



WOCU
Exchange is no longer foreign

Case Study: Bunker Fuel

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1 Introduction

Bunker Fuel is traded in US Dollars world-wide, every major port has its own set of rates and therefore it becomes quite complicated to write a comparative study on an alternative to the US Dollar as a reference currency for bunker fuel. For this reason we have taken the pricing system of WTSA (the Westbound Transpacific Stabilisation Agreement) as detailed on their website www.wtsacarriers.org.

WTSA has a system of bunker fuel pricing and different surcharges (e.g. refrigerated containers) that is clearly explained on their website. Our starting point has prices in US Dollars; these prices represent our starting point. When we turn US Dollars prices into Wocu¹ prices we introduce an element of volatility that needs to be considered when we look at the results of this case study. The exchange rate USD/Wocu has its own volatility and therefore any Wocu result would be better if we could have a starting point for the Wocu without that element of volatility²; and yet, we shall show that:

- (a) Prices in Wocu over time are less volatile (see chapter 2) than their US Dollar counterpart, this stability allows for easier and more reliable forecast of costs.
- (b) Bunker fuel prices affect shipping costs. In the WTSA website there is an example of calculating the FEU (Forty-foot equivalence unit³) cost of shipping. This is basically the price of a container being shipped from the west coast of the United States to Asia (WC) or from the East Coast/Gulf area to Asia across the Pacific Ocean. These prices are less volatile when based in Wocu.

The availability of data in the WTSA website allows us to use what is essentially a pricing structure aimed at the US Dollar market for a generic trend for bunker fuel prices across different markets. This case study deals with bunker fuel in an oversimplified way; there is no consideration of surcharges and of different pricing for different agreements. However, the principles behind the case we are discussing remain the same whatever the agreement and it is safe to assume that the surcharges (priced in US Dollars themselves) will behave according to similar logic.

Although the shipping world is fairly used to use the US Dollar as their main working currency, the clients of shipping lines ultimately pay in their local currency. We shall show how using the Wocu means a reduced volatility and therefore easier and more reliable cost forecasts. Easier and more reliable assessments of future shipping costs may be one of the decisive factors in the decision to enter new markets.

¹ For basic information about the Wocu see Section 5 of this document (About the Wocu, WDX and the WDXI, on page 11)

² In other words, prices in Wocu to begin with.

³ Ocean-freight term, meaning containerized cargo equal to one forty-foot (40 x 8 x 8 feet) or two twenty-foot (20 x 8 x 8 feet) containers. One FEU equals about 25 metric tons or 72 cubic meters.

2 Cost Analysis.

2.1 Bunker fuel prices

Bunker fuel prices are based in US Dollars. We have analysed the stabilising effect of the WOCU (see chart below) using historic bunker fuel prices found in the WTSa website⁴, it is only one of the several set of bunker fuel prices but everything discussed based on those prices can be easily transferred to any other price lists (the website www.bunkerbite.com quotes prices in every major port in the world for its subscriber)

The different trends of prices in US Dollars and WOCU are displayed in the chart below.

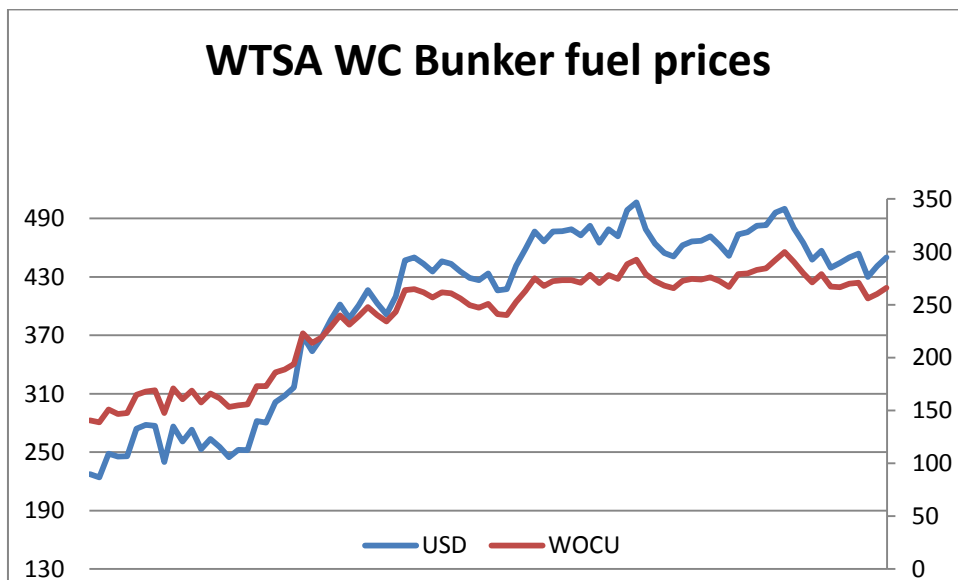


Figure 1 – Bunker fuel prices between December 1st, 2008 and July 26th, 2010

It is easy to see that the Wocu curve is flatter. The US Dollar and the WOCU are different units, so to see how flatter we need to consider how far the maximum and the minimum value 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 trough is also closer to the average. We also see that whilst for the

⁴ WTSa – Westbound Transapacific Stabilisation Agreement, their website is www.wtsacarriers.org

prices in US Dollar the maximum value in the period is 126.12% of the minimum, for the Wocu, the top value is 116.04%. If these percentages can be taken as an indication of how 'flat' the curve is we can say that the Wocu price curve is 8% flatter than the US Dollar price curve. If pricing in Wocu were available the built in extra volatility derived from converting US Dollar into Wocu would not be included in this analysis and therefore the Wocu price curve would be even flatter than what it is shown in Table 1 below.

	USD	Wocu	Diff
max	506.5	299.815	
min	224	138.7775	
var min max	126.12%	116.04%	-8%
var avg max	26.84%	26.64%	-1%
var avg min	-43.91%	-41.38%	-6%

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

2.2 FEU Calculations.

In its website (www.wtsacarriers.org), WTSA includes a calculation of the cost of fuel per FEU (forty foot equivalent unit) following a specific assumption discussed in their 'Bunker Charge Fact Sheet' (www.wtsacarriers.org/fs_bunkers.html). We follow the same calculations and assumptions to show the trend for FEU calculated from a US Dollar quote and for FEU calculated from a Wocu quote.

The two charts below are calculated from the average weekly fuel price between Dec.1st, 2008 and July 26th, 2010. The same prices used for the bunker fuel chart in Figure 1 above. The two charts below (Figure 2 and Figure 3) clearly point out to a pattern that is similar to bunker fuel prices; the Wocu curve is flatter. If we look at the standard deviation of both curves (statistical volatility), the US Dollar WC curve shows a statistical volatility (stdev) for the Wocu prices that is 45% less than the one of the US Dollar prices for both WC and EC FEUs.

	WC		EC	
	FEU Stsat		FEU Stsat	
	FEU-USD	FEU-Wocu	FEU-USD	FEU-Wocu
stdev	96.12	53.02	190.84	105.35
average	440.25	261.01	864.55	512.56
max	558.41	330.54	1108.39	659.42
min	246.96	153.00	472.85	283.42
diff in stdev		45%		45%

Table 2 – Statistics for the charts in Figure 2 and Figure 3

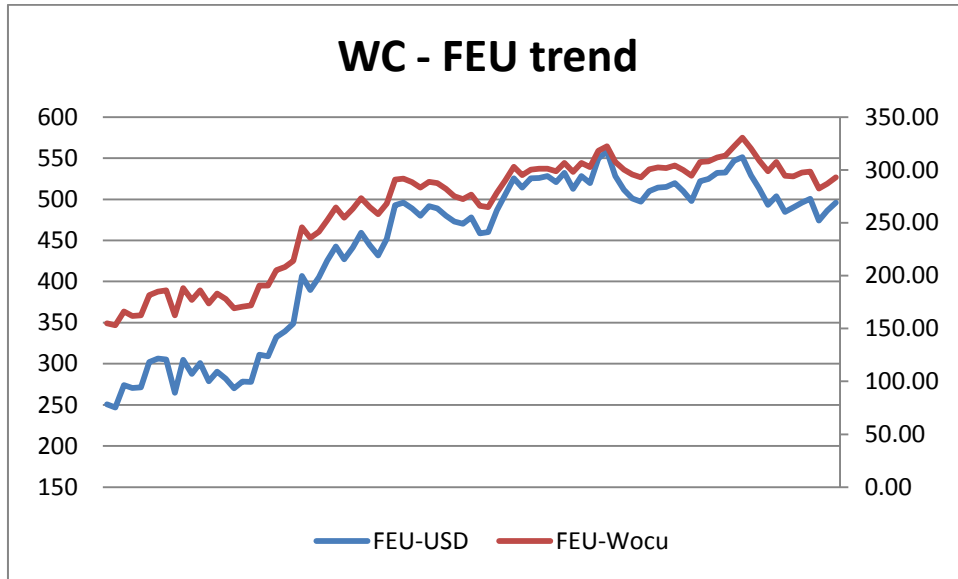


Figure 2 – FEU costs for US West Coast trans pacific trips between December 1st, 2008 and July 26th, 2010

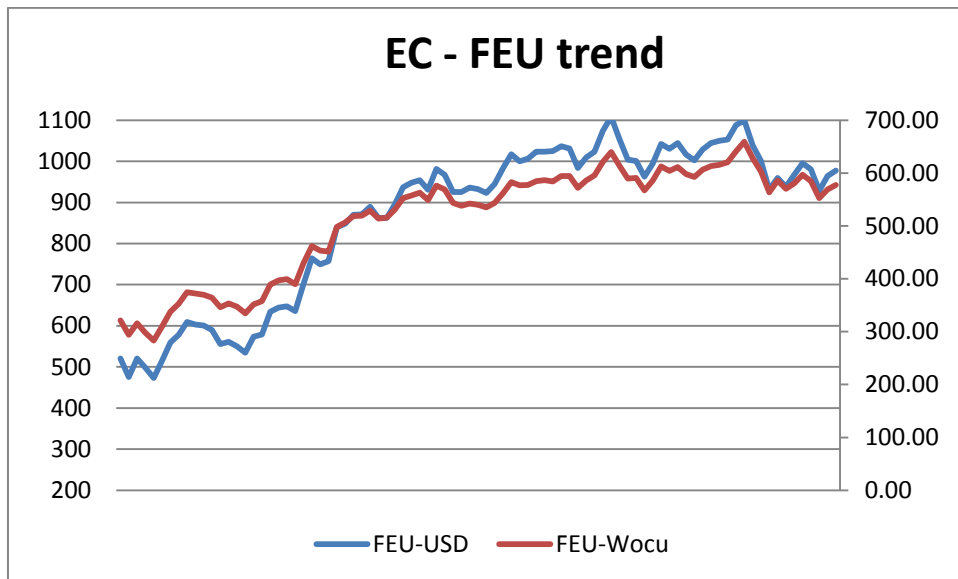


Figure 3 – FEU costs for US West Coast trans pacific trips between December 1st, 2008 and July 26th, 2010

FEUs could be considered the fuel component of the rate charged by the shipping line to take a 40ft container from A to B, it is an indication of how fuel price stability can lead to lower volatility in shipping charges. Lower volatility will then lead to easier and more reliable estimates of future costs.

3 Advantages of the WOCU

3.1 The shipping line point of view.

Shipping lines normally operate in a US Dollar world, so what is the advantage of using Wocu’s to buy bunker fuel? Is there more in it than simply easier and more reliable estimates of future prices (given a lower volatility compared to the US Dollar)?

Yes, there is. First of all, shipping line may operate in a US Dollar world but will have to publish year end accounts in the currency that is legal tender in the country where they are based. This means that they are highly dependent on the US Dollar volatility. In a tough economic climate where the US Dollar is very volatile, the wrong movement of the reference currency against their own base currency can make the difference between profit and loss, wrong hedging policies can also be very costly. The Wocu is based on a basket of currency that are legal tender in the top twenty world economies (measured by the world bank according to their GDP), therefore the US Dollar is just one component of the Wocu, this is why the fluctuations of the Wocu against any currency will be less sharp than any other reference currency used.

Another case study available from the Wocu website (www.wocu.com) about airlines and jet fuel provision (http://www.wocu.com/wocu/whitepapers/airlines_jet_fuel.pdf#zoom=100) shows how budgeting in Wocu can help differentiate the influence of variations in strength of the US Dollar from the actual changes in fuel price. If we apply the same principle to the bunker fuel prices listed in the WTSA website, we can see that the West Coast quote at the end of the period we considered (July 26th) is 97.8% higher in US Dollars and 89.1% higher in Wocu. The variation in exchange rate between Wocu and Dollar was only 4.6%. It could be argued that the contribution of the US dollar volatility to the change in price was minimal during that period and that the market for bunker fuel was the major contributor to the increase in price (Summarised in Table 3 below)

	Wocu/USD	WC Bunker Fuel Price	
	Exch.rate	USD	Wocu
01/12/2008	1.618	227.50	140.56
26/07/2010	1.693	450.00	265.81
Δ	0.074	222.500	125.247
Δ%	4.6%	97.8%	89.1%

Table 3 – Variations in Bunker fuel prices, compared with variations in the Wocu/US Dollar exchange rate

In this way, the Wocu provides a benchmark that is independent from any reference currency. In a complete ‘Wocu world’ the company would only have to worry about the variations in exchange rate between the Wocu and its own accounting base currency, something that could be easier than trying to forecast the variations in strength of the US Dollar. Moreover, another indication of the

'stabilising effect' of using a currency basket such as the Wocu versus using a reference currency like the US Dollar is that in the course of the period examined (19 months) the variations in the Wocu quote was 9.76% lower than the variation in the US Dollar quote.

3.2 The shipping company.

Similar arguments could be made for the company that ships freight from A to B. The FEU shows the contribution of fuel prices to shipping containers full of goods from A to B, Wocu prices for bunker fuel could easily lead to Wocu quotes per container.

Easier and more reliable cost estimates may make it easier to perform a cost/benefit analysis before entering new markets. The ability to separate actual changes in costs from currency fluctuations can make it easier to assess the viability of a market. All of this moves resources and energies away from currency issues and possibly towards managing markets and opening up new trading routes. By making exchange less foreign the Wocu makes it easier to assess the viability of markets.

4 Conclusions

As we have seen in the previous pages, using the Wocu as a base for bunker fuel pricing reduces price volatility. Less volatility also reduces the margin of error in estimating prices, using a currency basket instead of a single currency (whatever the currency) also builds-in a currency hedging strategy even in an industry that is currently based on one currency worldwide.

The validity of these conclusions is not affected by the two systemic limits of this case study:

- (a) We do not have prices in Wocu, therefore by converting US Dollar prices into Wocu prices we include an extra element of volatility (due to the fluctuations in exchange rate between the US Dollar and the Wocu). This does not invalidate our conclusions because it creates a scenario that is worse than the one we would have if we could use Wocu prices that are not derived from values expressed in US Dollar
- (b) We use one specific agreement rather than looking into other bunker fuel prices around the world (almost every main port has a quote and any major trading route has an agreement). However the availability of public data from the WTSA website makes this case study more transparent, its conclusions can easily be transferred to another agreement or pricing set. The specific figures may change but trends and overall results should not.

Last but not least, we should not underestimate the importance of easier and more reliable forecast in the current economic climate. In times of plenty, businesses are more inclined to risk opening new markets; in times where financial resources are managed more carefully, companies are more reluctant to enter new markets if there is a risk of a large margin of error in their estimate of costs. We have shown how using the Wocu as a reference implies less volatility and therefore more reliable estimates, implying a lower margin of error. A lower margin of error may make it easier to assess the cost/benefits of entering new markets and therefore make it easier to open up new trading routes or expand existing ones.

5 About the Wocu, WDX the WDXI

The Wocu™ (**World Currency Unit**) 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

6 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 too many white papers and books.

Further information can be found on www.stagni.net

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