Carry Trade

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1 Introduction

In the last few months and especially at the beginning of august 2024 when the VIX spiked, the Dollar-Yen Carry Trade has been a very important topic in the financial media. More specifically, at the beginning of august the Bank of Japan, in order to fight the depreciation of the Yen, decided to raise interest rates and took them from 0.10% to 0.25%, although it may appear trivial, it made the Yen appreciate significantly against the dollar, mainly due to expectations for further rate hikes.

At that time the Japanese currency was trading around 154 yen to the dollar thanks to the Bank of Japan intervention in the FX market in the previous month; basically the Japanese central bank, in accordance with the FED, entered the market and sold Dollars to buy Yens in order to make the Yen go up in value. After the rate hike decision by the BOJ the Yen went from 154 to 144 Yen to the dollar and that is significative especially when we consider the fact that usually the exchange rate between major currencies is not very volatile.

While the VIX and the Yen were rising, many global investors were caught off guard and that's the ground where the carry trade partially unwound but what is a carry trade and under what conditions it will likely unwound? In this paper we are going to discuss about it and we are going to try to understand how complex this investment strategy can get.

2 The mechanics of a carry trade

2.1 The definition

A carry trade is an investment strategy in which the investor borrows money at a low rate and invests the proceeds in a higher rate of return asset, the difference between these two rates determines the "Carry" which represents the profit for the investor. Although it may appear trivial from a definition stand point, a carry trade can become very complex when there are certain financial instruments involved like derivatives and when multiple currencies and assets are used to diversify the risk.

- **Borrowing in a low interest rate currency.**
  The first step is crucial because the investor has to look for a currency in which interest rates are very low and also a currency which, because of fundamental reasons as well as technical reasons, is likely to depreciate against the currency in which the investor wants to invest.

- **Swapping the borrowed currency for the one he wants to invest in.**
  In the second step, the investor needs to choose the asset or assets he wants to invest in, looking for a high upside potential and low downside risk. The performance of these assets will determine profit or loss, so careful selection is essential.

- **Pocketing the spread.**
  If the right assets and borrowing currency are chosen, the investor will profit from the difference between the yield obtained from the assets and the cost of borrowing.

3 The kinds of carry trade

- **The Currency Carry Trade:**
  In this case, the investor borrows in a low-interest-rate currency and buys a currency that has a higher interest rate. Once he acquires the higher-interest-rate currency, he deposits the proceeds in a money market account or a term deposit account, earning a rate that exceeds the borrowing cost of the other currency.

- **The Asset Carry Trade:**
  This trade is more complex than the previous one as it involves more sophisticated assets. There are various types of Asset Carry Trades, such as:
  - **Fixed Income Carry Trade:** The asset is either a government bond or a corporate bond. Government bonds typically offer lower interest rates due to lower default risk, whereas corporate bonds may yield higher returns. This strategy can also involve short-term bills, notes, and derivatives like CLOs or CDOs.
  - **Equity Carry Trade:** The investor uses proceeds to buy stocks with high upside potential based on technical or fundamental analysis. This carry trade can be risky due to equity market volatility.
  - **Commodity Carry Trade:** In this trade, the investor targets commodities expected to appreciate. Though less common, this trade can be profitable under favorable economic and political conditions.

  - **Real Estate Carry Trade:** The investor uses proceeds to purchase foreign real estate, whether commercial or residential.

- **The Synthetic Carry Trade:**
  This carry trade involves derivative contracts like FX swaps, currency swaps, and FX forwards. The strategy provides exposure to interest rate differentials between currencies without direct investment in foreign currency assets. While flexible, it incurs additional costs, such as derivative premiums, transaction fees, and introduces counterparty risk.

- **The Reverse Carry Trade:**
  This less common strategy is used when the investor expects interest rate differentials to reverse or anticipates substantial appreciation of the invested currency. Here, the investor might borrow in a higher-yielding currency and invest in lower-yielding assets, speculating that the invested currency will appreciate against the borrowed one. For instance, if the investor expects the euro to strengthen due to potential monetary tightening by the European Central Bank, he might borrow U.S. dollars at a higher interest rate, convert them into euros, and invest in euro-denominated bonds. Profit is made if the euro appreciates, allowing the investor to repay the dollar loan with fewer euros.

4 Risks and Rewards

The Carry Trade's reward is represented by the spread that the investor gets on the assets he has invested in over the cost of borrowed capital. This return can be significative if he has made the right assumptions and also if he has used leverage to amplify the assumed profit. This investment strategy has some risk and if they are not fully taken into account they can really damage not only the profitability of the trade but also the financial situation of the investors involved.

To be more precise, the most important risks involved in a carry trade are:

- **Interest Rate Risk:**
  This risk involves rate hike decisions by the central bank of the currency in which the investor is borrowing, as well as decisions made by the central bank of the currency in which the investor has invested. For example, if an investor is borrowing in Yen and the Bank of Japan (BOJ) decides to raise interest rates, the cost of borrowing increases, reducing or even eliminating the carry. This risk is particularly concerning if the rate hike is unexpected. Alternatively, if an investor borrows Yen to invest in U.S. assets and the Federal Reserve raises interest rates to combat inflation, it can put downward pressure on U.S. assets, ultimately reducing the investor's carry.

- **Currency Risk:**
  This risk is linked to movements in the FX market, where exchange rates can be affected by numerous factors, both political and economic. For instance, exchange rates might be influenced by interest rate differentials between currencies or by a country's fiscal and trade conditions. If the currency in which the investor has invested depreciates against the one they borrowed in, the gains from the carry could be eliminated or even result in a loss.

- **Political Risk:**
  This risk arises from political decisions and the overall stability of the government where the investor's money is invested. Political risk is significant, as it can lead to an investor's investment being wiped out. For example, if an international investor borrows Yen to invest in a South American oil-producing company, and that government decides to nationalize oil production, the investor's investment could lose all value while the debt still must be repaid. Alternatively, if an investor holds foreign assets, sanctions imposed on that country could lead to asset freezing or confiscation, negatively affecting the investment.

- **Liquidity Risk:**
  This risk takes into account the differences in the liquidity of assets available for investment. In times of financial stress or market downturns, liquidity may dry up, making it difficult for investors to exit or roll over their positions, especially in assets that are not publicly listed.

- **Recession Risk:**
  This risk relates to the economic situation of the country where the investor has invested. If a recession occurs or markets start to anticipate one, it can lead to a general decline in asset prices. For instance, at the beginning of August, a lower-than-expected jobs report led markets to price in the possibility of a recession, causing asset prices to drop significantly.

5 The strategy

As we have discussed earlier, the carry trade can take many forms and now we are going to analyze a possible investment strategy in which the investor wants to use the borrowed funds to build a portfolio of foreign assets composed by stocks, bonds and residential real estate.

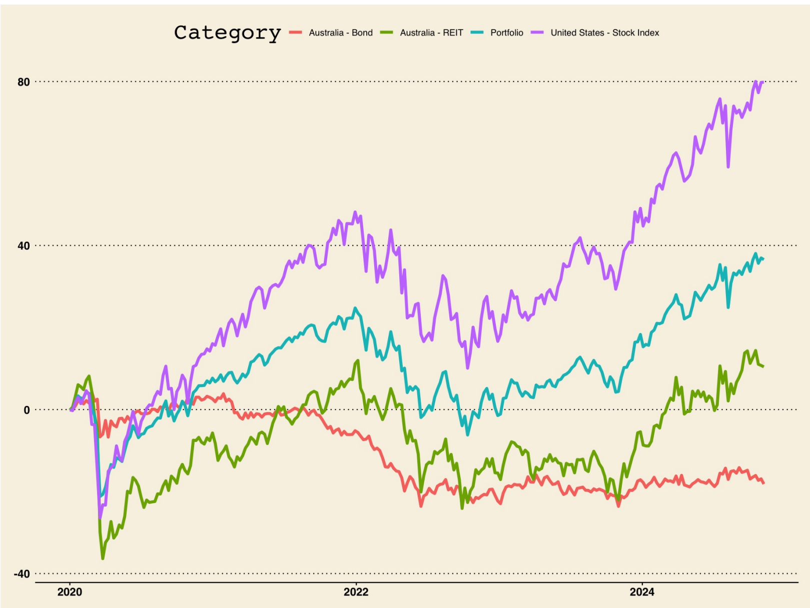

Figure 1: Percentual return of a portfolio composed of the US stock index, Australian bonds, and REITs, accounting for the exchange rate; built with carrytrade.streamlit.app.

In this particular case the investor could be a bank, a Hedge Fund or any financial institution that expects a currency to depreciate and so it will borrow in that currency and also wants to invest in a world diversified portfolio and so we included markets like Australia, Austria, Belgium, Canada, Germany, France, Italy, United States and many more.

- **Borrowing Rate:** Influenced by several factors, such as:
  - **Interest Rate Decisions:** If the central bank raises rates, debt becomes more expensive to repay, and the opposite is true. Monetary policy decisions are influenced by factors like inflation rate, unemployment rate, and the broader financial state of the economy, which ultimately affects the central bank's actions.
  - **Exchange Rate:** Even if the interest rate remains the same, an appreciation of the currency in which the investor borrowed makes the debt more expensive to repay in real terms, and the opposite is true. Exchange rate movements can be driven by both political and economic factors and require close monitoring.
- **Stock Market:** Key variables include:
  - **Interest Rates:** Stock prices, from a fundamental perspective, reflect the present value of cash flows the stock can generate, making them sensitive to interest rate changes.
  - **Economic Data:** In a "Good News = Good News" narrative, strong economic data is bullish for stocks, as investors expect companies to generate higher revenue and profits.
  - **Geopolitical Decisions:** Stock prices are influenced by tax policies, regulatory changes, and external events, such as escalations in global conflicts that may impact supply chains, like oil.
  - **The Narrative:** Sometimes stock prices are driven by prevailing narratives, such as the AI boom, which led to increased stock prices for chip manufacturers due to anticipated higher earnings. Narratives can also amplify the impact of monetary policy; for instance, a central bank rate cut could drive stocks down if markets interpret it as a recession-avoidance measure.
- **Bond Market:** Influenced by:
  - **Interest Rate Decisions:** Bonds are highly sensitive to the interbank interest rate, often influenced by the Federal Reserve.
  - **Economic Data:** Bond prices react to economic data and associated narratives. Positive economic data can prompt markets to expect a less dovish central bank stance, implying higher rates for longer, which pushes bond prices down and yields up.
  - **Supply and Demand Dynamics:** Factors, both political and economic, that affect the supply and demand for bonds. For example, new regulations requiring banks to hold more treasuries, a large issuance of T-bills by the government, or a run for safe-haven assets during a global financial crisis can drive demand for bonds like U.S. treasuries.
- **Real Estate Market:** Key factors include:

- **Interest Rates:** Higher borrowing rates make housing less affordable, reducing demand and exerting downward pressure on prices.
- **Lending Standards:** Lending standards determine loan accessibility for purchasing homes. Tighter standards make it more challenging for individuals to secure loans, reducing housing demand.
- **Supply and Demand Dynamics:** Encompasses various factors that influence the housing market's supply and demand.