

FXMONITOR

Do You Want Fries With That Currency Portfolio?

By Ghene Faulcon & Dori Levanoni

The Economist has just published its annual Big Mac Index¹ comparing the prices of Big Macs in all of the largest countries. As a result, it is time to take another look at the Big Mac Index, possibly the world's most amusing and beloved currency model. At First Quadrant, we also find that it is the most educational model for introducing the notions and concepts of Purchasing Power Parity, and our way of looking at the investment process.

We shall start with the notion of Purchasing Power Parity: the price of a product (in our case a MacDonald's Big Mac) should be the same everywhere once you exchange currencies. If this doesn't hold true, some crafty entrepreneur will buy the Big Mac where it is cheapest (currently China at \$1.27) and sell it where it is most expensive (Switzerland at \$5.05)², pocketing the difference. Our crafty entrepreneur would currently profit \$3.38 – a 266% gross profit. At this rate of return, every other entrepreneur on the planet would soon join him and quickly there would be a beef shortage in China.

It is through this trade and competition that the prices and exchange rates adjust to eliminate our entrepreneur's opportunity to profit. This occurs by shifting the supply of Big Macs from China to Switzerland and demand of Big Macs from the Swiss to the Chinese markets as well as creating a flow of Yuan out of China and a flow of Francs into Switzerland.

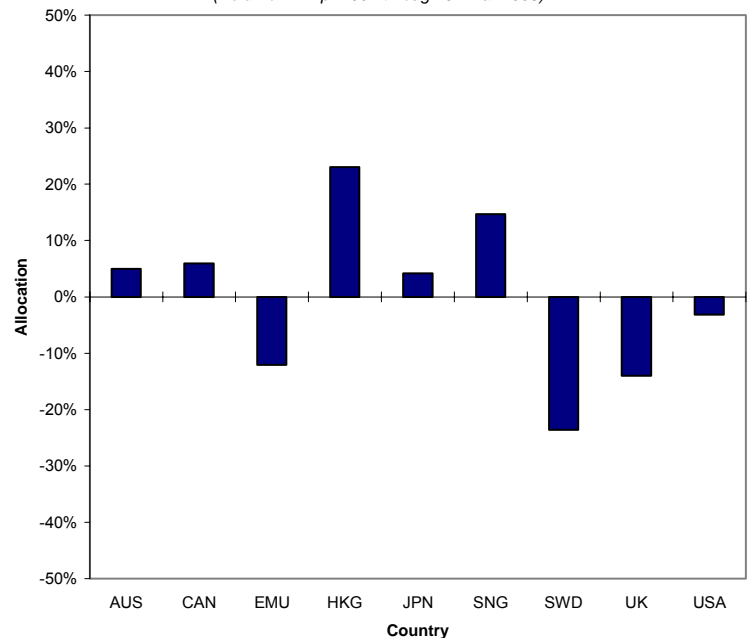
In theory, this is exactly the way that Purchasing Power Parity works. There have, of course, been simplifications made in order to highlight the concept, but that is the way economists relate the prices of goods and services in different countries to their exchange rates.

Now that we know the concept behind what we are doing, let's first look at how we did over the past twelve months, before getting into how it is all done.

Last year, our Big Mac portfolio strongly preferred the currencies of Hong Kong and Singapore – the two countries that have managed or fixed exchange rates.

Japan, Canada and Australia were all modestly bullish, while being slightly bearish the US dollar. The bears really came out in Europe where the Swedish Krona, the British Pound and the Euro were all significant short positions.

2004 Big Mac Allocations
(Held from 1-Apr-2004 through 31-Mar-2005)

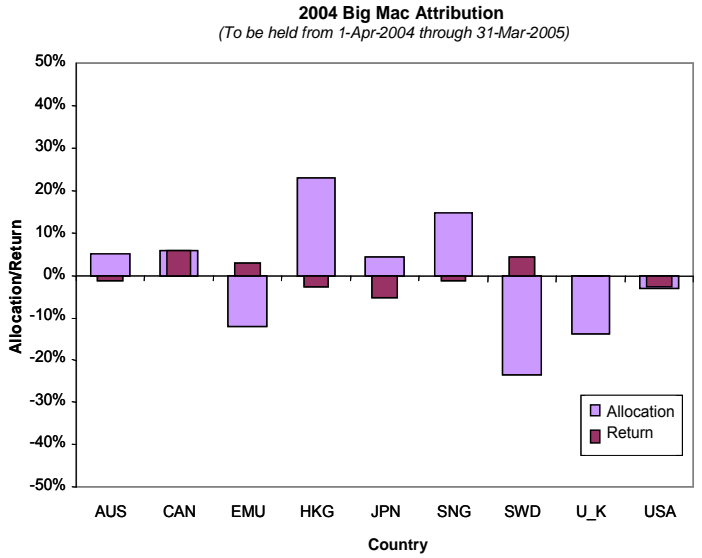


Source: The Economist and First Quadrant, L.P.

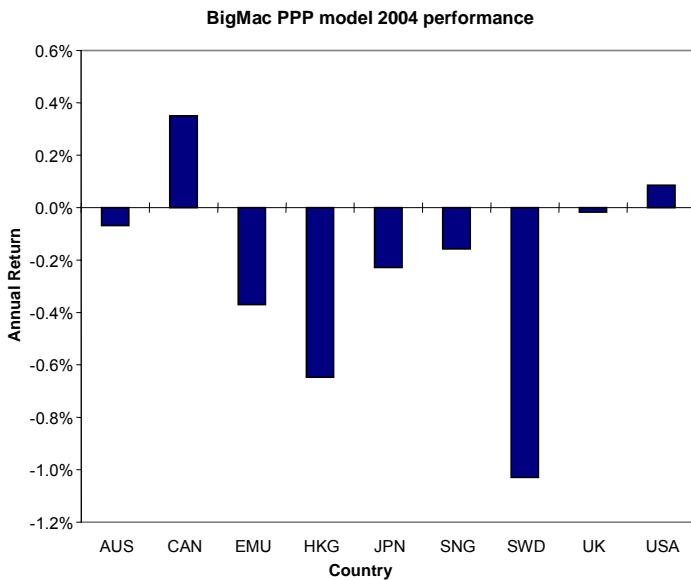
You can't always have it your way

Did last year's Big Mac portfolio work for us?

The short answer is no. We lost 2% on our portfolio. Why was that? Mostly our forecasts (embodied as allocations) did not match the actual returns. During the year, Sweden, the UK and the EMU all had appreciating currencies while we were bearish and the Asian currencies depreciated while we were bullish, offsetting the gains from bullish Canadian and bearish US Dollar positions.



Source: The Economist and First Quadrant L. P.

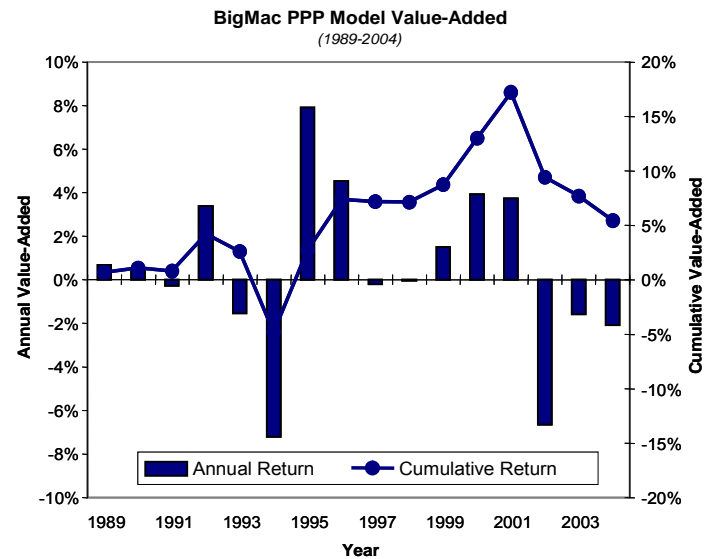


Source: The Economist, WM/Reuters, and First Quadrant, L.P.

See Additional Disclosures Regarding Simulations

The cumulative history still is positive for the Big Mac. Over 16 years we have a cumulative return of 5.4%, which represents an average annual return of 40 basis points. This was achieved at a tracking error of 3.9%. The resulting IR of 0.10 is not spectacular, yet is

sufficient to stay in positive territory even after considering transaction costs.



Source: The Economist, WM/Reuters, and First Quadrant, L.P.

See Additional Disclosures Regarding Simulations

2 all beef patties, special sauce ... how do you build a Big Mac portfolio?

Now that you know last year's results, you probably want to know how it works. In our annual study, First Quadrant uses the prices of Big Macs (as reported by the Economist) in 8 major countries and the Euro region³ to create a hypothetical currency portfolio in which we buy "undervalued" currencies, and sell "overvalued" currencies. By "overvalued" and "undervalued", we mean in comparison to a global basket of currencies rather than in comparison to the dollar. Our global basket is the average price of a Big Mac in each of the countries. In this way we don't prefer one currency to the others. This also makes any investment in the US dollar an explicit decision rather than a default or a residual. When the results are in we convert the profit or loss to the currency of our choice.

Country	Big Mac price in local currency	US dollar price	Foreign exchange rate	Implied PPP of the US dollar	Under (-)/ over (+) valuation against US dollar	Under (-)/ over (+) valuation against average Big Mac
Australia (AUD)	3.24	2.5	1.3	1.06	-18%	-12%
Canada (CAD)	3.27	2.63	1.24	1.07	-14%	-7%
Euro Area (EUR) ^a	2.91	3.58	1.26	1.05	17%	27%
Hong Kong (HKD)	12	1.54	7.79	3.92	-50%	-45%
Japan (JPY)	250	2.34	106.84	81.7	-24%	-17%
Singapore (SGD)	3.61	2.17	1.66	1.18	-29%	-23%
Sweden (SEK)	30.91	4.17	7.41	10.1	36%	48%
United Kingdom (GBP) ^b	1.88	3.44	1.86	1.63	12%	22%
United States (USD)	3.06	3.06	1	1	0%	8%
Average Big Mac	1	2.83	0.35	0.33	-8%	0%

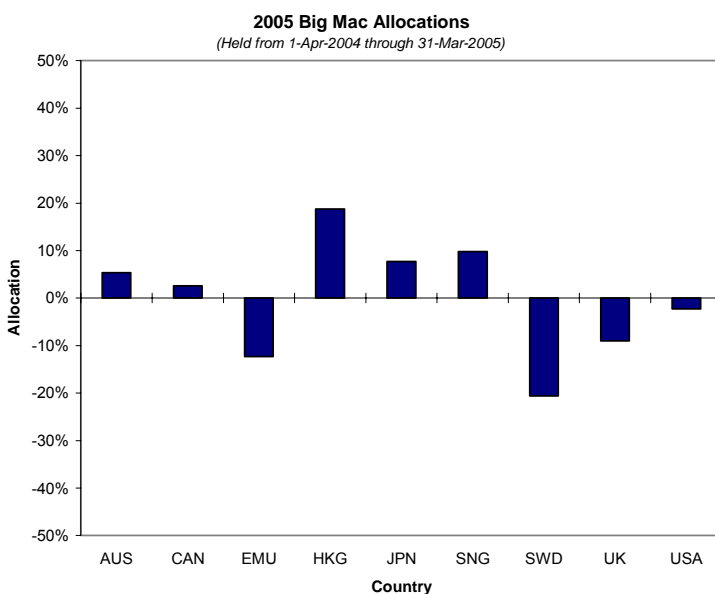
a. expressed as \$/€

Source: The Economist and First Quadrant, L.P.

b. expressed as \$/£

Our forecast for the profit potential for each currency is its over or under valuation against the average Big Mac. Since some currencies are more stable than others, we risk adjust our forecasts in order to put them on equal footing and this becomes our portfolio allocation for the year. We hold this portfolio for an entire year starting April 1st and ending the following March 31st.

This year our model sees a similar situation to last year, but to a modest extent there has been some “convergence to fair-value”. There is a definite regional picture: European currencies are too strong and should weaken; Asian currencies are too weak and should strengthen; Australia is too weak as well, but to a lesser extent, and the North American currencies are near fair value.



Source: The Economist and First Quadrant, L.P.

As we have seen, our Big Mac model is not quite good enough to implement. There are a few reasons for this, which have to do with which parts of the Big Mac are tradable; how identical across countries they are; local preferences; trade barriers; taxes; and transportation costs. Some of these topics we may cover in future editions of the FX Monitor, but for now we would like to point you to an interesting article about the tradability of the ingredients of the Big Mac. It can be found on the World Wide Web at [http://www2.owen.vanderbilt.edu/david.parsley/Current_Research/Big Mac 10-29-04.pdf](http://www2.owen.vanderbilt.edu/david.parsley/Current_Research/Big_Mac_10-29-04.pdf).

Though we won't go into the above topics here, we leave you with one last thought on trading models.

- The model is based on price convergence
- The prices did converge over the course of last year
- We lost money last year even though what we predicted actually occurred

How did we lose money?

We lost money because the prices converged due to changes in the local currency prices of Big Macs in a way that overcame the changes in the exchange rates for our portfolio. This is the real challenge to our model. Either local prices or exchange rates can change to satisfy Purchasing Power Parity. Just because we see a mispricing, does not mean we will see profit in the end. What has happened is that local Big Mac inflation (the change in price of the Big Mac in local currency) has undermined our model.

In essence, we have implemented something that doesn't exactly match the inefficiency that we have identified. An improvement to this model would control for this mismatch.

Returns and Expectations

In May, nine of the developed market central banks met, with only the US making any changes to monetary policy (a 25bp increase in the Fed Funds rate on May 3rd).

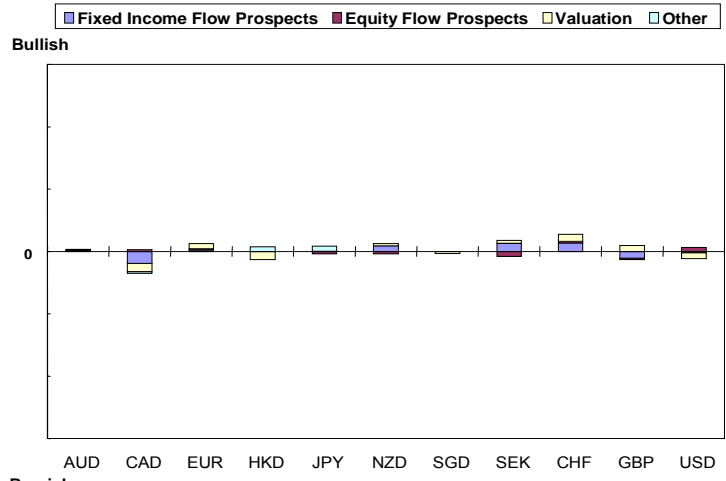
Cash yields around the developed world were also quite subdued as the world average rose by 1bp, with Norwegian cash yields rising by 6bp and Swedish, Swiss and UK yields falling by 4bp.

Long-term yields, however, had much more noticeable changes. Average yields fell by 12bp over the month, with Canadian yields falling by 22bp and Japanese Yields falling only 1bp.

Equity markets were generally up for the month (by nearly 3.5% on average), with only Hong Kong equities down (-0.89%). Danish equities were the best performing, up over 7.5%.

The currency markets were somewhat calm, with the best performing currency (the Canadian Dollar) appreciating relative to the worst performing currency (the British Pound) by 4.76% (in typical months, the difference between the best and worst performing currencies is around 6%).

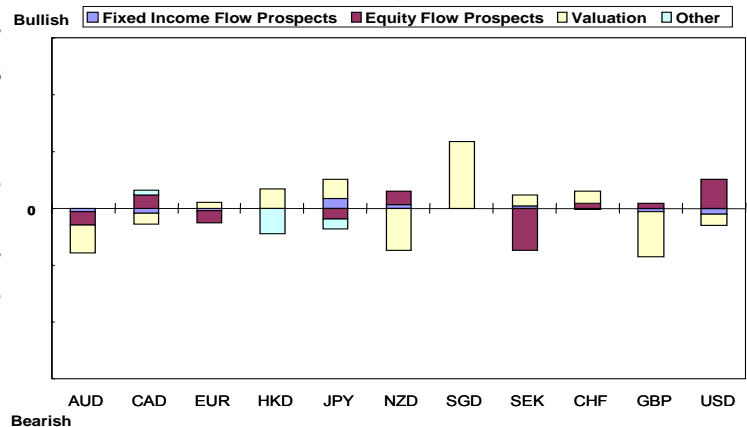
Change in Factor Contributions to Forecast
30-April-2005 to 31-May-2005



Source: First Quadrant, L.P.

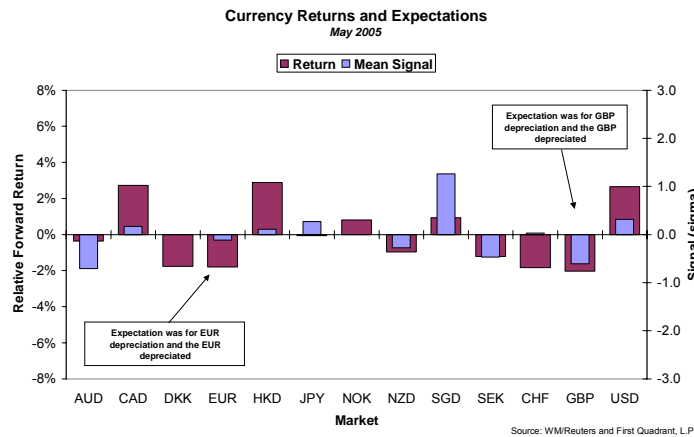
We continue to find the British Pound the most overvalued currency in the developed world, closely followed by the New Zealand Dollar, then by the Australian Dollar. The Japanese Yen continues to be the most undervalued currency of the "floating currencies", while the US Dollar has moved into a slight overvaluation after the strong performance in May. Prospective equity flows are expected to be strongest into the US, Canada and New Zealand equity markets, and strongest out of Swedish, EMU and Australian equities. Prospective bond flows are expected to be strongest into the Japanese bond market, and strongest out of the US bond market.

Factor Contributions to Forecast
31-May-2005



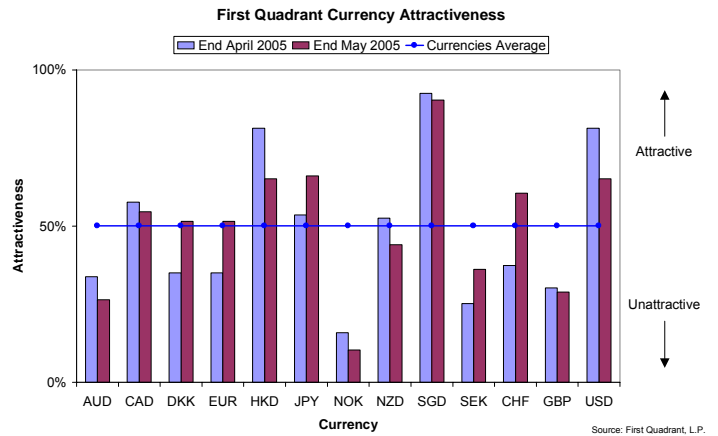
Source: First Quadrant, L.P.

May proved to be quite a successful month for our forecasts, with nearly all forecasts aligning with their respective currency returns.



We have seen significant changes to our forecasts in several markets, as we've moved from bearish to neutral on the Euro, from neutral to modestly bullish Japanese

Yen and from modestly bearish to modestly bullish Swiss Franc. We have become modestly more bearish Australian Dollar, Norwegian Krona and British Pound, and less bearish Swedish Krona. We have become less bullish Canadian and US Dollar, and moved from neutral to slightly bearish New Zealand Dollar.



(Endnotes)

- ¹ Fast food and strong currencies, 09-June-2005, Economist magazine. <http://www.economist.com/markets/BigMac>
- ² Prices as per the 09-June-2005 Economist article.
- ³ Australia, Canada, Germany/Euro area, Hong Kong, Japan, Singapore, Sweden, United Kingdom, United States. These were chosen because they are the only countries with Big Mac data going back continuously to 1989. Prior to the introduction of the Euro common currency, the German Deutschemark is used in place of the Euro.
- ⁴ Parsley, David C. and Wei, Shang-Jin, "A Prism Into the PPP Puzzles: The Microfoundations of Big Mac Real Exchange Rates". October 2004 (revised version of NBER Working Paper 10074).

Additional Disclosures - Simulated Performance Past performance is no guarantee of future results. Potential for profit is accompanied by possibility of loss. **SIMULATED PERFORMANCE:** The strategy used in the simulations presented in this article does not reflect any strategy or product offered or managed by First Quadrant. The simulated performance presented differs from live performance for the following reasons: The simulations assume that the guidelines are constant through the life of the portfolio, whereas the guidelines for live portfolios may have changed over the life of each portfolio. Simulated returns do not represent actual trading and may not reflect the impact that material economic and market factors might have on the adviser's decision-making if the adviser were actually managing a client's assets.

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