WOCU

Exchange is no longer foreign

Case Study:

Airlines – Jet Fuel

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Contents

1 Introduction

Most airlines operate in a multicurrency environment. Airlines based in the Eurozone fly to the UK, Switzerland and elsewhere. Even US 'domestic' airlines fly to Canada, Mexico and elsewhere. In the past few years budget airlines have expanded to include bases (and therefore cost centres) outside their home countries and the current EU single market in aviation services regulation has seen EU airlines setting up operating bases in several European countries[1].

This case study aims to show how using the Wocu™ can help the airline industry mitigate any issues that derive from currency fluctuations. Looking at jet fuel[2] costs, we shall illustrate how the Wocu helps separate currency problems from any other management issues when analysing the results.

The Wocu is a synthetic currency basket that is designed to help corporates and others combat volatility and uncertainty in the current floating exchange rate environment, see Section 4 – About the Wocu, WDX and the WDXI.

Note: Reading of the published whitepapers listed below, available from www.wocu.com or www.wdxinstitute.org, will assist in further understanding of the Wocu's scope and role:

1. A practical solution to the problem of currencies
2. The currency shock absorber
3. Retooling global development – a matter of TrUSt

[1] Ryanair is an Irish airline but the vast majority of its operating bases are outside the Republic of Ireland. Outside the EU, Air Arabia is based in Sharjah in the United Arab Emirates but it has subsidiaries in Egypt and Morocco, Tiger Airways has bases in Singapore and Australia. Amongst the legacy airlines, Aer Lingus – the Irish carrier – has an operating base at London Gatwick.

[2] Jet fuel is a type of aviation fuel designed for use in aircraft powered by gas-turbine engines

2 Cost Analysis

Jet fuel prices are currently based in US Dollars and are one of the largest costs of any airline. In 2008, three business class only airlines[3] went bankrupt during the time when a large increase in oil prices resulted in an unexpectedly large surge in the cost of jet fuel.

The stabilising effect of Wocu applies to jet fuel prices[4] as well, as it is clear from the chart below:

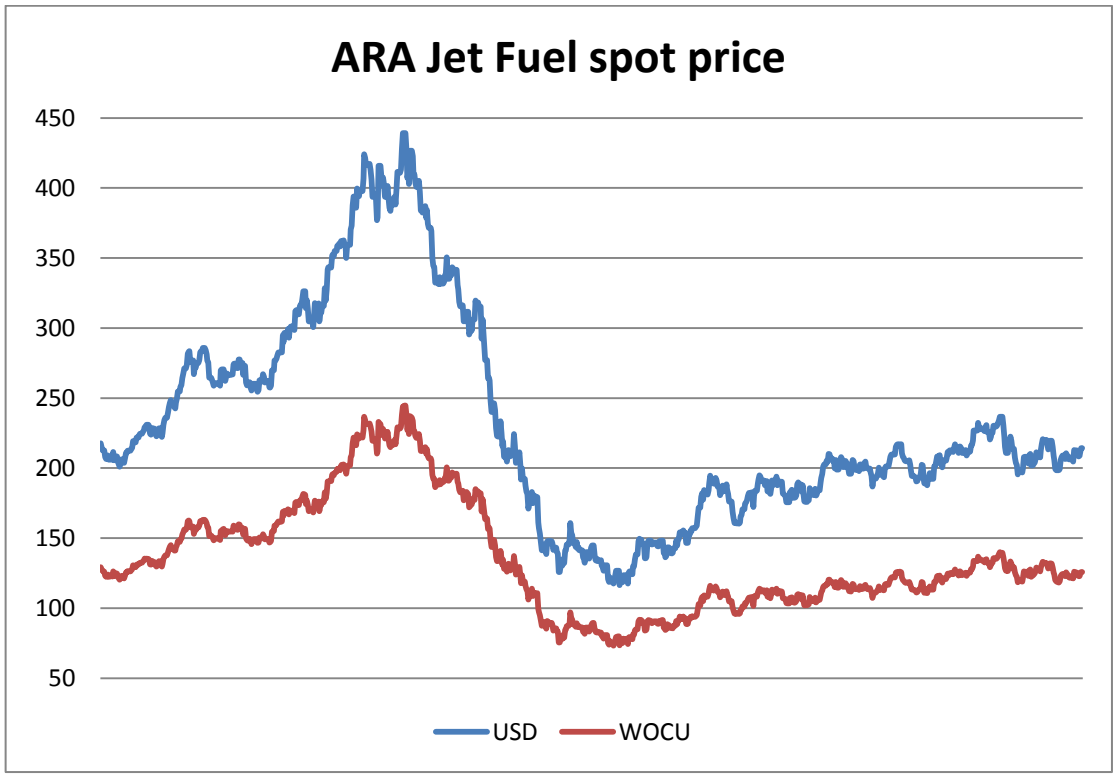


Figure 1 - Jet fuel prices between August 1st, 2007 and July 31st, 2010

It is easy to see that the Wocu curve is flatter. The US Dollar and the Wocu are different units, so to better understand this and to gauge how much flatter we need to consider how far the maximum and the minimum values are from the average value (this allows an empirical comparison between the two curves). The results (shown in Table 1 below) show that for the Wocu the minimum and maximum values are closer, the peak is closer to the average and the low is also closer to the average. We also see that whilst for the prices in US Dollars the maximum value in the period is 277% of the minimum, for the Wocu, the corresponding value

[3] Maxjet, EOS and SilverLink

[4] We have used the Amsterdam-Rotterdam-Antwerp (ARA) Kerosene-Type Jet Fuel Spot Price FOB (Cents per Gallon). The quotes for every business day in the period were taken from the web page http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RJETARA5&f=D which is part of the website of the US Energy Information Administration (http://www.eia.doe.gov)

is 234%. If these percentages can be taken as an indication of how 'flat' the curve is we can say that the Wocu price curve is 16% flatter than the US Dollar price curve.

	USD	Wocu	diff
Max	439	245	
Min	116	73	
average	232	135	
max=%min	277%	234%	-16%
max=%avg	90%	82%	-9%
min=%avg	-50%	-46%	-8%

Table 1 - Maximum and minimum values of the curves in Figure 1

However, jet fuel is not quoted in Wocu. It is based on a US Dollar price but it is billed locally. In the next section we see how the Wocu can be positively used to analyse forecasts and improve their reliability. We shall look at costs for the first quarter of 2010, creating an imagined airline flying between airports in the Eurozone, Switzerland, Denmark and the United Kingdom.

2.1 Forecasting Results

Let us assume that an airline, with headquarters in the UK, flies between destinations in the Eurozone, Denmark, Switzerland and the UK. The breakdown of anticipated fuel costs by currency is indicated by the pie chart below:

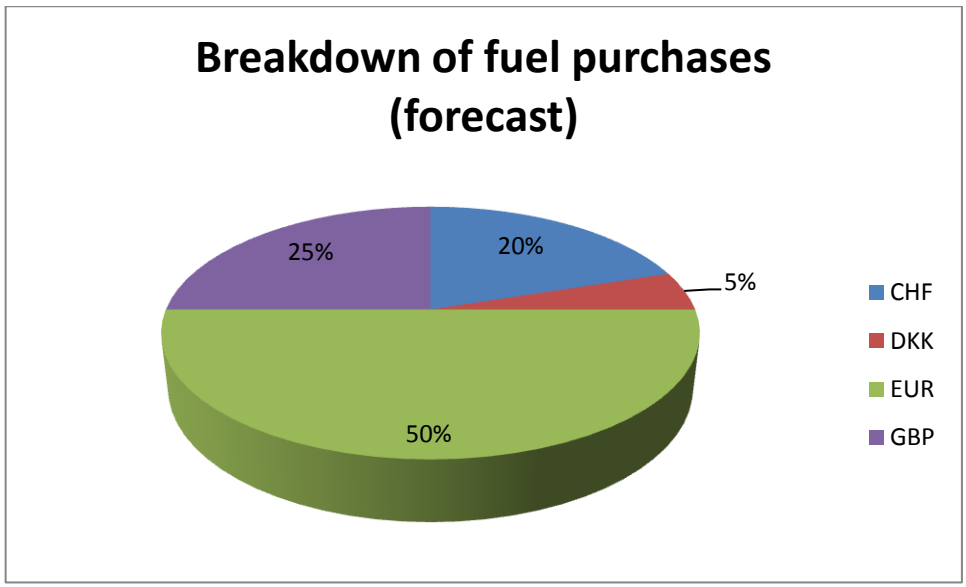


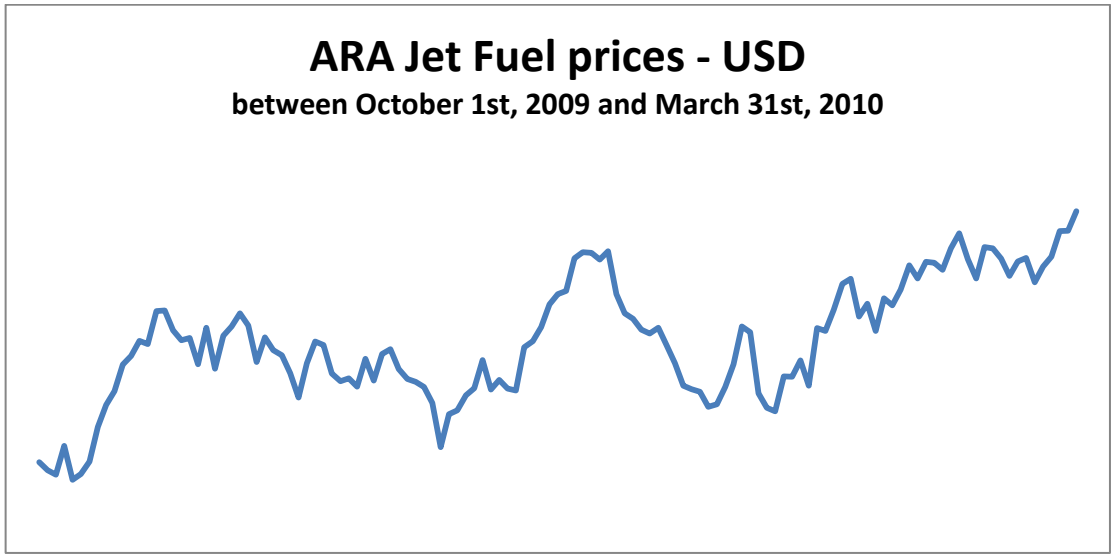
Figure 2 – Forecast, breakdown of fuel purchases by currency (or currency-zone)

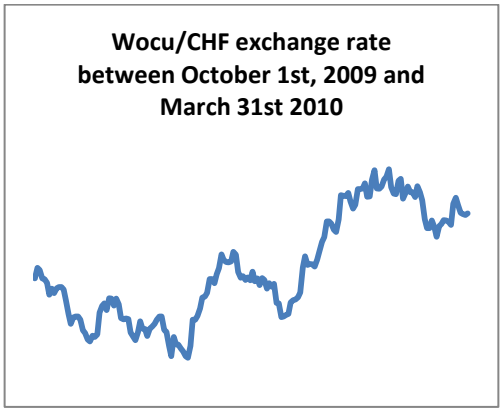
The breakdown reflects the number of flights in each market. Let us assume now that the forecasts are expressed in Wocu and Figure 2 indicates the breakdown by currencies. Let us also assume that the forecasts were made on October 1st, 2009 for the first quarter of 2010. The actual costs of fuel would be estimated as follows:

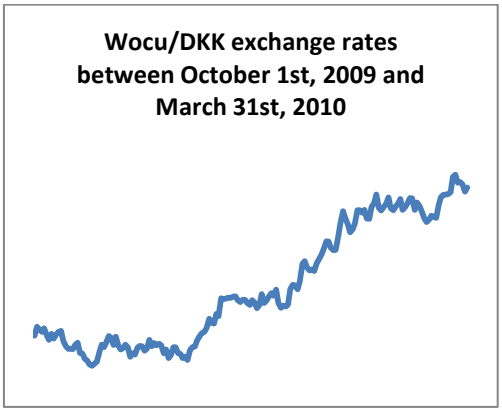
Cost of fuel estimates (October 1st, 2009)				
Total purchases of fuel for Q1 2010	Wocu	10,000,000		
Breakdown by currency		Wocu	rate	CCY
	CHF	2,000,000	1.784	3,568,381
	DKK	500,000	8.770	4,385,152
	EUR	5,000,000	1.179	5,895,246
	GBP	2,500,000	1.076	2,690,764

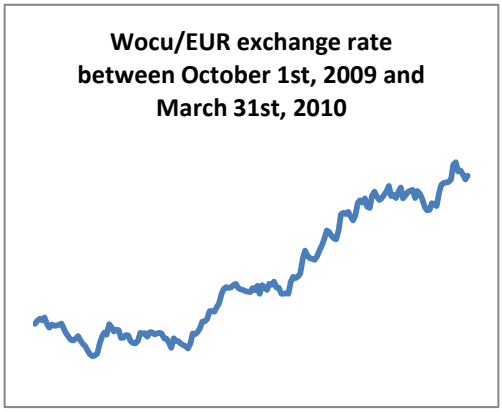
Table 2 - Breakdown of fuel estimates by currency

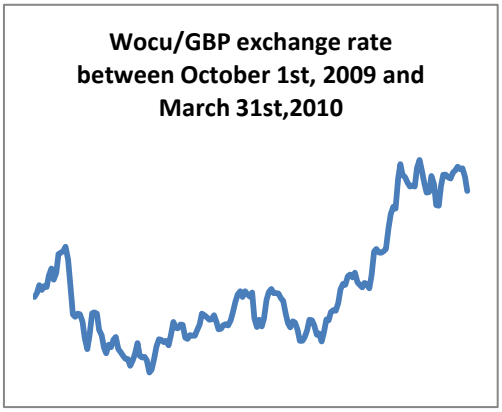
As we can see from the five charts on the following page, prices and exchange rates were far from static between October 2009 and the end of March 2010. So, how can we separate the effect of the changes in fuel prices from the vagaries of the currency movement?











Budgeting in Wocu allows you to do that, let us see how.

To simplify matters we shall look at average fuel prices and exchange rates for the months of January, February and March. We shall assume that the fuel consumption was distributed as follows 40% January, 30% February and 30% March and that the forecast distribution is confirmed by actual data. We shall also assume that only a 10% increase from the price on October 1st was included in the forecast, so we shall adjust each month by the difference between the actual increase since October and 10%.

The changes in fuel prices are:

		Diff. %
01/10/2009	105.84	
Avg Jan	118.45	11.91%
Avg Feb	117.20	10.72%
Avg Mar	125.08	15.38%

Table 3 - Changes in fuel prices

Given the distribution of purchases of fuel, this gives an actual figure for the end of the quarter (based on the assumptions above):

End of Quarter purchases (x 1000)							
	CCY	Total	(*)	40%	30%	30%	Total
		CCY		Jan	Feb	Mar	Wocu
Forecast	CHF	3,568		1,427	1,071	1,071	
Actual	CHF	3,661	2.59%	1,455	1,078	1,128	
Equivalent in	Wocu			817	592	622	2,031
Forecast	DKK	4,385		1,754	1,316	1,316	
Actual	DKK	4,499	2.59%	1,788	1,325	1,386	
Equivalent in	Wocu			199	143	149	491
Forecast	EUR	5,895		2,358	1,769	1,769	
Actual	EUR	6,048	2.59%	2,403	1,781	1,864	
Equivalent in	Wocu			1,992	1,435	1,489	4,916
Forecast	GBP	2,691		1,076	807	807	
Actual	GBP	2,761	2.59%	1,097	813	851	
Equivalent in	Wocu			1,028	748	753	2,530
	(*) = difference between forecast and actual						

Table 4 – Comparison Actual Forecast of Q1 Purchases of fuel oil, assuming the amount of fuel bought did not change and the price of jet fuel in the relevant currency had the same fluctuation of the basic prices in USD (or Wocu)

The actual figures were derived making the following assumptions:

- The quantity of fuel purchased is exactly as forecast (if this were not the case this example is still valid because we would consider the variations of unit price to determine the contribution of changes in fuel price and the contribution of currency fluctuation)
- Changes in the 'price at the pump' reflect, in percentage terms, changes in the ARA spot price

We now apply the same variations in price to the monthly forecast in Wocu and see how much 'fuel price variations' might affect the actual amount of fuel purchased. We then calculate the Wocu equivalent of the actual purchases in each currency. The difference between the two percentages of change from the forecast value will give us the total contribution of the currency fluctuations to the total amount spent on jet fuel.

Table 5 below summarises the results of comparing the initial estimate with an adjusted estimate in Wocu calculated simply considering the increase in fuel price and with the totals of the actual figures in the four currencies converted back into Wocu assuming the actual quantity of fuel bought matched the forecast.

End of quarter purchases (x1000)							
Wocu		Area	tot	(*)	40%	30%	30%
					Jan	Feb	Mar
	Forecast	CHF	2,000		800	600	600
Actual estimate in Wocu		CHF	2,052	2.59%	815	604	632
	Wocu equiv of actual	CHF	2,031	1.56%	817	592	622
	Forecast	DKK	500		200	150	150
Actual estimate in Wocu		DKK	513	2.59%	204	151	158
	Wocu equiv of actual	DKK	491	-1.76%	199	143	149
	Forecast	EUR	5,000		2,000	1,500	1,500
Actual estimate in Wocu		EUR	5,130	2.59%	2,038	1,511	1,581
	Wocu equiv of actual	EUR	4,916	-1.68%	1,992	1,435	1,489
	Forecast	GBP	2,500		1,000	750	750
Actual estimate in Wocu		GBP	2,565	2.59%	1,019	755	790
	Wocu equiv of actual	GBP	2,530	1.20%	1,028	748	753
Total forecast		Wocu	10,000		4,000	3,000	3,000
Adjusted forecast Wocu (+)		Wocu	10,259	2.59%	4,076	3,022	3,161
	Diff with forecast	Wocu			1.91%	0.72%	5.38%
Total of Wocu equiv.		Wocu	9,968	-0.32%	4,036	2,919	3,013
	Diff with forecast	Wocu			0.91%	-2.71%	0.44%
	(*) = difference between forecast and actual						
	(+) = adjusted forecast in Wocu based on jet fuel price changes						

Table 5 - Comparison Q1 Purchases of fuel oil

Looking at Table 3 and Table 4, the increase in jet fuel prices affects all the currencies (and the Wocu estimate) in the same way, i.e. an increase of 2.59% from the forecast. When we take the figures in the four currencies and convert them in Wocu we have a total reduction of the jet fuel cost of – 0.32%. This is the effect of currency fluctuations. It is now possible to establish which currency had a positive or negative impact.

First, let us examine the totals in greater detail. If we compare the whole quarter (as it is summarised in Figure 3 below), it is obvious that in each month the total effect of changes in the exchange rate of the four currencies against the Wocu was favourable overall.

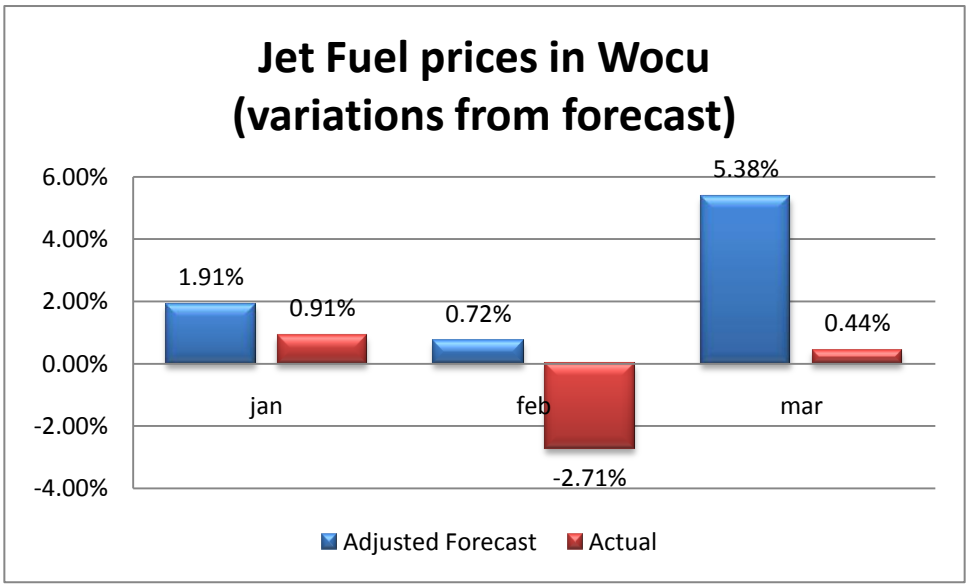


Figure 3 – Variations from forecast to adjusted forecast (adjusting forecast values in Wocu based on the increase in jet fuel price) and forecast to actual (actual purchases of jet fuel in currencies converted back into Wocu)

How can we determine the effect of each currency? If we compare the percentage of difference between the forecast and actual in the currencies and in their Wocu equivalent, as indicated in Figure 4 below , we can see that whilst the difference calculated in the relevant currencies is basically the same (after all we have assumed that the forecast of the quantity of fuel purchased and the actual quantity purchased are the same, only the value of the fuel changed), when we convert the currencies into Wocu things change.

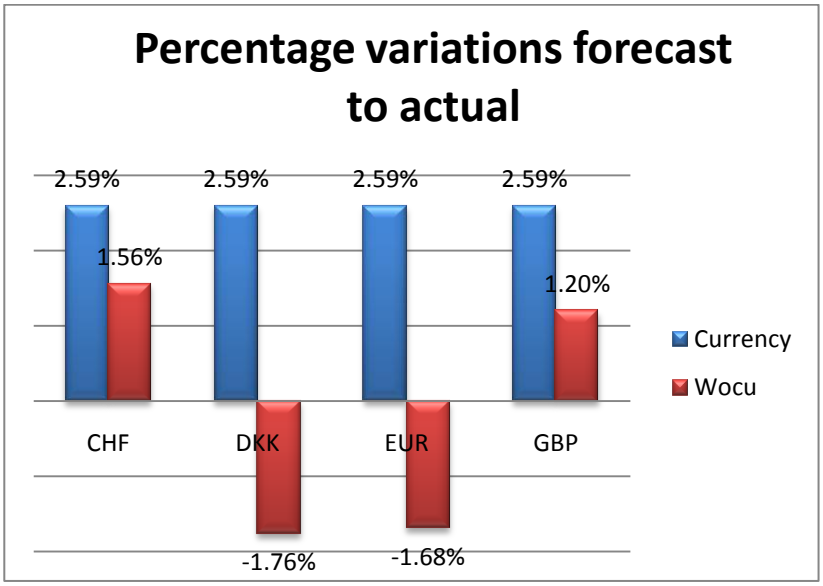


Figure 4 - Percentages of variations between forecast to actual in the four currencies and in their equivalent in Wocu

Figure 4 above shows how the variations in value of the Swiss Franc and the British Pound resulted in a smaller increase in the total cost of fuel purchased locally, but changes in the value of the Danish Krona and the Euro contributed to a decrease in cost. If we look at the assumptions we made at the beginning about the distribution of purchase of fuel across the four currencies as summarised in Figure 2 on page 6 (EUR 50%, GBP 25%, CHF 20% and DKK 5%) and we compare it to a similar chart based on the actual result (as shown in Figure 5 below) we can see that distribution of fuel bills in Euro were one per cent less than forecast, British Pound were one per cent more and the other two were basically the same.

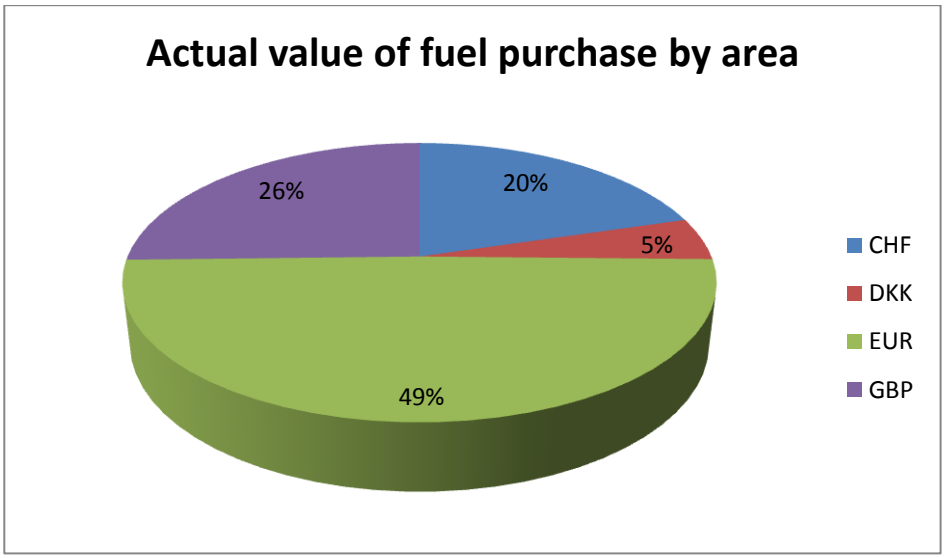


Figure 5 – Actual value of jet fuel purchased in each area

Using the Wocu as a reference unit for the costs creates a benchmark that is not only more stable than using any specific currency (in this case the US Dollar) but creates a common reference point to assess the impact of each component of the cost that is being analysed. In this case, the cost of jet fuel and the volatility of each currency. Foreign exchange trends are not always predictable and the result of Q1 may be used to change the currency exposure management policy for Q3 and Q4. Section 2 of this case study shows how prices in Wocu are less volatile than prices in US Dollar (or any other reference currency)[5].

[5]The white paper Wocu – the currency shock absorber (downloadable from http://www.wdxinstitute.org/wdx/whitepapers.php) discusses this matter in greater detail with more extensive examples.

3 Conclusions

An airline has costs and revenues in several currencies, costs are incurred in any country they fly to and revenues are accrued in any currency they are willing to use to sell their tickets. In such an environment it may be difficult to separate the effect of currency fluctuation from factors inherent in each cost or revenue item.

For all airlines it is important to separate the effect of currency fluctuation from those of supply and demand. It is crucial where a company uses an innovative business model, for instance in 2008 three start-up airlines, flying business class only planes across the Atlantic went bankrupt when the cost of jet fuel increased very rapidly. Was that a sign of how bad their business model was? Or was it simply a sign that management did not think oil prices could rise so much so quickly? Our example shows how using Wocu for consolidated accounts allows a company straightforward simulations and forecasting exercises that can give a good indication of the contribution of changes in price and change in currency exchange rates to the overall total cost of jet fuel.

Using the Wocu, as a reference unit, for consolidated accounts help assess revenues in all currencies using similar logic. It becomes possible to tell if the 'home currency' of the company is strong or weak in the same way as all the other currencies are analysed. This helps differentiating revenue growth (or loss) due to market fluctuations, business model, etc. from those due to fluctuations in the exchange rate. Wocu then becomes a very useful strategic management tool.

Foreign exchange variations represent a large variable in the total results of an airline. In this case study we have shown how Wocu makes 'foreign exchange' less foreign.

4 About the Wocu, WDX and the WDXI

The Wocu™ (**Wo**rld **C**urrency **U**nit) is a standardised, apolitical, basket currency derivative quotation based on the real time exchange rates of the currency pairs of the world's top 20 nations as determined by IMF measures of GDP. The Wocu naturally takes into account changing economic power and commercial perception of currency values as an elegant, market driven solution to the need for a global reference currency.

Wocu quotations are delivered across financial networks and the Internet in real time from the unique Wocu algorithm which inputs trading prices of currency pairs from a broad spread of global sources to output the Wocu. The Wocu, its constituent currency pairs weighted in line with GDPs, is a generally less volatile currency unit than traditional currency pairs.

The Wocu balances and stabilizes currency risk, offering commercial advantage compared to the traditional use of the US Dollar to denominate international trade, acting as a natural currency shock absorber. It is applicable to most cross currency transactions and particularly international commodity trading. US Dollar agnostic (the US Dollar simply forms a weighted component of the Wocu) the Wocu offers sovereign nations an alternative to the US Dollar to price commodity exports and a standardised reference for holding currency reserves.

The Wocu's integrity, non-manipulation and standardisation is ensured by the WDX Institute, a wholly independent not-for-profit research body established by WDX. The WDXI independently monitors the Wocu and its constituent revisions, as determined by IMF GDP figures, every six months. The WDXI is also mandated to further research into the application of the Wocu and World currency baskets in general.

The Wocu is developed, owned and distributed by the WDX Organisation Ltd, a private company formed in 2009 and based in the heart of the City of London financial district, England. The Wocu was made available for commercial use on January 1, 2010. WDX wholly owns the Wocu algorithm including a pending U.S. patent application for the calculation method and technology behind the Wocu.

Wocu currency pair prices, information about WDX, the WDXI and other data can be found at www.Wocu.com or www.wdxinstitute.org

5 About the Author

After a long career as Change Director and Strategist for major financial institutions Silvano Stagni decided it was time to achieve a better work/life balance and switched to writing. His experience in 'bridging communication gaps' between stakeholders is the basis of his style of writing and the choice of subjects he writes on. He has written extensively on disruptive concepts with an emphasis on practical examples and pragmatic implementation scenarios (in other words, what does it mean? and how does it work?). He has also written extensively on the impact of new banking regulations, cross border banking, banking in the developing world and risk strategies. He contributed white papers for regulatory and monetary issues behind electronic currency and other non-monetary type of payments to regulators in Asia and Europe. He has published several articles (both online and printed magazines) and contributed to many white papers and books.

Further information can be found on www.stagni.net

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