Currency-Plus-Commodity Basket:

A Proposal for a New Exchange Rate Arrangement for Gulf Oil-Exporting Countries

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About the author

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In a nutshell

- *Oil-exporting countries have experienced huge swings in the dollar price of oil on world markets since the turn of the century.*
- *The effects of these swings on Gulf state economies have been exacerbated by their currency pegs to the dollar, which have forced monetary policy to be pro-cyclical, i.e., exacerbating economic fluctuations.*
    - During oil booms, such as 2006-08 or 2011-13, some Gulf countries have experienced unwanted monetary inflows, credit expansion, inflation and asset bubbles.
    - During oil busts, such as 2014-15, they experience worrisome balance of payments deficits and economic contraction.
    These problems would have been moderated if the currency had been allowed to appreciate during the boom and depreciate during the bust.
    - During the boom, a strongly valued currency would have dampened monetary inflows, credit expansion, wasteful spending, overheating, inflation, debt, and asset prices.
    - During the downturn, a currency depreciation would have moderated the balance of payments deficit and losses of output and employment.
- *It would also have automatically incentivized the private sector to diversify into other traded goods and services, thereby reducing long-term dependence on the oil sector.*
- *The usual way of accommodating trade shocks and allowing monetary policy to be countercyclical (stabilizing) is to allow the currency to float.*
- *But recent research proposes a new exchange rate regime for oil-exporting countries.*
    - The goal is to achieve the best of both flexible and fixed exchange rates.
    - The arrangement is designed to deliver monetary policy that counteracts *rather than exacerbates the effects of swings in the oil market, while yet offering the day-to-day transparency and predictability of a currency peg.*
- *The plan is called Currency-plus-Commodity Basket (CCB).*
- *The CCB proposal would peg the national currency to a basket, a basket that includes not only the currencies of major trading partners (in particular, the dollar and the euro), but also the export commodity (oil).*
- *The research offers a practical blueprint for detailed implementation of the CCB proposal.*

This brief proposes a new exchange rate regime for oil-exporting countries, called Currency-Plus-Commodity Basket (CCB). The goal is to achieve the best of both flexible and fixed exchange rates. The arrangement is designed to deliver monetary policy that counteracts rather than exacerbates the effects of swings in the oil market, while yet offering the day-to-day transparency and predictability of a currency peg.

The problem

The exchange rate regimes of the Gulf countries may have served them well in the 1980s and 1990s. But oil-exporting countries have experienced much bigger swings in the dollar price of oil on world markets since the turn of the century. The effects of these swings on Gulf state economies have been exacerbated by their exchange rate arrangements. Saudi Arabia and the smaller Gulf countries have long pegged their currencies to the US dollar. Kuwait pegs to a basket that includes both the dollar and the euro. Either way, these currency pegs have forced monetary policy to be pro-cyclical, i.e., to exacerbate economic fluctuations. During oil boom periods, such as 2006-08 or 2011-13, some Gulf countries have experienced unwanted monetary inflows, credit expansion, inflation and asset bubbles. During oil bust periods, such as 2014-15, they experience worrisome balance of payments deficits and economic contraction.

Historical analysis for Saudi Arabia, Kuwait, and smaller Gulf countries during 2001-2016 can identify sub-periods when the existing exchange rate arrangements led to a currency that we label "undervalued," relative to the higher level it would have attained if the CCB proposal had been in place, and other sub-periods that we label as having been "overvalued" by this criterion. The finding is that during the undervaluation sub-periods the inflation rate tends to be high, a symptom of excess demand or overheating, and during the overvaluation sub-periods the inflation rate tends to be low, a symptom of excess supply or recession. Similarly during the

undervaluation sub-periods accumulation of foreign exchange reserves tends to be high, and during the overvaluation sub-periods reserve accumulation tends to be low.

The proposal for a currency-plus-commodity basket

These findings support an important claim: if Gulf countries had followed the CCB proposal during this period, their economies would have moved in the direction of external balance (a more stable balance of payments) and internal balance (greater stability in growth and inflation).

Under the proposed plan (Frankel, 2008, 2017), oil exporting countries would peg their currencies to a basket that includes the export commodity -- oil -- alongside major currencies. In the simplest case, the basket could assign equal weights of importance to three components: 1/3 to the dollar, 1/3 to the euro, and 1/3 to oil. The arrangement would have much of the advantages of a fixed exchange rate: a firm transparent anchor for the value of the currency At the same time it would have the advantages of a floating exchange rate: an automatic appreciation when world trade conditions favor the country's export commodity, thereby moderating excess monetary expansion and inflation, and an automatic depreciation when trade conditions turn against the export commodity, thereby moderating monetary contraction and recession.

Blueprint for CCB proposal

The new paper, Frankel (2017), spells out the plan in detail, to provide a sort of practical blueprint or cookbook ready to be implemented by any country's monetary authorities who might be interested in considering it. A summary of the design details follows:

- The choice of major currencies to go into the formula. For the Gulf countries we assume it would be just the dollar and euro. But some countries

might want to consider adding also the currencies of other important trading partners, for example the Russian ruble and Chinese yuan in the case of Kazakhstan.

- The oil price index to be used. I suggest the daily settlement price for Brent Crude Oil set at 19:30 London time on the ICE (InterContinental Exchange). Another index could be chosen instead, so long as it is transparent.

- The computation of the coefficients on the major currencies and oil. After identifying the major currencies and oil price index that are to enter the basket, the next step for the central bank is to compute and announce regularly (e.g., once a year) the weights that are to be assigned to each of these basket components. Here one must distinguish between two different definitions of weights. (i) The relevant economic question is the importance to be assigned to each of the various components. (When the euro or oil rises 1% in price, by what percent is the local currency to rise in price?) (ii) The framing of the new plan that is the most intuitive for presentation to the public is probably the set of absolute coefficients to be assigned to a unit of each component: How many dollars, euros and barrels of oil are henceforth to define one unit of the domestic currency? Even if the weights are defined so simply as to place equal importance on each of the components (e.g., 1/3, 1/3, 1/3), it is suggested that in actual implementation the central bank should use an easily understood formula that expresses each day's currency value as a weighted sum of the values of that day's dollar, euro and barrel of oil. For full transparency and verifiability, the central bank would announce the formula's coefficients, and show how they have been computed from the weights. For example, assume that on the day when the weights are calculated, the dollar and euro are of equal value on the London foreign exchange market and that the price of oil is $50 a barrel. Then the weights of 1/3, 1/3, 1/3 on that day translate into relative coefficients of 1 dollar plus 1 euro plus 1/50th of a barrel of oil. The public can be encouraged to envision a lit-

eral basket that contains one dollar bill, one euro note, and one-fiftieth of a barrel of oil.

- The frequency with which the coefficients would be revised. A CCB country might find in the future that it wishes to alter the importance assigned to major trading-partner currencies or to the oil objective. Governments that announce that their currencies will follow basket pegs often wish to preserve more flexibility than a permanent iron-clad to commitment to the new regime would imply. The best way to do this is not to keep the formula secret, but rather to publicly and transparently announce the initial parameters and whatever subsequent changes are thought necessary. Chile, for example, was completely transparent in the basket regime that it followed in the 1990s, but changed its parameters once a year on average (including not just basket weights but also the width of a band around the central parity and a rate of crawl for that parity).

- Whether or not the announcement of the new regime would include an immediate discrete devaluation (or revaluation) to correct an existing misalignment. The Gulf countries have enough foreign exchange reserves; they are not about to be forced into a devaluation if they don't want it. They could adopt the CCB proposal while maintaining continuity in the path of the exchange rate. But some other oil-exporting countries might be forced into a devaluation by a renewed fall in the price of oil. [Indeed some, such as Azerbaijan, Kazakhstan, and Nigeria have been forced into devaluation in recent years. If they had adopted the CCB plan earlier, the depreciation would have occurred automatically when the dollar price of oil began falling in 2014, and need not have entailed the loss of reserves, damage to the authorities' credibility, and big adverse effects of currency mismatch on balance sheets.] A country wishing to exit from an exchange rate target before balance of payments deficits become so severe as to force the issue might want to devalue (to restore equilibrium) at the same time as announcing a new BBC regime (to allow

automatic adjustment to future changes in the equilibrium).

- Whether a trend would be included in the formula. Some countries build a pre-announced rate of crawl in to their exchange rate regime and this could certainly be done with the CCB proposal. Perhaps the best way to think of this option is to make the arrangement consistent with the popular system of Inflation Targeting. If the authorities wish to set a target for the domestic inflation rate that is equal to that of its largest trading partners, the trend could be set to zero. But it might wish to set a higher target (or a lower target). This is especially true at the one-year horizon : for example, if a high inflation rate has acquired inertia it may need to be brought down to the world level steadily, step-by-step.
- The mechanics of setting, announcing, and implementing the daily value of the exchange rate implied by the formula.

The Table illustrates what might appear on a central bank's website. Row (1) states that the formula will assign equal importance to each of the three components: 1/3, 1/3 and 1/3. Next we take December 31 as the notional date at which the CCB regime would be benchmarked and would have gone into effect. So row (2) reports the dollar value of the major currencies and the dollar price of oil on that date. Row (3) reports the relative coefficient that each of the three weights translates into, given those prices. In this illustration, we assume that no devaluation is needed, so that the formula makes sure that the new exchange rate on the day that the program is launched is the same as the old exchange rate. Rows (4) and (5) show how to make this calculation, using Kuwait's December 2016 exchange rate for the sake of concreteness.

The resulting CCB formula, which would set the exchange rate on a daily basis for the coming year, is given in this example by:

(Exchange rate in \$/dinar) t =
1.0918 + 1.0382 (Exchange rate \$/€) t + 0.0192 (Price of oil in \$/barrel) t .

This formula would feature prominently in the central bank's press releases and be posted on its website, with a link explaining the details of the calculation. To help give the general public an intuitive understanding of the new policy, it could be made tangible by means of a picture of a literal basket physically containing 1 US dollar bill and 9 US cents, 1 euro coin and 4 euro cents, and a container of oil holding the equivalent of .019 barrels.

Once a day, the formula's blanks are filled in for that day: the euro exchange rate and Brent price of oil (both observed, say, in London). The formula then yields a number for the resulting dollar/dinar exchange rate, to which the monetary authorities commit for the subsequent 24 hours. In other words, the central bank stands ready to buy and sell dinars in exchange for foreign exchange at that price. A variant could be to proclaim a band around the price, perhaps a band of plus or minus 1%.

The hypothetical example illustrated in the Table for the case of Kuwait in rows (4)-(7) shows what would have happened subsequently if the new CCB regime had been implemented on December 31, 2016. We assume no need for realignment on that day, so the exchange rate begins at \$3.2755 per dinar. What would the formula dictate for the exchange rate on March 1? The euro appreciated by more than 3 per cent during January-February. The price of oil fell, but only by about 2%. As a result, the CCB formula would have produced an exchange rate on March 1 of \$ 3.292, 0.5 percent stronger than it was at the end of 2016.

The authorities should be prepared with enough foreign exchange reserves to intervene heavily, if necessary, to keep the market rate at the announced rate. But if the initial level is not overvalued or undervalued, there is no reason why heavy intervention should in fact be needed. Indeed, it is likely that banks and other foreign exchange traders would not challenge the rate.

Table: Example of how CCB formula could be computed and presented

	Date on which determined	US dollar	euro	Barrel of oil (Brent)	Value of local currency
1. Weights of importance	-1Jul16-	0.3333	0.3333	0.3333	1
2. Value of unit in dollars on benchmark day	Dec. 2016 ,31	1	1.0517$	56.8200	
3. Relative coefficient in basket formula = (2)/(1)	For daily setting of the $ exchange rate during the coming year	0.3333	0.3169$	0.0059	
4. To take the example of Kuwait, $ value of dinar on benchmark date	Dec. 2016 ,31				3.2755$
5. Absolute coefficient in basket formula, = (4)*(3)		1.0918	1.0382	0.0192	
6. Example i) observed rates at time t,	e.g., t = March ,1 2017	1.000$	1.088$	55.720$	3.282$
ii) exchange rate at time t implied by basket formula = (6)*(5i), then summed		1.092$	1.129$	1.071$	3.292$

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