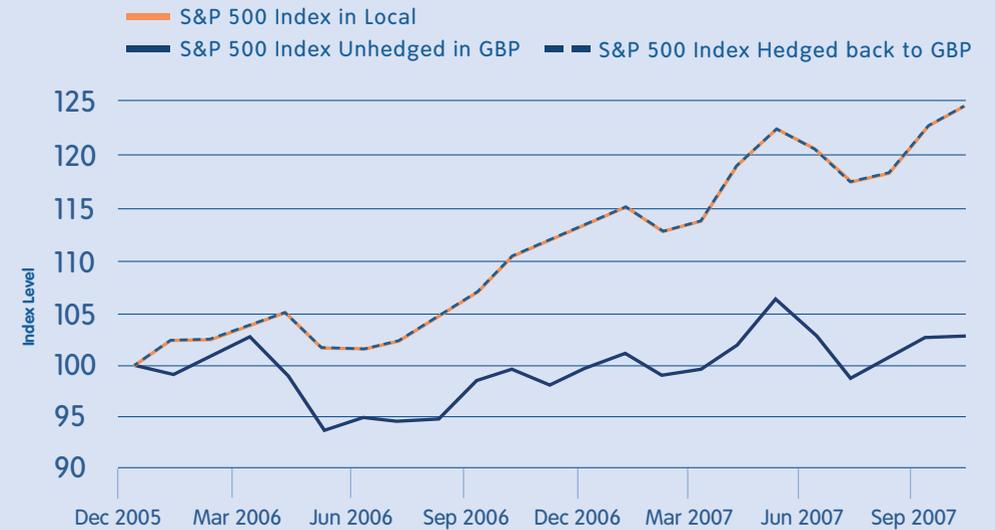
Source: Millennium Global and Bloomberg, 1 January 2006 to 31 October 2007.

As such, the claim that “if you like the international asset you must also like the currency” is a fallacy.

In this case, it was possible, “to have your cake and eat it too” by hedging the US dollar exposure back into sterling ensuring that all the US equity return was protected as the following table shows.

# INVESTMENT IN US EQUITIES

## THE BENEFIT OF A CURRENCY HEDGE



	S&P 500 Index in USD (Rebased to 100)	S&P 500 Index Unhedged in GBP (Rebased to 100)	S&P 500 Index Hedged to GBP (Rebased to 100)
31 December 2005	100.00	100.00	100.00
31 October 2007	124.12	102.87	124.12
Return	24.12%	2.87%	24.12%

Source: Millennium Global and Bloomberg, January 2006 to October 2007

Despite the dramatic impact illustrated in this case study, it is not always the case that the returns in an international equity market move in the opposite direction to its currency as it depends on the particular driving factors at the time.

However, it does imply that the outlook for the currency needs to be assessed independently of considerations around the international equity market or other foreign asset. Separation of currency and asset market analysis is key in the effective management of these two sources of risk and return.

## THE RISK IMPACT OF THE “DO NOTHING” APPROACH

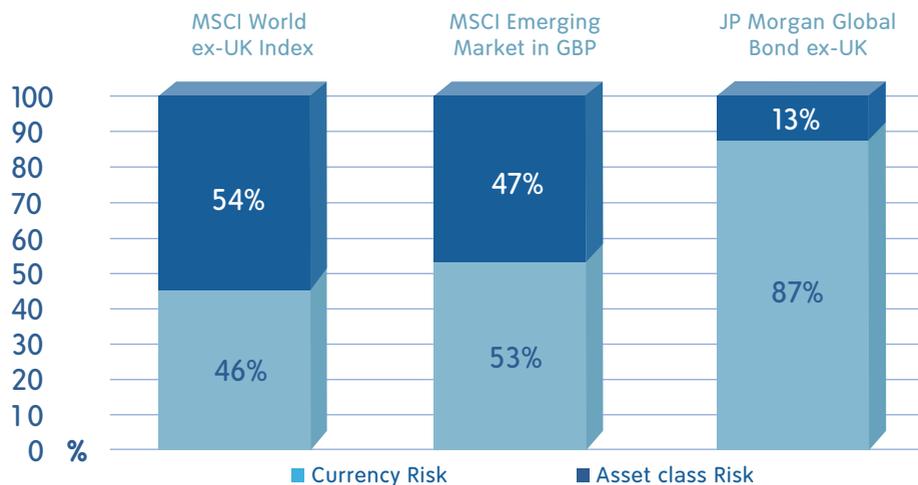
The graphic below shows the contribution to total risk (as defined by variance) coming from;

- A) the underlying asset (dark blue)
- B) the currency exposure vs sterling (light blue)

IN THE CASE OF:

- 1) International Developed Market Equities – MSCI World ex-UK Index
- 2) Emerging Market Equities – MSCI Emerging Market Index
- 3) International Government Bonds – JP Morgan Global Bond Index ex-UK

### CURRENCY RISK IN INTERNATIONAL ASSET PORTFOLIOS

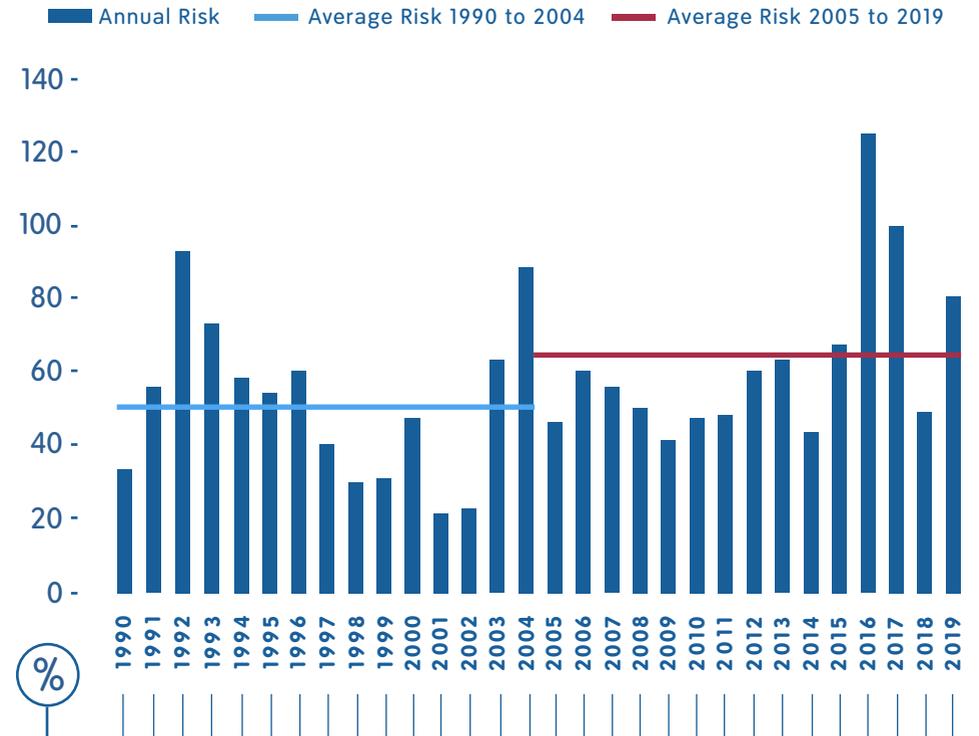


Source: Millennium Global and Bloomberg, January 1990 to March 2020.

It is a substantial contribution to risk in developed market and emerging market equities (about half of total risk) and an overwhelming contributor in international fixed income (about 7/8ths).

Furthermore, the amount of currency risk inherent in international developed market equities has been rising over time as shown below.

### CURRENCY RISK AS A % OF TOTAL PORTFOLIO RISK : MSCI WORLD INDEX EX-UK



Source: Millennium Global and Bloomberg, 1993 to 2019. Sourced on 31 March 2020.

Splitting the 30 year period 1990 – 2019 into two 15 year periods, the average contribution to variance during the 15 years 1990 – 2004 was 51% while it was 63% for the 15 years 2005 – 2019. This measure can exceed 100% in cases where the currency risk is greater than the combined asset and currency risk when there is a negative correlation between them.

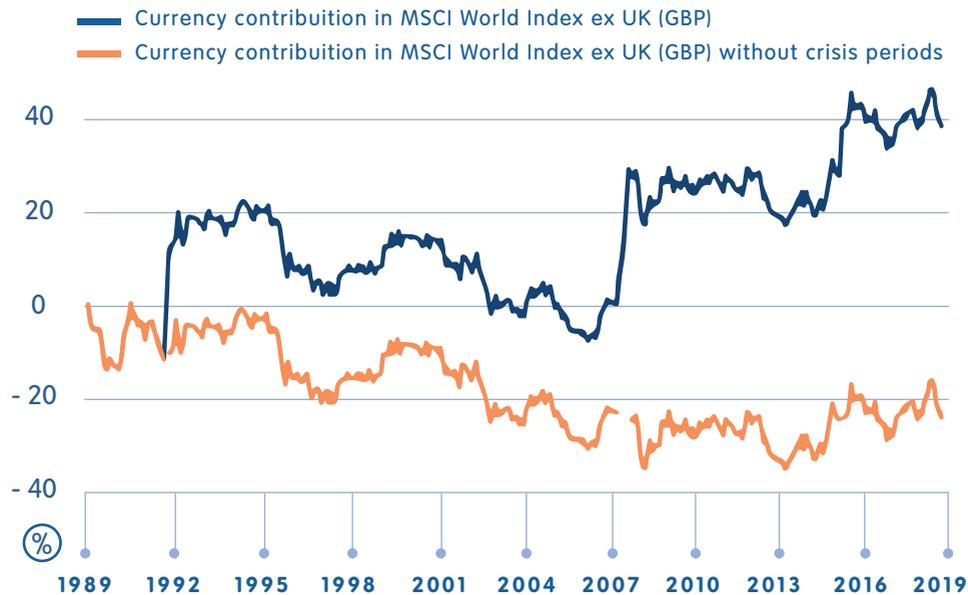
**N.B.** Variance has been used as the measure of risk as variances are additive so that it is possible to show the proportion of risk emanating from each source. (Variance = standard deviation squared).

# HAS STERLING BEEN A STRONG OR A WEAK CURRENCY?

Received wisdom has it that sterling has fallen fairly consistently for decades, interrupted by a few periods of stability. As a result, UK investors have tended to maintain fairly low levels of currency hedging, if any.

The chart below shows the contribution of currencies to the overall returns of the MSCI World Index ex-UK in GBP (upper line). This performance is compared to the same calculation, but with 8 months removed – 2 months in 1992 around “Black Wednesday” when the UK withdrew from the European Exchange Rate Mechanism, 5 months in 2008 during the Great Financial Crisis and the month of the Brexit vote, June 2016.

CONTRIBUTION TO RETURN FROM CURRENCY EXPOSURE: MSCI WORLD INDEX EX-UK



Source: Millennium Global and Bloomberg.

This shows that in reality sterling has essentially risen fairly steadily for the last thirty years, interrupted by an occasional dramatic fall. Instead of adding about 40% in returns, foreign currencies would have cost about 25% to UK investors in global equities absent these isolated and brief periods.

The three crises accompanied by sharp falls in the value of sterling were all due to distinct events and there is little reason to think that the pound is destined to continue to repeat this experience every few years in the future. Indeed, shocks in the opposite direction are also possible.

It is therefore crucial for UK investors to assess their currency exposures carefully and not to underestimate the risk profile of their portfolios.

One particularity UK investors need to consider is the extent to which UK listed equities are themselves exposed to foreign currencies given the international nature of a large proportion of Britain’s major companies.

FTSE Russell estimate that the weighted average proportion of overseas sales of companies in the FTSE 100 is 75%, which is much higher than most major indices around the world. This does not translate into a direct and mechanical relationship between exchange rate movements and stock market valuations because many other factors are also involved, but the effect is present nonetheless.

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This means that the FTSE 100 tends to benefit when sterling is weak and suffer when sterling is strong, all other things being equal. UK investors are in effect exposed to additional currency risk, on top of the explicit exposures present in their holdings of foreign assets. They should therefore be particularly attentive about managing currency risk as there is a strong chance that a simple asset allocation analysis will tend to underestimate this risk.

ROLLING CORRELATION BETWEEN GBP BROAD TRADE WEIGHTED INDEX AND FTSE 100 INDEX



It is somewhat of a rabbit hole to venture into an analysis of the overseas exposure of UK domestic corporate indices like the FTSE 100 as it is impossible to know what the internal corporate treasury policy is for each corporate and without this any estimation of the net position is unobtainable. Nevertheless, there is a strong bias in large UK corporates to have overseas earnings exposure and this tendency should be a consideration in any hedging policy in institutional portfolios.

Note that this effect, while still present, is less strong for more diversified UK indices such as the FTSE 250 or FTSE 350.

# UNCOMPENSATED RISK

The risk contribution coming from the currency exposure in these various asset classes has no corresponding expected positive return to compensate investors for taking on the currency risk when the currency risk is not managed. The expected returns are essentially random and hence, the risk is known as “uncompensated risk”.

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In absolute terms, the amount of currency risk inherent in a typical international equity allocation, say the MSCI World ex-UK Index, has been 7.94 % p.a. (the standard deviation of returns of the currency exposures – 1990 to 2019). Given that this passive underlying currency exposure has no expected return, this position is akin to owning an investment vehicle with a c. 8% volatility which has random returns and an expected average return of 0%.

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If this was proposed as a stand-alone investment opportunity, no investor would willingly make this investment it has certain risk but zero expected return. However, this is effectively what is embedded in an international equity allocation and is why the “Do Nothing” approach is not advisable.



# THE RISK OF CATASTROPHIC LOSS

While portfolio risk is typically measured in terms of the annualised standard deviation of returns, another way to consider risk is the probability and incidence of performance drawdowns. The risk of drawdowns will increase the possibility of not having sufficient funds to satisfy the liabilities or meet the needs of the beneficiaries of the portfolio. For many, in practical terms, this is the most important risk of all.

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For sterling hedgers, sterling’s decline of 14.8% versus the US dollar around the 2 weeks surrounding the Brexit vote of June 2016 (26/6/16 – 6/7/16) or the 33.3% decline versus the euro during the 2 year period around the financial crisis of 2008 (January 2007 – December 2008) a huge FX loss was made by institutional investors who hedged their international asset exposure.

---

Conversely, for investors with an unhedged policy, sterling’s rallies have been more gradual in speed but often longer lasting which have led to large losses in international exposure e.g. the multi-year ascent of sterling versus the US dollar of 51.1% (June 2001 – November 2007) after the 1990s Tech bubble burst and in earlier times the post-Plaza Accord rally of 79.2% (February 1985 – December 1987).

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Either way, history shows that the risk of catastrophic loss from currency movements for either hedged or unhedged portfolios is lurking out there if currency risk is ignored. Given that currency risk is typically the second highest risk factor in most global portfolios after equity risk, it demands to be taken seriously.

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Overall, therefore, the “Do Nothing” approach is deeply flawed. In fact, it is the position of highest risk. Randomness is introduced into the portfolio which can have significant and damaging effects.

# KEY TAKEAWAYS

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1) THE IMPACT OF CURRENCY EXPOSURES ON INTERNATIONAL INVESTMENTS CAN BE LARGE IN BOTH RETURN AND RISK TERMS. HISTORY IS REplete WITH EXAMPLES OF LARGE NEGATIVE IMPACTS FROM UNMANAGED CURRENCY EXPOSURE.

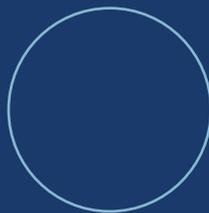
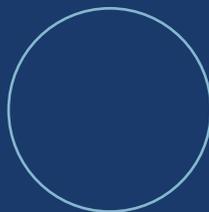
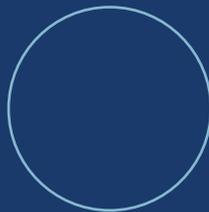
2) "DOING NOTHING" IS THE HIGHEST RISK OPTION.

3) OWNING CURRENCY EXPOSURE INJECTS RISK INTO AN INTERNATIONAL PORTFOLIO WITH NO EX ANTE EXPECTED RETURN. IN NO OTHER ASSET CLASS WOULD RISK BE LEFT UNMANAGED.

4) IF THE CURRENCY EXPOSURE IS NOT MANAGED THEN THE RETURN IMPACT IS ESSENTIALLY RANDOM.



# CHAPTER FIVE



## PASSIVE HEDGING

### THE PROS AND CONS OF ELIMINATING CURRENCY RISK THROUGH A 100% HEDGE

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There are two common arguments made by those who favour fully hedging currency risk:

- 1) “I don’t want exposure to any currency risk and so I will hedge it all away”
- 2) “A full hedge will mean that I don’t have to worry about currency issues”

For those investors who hold these views, the obvious answer is to employ a 100% Passive Hedge.

A full passive hedge will remove all the volatility in the international investment coming from the currency exposure as the currency exposure is “sold forward” and therefore hedged, so that there is zero currency exposure on a net basis.

However, there are several issues to consider with this option:

#### A) CASH FLOWS:

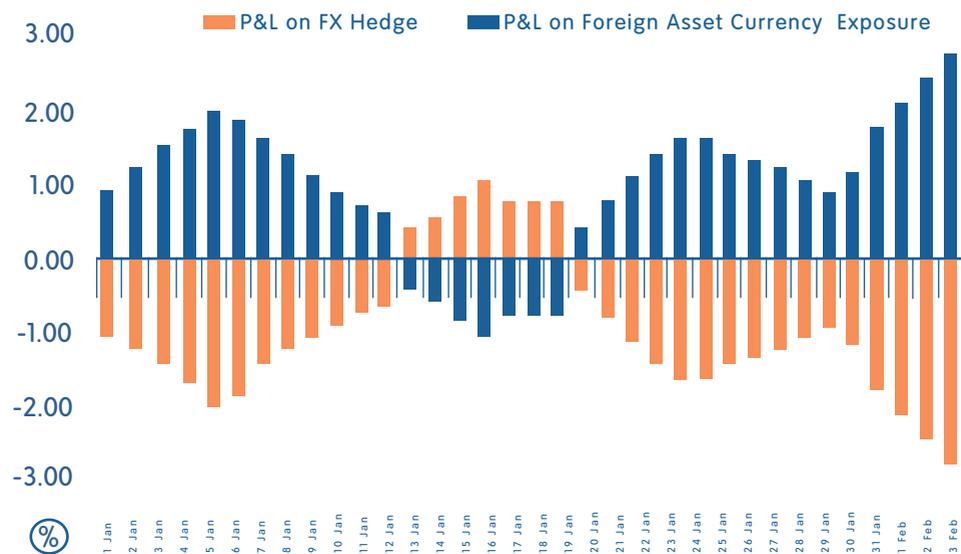
The currency returns from the exposure to international assets are fully offset by the currency returns from the forward hedge (aside from interest rate differentials implicit in the hedge) and so there is no currency performance impact on an international portfolio from a fully hedged position.

However, the profits and losses from the currency hedge result in a cash flow impact which can be significant and needs to be considered before establishing a hedge.

The reason for this is that the currency returns from the international asset exposure are unrealised until the asset is sold and therefore result in no cash flows during the life of the holding whereas the currency hedge is rolled over, typically every 1 or 3 months, and so a profit or loss on the hedge is realised on a regular basis.

# HOW AN FX HEDGE NEUTRALISES NET FX RETURNS

## P&L ON FOREIGN CURRENCY EXPOSURE VS. P&L ON FX HEDGE



Source: Millennium Global.

If the currency return on the international asset is negative while the return on the currency hedge is positive, the rolling of the hedge will realise profits that can be reinvested in the assets of the portfolio. However, if the reverse is true, then the passive hedge will generate realised losses which have to be funded and paid.

Raising cash to pay for these realised losses can be sizeable and disruptive to the asset allocation of the portfolio during periods of extended sterling depreciation as assets will need to be sold to realise sufficient cash.

Although this is an operational issue rather than an investment issue as performance is unaffected by currency moves because of the hedge, it is an important consideration when contemplating the strategic choice of a 100% currency hedge.

## B) DIVERSIFICATION:

To the extent that the direction in the trend of currencies tends to be very different from the trend in equities and fixed income securities, currencies are said to be “uncorrelated” versus traditional asset classes.

Building a portfolio of uncorrelated assets will increase the diversification within the portfolio which in turn will improve the risk/return characteristics of the entire portfolio.

Due to this variable degree of correlation there are periods when having some currency exposure within an international asset portfolio can reduce the overall risk of the portfolio when the international assets move in the opposite direction to the underlying currencies. As a result, a fully hedged position is not always advisable if the investment objective is focused on minimising portfolio volatility.

## C) OPPORTUNITY COST:

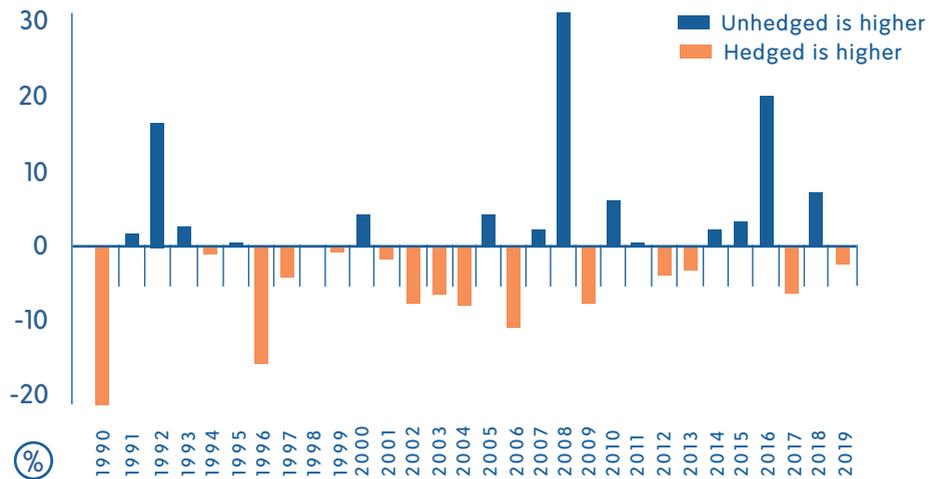
From year to year, a 100% passive hedge may make large gains and suffer large losses. This begs the question as to whether there is a better way of managing a hedging strategy than simply employing a passive approach.

Avoiding the hedging losses but participating in the gains would clearly be a preferable outcome and suggests that a varying hedge ratio at the right time would be a better solution.

## THE IMPACT OF CURRENCY EXPOSURE ON INTERNATIONAL EQUITY RETURNS (1990-2019)

The following chart shows the sizeable difference in returns for unhedged versus hedged MSCI World ex-UK Index returns in GBP terms over a period of 30 years.

MSCI WORLD EX-UK INDEX: UNHEDGED MINUS HEDGED RETURN



Source Millennium Global and Bloomberg, 1990 to 2019.

The chart illustrates that there are frequently years when the decision to hedge or not has had a significant impact on return outcomes.

Given the limitations of a 100% passive hedge, is there an “Optimal Hedge Ratio” between zero and 100% which could be adopted by sterling investors? The following case study examines this question.

# CASE STUDY

“THERE IS A TIME TO SOW AND A TIME TO REAP”

Assume an UK based investor has a material allocation to international equities and would like to know what level of hedging would have been optimal to maximise the return per unit of risk.

The following analysis examines 30 years of return and volatility data (1990 – 2019) for the MSCI World ex-UK Index in GBP terms at different levels of hedging from 0% to 100% in 10% increments.



# THE TRADE-OFF BETWEEN RISK AND RETURN

GROSS RETURN AND RISK BY HEDGE RATIO: JANUARY 1990 - DECEMBER 2019



Source Millennium Global and Bloomberg, 1990 to 2019. Analysis is based on the MSCI World Ex-UK Index.

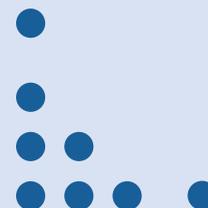
As the hedge is increased over the entire period, the risk (volatility of returns of the MSCI World ex-UK Index allocation) is initially reduced but above a 75% hedge ratio, the relationship reverses and a higher hedge ratio is associated with higher overall risk. This is due to the fact that sterling is typically “pro-cyclical” meaning that it tends to rise when risk assets are strong and decline when risk assets are weak.

As such, in periods when international equities decline, sterling has a tendency to decline also which will mitigate the extent of the decline in GBP terms and therefore reduce the volatility of returns in GBP terms. Hence, having a degree of unhedged exposure can reduce overall risk up to a point. In this case, the lowest risk is about 25% unhedged (i.e. a 75% hedge ratio).

Over the entire period, the return generated increased along with higher levels of the hedge ratio as the period was characterised by UK interest rates being higher than in most international developed market economies even though the spot rate finished the period slightly lower than all its major trading partners.

However, this picture masks what is really going on because by taking a long term perspective and averaging the whole period, the many currency regimes which are contained within it are hidden from view.

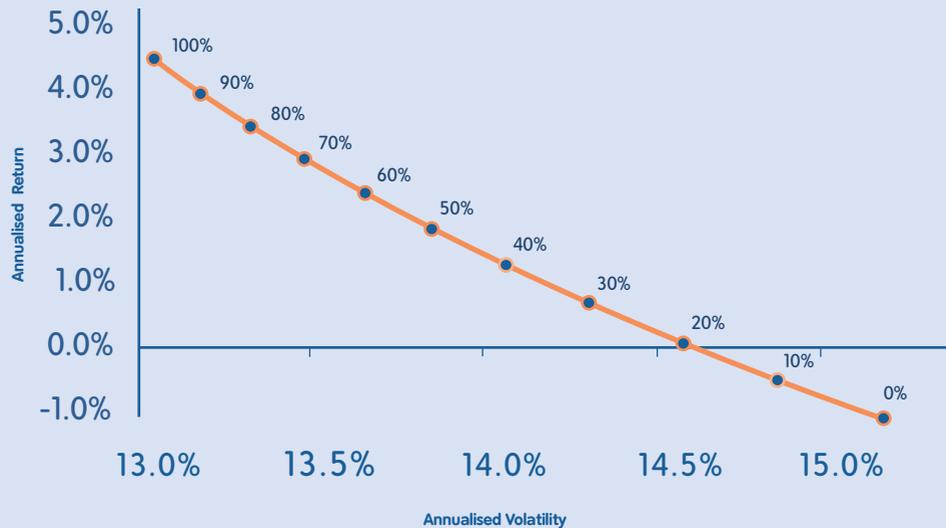
If we examine the last 20 years and divide the timeline into the four major currency regimes of appreciation and depreciation, a very different story emerges.



## SEQUENTIAL CURRENCY REGIMES GIVE DRAMATICALLY DIFFERENT RESULTS

The following four charts divide the same time frame into periods of sterling secular trends and the outcomes are very different.

### PERIOD 1: JANUARY 2001 TO OCTOBER 2007



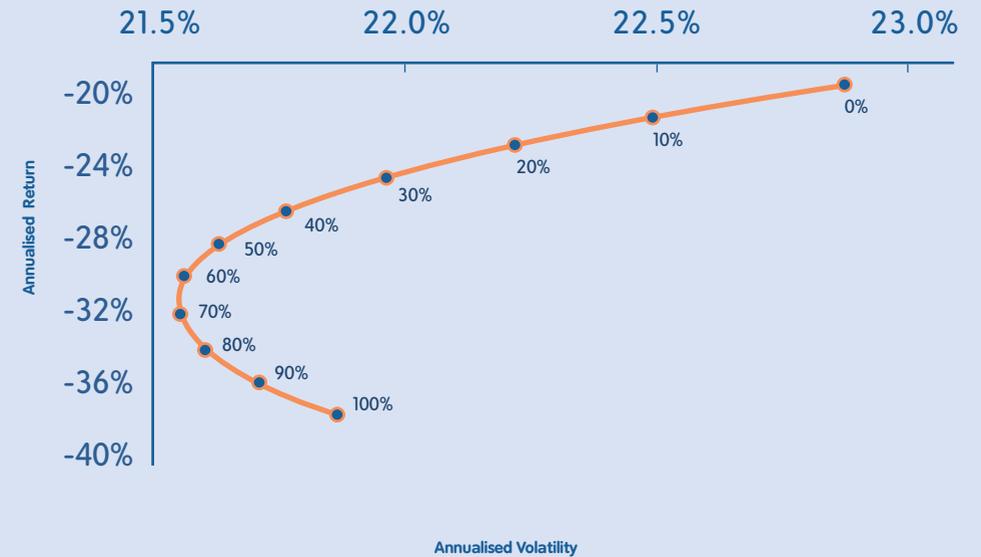
Source Millennium Global and Bloomberg, 2001 to 2019. Analysis is based on the MSCI World Ex-UK Index.

#### PERIOD 1

During this period, a 100% hedge ratio would have reduced the annualised risk by over 2% and also increased the annualised return by over 5% as it was a period of generalised sterling stability or strength, particularly versus the US dollar.

Overall, a 100% hedge would have been the best result in both dimensions of risk and return and is clearly the preferred hedge ratio.

### PERIOD 2: OCTOBER 2007 TO MARCH 2009



Source Millennium Global and Bloomberg, 2001 to 2019. Analysis is based on the MSCI World Ex-UK Index.

#### PERIOD 2

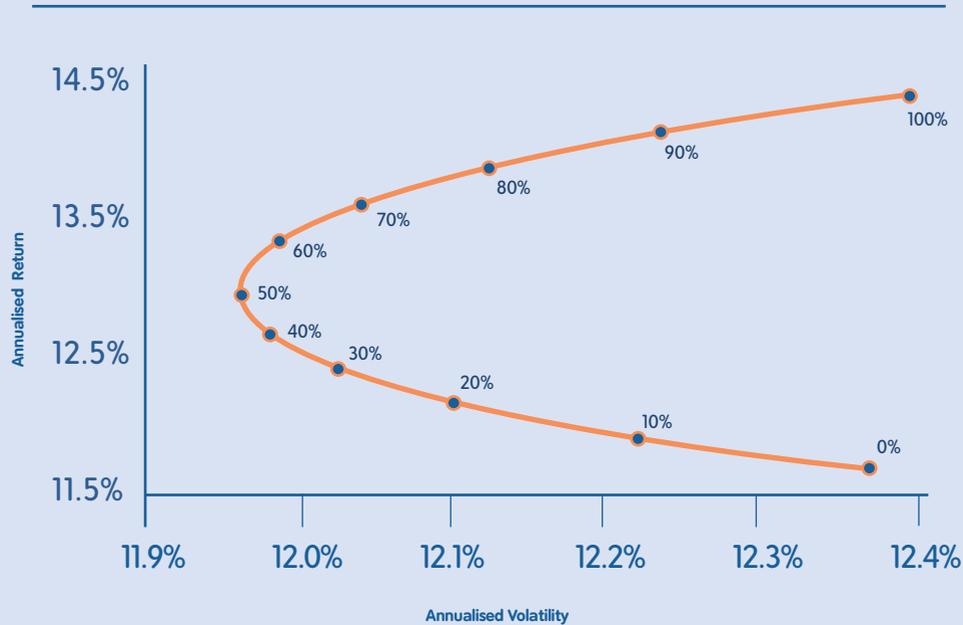
If the experience from Period 1 was used to inform a hedging policy for Period 2, the inference would have been to employ a 100% hedge.

In Period 2, a 100% hedging policy would have reduced the annualised risk by 1% versus an unhedged approach albeit that the lowest risk would have been at a 70% hedge ratio. However, given that this period was during the Great Financial Crisis of 2008, the annualised return would have been 16.5% worse than an unhedged strategy due to sterling's precipitous decline which, if unhedged, would have mitigated some of the international equity declines weakness.

Given the magnitude of the return impact, the most preferred strategy for UK investors would almost certainly have been an unhedged portfolio despite modestly higher risk.



## PERIOD 3: MARCH 2009 TO JUNE 2014



Source Millennium Global and Bloomberg, 2001 to 2019. Analysis is based on the MSCI World Ex-UK Index. Sourced on 31 March 2020

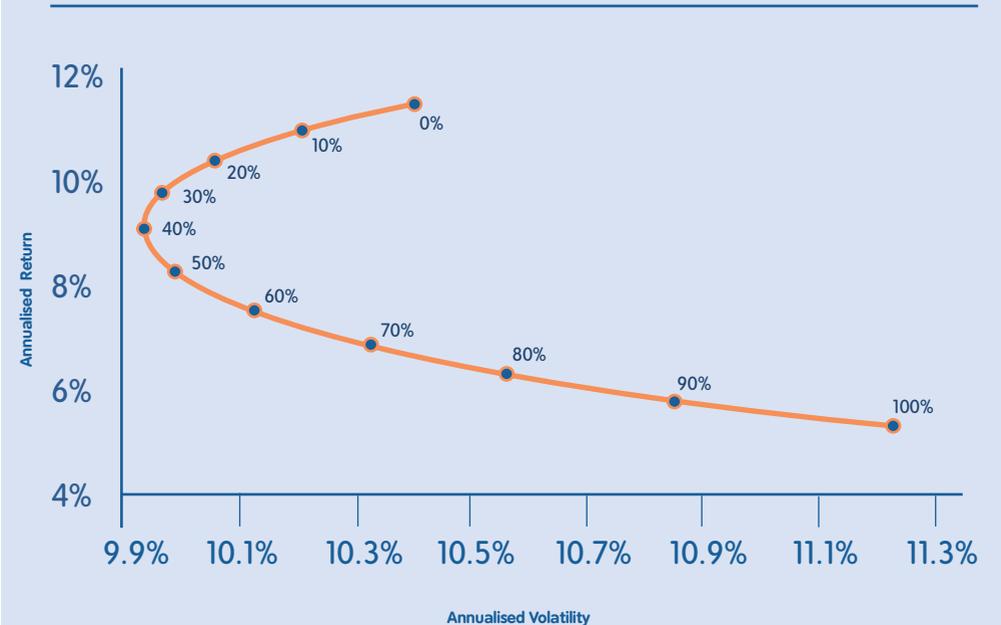
### PERIOD 3

If the experience from Period 2 were used to inform the policy for Period 3, an unhedged policy would probably have been adopted.

In this period, an unhedged policy would have resulted in almost the highest level of risk and the lowest annualised return and therefore the worst of all worlds. A 50% partial hedge would have been the optimal hedge ratio to minimise risk but the reduction would have been modest (0.41%) compared with the return enhancement if the hedge ratio was raised to 100%. With a 100% hedge the annual return enhancement was 2.5% above the unhedged portfolio and 1.25% above the 50% hedged position.

Once again, the return consequences and the associated cost of making the wrong decision were very high.

## PERIOD 4: JUNE 2014 TO AUGUST 2019



Source Millennium Global and Bloomberg, 2001 to 2019. Analysis is based on the MSCI World Ex-UK Index. Sourced on 31 March 2020

### PERIOD 4

Lastly, if the policy of employing the strategy which had worked best in the past was continued (as is often the case in reality), a fully hedged policy would likely have been adopted for Period 4. Once again, this would have been unequivocally the worse outcome with both a higher level of risk and a substantially lower level of return than any other hedging strategy.

Annualised risk would have been 0.80% higher than an unhedged strategy and annualised returns would have been 6.6% lower. Although the lowest level of risk would have been achieved with a 40% hedge ratio, the 0.45% reduction in annualised risk versus an unhedged approach would have come at the cost of a 2.6% lower annualised return.

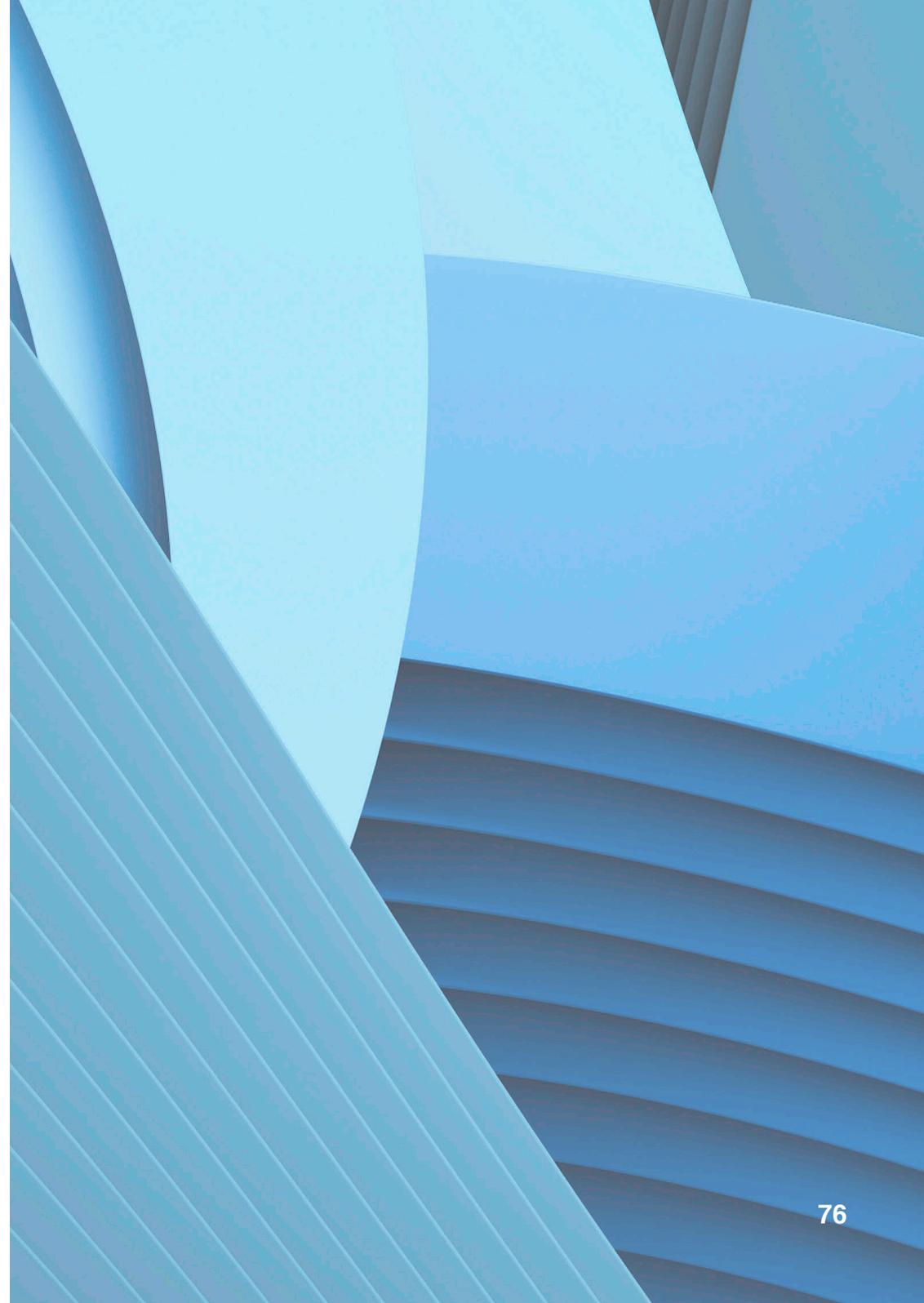
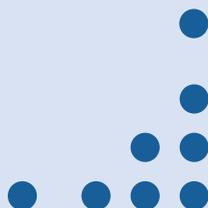
In summary, when taking all regimes into account, results vary substantially over time due to the inherent cyclical nature of currency market behaviour and it is evident that the impact of different choices is very large and so should not be ignored when assessing an appropriate currency management policy.

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When examined in this detail a clear picture emerges that an ideal approach could be to vary the hedge ratio over time between being mostly unhedged when foreign currencies are appreciating and being substantially hedged when foreign currencies are depreciating so as to maximise returns for an acceptable level of risk.

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Such an approach addresses the characteristic cyclical nature of currency markets and turns it into an advantage by dynamically adjusting the hedge ratio over time to improve the risk and return of an international portfolio.



# KEY TAKEAWAYS

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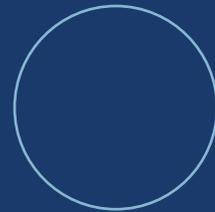
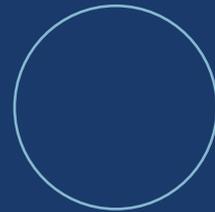
1) THERE IS NO UNIVERSAL “RIGHT” ANSWER TO THE QUESTION; “WHAT IS THE OPTIMAL HEDGE RATIO?” IT VARIES GREATLY WITH THE TIME PERIOD.

2) BEING INFORMED BY THE PAST IS NOT NECESSARILY A GOOD GUIDE TO THE FUTURE.

3) A FLEXIBLE APPROACH TO THE LEVEL OF THE HEDGE RATIO HAS THE POTENTIAL TO PROVIDE A MUCH BETTER OUTCOME.



# CHAPTER SIX



## DYNAMIC CURRENCY HEDGING

VARYING THE HEDGE RATIO WHEN SEEKING A BETTER OUTCOME

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“To hedge or not to hedge?” There are problems with both approaches.

The decision with regard to a completely unhedged or a fully hedged exposure is beset with difficulty as both approaches involve problems which can be very damaging to an internationally invested portfolio.

Specifically, an unhedged approach opens up the possibility of large performance drawdowns when the base currency is strong, while the fully hedged approach can incur large negative cash flows when the base currency is weak.

The pros and cons of unhedging and hedging are summarised in the following illustration.



## THE CONSEQUENCES OF AN UNHEDGED VS FULLY HEDGED APPROACH

Hedging Approach	Drawdown	Risk	Returns	Cash Flow Impact
UNHEDGED	POTENTIALLY LARGE	HIGHEST	RANDOM	ZERO

Hedging Approach	Drawdown	Risk	Returns	Cash Flow Impact
FULLY HEDGED	NEUTRALISED	ZERO	INTEREST RATE DIFFERENTIAL	HIGH

GREEN TEXT: PROS RED TEXT : CONS  
Source Millennium Global

As the graphic illustrates, there are several problems when adopting either of these two approaches as highlighted in red above.

The investment objective of Dynamic Hedging is very simple but provides multiple benefits if executed well.

It seeks to increase the currency hedge ratio during periods of sterling appreciation and decrease the hedge ratio during periods of sterling depreciation for each exposure in the portfolio.

In this way it seeks to capture the benefits of the unhedged and fully hedged approaches while mitigating the problems associated with each one of them.

## DYNAMIC HEDGING BENEFITS

- 1) IMPROVED CASH FLOWS VERSUS A PASSIVE HEDGE
- 2) MITIGATION OF PERFORMANCE DRAWDOWN FROM STERLING DEPRECIATION
- 3) ENHANCED RISK/RETURN OUTCOME VERSUS THE BENCHMARK

When applied to a portfolio of currencies, the hedge ratio of each currency versus sterling can be tailored to the particular attributes of each foreign currency as the directional movement and volatility of each currency versus sterling is not the same.

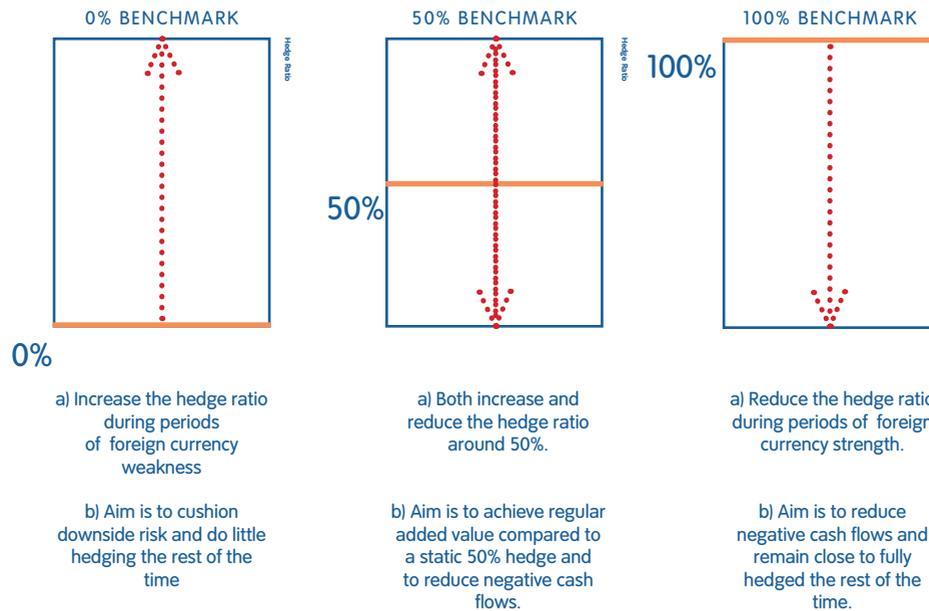
For example, the hedge ratio on the euro exposure may be 70% while the hedge ratio on the US dollar exposure may be 30%. The overall portfolio hedge ratio is calculated by summing the hedge ratios for each currency in proportion to the weightings of each currency in the portfolio to determine the aggregate hedge ratio.



# CHOICE OF BENCHMARK

Before implementing a Dynamic Hedging strategy an investor will have to choose the benchmark hedge ratio against which the programme will be assessed. This should be driven by the risk tolerance and investment objectives of the investor.

## DYNAMIC HEDGING BENCHMARKS



Source Millennium Global

### 0% BENCHMARK:

Electing to have an unhedged benchmark but employing a Dynamic Currency Hedging programme which can only hedge foreign currencies into sterling can be thought of as an insurance policy against the risk of a large foreign currency depreciation. It is designed to hedge foreign currency exposure back into sterling if, and only when, there is a material sterling rally and depreciation of foreign currency values. This is often used in the case of emerging market portfolios as the default position is usually fully exposed to emerging market currencies to benefit from the enhanced interest rate carry.

### 50% BENCHMARK:

This has the advantage of allowing the Dynamic Hedging strategy to potentially add value under both sterling appreciation and depreciation episodes as it is a symmetric benchmark. A 50% hedged benchmark is known as the “position of least regret” i.e. it will never be the worst outcome (which would apply to a 0% hedge if sterling were to rise or to a 100% hedge if sterling were to fall).

Another potential benefit of choosing a 50% hedge is that it will halve the net currency exposure and in doing so will reduce risk (assuming positive asset class correlation). This risk budget can be redeployed in a more efficient manner with the implementation of a Dynamic Hedge leaving the overall level of risk unchanged. This redeployment of risk using a Dynamic Hedge should lead to an improvement in the overall risk/return characteristics of the portfolio.

### 100% BENCHMARK:

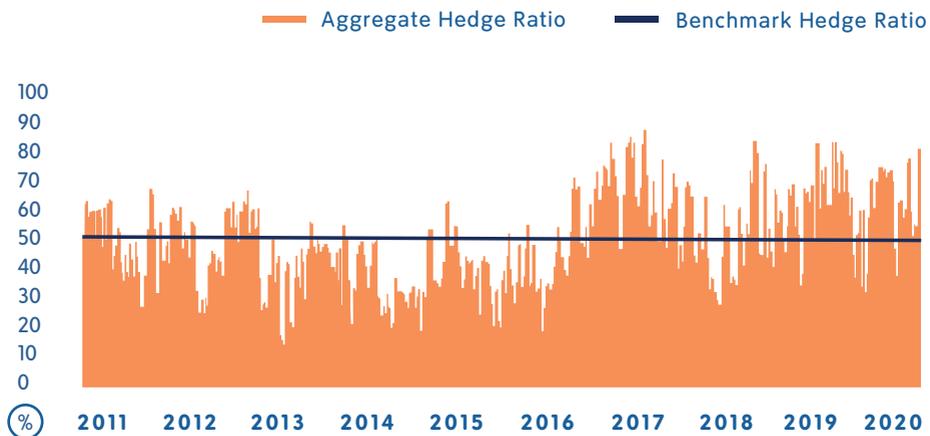
This is more typical for international fixed income mandates where the volatility of the currency exposure tends to swamp the volatility of the underlying fixed income assets if it is left unhedged. If the investment objective is to be exposed only to fixed income risk then a 100% currency hedge is often chosen.

The additional flexibility of dynamically hedging the portfolio during periods of sterling depreciation can mitigate drawdowns from the hedge, reduce negative cash flows and add significant value to the portfolio.



The following illustration shows the hedging profile of a specimen Dynamic Hedging programme implementing hedges on US dollar, euro, Japanese yen, Canadian dollar, Australian dollar and Swiss franc exposures within an MSCI World ex-UK Index equity portfolio, assuming a 50% hedge benchmark over the past 10 years. The hedge ratio shown is a weighted average of the hedge ratios for each of the 6 currencies named above.

## SPECIMEN DYNAMIC HEDGE RATIO VS MSCI WORLD EX-UK 50% HEDGED BENCHMARK



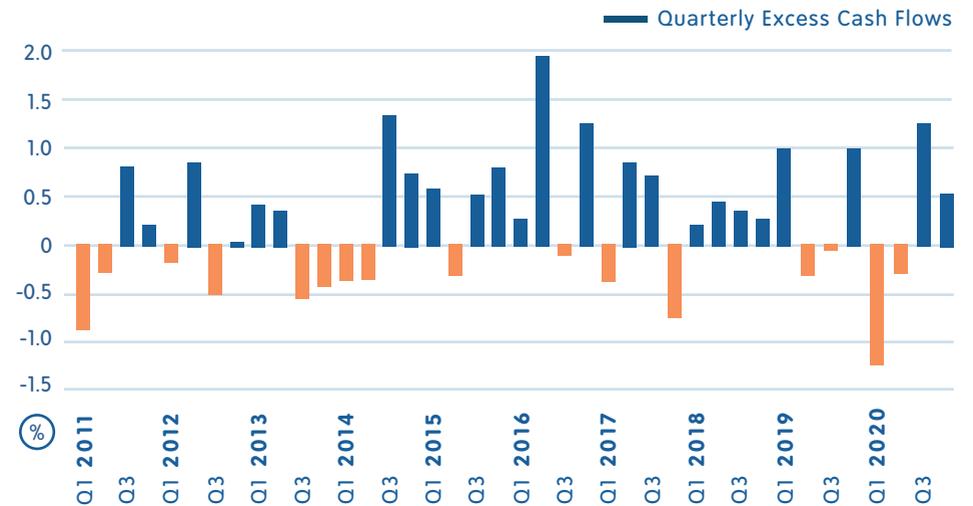
Source: Millennium Global and Bloomberg, 1 January 2011 to 31 December 2020.

When a Dynamic Hedging strategy adjusts the hedge ratio to be under-hedged during periods of sterling weakness and over-hedged during periods of sterling strength, there will be a substantial improvement in the cash flow profile versus a 50% passive hedge.

This result is due to buying fewer British pounds when sterling is weakening and buying more when it is rising. By design, Dynamic Hedging responds to the inherent cyclical nature of currency markets whereas a passive hedge fails to exploit this currency market behaviour.

Using the specimen dynamic hedge ratio profile shown above, the resulting cash flows relative to maintaining a 50% passive hedge are shown below.

## SPECIMEN DYNAMIC HEDGING CASHFLOWS VS MSCI WORLD EX-UK 50% HEDGED BENCHMARK



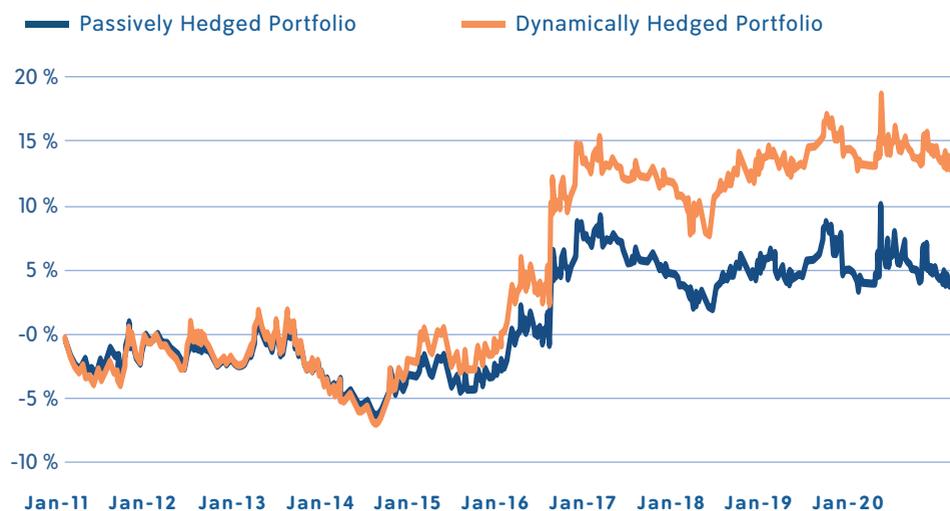
Source: Millennium Global and Bloomberg, 1 January 2011 to 31 December 2020.

The cumulative effect of net positive cash flows can provide a material benefit over a static hedge while also reducing risk versus an unhedged strategy.

While cash flows relate to the impact of the hedged portions of the portfolio, the overall returns from the currency basket include the hedged and the unhedged exposure to the foreign assets.

The following illustration shows the cumulative return from the currency exposure in the MSCI World ex-UK Index portfolio by comparing a 50% passive hedge with the Dynamic Hedging profile shown above.

## SPECIMEN DYNAMIC HEDGING RETURNS VS MSCI WORLD EX-UK 50% HEDGED BENCHMARK



Source: Millennium Global and Bloomberg, 1 January 2011 to 31 December 2019. Sourced on 31 March 2020.

In this example, the incremental annualised performance pick-up was 0.93% with an attractive skewness in the return profile.

The full statistical comparison of the currency impact for the Passive Hedge, Dynamic Hedge and Excess value added are shown in the following table.

	Passively Hedged Portfolio	Dynamically Hedged Portfolio	Excess Performance
MEAN	0.33%	1.26%	0.93%
VOLATILITY	3.82%	4.50%	1.41%
INFORMATION RATIO	0.09%	0.28%	0.66%
SKEW	1.50%	2.16%	1.56%

Source: Millennium Global and Bloomberg, 1 January 2011 to 31 December 2019. Sourced on 31 March 2020

Overall therefore, relative to the benchmark, additional value can be added by dynamically hedging the currency exposure for the benefit of the overall programme.

The flexibility of such an approach is that a dynamic hedging programme can be applied to any benchmark.

In assessing the distinction between the merits and demerits of Not Hedging, Passive Currency Hedging and Dynamic Currency Hedging, it is helpful to assess these approaches in the context of the following key criteria:

- A. DRAWDOWN
- B. RISK
- C. RETURN
- D. CASH FLOW

## COMPARATIVE IMPACT OF DYNAMIC HEDGING

The table below summarises the salient points of each approach and the expected benefits of a Dynamic Currency Hedging strategy.

### PASSIVE APPROACHES

Hedging Approach	Drawdown	Risk	Returns	Cash Flow Impact
UNHEDGED	POTENTIALLY LARGE	HIGHEST	RANDOM	ZERO

Hedging Approach	Drawdown	Risk	Returns	Cash Flow Impact
FULLY HEDGED	NEUTRALISED	ZERO	INTEREST RATE DIFFERENTIAL	HIGH

### DYNAMIC APPROACH

Hedging Approach	Drawdown	Risk	Returns	Cash Flow Impact
DYNAMIC HEDGE	REDUCES DRAWDOWNS	VARIABLE	ADDED VALUE VS ANY BENCHMARK	IMPROVE VS PASSIVE HEDGE

GREEN TEXT: PROS RED TEXT : CONS

Source: Millennium Global

Whichever hedging solution is being considered, there are risk, return, drawdown and cash flow consequences from owning currency exposure in all circumstances and these vary over time given the cyclical nature of currency behaviour.

# KEY TAKEAWAYS

1) A DYNAMIC HEDGING STRATEGY AFFORDS THE FLEXIBILITY TO ADAPT TO CHANGING CURRENCY MARKET BEHAVIOUR.

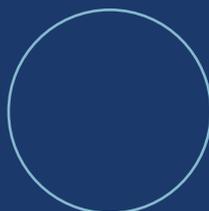
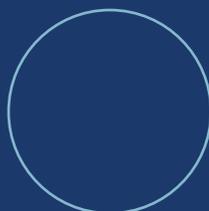
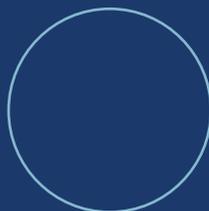
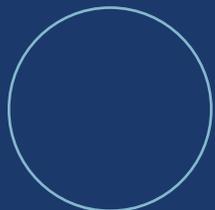
2) DYNAMIC CURRENCY HEDGING SEEKS TO IMPROVE UPON THE EFFECTIVENESS OF A PASSIVE CURRENCY HEDGE AND MITIGATES THE RISKS TAKEN WITH NO HEDGE.

3) IT AIMS TO ENHANCE HEDGING CASH FLOWS, MITIGATE PERFORMANCE DRAWDOWNS AND ADD VALUE TO THE OVERALL PORTFOLIO.

4) DYNAMIC HEDGING IS FLEXIBLE AND CAN BE APPLIED TO ANY BENCHMARK.



# CHAPTER SEVEN



## TRANSFORMING CURRENCY EXPOSURE THROUGH AN ACTIVE CURRENCY OVERLAY

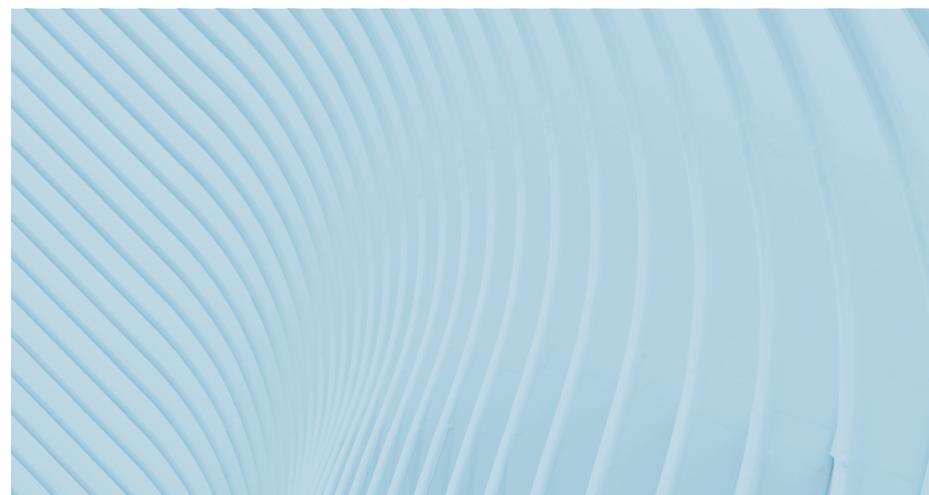
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Currency exposure inherent in international investments introduces a source of additional risk and return into an international portfolio of assets.

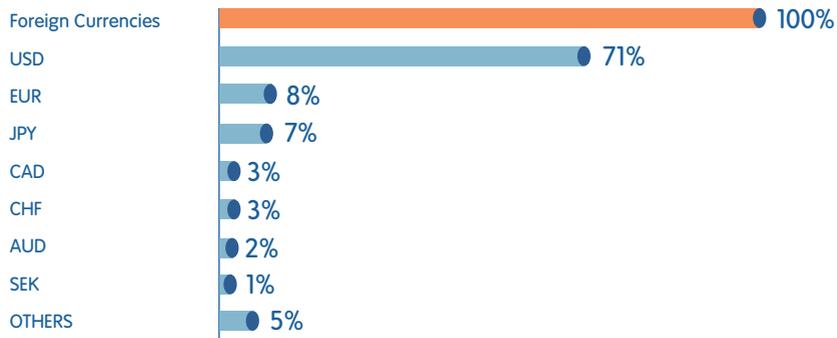
While many investors consider the risk impact of currency exposure as being the primary concern, investors should also consider the return dimension that inevitably results from owning foreign currencies.

Tactically adjusting currency exposure relative to the benchmark can be implemented to provide an additional source of return to complement the overall portfolio. This is the investment objective of the investment strategy known as Active Currency Overlay.

The following illustration shows a typical country and currency allocation in a UK-based portfolio holding international equities in the MSCI World ex-UK Index.



## MSCI WORLD EX-UK: INTERNATIONAL CURRENCY EXPOSURES



Source: Millennium Global, MSCI, 31 July 2021

While there is a rationale to owning global country equities in proportion to their relative size in the global equity universe as these weights are representative of the asset class, the same logic does not apply to the appropriate currency allocation.

For example, in the graphic above, the weighting to the Japanese equity market is 8% within the MSCI World ex-UK Index which uses the traditional market capitalisation weighting construction. The exposure to the Japanese yen is also 8% but there is no reason why the exposure to the yen should be determined by the size of the Japan equity market in relation to other equity markets around the world.

The attractiveness of owning Japanese equities may be enhanced by the prospects for a weaker currency in which case the Japanese yen currency weighting should be lower than the Japanese equity weighting. At other times, the Japanese yen will benefit from its safe haven attributes in which case the Japanese yen weighting should be higher than the Japanese equity weighting.

An Active Currency Overlay programme is designed to facilitate this variability between a strategic asset allocation and an optimal currency allocation.

## THE RATIONALE FOR ACTIVE CURRENCY OVERLAY

It acknowledges three fundamental realities:

**1)** When an investor invests in a domestic asset, there is one source of risk and return to which the portfolio is exposed whereas when an investor invests in a foreign asset, there are two sources of risk and return;

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A. THE ASSET EXPOSURE

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B. THE CURRENCY EXPOSURE

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For example, investing in BMW stock has equity related risk and return and euro currency related risk and return for a UK based investor. These are quintessentially different sources of risk and potential return.

**2)** As a result of being very different sources of risk and return, there is no theoretical or empirical reason why a portfolio currency allocation should be the same as the country asset allocation. By this logic, the portfolio should not hold 10% in the euro currency simply because there is a holding of 10% in Eurozone country stocks;

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A. THEY ARE NOT THE SAME TYPE OF RISK

---

B. THEY ARE NOT CORRELATED NOR HAVE A STABLE RELATIONSHIP

---

C. THE RETURN PROFILE OF EACH IS MATERIALLY DIFFERENT

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**3)** Not all optimal currency adjustments to portfolio currency exposure will necessarily involve the base currency (British pounds). For example, the best expected return per unit of risk may involve adding to euro exposure while reducing Swiss franc exposure or reducing US dollar exposure while adding to Canadian dollar exposure. In moving towards an optimal currency allocation, all currencies should be treated equally as part of a portfolio approach and not just with reference to the base currency.

## TURNING THE PROBLEM INTO A VIRTUE

The problem of holding “uncompensated risk” through foreign currency exposure can be turned into a virtue by using the volatility in currency markets to generate returns by tactically adjusting exposures over time rather than adopting a static approach.

By increasing exposure to currencies which are appreciating and decreasing exposure to currencies which are depreciating, positive returns are generated relative to maintaining a static allocation to currency exposure.

### ATTRIBUTES OF AN ACTIVE CURRENCY OVERLAY PROGRAMME:

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**1)** Currency markets are innately different in character to equity and fixed income assets and hence, returns generated from an Active Currency Overlay strategy tend to be uncorrelated to traditional portfolio assets. As such, it provides an ideal complement to the overall portfolio.

**2)** Active Currency Overlay programmes are implemented on a predominantly unfunded basis and so they do not interfere, obstruct or pollute the asset allocation decision.

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It is called an “Overlay” strategy because it is placed on top of the portfolio or “overlaid” on the underlying assets.

In effect, the Active Currency Overlay produces a *transformation* of the existing currency exposure and seeks to achieve a more optimal currency allocation relative to the unmanaged exposures or chosen benchmark.

The amount of risk taken by an Active Currency Overlay strategy is a direct function of the permitted deviation of currency weights versus the benchmark weights. This is typically measured in terms of tracking error in the region of 2–5% annualised standard deviation.

## COMBINING AN ACTIVE CURRENCY OVERLAY PROGRAMME WITH A PARTIAL PASSIVE HEDGE

It is typical when implementing an Active Currency Overlay programme to combine it with a passive hedge benchmark, for example, 50%.

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The rationale here is that the passive hedge reduces the currency risk on a strategic basis while the Active Currency Overlay redeploys the risk budget more efficiently and generates an excess return from it.

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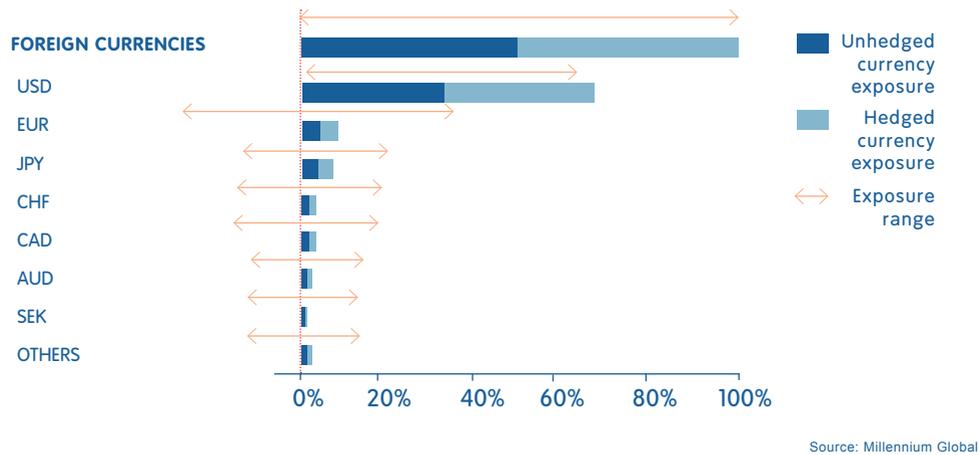
Overall, it is possible to calibrate the risk budget of the Active Currency Overlay so that the expected total currency risk is unchanged versus the original portfolio position.

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The following illustration shows what this might look like.



## MSCI WORLD EX-UK 50% HEDGED BENCHMARK PLUS ACTIVE CURRENCY OVERLAY STRATEGY



The ranges can be calibrated according to the risk budget or the tracking error target of the programme.

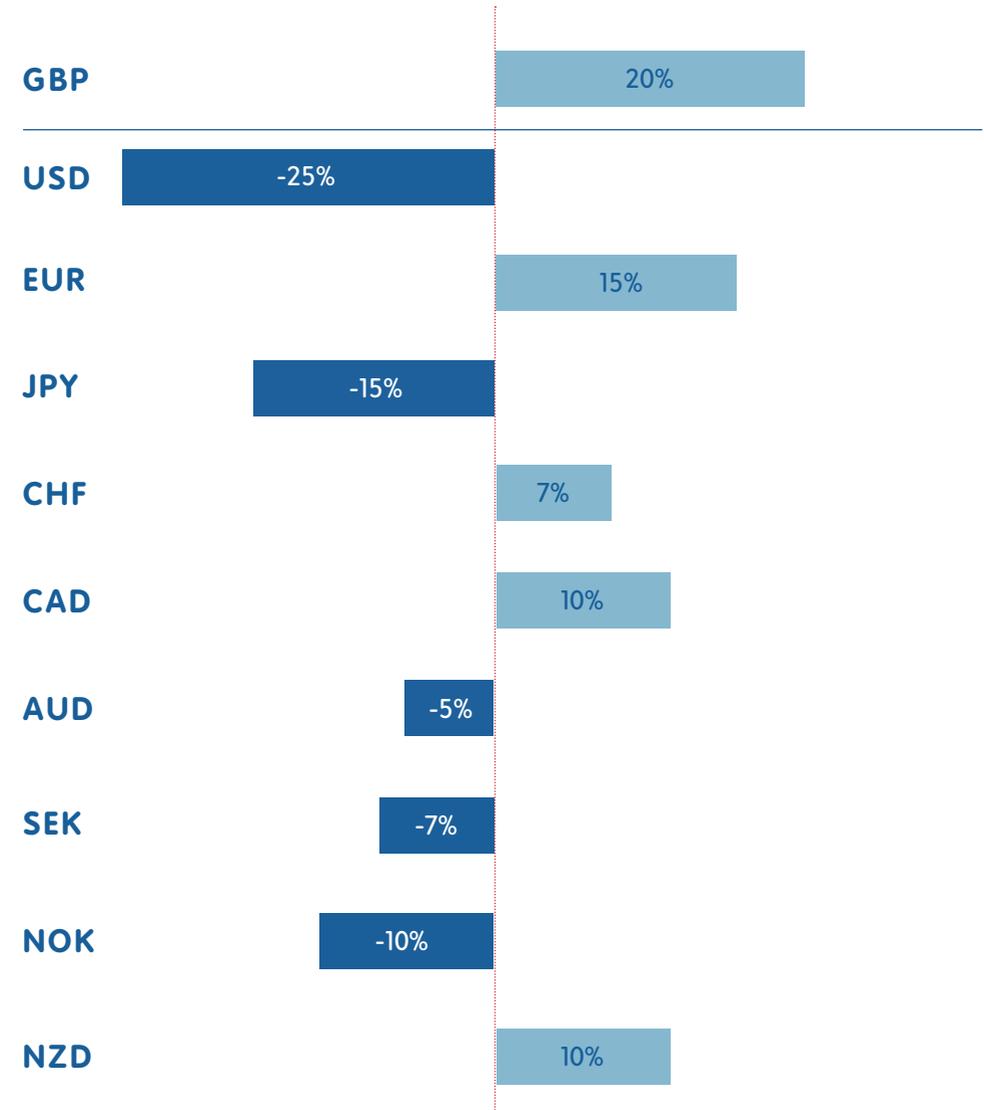
An Active Currency Overlay strategy with a c. 4% ex ante risk budget is an effective way of re-deploying the risk reduction achieved by the 50% passive hedge on the MSCI World ex-UK Index, leaving the resulting risk in the international equity allocation unchanged but more efficiently allocated.

The following illustration shows a specimen example of the currency exposure deviations versus a 50% hedged benchmark within a G10 Active Currency Overlay mandate. The deviations are not exclusively against the British pound (which is the base currency) but rather, a portfolio approach is taken across all currency exposures. Non-benchmark currencies can also be included (subject to client constraints) given that the objective is to identify the best risk/reward opportunities in the permitted currency universe.

Once again, Active Currency Overlay can be thought of as a *transformation* of existing currency exposures to a preferable and ideally superior currency allocation.

## ACTIVE CURRENCY OVERLAY CREATES A TRANSFORMATION OF CURRENCY EXPOSURES

DEVIATION FROM 50% HEDGED BENCHMARK



# KEY PARAMETERS IN CREATING AN ACTIVE CURRENCY OVERLAY STRATEGY

## 1) SETTING A BENCHMARK

This should determine the strategic currency exposure within the portfolio in the absence of any tactical currency views. The tracking error of the programme is then measured against this benchmark.

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## 2) EX-ANTE RISK TARGET

This is typically defined in terms of tracking error target versus the benchmark or a volatility target of excess returns. It is common for this to range between 1–5% p.a.

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## 3) RANGES FOR INDIVIDUAL CURRENCY EXPOSURES

These should be set, consistent with the tracking error target. For those currencies with small asset exposures, this could include a range which allows for negative exposures and this is typically permitted so long as the overall British pound exposure does not exceed 100% or fall below 0% so that no net leverage is employed.



## THE DISTINCTION BETWEEN ACTIVE CURRENCY OVERLAY AND DYNAMIC CURRENCY HEDGING

Both an Active Currency Overlay and a Dynamic Currency Hedging programme involve making adjustments to existing foreign currency exposure. Hence, how can they be compared?

**A DYNAMIC CURRENCY HEDGING STRATEGY** directly addresses foreign currency exposure versus the British pound principally from the perspective of risk management. It seeks to minimise drawdowns and improve cash flows versus any chosen passive hedge. It does so by aiming to have a high hedge ratio when sterling is rallying and a low hedge ratio when the sterling is falling.

**AN ACTIVE CURRENCY OVERLAY STRATEGY** takes a portfolio approach (not just with reference to sterling) and changes the portfolio mix in seeking a better currency allocation principally from the perspective of generating additional returns versus any chosen benchmark.

A Dynamic Hedging Strategy can adjust each portfolio currency exposure versus sterling while an Active Currency Overlay can adjust each currency exposure against any other hence, does not have a reference base currency.

The following illustration shows the comparison of the 2 approaches.



## WAYS OF MANAGING EXISTING CURRENCY RISK



Primary Investment Objective

Primary Investment Objective

**RISK MITIGATION**

**RETURN ENHANCEMENT**

**TO REDUCE DRAWDOWNS  
FROM INDIVIDUAL  
CURRENCY EXPOSURE**

**TO IMPROVE THE RETURN  
PER UNIT OF  
RISK FROM THE  
PORTFOLIO OF CURRENCY  
EXPOSURES**

Manages individual currency exposure by varying the hedge into sterling depending upon the expected appreciation/ depreciation of the foreign currency

Transforms existing currency exposures on an active basis towards a preferred currency allocation within a defined risk budget

## CURRENCY ALPHA

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Investors may also use active currency for pure alpha purposes, that is to say, as a return-seeking strategy without consideration for the currency exposures of the wider portfolio.

In this case, the currency strategy will typically be a component of a multi-strategy and multi-asset alternatives portfolio and will be expected to provide diversification and liquidity benefits with respect to the other investments in the same portfolio. The volatility target will often be 10% or higher and be compared with “liquid alternative” strategies or macro hedge fund strategies.

Some investors may also use currency alpha strategies as a part of a tail-risk hedging strategy. As large currency movements often coincide with macro dislocations, it is reasonable to expect that a currency strategy will be presented with a good opportunity set during equity bear markets. As a result, it can be a suitable part of an investor’s overall tail-risk hedging policy.

Generally speaking, currency programmes are expected to have portfolio diversification benefits as they are typically lowly or negatively correlated with major asset classes, such as equities, bonds and commodities. Given that currency portfolios can typically be liquidated within 24 hours of instruction and at low cost, inclusion of an active currency programme in a broader portfolio may therefore improve its liquidity profile.

Currency volatility is generally relatively low compared to equities. As a result, the maximum potential return from an unleveraged currency strategy is modest. Investors should be aware that in order to achieve higher average returns from currencies, a degree of leverage is required and periodic drawdowns will be experienced. Allocations should therefore be scaled to a level appropriate for the investor’s specific risk capacity and appetite.

# KEY TAKEAWAYS

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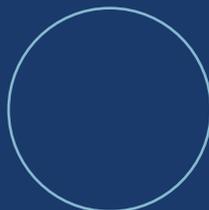
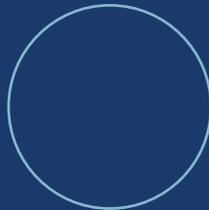
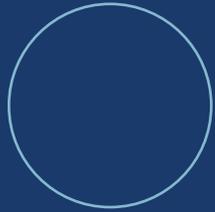
**1) THERE IS LITTLE JUSTIFICATION FOR HOLDING CURRENCY EXPOSURES IN PROPORTION TO THE MARKET CAPITALISATION WEIGHTS OF INTERNATIONAL EQUITY, FIXED INCOME OR OTHER ASSET EXPOSURES.**

**2) THE NATURE OF CURRENCY RISK AND RETURN IS VERY DIFFERENT TO THAT OF UNDERLYING ASSET RETURNS AND SO SHOULD BE MANAGED SEPARATELY.**

**3) ACTIVE CURRENCY OVERLAY CAN BE CONSIDERED TO BE A TRANSFORMATION OF EXISTING CURRENCY EXPOSURE TO A PREFERRED CURRENCY ALLOCATION, SEPARATE FROM THE UNDERLYING ASSET ALLOCATION.**

**4) TACTICAL CURRENCY ADJUSTMENTS MADE IN AN ACTIVE CURRENCY OVERLAY DO NOT ALWAYS INVOLVE THE BASE CURRENCY.**

# CHAPTER EIGHT



## ADDRESSING EMERGING MARKET EXPOSURE

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Global investors typically allocate to emerging markets with the aim of benefiting from the growth of developing economies and to improve the diversification of their portfolios. Generally speaking, emerging markets provide higher fixed income yields than those available in developed markets and emerging market equities have often offered cheaper valuations and superior growth prospects than those of developed markets.

Traditionally, institutional investors with portfolios containing emerging market asset exposure have left the emerging market currency exposure associated with it unmanaged.

Historically, there have been 3 assumptions underpinning this view:

- 1.** Emerging market currencies tend to appreciate in the long term and therefore investors do not need to hedge the currency risk.
- 2.** The cost of hedging emerging market currencies is punitively high due to large interest rate differentials versus sterling.
- 3.** It is unrealistic to try to actively manage emerging market currency risks because of poor market liquidity.

In examining the evidence, it can be shown that each of these claims is false.



## 1. EMERGING MARKET CURRENCY PERFORMANCE HAS BEEN VERY EPISODIC OVER THE PAST 20 YEARS

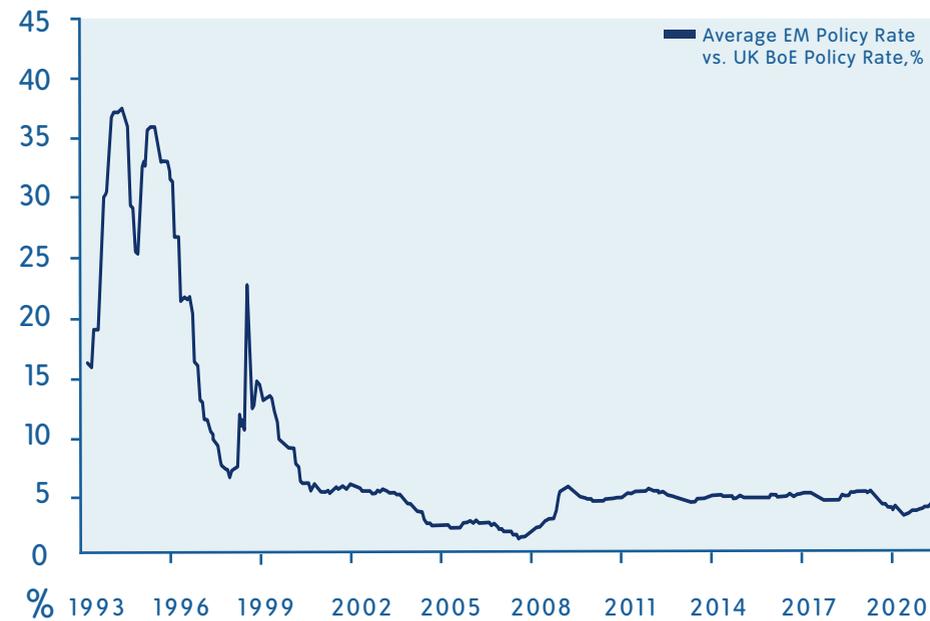
EM FX EXPOSURE CONTRIBUTION TO RETURNS IN MSCI EM EQUITY INDEX IN GBP TERMS (2001 – 2020)



Source: Millennium Global and Bloomberg, December 2000 to December 2020.

## 2. THE COST OF HEDGING HAS COLLAPSED SINCE THE MID 1990s

EMERGING MARKET INTEREST RATE DIFFERENTIALS VERSUS GBP



Sources: Millennium Global and Macrobond, January 1990 to December 2020.

### 3. LIQUIDITY IN EMERGING MARKET CURRENCIES HAS INCREASED SIGNIFICANTLY IN RECENT DECADES

The following table shows the top 9 countries in the MSCI Emerging Market equity index by size with the estimated daily turnover and bid-offer spreads in a trading size of USD 10 million in normal market conditions. It is clear that this liquidity and pricing is no longer a barrier to the active management of these exposures. \*

#### EMERGING MARKET CURRENCIES LIQUIDITY AND TRANSACTION COSTS

CURRENCY	MSCI EM Index Weight	Daily Traded volume (USD m)	Cost of Spread (%) \$10 million ticket
HONG KONG DOLLAR	26 %	6,600	0.001 %
TAIWANESE DOLLAR	14 %	2,540	0.024 %
KOREAN WON	13 %	4,900	0.020 %
INDIAN RUPEE	10 %	5,100	0.013 %
BRAZILIAN REAL	5 %	13,700	0.028 %
CHINESE YUAN RENMINBI	5 %	18,350	0.006 %
SOUTH AFRICAN RAND	4 %	7,200	0.066 %
RUSSIAN RIYAL	3 %	4,700	0.022 %
SAUDI ARABIAN RIYAL	3 %	1,900	0.053 %

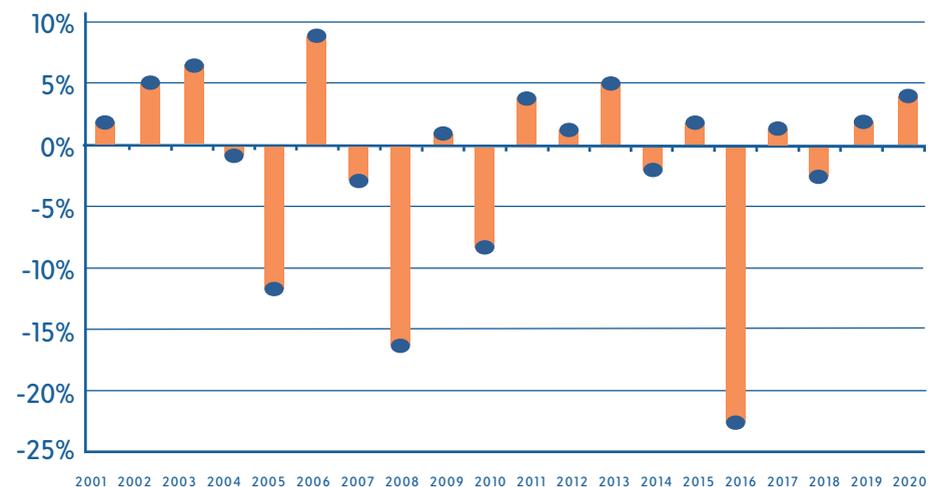
Sources: Millennium Global, MSCI, Standard Chartered, Citi and BNP as of 31 July 2021. This information is provided for illustration purposes only.

The consequence of these new realities is that:

- A. EMERGING MARKET CURRENCIES UNDERGO EXTENDED PERIODS OF DEPRECIATION
- B. THE INTEREST RATE COSTS OF HEDGING EMERGING MARKET CURRENCY RISK ARE NO LONGER A BARRIER TO MANAGING EM CURRENCY RISK
- C. INCREASES IN LIQUIDITY AND THE REDUCTION IN TRANSACTION COSTS NOW PERMIT THE ACTIVE MANAGEMENT OF EMERGING MARKET CURRENCY EXPOSURES.

### WHAT HAS BEEN THE HISTORICAL IMPACT OF CURRENCY HEDGING IN EMERGING MARKET EQUITY PORTFOLIOS?

#### MSCI EM INDEX HEDGED MINUS UNHEDGED GBP RETURNS (2001 TO 2020)



Source: Millennium Global and Bloomberg, December 2000 to December 2020.

The evidence shows that leaving emerging market currency exposure unhedged on a continuous basis is not optimal even over multi-year periods. Since the Global Financial Crisis in 2008, it would have been beneficial to have hedged EM exposure in 8 of the 12 years up to end-2020.

Given the cyclical nature of currency market trends as evidenced by the historical data, there are times to be exposed to emerging market currencies and there are times to be hedged. Hence, a Dynamic Currency Hedging strategy is ideally suited to managing this exposure.

# CASE STUDY

## HOW LARGE IS THE POTENTIAL OPPORTUNITY FOR DYNAMICALLY HEDGING EMERGING MARKET CURRENCY EXPOSURE?

Given the episodic nature of emerging market currency appreciation and depreciation it is insightful to measure how much potential benefit can be gained from employing a Dynamic Hedging strategy.

The following table shows the difference in return outcomes between two hypothetical scenarios:

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**1.** Leaving the currency exposure of an MSCI EM Index portfolio unhedged at all times.

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**2.** Maintaining the EM exposure unhedged in the calendar years when emerging market currencies appreciated and hedging in years when they depreciated (net of hedging costs).

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The purpose of this analysis is to quantify in broad terms, the potential benefit of a selective and dynamic hedging approach. While the figures understate the performance of an optimal tactical hedge that would switch on and off at the best possible moments (and not simply at calendar year-end dates) they do illustrate the potential for a flexible hedging policy to achieve a substantially superior result versus maintaining an unhedged strategy. Clearly, not all potential gains will be crystallised but this analysis shows that the opportunity is sufficiently large to suggest that a dynamic hedging approach is likely to add material value.



## THE IMPACT OF SELECTIVE CURRENCY HEDGING ON MSCI EM INDEX GBP RETURNS

### MSCI EM EQUITIES INDEX TOTAL CUMULATIVE RETURN IN USD

	1. No Currency Hedge	2. Selective Annual Hedge	Difference
2001 to 2020	184%	230%	46%

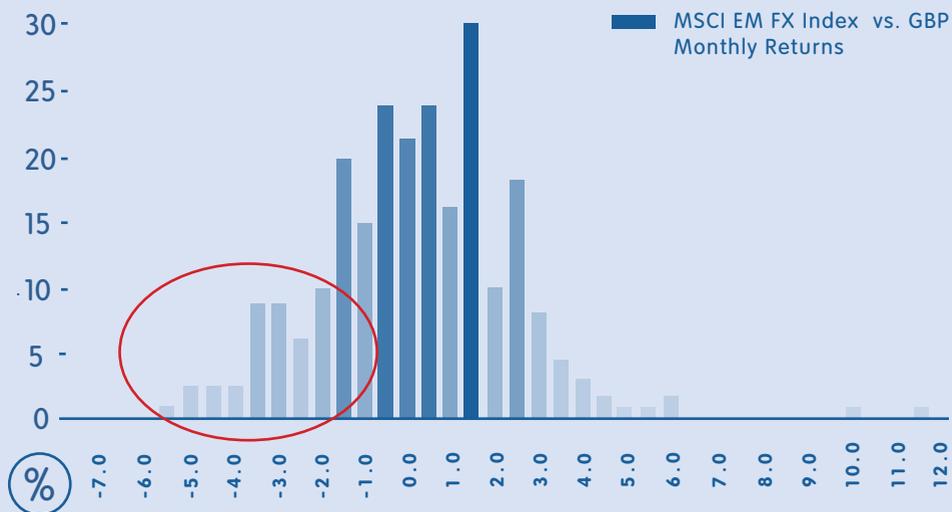
Source: Millennium Global and Bloomberg, December 2000 to December 2020.

According to this evidence, it would be very desirable to have a mechanism to trigger currency hedging when the emerging market currencies depreciate but switch it off when the emerging market currencies move sideways or appreciate, because the potential impact and value-added is so substantial.

## DISTRIBUTION OF MONTHLY EMERGING MARKET CURRENCY RETURNS IN GBP TERMS (2001 TO 2020)

Another way to measure the potential benefit of a dynamic hedging approach to emerging market currency exposure is to examine the historical distribution of monthly returns. This will illustrate how frequently emerging market currencies appreciate, how often they depreciate and by how much.

FREQUENCY OF MONTHLY RETURNS



Source: Millennium Global and Bloomberg, December 2000 to December 2020.

The chart above shows that, there are a significant number of negative monthly returns over the period and several of them quite large as shown by the red circle. As such, maintaining a constant allocation to emerging market currencies risks being exposed to this frequency and size of drawdowns.

The objective of a dynamic hedging approach is to selectively hedge emerging market currency exposure during these periods of negative returns and if executed well, can mitigate these drawdowns and add a significant amount of value to an emerging market portfolio.

## CHOICE OF BENCHMARK

The choice of benchmark for an Emerging Market Dynamic Currency hedging programme is typically unhedged. This is to avoid paying hedging costs on a strategic basis (even though the costs are lower than they once were) as the benchmark sets the strategic currency exposure. Also, in the very long term emerging market currencies are expected to appreciate according to the Balassa-Samuelson exchange rate theory by virtue of having a higher per capita growth rate. Hence, a tactical rather than a strategic hedging policy for emerging market currencies is appropriate.

A Dynamic Hedging programme with a zero hedged benchmark can be thought of as a low cost insurance policy against occasional, sporadic and yet material emerging market currency depreciation. It is designed to involve a low cost when it is not needed but provide significant protection when it is needed by raising the hedge ratio accordingly. It is also expected to be a far lower cost than buying put options on emerging market currencies to hedge the exposure which is notoriously expensive whereby the costs tend to overwhelm the periods of benefit.

It seems reasonable to expect that institutional investor allocations to emerging markets across all asset classes will rise on a structural basis in the years ahead. As such, managing emerging market currency risk will become an increasingly important consideration in this asset allocation going forward.



# KEY TAKEAWAYS

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1) IT CANNOT BE ASSUMED THE EMERGING MARKET CURRENCIES APPRECIATE AGAINST STERLING ON A CONTINUOUS BASIS.

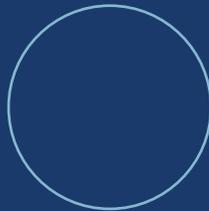
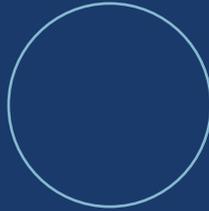
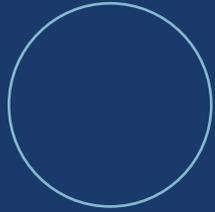
2) SEVERE BOUTS OF EMERGING MARKET CURRENCY DEPRECIATION HAVE CAUSED LARGE DRAWDOWNS IN EMERGING MARKET ASSET PORTFOLIOS.

3) HEDGING COSTS HAVE FALLEN MARKEDLY AND INCREASES IN MARKET LIQUIDITY NOW PERMIT CURRENCY MANAGEMENT STRATEGIES TO BE IMPLEMENTED.

4) A DYNAMIC HEDGING STRATEGY, IN PRINCIPLE, IS IDEALLY SUITED TO THE MANAGEMENT OF EMERGING MARKET CURRENCIES.



# CHAPTER NINE



## THE IMPORTANCE OF BEST EXECUTION

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### MARKET CONTEXT

There is a vast amount of foreign exchange traded every day and the currency market is the largest financial market in the world. The Bank of International Settlements Tri-Annual Survey (2019) has calculated a figure of USD 6.6 trillion (that is USD 6,600,000,000,000) worth of currencies exchanged daily.

The majority of these currency transactions are made through banks whose business it is to “make a market” in foreign exchange rates and act as principal to the transaction with their customers.

Depending upon the precise nature of the relationship, the pricing offered to each customer is typically tiered according to a prescribed set of criteria. The criteria include credit worthiness, on-boarding complexities, annual FX volume traded and the type of business e.g. spot, forwards, options.

Once classified, a fee is levied to each customer in the form of a spread around the mid-market price to compensate the bank for the risks involved in making a market although this often remains opaque.

There has been a focus on the quality of execution in recent years across all financial asset classes and increasingly so in the foreign exchange market as it has become apparent that excessive costs are being charged.

In many cases, “Best Execution” is not being achieved.



## THE EVOLUTION OF EXECUTION

The foreign exchange business within the banking industry is currently experiencing significant disruption as new entrants are competing with existing bank market-makers of FX rates in offering prices to retail and institutional customers.

Many different business models are being created and the disruption comes in many forms. Some have cheaper on-boarding protocols, some price credit risk more cheaply, many have user-friendly e-platforms so that customers can execute themselves. Their aim is to undercut the spreads charged by the banks and so offer lower FX transaction costs.

As a consequence, costs are falling, transparency is rising and substantial savings are on offer to all types of customer needing to buy and sell foreign exchange.

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## MARKET RESEARCH

Until recently, little market research was available to quantify execution costs given the opacity of the market. However, a drive by regulators for greater transparency has led to more research into what costs are being charged to different participants in the market.

*Research published by the investment consultant Russell Investments “**STILL OVERPAYING FOR FX**” (July 2012) analysed 173,000 trades on institutional assets totalling approximately USD 76 billion and concluded that for an average USD 1 billion, savings of the order of USD 330,000 per annum would have been achievable from the adoption of an agency approach where FX trading is outsourced to a third party specialist. In some cases funds could have saved much more.*

*The research paper references a concern with outsourcing FX trading to a fund's own custodian bank due to the potential for:*

**A)** *Bundling of custodial services and therefore opacity of pricing and hidden costs*

**B)** *Conflicts of interest as trades are executed as principal rather than agent and the lack of an effective audit process.*

*In several cases the study showed that a manager had paid 37 basis points for trades which should typically have cost 1-3 basis points.*

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*In a more recent IMF Working Paper, “**DISCRIMINATORY PRICING OF OVER-THE-COUNTER DERIVATIVES**” (May 2019) published in collaboration with the European Central bank and Swiss Finance Institute, a study was undertaken of more than 500,000 EUR/USD forward contracts between 204 banks and over 10,000 non-financial European firms. The Financial Times reported on this research in their article entitled “Banks accused of ‘systematic’ gouging of small customers on FX” (May 2019).*

*The study concludes that a wide discrimination of pricing exists dependent upon perceived client sophistication such that the 90th percentile corporate client paid on average 0.50% over the market mid-price while the bottom quartile paid no more than 0.02%. Overall, for European companies in the analysis outside the “EURO STOXX 50” firms, the paper estimated that bank dealers earned EUR 638 million annually from trades just in the EUR/USD segment of the FX forward market.*

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The conclusion and recommendations of both of these research studies are noteworthy:

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The Russell study explicitly suggests the consideration of a model whereby a third party specialist agent is appointed to manage FX trades so that the agent can pursue competition among a panel of counterparties to achieve the best possible price. Similarly, The IMF working Paper recommends a model where bank dealers are forced to compete with each other to eliminate price discrimination and proposes “multi-dealer RFQ platforms” (“Request for Quote”) as a viable option.

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Both studies illustrate the clear benefits of trading with multiple banks in competition with each other rather than with one bank on a bilateral basis.

## HOW TO SEEK BEST EXECUTION

In summary, the best FX rates are likely to be provided by those entities who can offer an independent multi-bank platform as this will offer the best price among a range of banks rather than relying on one to offer a price.

Independence of the platform provider ensures that the client's interests are always placed first as there is an alignment of objectives in achieving the best possible price. In essence, a multi-bank platform provides clients with the ability to "compare the market" and achieve the best rate from a very large pool of liquidity (many banks) rather than gaining access to the liquidity of only one bank which the majority of FX brokers offer.

No one bank will be able to offer the best price on all currency pairs at all times and hence, there is a significant advantage if a provider can offer the best price among a "panel" of banks.

It is also important to have transparency with regard to the "spread" which is charged and ensure that it is explicit and that there are no hidden fees. Historically, hidden fees have been rife but with the new FX disrupters, these are starting to fall with the onset of new competition. It is important to shop around to get the most competitive offering for your needs.

As Harald Hau, professor at the Geneva School of Economic and Management and lead author of the IMF Working paper said:

**"The elephant in the room is that dealers systematically and consistently overcharge clients who don't have currency trading expertise".**



## TRANSPARENCY THROUGH TRANSACTION COST ANALYSIS (TCA):

For existing participants in the market, the best way to assess the quality of your current FX execution is to request a TCA "Transaction Cost Analysis". It is advisable to establish that the data analysis is conducted by a reputable independent third party to ensure objectivity.

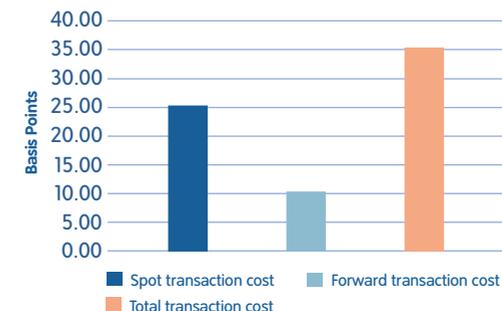
Such an analysis will compare your actual execution rates with the mid-market rate at the time of the trade and measure the extent of any slippage or spread versus "Best Execution".

### SAMPLE TCA REPORT

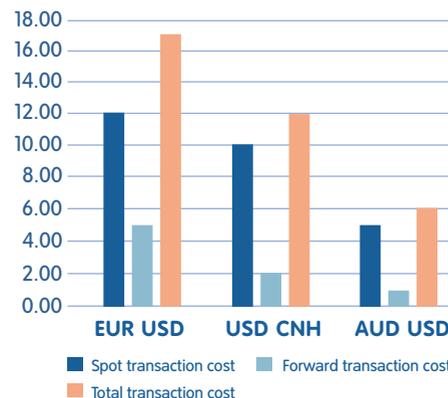
#### Transaction cost analysis overview

Total Volume Analysed (USD Billions)		3.3
Number of Trades		358
Total Portfolio Transaction Cost (bps)		35

#### Total transaction cost breakdown



#### Transaction cost by currency pair



#### Notes:

Transaction cost is the measurement of the actual cost per trade as a spread to the calculated mid-price.

Trade level transaction cost is aggregated based on a volume weighted approach to arrive at the aggregated a transaction cost for spot, forward and total spread at portfolio level.

## QUESTIONS TO RAISE WHEN REVIEWING YOUR FX TRADING PROCESS

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- 1** Do you know your total FX transaction costs?
- 2** Do your investment managers or does your internal trading desk have a governance process for assessing FX execution quality?
- 3** Are all trades time-stamped to the second so that they can be audited and measured via Transaction Cost Analysis?
- 4** If trades are identified as being outside appropriate daily ranges how are they brought to your attention?
- 5** How many counterparties are used and are trades executed in competition?
- 6** How is counterparty credit risk managed?
- 7** What reporting is provided on foreign exchange executions?



## ENSURE THAT CONFLICTS OF INTEREST ARE DEALT WITH AND RESOLVED

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It is important to ask questions related to potential conflicts of interest as part of a good governance process.

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- A** Does the investment manager, custodian bank or executing entity receive revenue from executing foreign exchange transactions?
- B** If so, it is disclosed, clear and transparent?
- C** Is the execution entity acting as principal or agent on behalf of your business?
- D** If principal, what checks are in place to ensure that your interests are being served?

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Having undertaken these steps as part of the review of your FX execution you should be in a good place to satisfy the highest levels of good governance and achieve genuine Best Execution.



# KEY TAKEAWAYS

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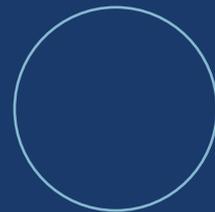
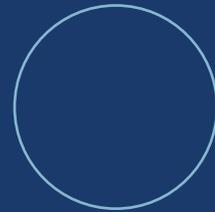
1) WHILE FX EXECUTION OPTIONS ARE EXPANDING, MARKET RESEARCH SUGGESTS THAT THE COST OF FOREIGN EXCHANGE TRANSACTIONS REMAINS OPAQUE AND THAT MANY FIRMS ARE BEING OVERCHARGED.

2) TRANSPARENCY OF EXECUTION COST IS CRUCIAL AND CAN BE MEASURED VIA TRANSACTION COST ANALYSIS.

3) EXECUTION QUALITY CAN BE MEANINGFULLY IMPROVED USING AN INDEPENDENT MULTI-BANK PLATFORM.



# CHAPTER TEN



## MANAGING A CURRENCY PROGRAMME: THE MECHANICS

### HOW TO ON-BOARD, IMPLEMENT AND MONITOR A CURRENCY PROGRAMME

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#### ON-BOARDING

On-boarding a currency programme with a specialist currency manager follows broadly the same process whether it is for a Passive, Dynamic or Active strategy or an Execution only mandate.

The following documentation is required:

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- 1.** Signing an Agreement which governs the relationship with the Currency Manager and specifies the Guidelines and governs the goal of the programme.
  - 2.** An ISDA Agreement (International Swaps and Derivative Association Agreement) for each counterparty bank which sets out the terms that apply for transactions in over-the-counter derivatives such as FX forwards. This can be made simpler if the currency manager has existing Agency ISDA documentation whereby institutional asset owners can be added to the Annex. This avoids the institution having to negotiate new ISDA Agreements which can be complex and time consuming.
  - 3.** Where collateral is required – a Credit Support Annex (CSA) is signed which defines the rules under which collateral is posted for margining purposes, should it be required by regulation (OTC non-deliverable forwards and options) or by a counterparty bank.
- 

Typically, the Currency Manager will proactively manage the process to ensure that it is efficient, timely and not burdensome.

## IMPLEMENTATION

A specialist currency manager can assist with the following:

### SET-UP WITH CUSTODIAN BANK

1. Open a cash account at the custodian bank to facilitate the cash flows of forward contract settlements, option premium payments/receipts and daily collateral movements where required.
2. Open a CLS account (“Continuous Linked Settlement”) to simplify and streamline the process of OTC FX derivative cash flows.
3. Set up SWIFT connectivity between the custodian bank and the currency manager to facilitate secure payment instructions.
4. Set up a matching confirmation service to ensure accuracy of trade details to facilitate automated post-trade confirmation matching for OTC FX derivatives.

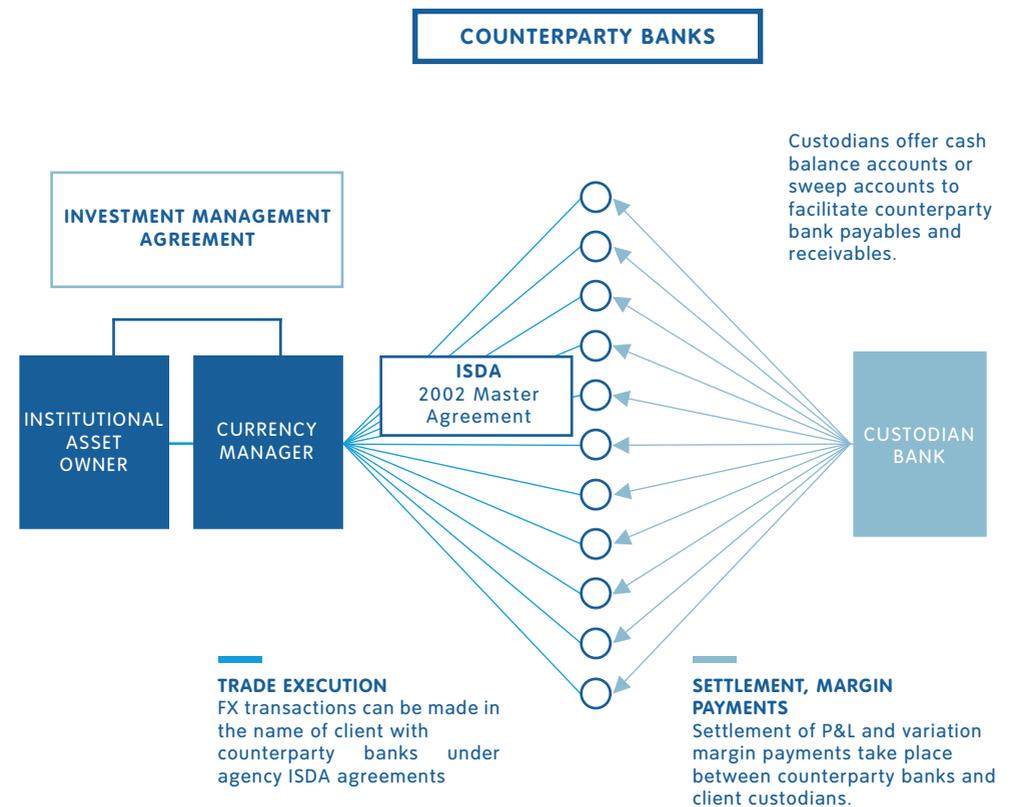
### REPORTING SET-UP

5. Regulatory Reporting – a currency manager can take on the responsibility for the daily regulatory reporting requirements of currency trades.
6. Mandate Reporting – a currency manager can provide the institutional asset owners with full transparency of trading activity, transaction cost analysis and portfolio overview reporting on a daily, weekly or monthly basis.

## COLLATERAL MANAGEMENT

Where collateral is required to be posted, connectivity will be established between the currency manager and a collateral management provider to calculate and manage margin calls with counterparty banks and resolve any margin disputes on a daily basis.

### PROGRAMME IMPLEMENTATION THROUGH A CUSTODIAN BANK



## USE OF A PRIME BROKER

An alternative to managing the process through a custodian bank is to set up a prime broker. This enables an institutional asset owner to transact foreign exchange across an array of counterparty banks utilising the credit lines of the prime broker to streamline operational and margin efficiency.

It is advisable to assess the merits and costs of using a custodian bank and having multiple counterparty relationships or using a Prime Broker and having a consolidated set-up prior to implementing a currency investment management programme.

### THE PROS AND CONS OF USING A PRIME BROKER VERSUS A CUSTODIAN BANK

PRIME BROKER (PB)	CUSTODIAN BANK
Collateral is required for all FX positions	Collateral is required only for regulatory or counterparty bank credit requirements
Counterparty risk is centralised with the PB through "give-up" of trades	Credit exposure is spread among counterparty banks
Settlement risk is reduced as all open currency exposures can be netted by the PB	Settlement risk cannot be reduced by netting trades across counterparty banks.
Wide variety of reporting available online	Reporting less frequent and narrower than that provided by a PB
Regulatory reporting can be delegated to the PB	Regulatory reporting typically not available
Charging model: fees typically based on size of trades and not number of trades. <i>Trades with PB bank are usually free</i>	Charging model: fees typically based on number of trades executed and not size of trades

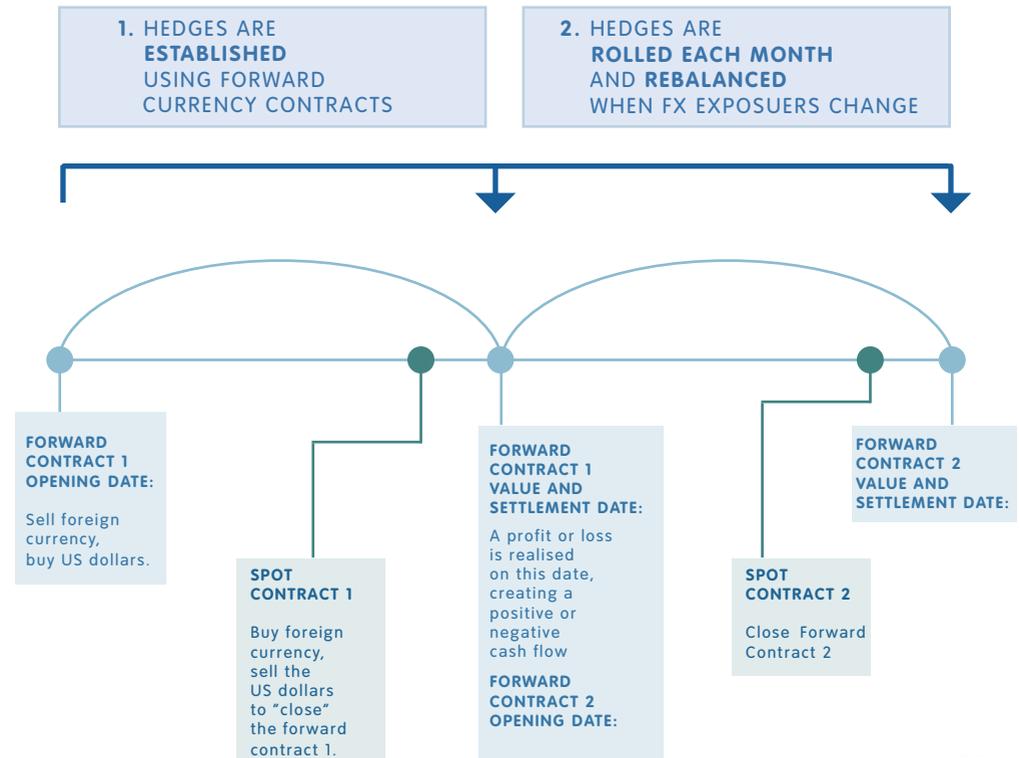
## ROLLING FORWARD FOREIGN EXCHANGE CONTRACTS – THE MECHANICS

Given that the tenor of foreign exchange forwards contracts tend to be quite short e.g. 1–3 months (because that is where the best market liquidity resides), there is a need to "roll over" the position at expiry to maintain the hedge or forward currency exposure.

The initially purchased currency is sold and repurchased while the initially sold currency is bought and resold.

An example is shown below

### CURRENCY HEDGING MECHANICS



Rolling forward contracts will crystallise the profit or loss on the contract which has just expired and re-establish the original position until the next expiry. As a result of these mechanics, there will be cash flow consequences on the expiry and settlement of the initial position.

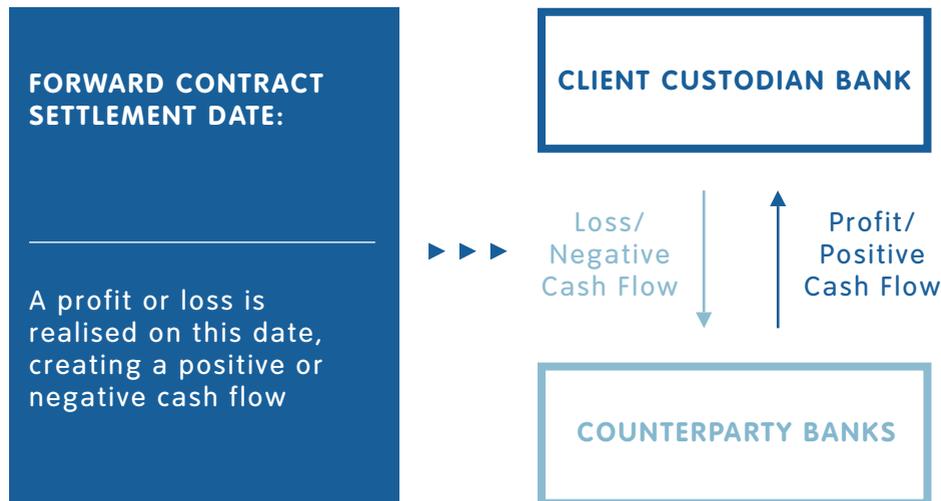
At each calendar expiry it is important to ensure that there is sufficient cash at the custodian bank to service any payments due if there is a loss on a position and be ready to deploy cash inflows on any profit.

Cash Settlement is illustrated below.

## CASH SETTLEMENT

### FORWARD SETTLEMENT

### CASH FLOW



## MONITORING

The following information needs to be exchanged between an institutional asset owner and the appointed currency manager, typically on a monthly cycle.

**1. Update to the Programme Size:** this may vary on a monthly basis if it is tied to the size of the underlying asset pool which will change with market movements.

**2. Programme Currency Weights:** individual currency weightings upon which hedges are calculated may change due to the movement in asset values. This rebalancing can target the “actual portfolio” weights or “benchmark” weights and are relevant in the rebalancing of hedge ratio calculations which are typically executed on a monthly basis. More frequent rebalancing can be conducted during periods of elevated volatility.

These processes can be resolved and agreed with your currency manager at the set-up stage so that monitoring these aspects on a monthly basis is efficiently addressed.

# KEY TAKEAWAYS

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1) A SPECIALIST CURRENCY MANAGER CAN MANAGE THE COMPLEXITY OF ON-BOARDING, IMPLEMENTATION, REPORTING AND MONITORING TO ENSURE A CURRENCY PROGRAMME CAN BE SEAMLESSLY INCORPORATED INTO AN INTERNATIONAL PORTFOLIO.

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2) AN APPOINTED CURRENCY MANAGER WILL LIAISE DIRECTLY WITH THE APPOINTED CUSTODIAN OR PRIME BROKER AND PROVIDE INDEPENDENT REPORTING.

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3) A SPECIALIST CURRENCY MANAGER CAN IMPLEMENT A CURRENCY PROGRAMME IN A TIMELY MANNER AS THE KEY INDUSTRY DOCUMENTATION AND SERVICE PROVIDER RELATIONSHIPS HAVE ALREADY BEEN ESTABLISHED.

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4) SHOULD AN INSTITUTIONAL ASSET OWNER WANT TO SET UP DIRECT ISDA DOCUMENTATION WITH COUNTERPARTY BANKS, THE APPOINTED CURRENCY MANAGER CAN ASSIST IN FACILITATING THIS PROCESS.



# SUMMARY

It has been said that currency risk is the most underappreciated aspect of international investment management.

Global investors can be said to have “discovered” equity markets, fixed income, credit, real estate, infrastructure, hedge funds, private equity and alternative investments and now actively engage in them with a high degree of comfort across the board. In the case of currency markets however, the path to discovery and familiarity is still at a relatively early stage for many investors.

That journey of discovery is important for the efficient portfolio management of globally invested capital for the following three key reasons:

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## 1. Currency Exposure has a Large Portfolio Impact.

**A.** The impact on portfolio risk is significant with the currency contribution to risk in a typical globally invested portfolio being second only to equity risk.

**B.** The impact on portfolio returns is random if unmanaged and can be significant especially over short to medium term time horizons spanning up to several years.

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## 2. Doing Nothing is the Position of Highest risk

By way of example, the impact of owning the MSCI World ex-UK Equity Index is akin to owning:

- a) a mix of capitalisation weighted equity markets.
- b) a currency fund with an expected volatility of approximately 8% and an expected return of zero.

In no other part of the portfolio would it be advisable own a fund that adds risk but has a zero expected return. It is therefore inadvisable to leave currency exposure unmanaged.

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**3.** There are a variety of solutions and choices available for managing currencies. They can be focused on risk management, return enhancement or a combination of the two.

**A.** Passive hedging directly addresses the issue of risk reduction by reducing the net currency exposure in the portfolio and therefore its contribution to risk.

**B.** A Dynamic Hedging strategy seeks to improve on this solution by recognising that there is no optimal hedge ratio but rather, by varying the hedge ratio over time, the strategy can improve cash flows, mitigate drawdowns and add excess return versus a passive hedge.

**C.** Active Currency Overlay transforms existing currency exposure into a new and preferred currency allocation. It acknowledges that the two primary sources of risk in international assets, namely the asset exposure and the currency exposure are entirely separate sources of risk by their very nature and should therefore be managed separately using a portfolio approach in both cases.

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Each solution can be customised to the requirements of every portfolio and in accordance with the risk culture of each investor. It is in keeping with good corporate governance to ensure that the inherent currency risk in global portfolios is adequately and appropriately managed.



# APPENDIX



## A BRIEF HISTORY OF THE BRITISH POUND STERLING

The Pound sterling is the oldest currency in the world today in continuous use.

Its name derives from the Latin word *Libra* for weight or balance, via the construction “*Libra Pondo*”, meaning a pound weight. While the word *Libra* has long since been discarded, it makes its presence felt in the £ symbol, an ornate L.

Historians trace its use all the way back to 775 A.D. when Anglo-Saxon King Offa is credited with using silver pennies as currency. 240 of them weighed 1 pound.

King Athelstan, the first King of England, adopted the pound as the first national currency in 928. He set up mints around the country to supply the nation. One pound could buy you 15 head of cattle during Athelstan’s reign.

Use of the word “sterling” did not arise until after the Norman Conquest, and it originally referred to pennies not pounds, but its origins are mysterious, deriving perhaps from “*esterlin*”, a Norman word for little star, or “*lesterling*”, an Arabic word for money.

The coins’ silver content had been reduced to 92.5% at this time to improve durability (100% was seen as too soft) and this level of purity became known as “sterling silver”. Sterling silver has a minimum millesimal fineness of 925 to this day.

At that time there were no larger denomination coins than pennies – pounds and shillings were merely useful units of account.

An actual pound coin did not exist until 1489 when Henry VII was king, and it was called a “sovereign”. The shilling was first minted in 1504 with 12 pence in a shilling and 20 shillings in one pound.

The standard of 240 pence in one pound sterling remained the standard for nearly 1,200 years until 1971 when the British Parliament instituted decimalization to make 100 new pence equal one pound sterling.

Gold coins emerged in 1560, and by 1672 some were made of copper. England’s naval defeat by France in the 1690 Battle of Beachy Head led to King William III establishing the Bank of England in 1694 to fund his continued war with France. £1.2 million was raised in 12 days, half of which was used to rebuild the navy.

Banknotes began to circulate in England soon after the establishment of the Bank of England in 1694 and they were initially hand-written.

The United Kingdom defined sterling’s value in terms of gold rather than silver for the first time in 1717 when Europe moved to a gold standard.

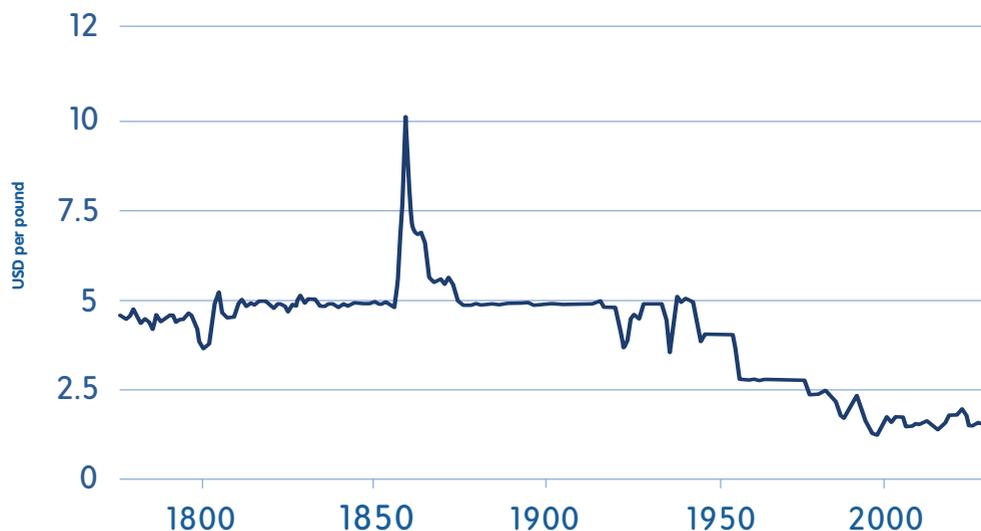
Sir Isaac Newton, as Master of the Mint, set the gold price of £4.25 per fine ounce that lasted two hundred years, except during the Napoleonic wars when gold cash payments were suspended.

During the 19th century, the pound sterling became the primary global currency as a result of the industrial revolution and Britain becoming the “world’s factory” such that in 1860, 60% of global trade was invoiced in sterling.

Sterling’s dominance continued for the next 100 years such that in the 1950s 55% of world currency reserves at global central banks was held in sterling. However, the ascent of the US dollar was accelerated after WW2 by the US’s new dominance in world trade and by the time of the breakdown of the Bretton Woods system of fixed exchange rates in 1971, sterling’s share of global reserves had fallen to around 11%. Today, it is below 5%.

In addition to the United Kingdom, the British pound has previously served as currency in many of the colonies of the British Empire including Australia, New Zealand, and Canada. Some nations that do not use sterling also have currencies called the pound e.g Egypt, Lebanon, Syria and Sudan.

## THE BRITISH POUND STERLING VS THE US DOLLAR



In the late 1700s the rate was pegged at 4.25 US dollars per pound sterling but in the early 1800s sterling depreciated against the Greenback to \$3.62 during the Napoleonic wars (1803 – 1815). Around 50 years later the US Dollar collapsed during the Civil War (1861 – 1875) to 10 US dollars per pound albeit reverted to the \$5 level soon after the war ended and remained there through the end of the 19th century.

Entering the 20th century just shy of \$5, the next big development for the cross saw sterling come under pressure during World War 1 (1914 – 1918). The abandonment of the gold standard and the financial burden of the Great War saw the GBP/USD rate decline to \$3.66.

The expense of the First World War took its toll on sterling as the currency was allowed to float, but Britain returned to the gold standard in 1925. The advent of the Great Depression in 1931 meant that the gold standard had to be abandoned.

The collapse of the coal industry in 1925, rising unemployment and persistent deflation culminated in a savage run on the Pound in 1931 at which point the Gold Standard was abandoned for a second, and final time.

The pound rebounded towards the \$5 level and even briefly breached, topping out at \$5.04 in 1934.

The outbreak of World War 2 saw the pound peel away from the \$5 level, dipping to a fresh historical low of \$3.25.

A 1940 agreement between the US and the UK pegged the Pound-to-Dollar rate at \$4.03 given the governments' desire to maintain a relatively fixed rate.

Any hopes of a post-war recovery for sterling against the dollar were dashed by Britain's emergence from the war with an unprecedented level of debt, nearly 250% of the nation's GDP with the US holding the majority.

Despite the soft-loan agreement between the UK and US in which the UK would repay a wartime \$3.75 billion loan at 2% over fifty years, the Pound Sterling remained under intense pressure.

In September of 1949, speculation became fact when at the Chancellor of the Exchequer, Sir Stafford Cripps, announced a 30% devaluation for the Pound, reducing the Pound-to-Dollar rate from \$4.03 to \$2.80.

The following two decades were characterised by persistent balance of payment problems for the UK, leading to the Sterling crisis of 1964/65 when the UK was compelled to seek financial assistance from the Bank of International Settlements and International Monetary Fund (IMF).

By 1966/67, the Bank of England was covering persistent sterling weakness by lines of credit extended from other central banks (i.e., swaps with the New York Federal Reserve) and the IMF. It wasn't enough however and in 1967, Prime Minister Harold Wilson announced a 14.3% devaluation, reducing the Pound-to-Dollar rate from \$2.80 to \$2.40.

The Bretton Woods system was abandoned in 1971, largely due to its inflexibility, thus ending the era of fixed exchange rates with currency crosses adopting the free-floating nature that persists today.

While there is an eventful history of the pound versus the US dollar during the period of floating exchanges with both periods of substantial strength and weakness, the exchange rate overall fell from 2.65 in 1971 to GBP/USD 1:35 at the end of 2020, largely as a result of higher inflation in the UK than in the US which served to depreciate its nominal value on a trend basis.



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**“In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing”.**

**Theodore Roosevelt**

The Millennium Global group is an independent, privately owned, investment company. The firm was established in 1994 with the objective of providing currency management services that address the needs of institutional investors globally. Since 1994, we have established a range of currency capabilities, including passive and dynamic currency hedging, active currency overlay, alpha programmes, and FX execution services.

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**We hope you have enjoyed reading this guide. You should now be ready to explore the “Final Frontier” of the investment universe.**