



WOCU
Exchange is no longer foreign

Retooling global development:
A matter of TrUSt

Contents

FOREWORD	3
1 INTRODUCTION: A NEW 'WORLD ORDER' FOR TRADE?	4
1.1 WHAT IS THE SDR ?	4
1.2 WHAT IS THE WOCU ?	5
2 WHAT IS WRONG WITH A SINGLE REFERENCE CURRENCY?	7
3 TRANSPARENCY	8
3.1 COMPOSITION	8
3.2 CALCULATION OF VALUE	8
3.3 CONTINUITY	9
4 USABILITY	11
5 STABILITY	12
5.1 PRICING "STRESS POINTS"	13
5.1.1 <i>Currency related stress points.</i>	13
5.1.2 <i>Commodities related stress points</i>	14
5.2 PRICING TRENDS AND EFFECTS CURRENCY BASKETS HAVE ON THEM	15
5.3 OIL	16
5.4 COPPER AND ALUMINIUM	17
5.5 SUMMARY	18
6 CONCLUSIONS	19
7 GLOSSARY	20
8 ABOUT THE WOCU, WDX THE WDXI	21
9 ABOUT THE AUTHOR	22

FOREWORD

*This paper follows another white paper I wrote for the WDX Institute “WOCU – the currency shock absorber”. I had to repeat part of the generic explanation of the WOCU for those who read this white paper before reading the other one. Also, both white papers perform forensic analysis of trends that start from prices in US Dollar. Any quote in SDR or WOCU is derived from an original quote in US Dollar. This keeps the same systemic issues that were highlighted in the other document, i.e. the ‘forensic’ reconstruction of WOCU and SDR scenarios to compare with a US Dollar reference is that we do not have quotes in SDR or WOCU. It sounds obvious but the US Dollar has volatility against the two units (**At the time of writing this paper** there are 0.659857 SDR or 0.593296 WOCU to the US Dollar) and therefore we artificially increase the volatility of all scenarios simply by converting US Dollar into SDR and WOCU.*

1 Introduction: A new 'world order' for trade?

Towards the end of June 2010 the UN published a paper called 'Retooling Global Development'¹, this white paper aims to continue the 'conversation' initiated by that document and bring it one step forward. According to the UN the 'retooled global development model' moves away from the US Dollar as a reference currency, they'd rather promote the use of a unit that derives its value from a basket of currency, their suggestion... the SDR².

This white paper is not an attack on the SDR nor on the US Dollar. This paper aims to show how the WOCU provides a better solution than, and to move away from, the concept of reference currency or 'refuge' currency (currently the US Dollar being the most widely used one for that purpose).

Rich and poor countries need to move away from relying on a 'third party tool' for their international trade. The demand for the commodities extracted in their territory and therefore their balance of payment (and in some cases their creditworthiness) may sometimes depend on the fortune of something they cannot control.

The UN makes a valid point on the need to 'retool global development' let's take a look at three key components of the toolkit required to achieve the goal. The following chapters aim to make quantitative and qualitative arguments for TrUST, i.e. **T**ransparency, **U**sability and **S**tability.

In the following pages, we shall show that the WOCU is more worthy of TrUST than the SDR. Both derive their value from a basket of currencies, but here the similarity ends.

1.1 What is the SDR ?

The website of the IMF defines the SDR as

*"The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. Its value is based on a basket of four key international currencies, and SDRs can be exchanged for freely usable currencies. With a general SDR allocation that took effect on August 28 and a special allocation on September 9, 2009, the amount of SDRs increased from SDR 21.4 billion to SDR 204.1 billion (equivalent to about \$ 321 billion)."*³

¹ "World Economic and Social Survey 2010 – Retooling Global Development" published by the Department of Economic and Social Affairs

² The SDR – Special Drawing Right, this unit of accounting, created by the IMF in 1969, is also based on a basket of currencies; the composition of which has not changed very much and does not reflect the relative strength of the current major economies.

³ Extract from a factsheet on the SDR found in the IMF website, the whole factsheet can be found at <http://www.imf.org/external/np/exr/facts/sdr.htm>

This definition already informs us that the SDR is a real 'meta-currency', an entity that derives its value from a basket of currencies, but its value is fixed in time. In other words, if I buy 100,000 SDR today, you have 100,000 SDR at current value. If the currencies included in the basket or the weight of each currency changes I would still own 100,000 SDR, although the actual value has changed. This is not different from buying say 100,000 Swiss Francs at today's rate of exchange and finding out in six months that their value in my currency has changed. The difference is that when I buy Swiss Francs I buy a currency that is legal tender in one country, when I buy SDR I buy something that, at the moment, is not legal tender on the streets of any country in the world, what I have is something that derives its value from a combination of US Dollars, Euros, British Pounds and Japanese Yen. The composition of the SDR is still the same as it was at its inception (the Euro replacing the French Franc and the Deutsche Mark is not a material change), the weight of each currency changes every five years but it is not a transparent process and any change in the composition would be politically rather than economically motivated.

Also, when the SDR was created, the value was initially defined as equivalent to 0.888671 grams of fine gold, which, at the time, was also the equivalent to one US Dollar. The idea of the deriving its value from a currency basket came as a consequence of the collapse of the Bretton Woods system in 1973⁴, the currencies in the original basket (US Dollar, French Franc, British Pound, Deutsche Mark and Japanese Yen) representing the countries with the largest economic clout at that time! The evidence of the growth in the number of countries included in the Gxx meetings (from G5 to G7 then G8 and now G20) means that the economic clout is now 'shared' by several other countries.

1.2 What is the WOCU ?

The WOCU basket reflects the top twenty economies of the world⁵, regularly re-weighted on the third Thursday of May and November each year.

The re-weighting process is standardised and documented. It involves the use of IMF World Economic Output database, from which the GDP data is extracted. Changes in GDP are analysed and, as a result, recommendations are made to promote or demote countries and as a consequence to change the weight associated to each of the top 20 economies as ranked by GDP.

Over the last 10 years a number of changes have taken place, for example:

- The weight of the US GDP within the basket has fallen from 34% to 30%
- The weight of the Japanese GDP has fallen from 15% to 10%
- The weight of the Chinese GDP has risen from 4% to 10%
- The Russian GDP has risen from a ranking of 19th out of 20 to 8th and then fallen back to 12th

⁴ See note 3 above for the source.

⁵ The proportion of world output of goods and services represented by these economies is at least 95%.

- ✔ Switzerland has been in the basket, then out and then back in again
- ✔ Indonesia has joined the basket
- ✔ Taiwan and Argentina have both left the basket

Also, the idea is that you do not buy or sell WOCU, you simply pay (or receive) the correspondent amount of money in your currency. It could be argued that the difference between the WOCU and the SDR is not that far from the difference between the old concept of the ECU and the EURO. The exchange rate of the old European Currencies and the ECU was not strictly fixed, it would float within a band. If you were holding ECU the value of what you had was 'marked to market' everyday based on the exchange rate of the day. When the Euro was created the old currencies that were legal tender in the countries that made up the original Eurozone entered the Euro at a specific (and fixed) rate of exchange and stayed there; holding Euro means holding Euros, not an amount in Deutsche Marks equivalent to the value of your holding in Euro.

2 What is wrong with a single reference currency?

Most commodities are traded in US Dollars; this means that their prices reflect both the fundamentals of that commodity and the 'issues' of the US Dollar. Instability of the currency (and any currency has its 'strong moments' and its 'weak moments') affects the price of the commodity beyond the fundamentals attached to the commodity itself. Equally the US has the questionable privilege of not being in total control of its currency because they have fed the world 'hunger' for the US Dollar.

Losing the status of reference currency will allow the US government to 'repatriate' the US Dollar. This may be emotionally difficult, but economically sound.

Any currency used in that way would face similar problems; stability would be key. In another white paper⁶ we have already shown the 'stabilising effect' of replacing a single currency with a basket of currency. Moreover, a similar point is made by the UN in their white paper on global development.

There are three basic reasons why a unit that derives its value from a basket of currencies works better than a single reference currency:

- 🔗 Pricing: As we discussed earlier, the price of a commodity reflects the fundamentals behind the supply/demand of that commodity and the strength (or weakness) of the reference currency
- 🔗 Stability: See Chapter 5 in the paper referred to above: shows how a basket makes prices more stable
- 🔗 Autonomy: Using a currency basket takes the 'foreign' away from the 'financing of foreign trade', the unit used to value goods and services across jurisdictions become independent from the jurisdictions themselves. Therefore a buyer (or seller) only needs to worry about its own currency. This creates a 'hub and spokes' model where a seller can afford to treat buyers in different countries in the same way and a buyer can compare suppliers from different countries in a much easier, straightforward and transparent way.

This white paper takes as a given that a 'currency basket' is better, it is just a matter of which one.

⁶ "WOCU – The currency shock absorber" can be downloaded from the WDX Institute website or requested to the WDX Organisation, for further information look at their websites www.wocu.com and www.wdxinstitute.com

3 Transparency

There are three components of ‘transparency’ in a currency basket:

- ✔ Composition: Do we know what is in the basket?
- ✔ Calculation of value: What are the weights used for each component and how is the unit of value determined?
- ✔ Continuity: How does the value change in time, or better, how does the composition of the basket changes in time and when are adjustments made and for what reasons?

3.1 Composition

Once the Bretton Woods agreement was abandoned, the SDR lost its link with gold and started deriving its value from five currencies: US Dollar, Deutsche Mark, French Franc, Japanese Yen and British Pound, the only change since then is that the Euro has replaced the Mark and the Franc.

The WOCU on the other hand consists of the currencies that are legal tender in the twenty largest economies by size of GDP (according to data published by the IMF), as we discussed in the introduction, these countries have changed a few times during the life of the WOCU and they will change in the future. This is not a decision taken each time there is a readjustment, it is in the nature of the WOCU and the relevant documentation is available.

3.2 Calculation of value

The IMF does not actually publish the weights for each component of the weight baskets, but others do. The weights are:

Period	USD	DM	FF	EUR(*)	YEN	GBP
1981-1985	42	19	13	32	13	13
1986-1990	42	19	12	31	15	12
1991-1995	40	21	11	32	17	11
1996-1998	39	21	11	32	18	11
1999-2000`	39	21	11	32	18	11
2001-2005	45			29	15	11
2006-2010	44			34	11	11

Table 1 - weights of the SDR 'basket'⁷

(*) In Table 1 above the weights of Deutsche Mark and French Franc pre-1999 have been ‘merged’ into a virtual weight for the Euro.

⁷ Source Antweiler, Werner. "Special Drawing Rights: The SDR Fact Sheet". University of British Columbia. Retrieved 2008-04-29.

According to an article published by Stieg Kristoffersen in Web Reviews⁸ “ there has been discussions lately to include more currencies into the SDR basket, however at the moment IMF has not been willing to make any adjustments to the SDR composition. It has also been discussed to use Gold more actively into the SDR. Again IMF together with G20 has not yet adopted any statement on this issue either. More effective use of gold and gold and forex reserves in this system, could dilute the SDR, which IMF is afraid of at the moment.”

However, the composition of the SDR has not changed.

The WOCU on the other hand includes the 20 countries with the largest GDP (according to data published by the IMF), that composition is valid for six months and it is reviewed when the basket is readjusted.

3.3 Continuity

What happens during a readjustment of the SDR? What triggers a readjustment? The process is not driven by changing economic realities. Looking back to the past thirty years the composition has not changed and the weights have hardly evolved as indicated by the chart below.

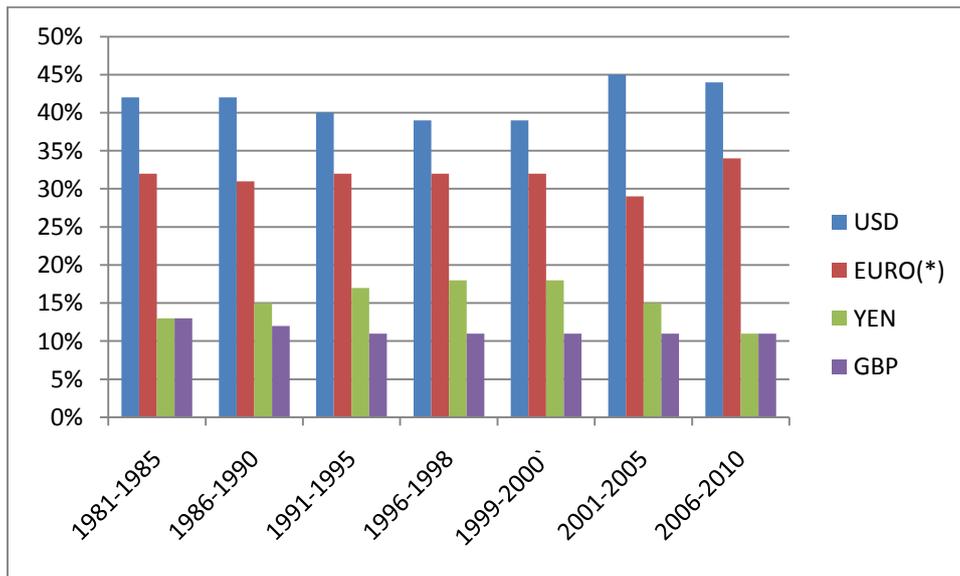


Figure 1 – Evolution of the weights in the SDR in the past thirty years.

(*) see note to

Table 1 above

⁸ “Super Currency - A multiCurrency basket the solution to our current crisis?” <http://www.oecdrcseoul.org/article/super-currency-a-multicurrency-basket-the-solution-to-our-current-crisis/>

On the other hand, the WOCU has changed quite regularly, reflecting economic reality, during its shorter existence and the process is well documented. Adjustments happen twice a year and the composition only relies on the country GDP (and therefore its economic clout) at the time the readjustments happen, nothing is grandfathered. The chart below shows how the weights for the four currencies that make up the SDR have changed within the WOCU between 2006 and 2010 (a sort of 'virtual currency' indicates the total weight of the other currencies in the WOCU basket).

	18/05/06	17/05/07	15/05/08	21/05/09	20/05/10
USD	33.07%	32.78%	30.84%	29.18%	30.32%
EUR	23.62%	23.29%	23.92%	24.21%	23.13%
JPY	12.14%	10.85%	9.79%	10.07%	10.78%
GBP	6.07%	6.06%	6.26%	5.47%	4.64%
OTH	25.10%	27.02%	29.19%	31.06%	31.13%
	100.00%	100.00%	100.00%	100.00%	100.00%

Table 2 - Percentages of 'the four SDR currencies' in the WOCU following each adjustment between 2006 and 2010

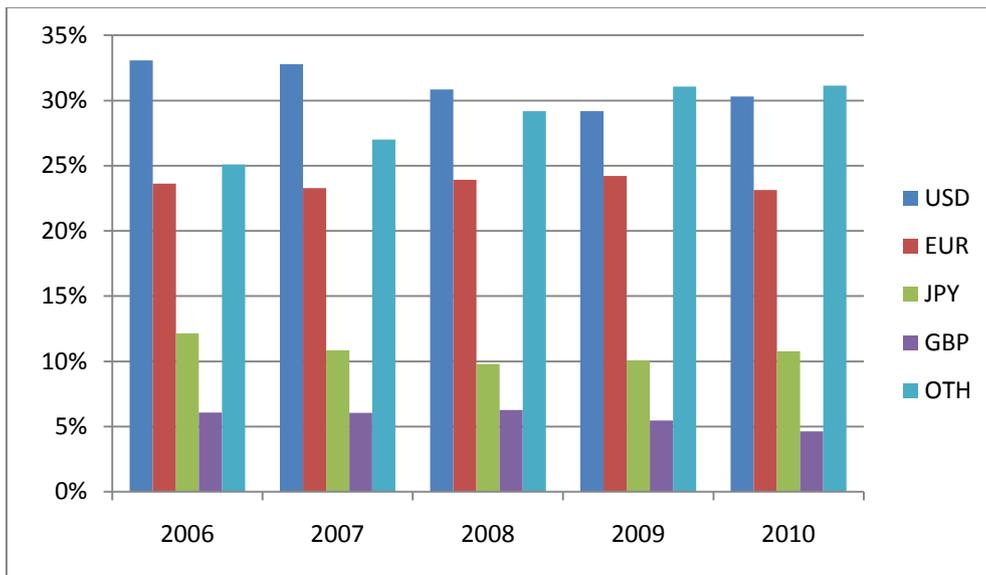


Figure 2 – Evolution of the weighs in the WOCU since 2006.

One of the interesting points that comes out of that chart above is how, post 2008, the US Dollar loses its supremacy to the 'other currencies'. The completely different pattern that emerged in 2008/9 follows the collapse of Lehman Brothers and the consequent financial and economic crisis.

4 Usability

When trading between different countries what to use to settle the bill is a contractual matter. There is a growing movement that calls for a new world order in international trading, the solution has to be conceptually simple to use and as far away from a reference currency as possible.

The only example we have in the past is the European Currency Unit (ECU), a reference unit that was not used 'on the street' in any of the countries that had subscribed to it. It was unit of account with exchange rates that could move within a band. One was not holding 'ECU', what was in the bank account was the equivalent in local currency at any given time. Some institutions were offering multicurrency accounts based in ECU, where it was straightforward to draw amounts in more than one designated currency and where accounting was held in ECU and in one designated currency. There were no ECU notes and the only coins in circulation were collectors' items. Enter the EURO, it could – at a stretch – be described as a currency basket, except currencies entered at a specific exchange rate that did not change. It became an asset in its own right; now, it obviously is possible to own EURO, there are coins and notes in EURO available and the old currencies have disappeared.

The SDR is the same, it is actually defined as an asset. It is possible to 'buy' SDR and the value of your purchase would change in the same way as any currency would. It is a meta-currency, often used to define loans to countries in financial trouble.

The WOCU is a unit of value; you do not hold WOCU, you hold the corresponding amount in your currency. It is not a meta-currency, it is a benign derivative that takes the 'foreign' element away from 'foreign' exchange. All you need to think of is the future prospects of your country's economy and how that relates to the rest of the world, in other words you only need to think of your currency and how it relates to the WOCU and what might happen the following May (or November) when the WOCU is readjusted.

5 Stability

We have already said often enough that the pricing of any commodity depends on its fundamentals and on the fortunes of the currency used for its prices. It is difficult to determine when things change because of the currency and when things change because of the fundamentals, or at least when the former or the latter play a leading role in the change.

We could try to identify ‘stress points’, in other words days (or weeks, depending on the unit of time used) when the pattern of change is different from the norm, defining the norm as something that happens at least 80% of the time.

There is also an empirical way of defining a norm, for instance looking at the chart of the variations of daily exchange rate (see Figure 2 below), one may assume that the vast majority of daily variations are within plus or minus one per cent, therefore we can define as ‘stress points’ the days when the variation is above that.

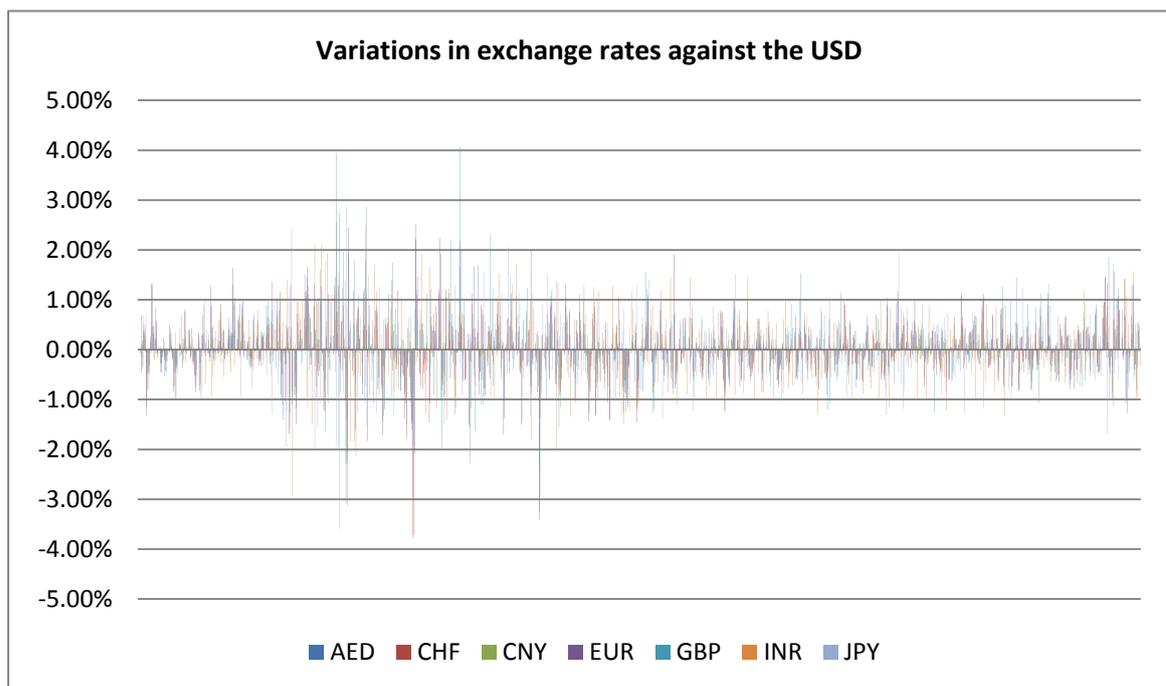


Figure 2 - Daily variations in exchange rates against the USD between June 1st, 2008 and May 31st, 2010

When we look at several currencies against another one, it is possible to identify times of strength (or weakness) of the reference currency by looking at times when all the currencies move in the same direction. In other words, if the Euro is strong but the Japanese Yen is not the daily variations of their exchange rates against the US Dollar would be in different directions; on the other hand, if the US Dollar is strong (or weak) they would be both going down (or up) against the US Dollar. In this way, we can identify period of currency ‘stress’ that might or might not impact in the pricing of the commodity we examine.

5.1 Pricing “Stress points”

5.1.1 Currency related stress points.

We have looked at seven currencies⁹: Euro (EUR), British Pound (GBP), Japanese Yen (JPY) - the other three components of the basket that values the SDR, Swiss Franc (CHF) - a European Currency, United Arab Emirates Dirham (AED) – a petrocurrency, Chinese Yuan (CNY) and Indian Rupee (INR) – simply for the clout the economies of those two latter countries have in the current global economy. We have looked at them over a period of two years; between June 1st, 2008 and May 31st, 2010. There are 730 days in the period, whenever an exchange rate for the day was not available (weekend, national holidays, any other holiday that would close the banks in the country, etc.), we have taken the last available rate (more or less, the one of the last working day before that specific day). We have looked at the following situations (which in our opinion detect changes in the strength of the currency):

- 🔗 All the currencies change in the same directions (we have admitted ‘no change’ as the neutral situation that does not contradict the general trend).
- 🔗 Higher volatility than usual. We calculated the average variation for any specific day. Looking at the chart below it is possible to see that the ‘norm’ is between -0.5% and 0.5% (they represent almost 95% of the occurrences), therefore those days when the average percentage of change (in both directions) is higher than 0.5% can be considered ‘exceptionally volatile’.

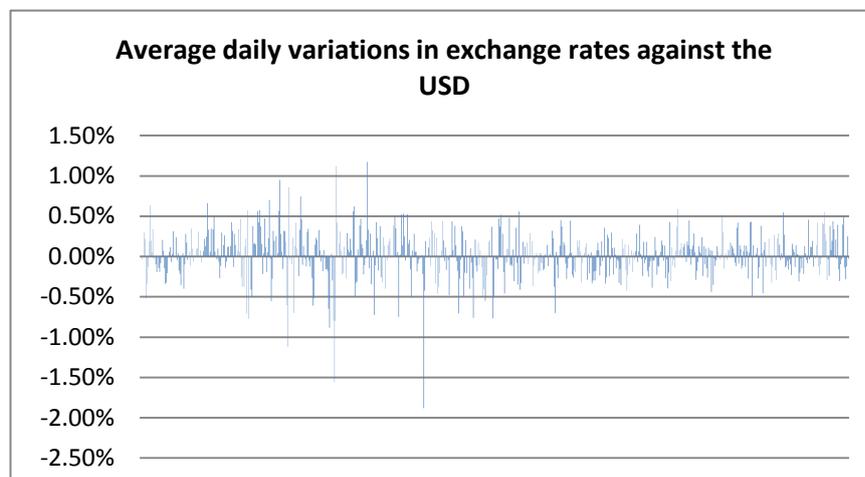


Figure 3 – Average daily variations in exchange rates against the USD

⁹ Sources for the currencies exchange rates:

- 🔗 For the SDR the IMF – www.imf.org
- 🔗 For the WOCU, the WDX Organisation – www.wocu.com
- 🔗 For the historic exchange rates of all other currencies – www.oanda.com

5.1.2 Commodities related stress points

We have looked at three commodities

- Weekly OPEC Countries Spot Price FOB Weighted by Estimated Export Volume (quoted per Barrel)¹⁰. OPEC is a cartel and therefore the prices are not floating freely. We looked at those prices over a period of two years (June 2008 to May 2010).
- Prices of copper and aluminium alloy (quoted per tonne)¹¹. We used the average between the spot buy and sell quote as published by the London Metal Exchange on their website for 2010. We looked at a period of five months (January to May 2010).

To maintain consistency with the ‘currency’ side we have looked at price variation

Commodity	Occurrences	Threshold	Variations below		Variations above	
			Numbers	%	Numbers	%
Oil	104	9%	5	4.81%	4	3.85%
Copper	42	4%	2	4.76%	5	11.90%
Aluminium	42	3%	5	11.90%	2	4.76%

Table 3 - Summary of stress points for commodities

¹⁰ Source Energy Information Administration (<http://www.eia.doe.gov>)

¹¹ Source London Metal Exchange (<http://www.lme.com>)

5.2 Pricing trends and effects currency baskets have on them

It is very difficult to detect forensically what triggered a price change. All we can do is look at how things change when quotes in US Dollars are changed into quotes in WOCU or SDR. Changes can be detected empirically by looking at charts, and two different parameters were used to assess changes in a quantitative way:

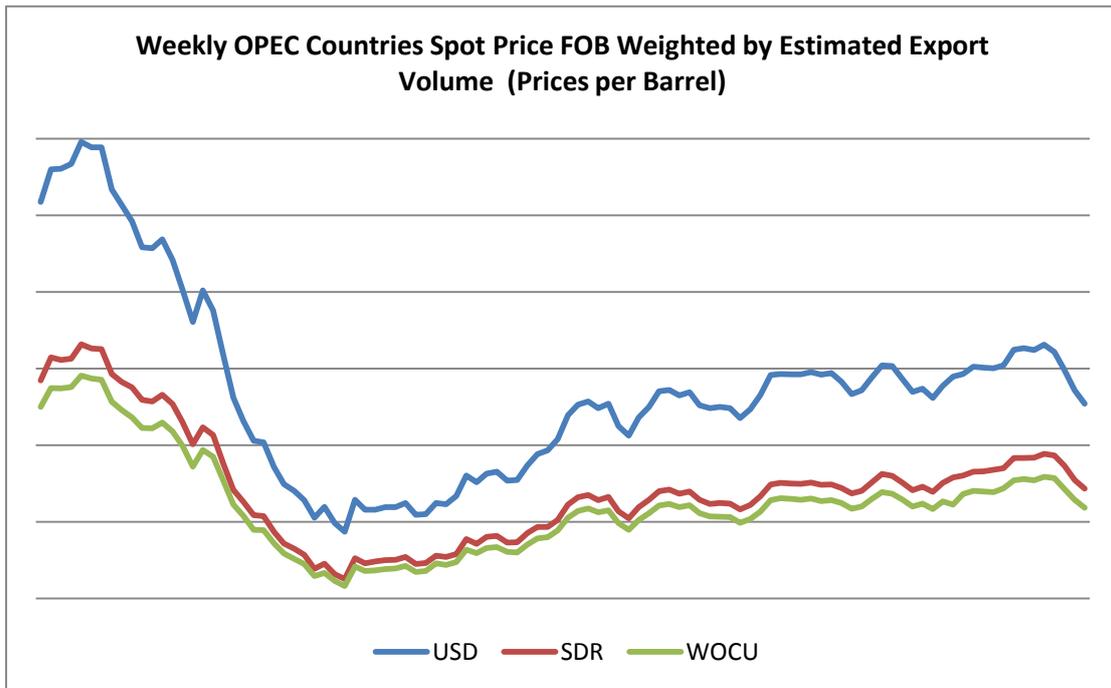
- Statistical volatility, i.e. deviation standards of all the occurrences in a series.
- Difference between maximum value and minimum value (in other words, the flatter the curve the closer the top peak and the lowest trough will be).

Commodity	CCY	Volatility	Max Value	Min Value	Diff
Oil	USD	24.36	137.18	35.48	101.70
Oil	SDR	14.66	84.35	23.10	61.26
Oil	WOCU	13.01	76.21	21.28	54.94
Copper	USD	427.54	7950.25	6241.75	1708.50
Copper	SDR	274,76	5237.08	4049.27	1187.81
Copper	WOCU	234.99	4683.60	3666.37	1017.23
Aluminium	USD	114.91	2310.00	1840.00	470.00
Aluminium	SDR	79.72	1514.54	1195.77	318.777
Aluminium	WOCU	66.00	1356.79	1085.55	271.25

Table 4 - summary of commodity prices case studies

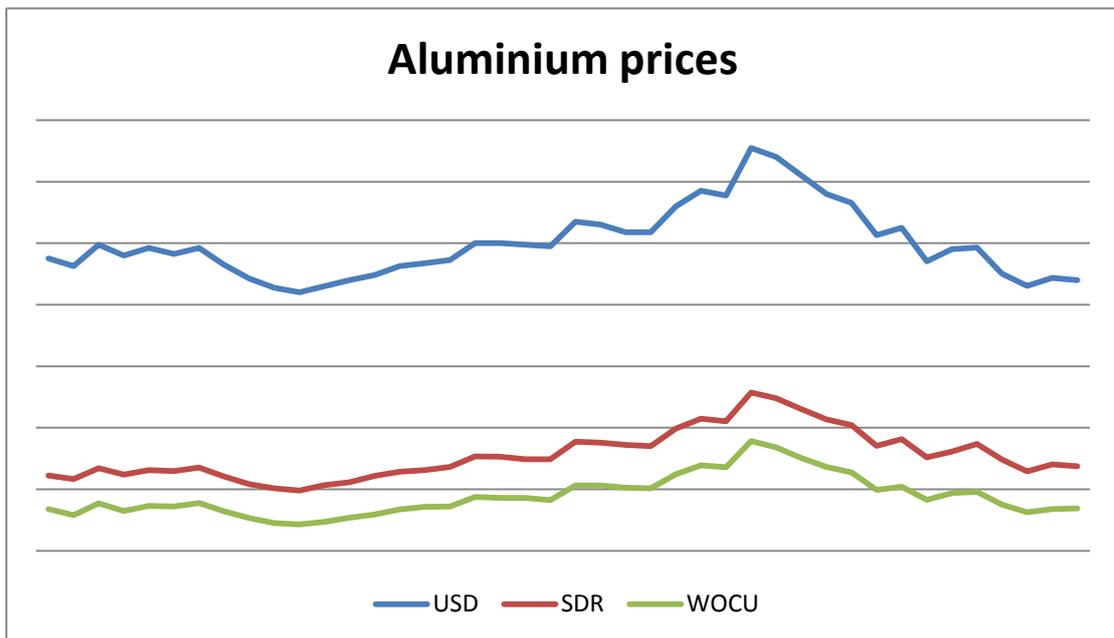
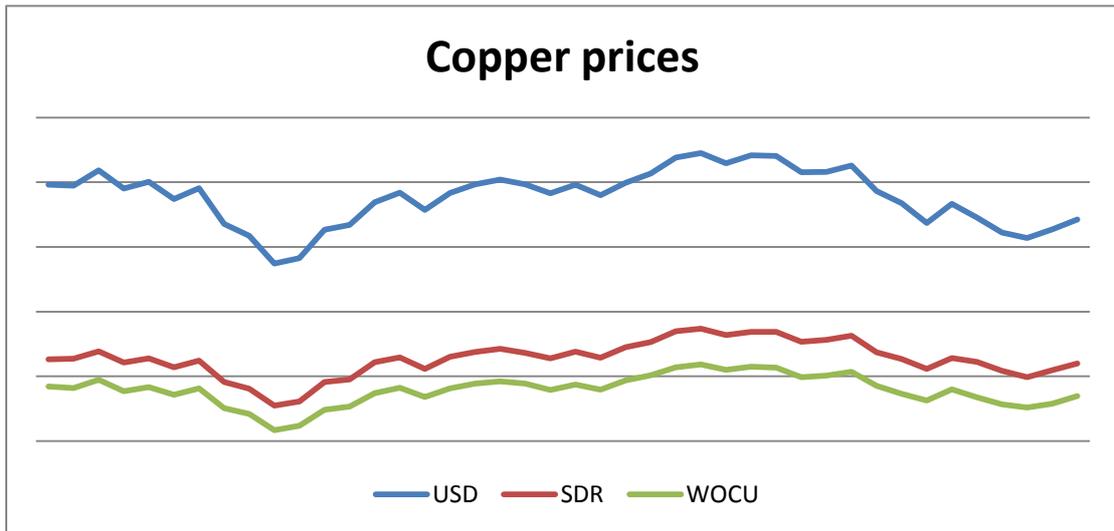
5.3 Oil

The OPEC spot price was used. OPEC is a cartel and prices do not fluctuate freely, therefore we look at a two year period:



5.4 Copper and Aluminium

Copper and aluminium are freely traded on the London Metal Exchange. We took average spot price between January and May 2010:



5.5 Summary

It is empirically obvious from the charts and it is easy to infer from the figures that using a unit that derives its value from a basket of currencies rather than a single currency results in more stable prices. The WOCU stabilises slightly more than the SDR. Looking at the difference between maximum and minimum value as a way to establish how 'flat' the curve is, we can see that the WOCU curves are 12 to 14% flatter than the SDR curves.

6 Conclusions

The UN paper on “Retooling Global Development” is not the only voice that calls for a new way of managing financial transactions in international trade. The concept of using a reference currency to trade the same commodity worldwide has a very valid pragmatic reason that has its origin in World History. However, volatile times require tools to reduce volatility. These tools have to be transparent, easy to implement and stable. In this case, we have shown that a market driven solution is better than a politically driven one. After all, it is a matter of TrUSt!

7 Glossary

Volatility (or statistical volatility) is calculated as the standard deviation in a series. That is, if dev(i) represents the deviation from the average monthly payment, then the volatility is the square root of $\{[\text{dev}(1)^2 + \text{dev}(2)^2 + \text{dev}(3)^2 + \dots + \text{dev}(24)^2] / 24\}$ where 24 is the total number of payment (the number of payments).

LME – London Metal Exchange, this is the world’s premier non-ferrous metals market where many base metals are traded. It also trades commodity derivatives (e.g. futures). Its reference currency is the US Dollar for the vast majority of trade.

8 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

9 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

For any question about this white paper (and for other things), please contact wocu@stagni.net