ECN320 SRP for session 4. Currency Devaluation/Revaluation

POLICY IMPLICATIONS OF DE/REVALUATION

Whether one is a US exporter selling computers in Japan, or a Briton planning a skiing holiday in France, one has good reason to care about exchange rates. However, much nonsense is talked about them. One common mistake is to see possession of a strong currency as a policy goal in its own right, as if a strong currency denoted a strong economy. It is better to consider the exchange rate as an instrument rather than a goal of policy. Even that role is more limited than is commonly believed [1].

Many people think that devaluation is a painless way to boost exports and output, and so create jobs. At the other extreme, some economists claim that devaluation only generates inflation and is powerless to affect real economic activity. The truth lies somewhere in between. Under certain conditions, devaluation can be a useful policy tool. It is not, however, a soft option [1].

Economists talk about currencies being "devalued" or "revalued" when there exists some sort of fixed exchange-rate regimes, such as Europe's exchange rate mechanism [existing just prior to the introduction of the euro] or, until December 1994, the Mexican peso's link to the dollar. When, on the other hand, a free-floating currency such as the dollar falls or rises this is referred to as a "depreciation" or an "appreciation" [1].

The exchange rate - the price of a currency in terms of others – is one of the most important prices in the economy because it determines the relative prices of domestic and foreign goods. On the surface, a weaker currency might therefore appear to be an obvious solution to a trade deficit. A cheaper dollar, for example, makes US exports more competitive abroad and imports more expensive in the US. It seems obvious that this should lead to more exports and fewer imports [1].

When a country devalues, the theory predicts, its real exchange rate will move back towards its PPP, either through a rebound in the nominal rate or from an equal rise in prices. Devaluation will raise the prices not only of imports but also, eventually, of domestically produced goods that compete with imports. This pushes up inflation, which will rise further still if wages then chase higher prices [1].

Changes in the dollar exchange rates of the main industrialised counties have been more or less offset by those countries' inflation differentials with the US: countries with the biggest devaluations have had the highest rate of inflation. In other words, changes in nominal exchange rates have had no lasting effect on the external competitiveness of individual economies. That should not come as a surprise: if devaluation really were a miracle cure, then the UK, whose currency has fallen almost continuously since the WWII, should now have the world's most successful economy [1].

In the long run devaluation will be offset by higher prices. But how long is the long run? It is the answer to this question that determines the effectiveness of devaluation as a tool of policy. Prices often take time to adjust, and the time taken differs from one economy to another. In the two decades to the mid-1990s, movements in the nominal exchange rate of the dollar caused large matching swings in its real exchange rate. In contrast, the depreciation of the sterling during that period failed to make British exporters more competitive; it was wiped out by higher costs [1].

To understand better how devaluation works, consider a country which has an unsustainable current-account (CA) deficit. It produces two types of goods - tradable and non-tradable – and assume that capital and labour are fully employed (ie, unemployment is at its natural rate, consistent with stable inflation). There are two ways to reduce that country's deficit. The first, "expenditure reduction", is to squeeze domestic demand by tightening fiscal or monetary policy. This will curb imports and so trim the trade deficit. But it will also lower the demand for home-produced, non-tradable goods, so unemployment will rise [1].

To achieve internal as well as external balance requires a second instrument, "expenditure switching". The price of non-tradable goods and services needs to fall relative to the price of tradables, to encourage firms to shift their production to the export sector. How can that shift in relative prices be achieved? High unemployment would eventually put downward pressure on wages and the prices of non-tradable goods, but it may take time. This is where devaluation may be able to speed things up. By raising the domestic price of tradables, and so making exports more profitable, it may help economies to shift production with a smaller rise in unemployment [1].

Note, however, that by itself devaluation will not work if, as is common in countries with widening external deficits, the economy is operating flat out. If supply cannot expand, rising prices will quickly erode the initial gain in competitiveness. Devaluation must go hand in hand with a reduction in domestic demand (through monetary and fiscal tightening) to make room for more exports [1].

Thus, the issue of whether devaluation is a useful policy tool turns on two crucial questions.

- First, how flexible are nominal prices and wages? If they are fully flexible downwards then devaluation is unnecessary. Prices and wages will automatically decline, and so the real exchange rate will fall without a devaluation of the nominal rate.
- Second, how flexible are real wages? Devaluation works only if real wages are allowed to fall and workers do not instantly demand compensation for higher import prices. If real wages are rigid (e.g., due to comprehensive wage indexation or powerful trade unions) then devaluation will immediately generate a wage-price spiral. In such circumstances devaluation is not only pointless, in the sense that it cannot achieve a lower real exchange rate, it also risks creating ever-rising inflation [1].

In the 1970s and 1980s, in inflation-prone Latin American economies, where indexation was rife, the benefit of devaluation could be wiped out by higher inflation within a year. Argentina, for example, tried fixing the exchange rate (peso to the dollar) to break the inflation cycle [1].

Thus, for devaluation to be both necessary and effective as a policy tool, nominal wages and prices must be "sticky" downwards, while real wages must be flexible downwards, at least for a period. If both conditions are met, devaluation can for a while reduce the real exchange rate and help to speed up the relative price changes needed for economies to adjust. However, it is nonsense to view devaluations as a painless cure. For devaluation to work, it must (a) go hand in hand with tighter fiscal or monetary policies, and (b) it must reduce real wages. A policy of devaluation that is adopted as a soft option is likely to fail [1].

Devaluation is likely to be a more potent weapon in some economies than in others. For example, devaluation tends to be less successful in reducing real exchange rates in small, open economies than in large ones [1].

In 1996, imports accounted for an average of almost 30% of GDP in Western Europe, and as much as 65% in Belgium, compared with only 12% of the US's GDP. In Europe, therefore, higher import prices have a much bigger impact on inflation and hence on pay demands. This explains in part why most US economists believe that devaluation is an important policy tool,

whereas more Europeans were willing to fix their currencies once and for all under monetary union [1].

A second factor behind the different attitudes to devaluation in the US and Europe is the flexibility of real wages. In the 1980s, real wages fell in the US. In Europe, thanks to a history of wage indexation (since abandoned in most countries), centralised wage bargaining and strong trade unions, wages tended to catch up quickly with prices [1].

Both of these factors suggest that devaluation is likely to be less effective in Europe than in US, and that European governments would therefore not be giving up that much under a single currency. However, prior to monetary union there were experiences in Europe suggested that devaluation was sometimes used as a power instrument [1].

So does devaluation offer the proverbial free lunch after all? Before jumping to that conclusion, it is important to look a little more closely at the circumstances of the Italian, British and Swedish economies [1].

First, in 1992 these three economies had plenty of spare capacity available to be diverted into exports. As the discussion of expenditure reduction and expenditure switching demonstrated, devaluation is self-defeating in economies already working flat out. Britain, Italy and Sweden were in deep recession when they devalued, and high unemployment helped to dampen wages. With less slack in these economies, pay demands crept upwards [1].

Second, the exchange rates of these economies fell dramatically, leaving them undervalued relative to PPP. This made the currencies attractive to investors, and so allowed interest rates to fall. To support their currencies, governments had previously been forced to keep interest rates high to compensate investors for the risk of devaluation. With that risk removed, interest rates could fall. A small devaluation would not have had the same result. Indeed, it might well have increased the perceived risk of another devaluation and so caused investors to demand even higher interest rates than before [1].

A third lesson is that in all three countries devaluation was accompanied by fiscal tightening. Britain's budget deficit was trimmed from 8% of GDP in 1993 to 5% in 1995; Sweden's was chopped from 13% of GDP to 7% [1].

Perhaps the best illustration of the principle that currency depreciation by itself is not a failsafe cure for a trade gap is the fact that the US's CA deficit continued to loom large in 1996, despite a 40% drop in the dollar's trade-weighted value during the 1985-95 period, and a 60% depreciation against the yen and D-mark. Likewise, Japan still had a huge CA surplus despite the strong yen [1].

One reason why the US's CA deficit refused to disappear was that exchange-rate movements were partly offset by relative price movements; from 1985-95 wholesale prices rose by 21% in the US, but fell by 16% in Japan. The sharp appreciation of the yen imposed severe deflation on Japan [1].

Furthermore, the underlying cause of the US's budget deficit (i.e., government dissaving) fell since the 1980s, but was still high by historic standards. Meanwhile, household savings shrunk by a third over the 1985-95 decade, to only 4.5% of personal income in 1995 [1].

When the dollar was grossly overvalued in the mid-1980s, it needed to fall somewhat to allow US producers to regain their competitiveness. But the dollar was the wrong weapon to use to cut the US's trade deficit in the mid-1990s, especially when the US economy had so little slack. The only sure way for the US to close its trade gap was for the country to save more by eliminating its budget deficit. A cheaper dollar is no substitute for a responsible fiscal policy [1].

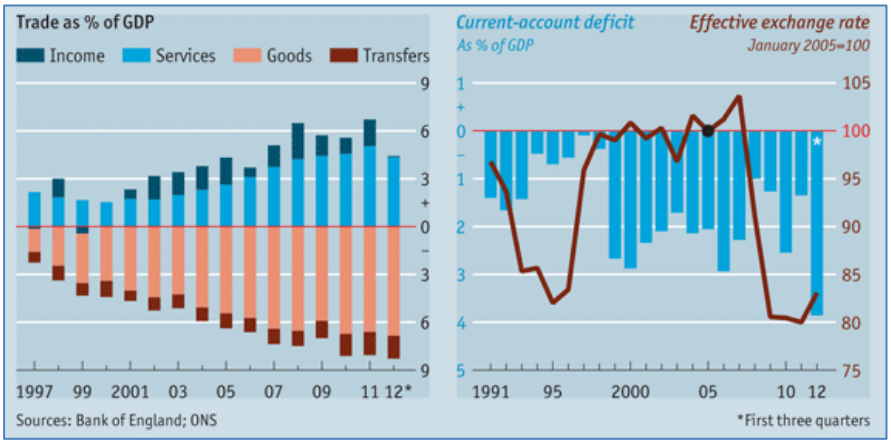
Governments and businessmen are always fretting about whether their countries' products are internationally competitive. But how should competitiveness – ie, the real exchange rate – be measured? Which index of inflation should be used to deflate the nominal exchange rate? The IMF calculates no fewer than six different measures of the real exchange rate based on: unit labour costs, "normalised" unit labour costs (ie, after adjusting for the effect of the economic cycle), consumer prices, wholesale prices, the value-added deflator in manufacturing, and export prices. They often tell different stories.

Between 1980 and 1994, the yen's real exchange rate based on unit labour costs rose by 75%, that based on consumer prices by 80%. Yet relative export prices increased by only 33%. In part this is because productivity growth in Japan's traded sector has been much faster (and so cost increases smaller) than in non-tradables. Japanese exporters also squeezed their profit margins to maintain market share.

Which is the best gauge? Consumer prices are too broad, as they include non-tradables; export prices are too narrow as they include only goods that are actually traded – once goods become uncompetitive they disappear from the index. This leaves relative unit labour costs as probably the most reliable measure [1].

Currency strength and BOT: Case of the UK

Britain is an open, trading nation that does not export enough because of a lack of medium-sized firms and the frothy years before the financial crisis. In the mid-2010s, the UK was still a world class exporter: it ranked 2nd largest services exporter behind the US and maintained a trade surplus in services since 1966; and had a large income surplus from investments (UK investments abroad earn larger returns than foreigners' investments at home). But the country's growing goods deficit (BOT), of almost £80 billion ($128 billion) through Sep of 2012, more than wiped out its surplus from services and income (left-hand chart, trade as a % of GDP) [2].



The gap between what the country buys and what it sells must be plugged by borrowing from abroad. The notion that the UK can import goods while exporting services is too simple: selling goods abroad is a good way to develop services markets, as firms like Rolls-Royce prove. Exporters tend to employ more workers and pay better wages than non-exporters. They are also

more productive and invest more in research and development [2].

The UK's BOT deficit is puzzling. In the early 1990s the UK's exit from the Exchange Rate Mechanism and the subsequent collapse of the pound almost abolished the trade deficit (right-hand chart, current-account deficit and effective exchange rate). When a currency depreciates, exports cheapen for foreigners, while imports become more expensive. However, with the 25% loss in sterling's value in 2008-09, things were different: exports did not pick up much and the CA worsened [2]. (In 1991 sterling weakened and the CA, as a % of GDP, fell until 1999. The currency weakened and CA deficit fell. After 2007, sterling weakened but the CA deficit did not fall.)

To see why, compare two successful firms. David Mellor Design employs 40 people and makes cutlery and silverware in Derbyshire. The need for strict quality control means it makes sense to manufacture at home, says the firm's boss. Its suppliers are mostly local companies. The firm's costs are in sterling, as are its prices, which are not adjusted to offset changes in exchange rates. The falling pound enables the firm to export more [2].

Near the other end of the scale is URENCO, which employs 1,600 workers. Its factory near Chester enriches uranium that is sold to firms to fabricate rods for power generation. The firm provides more than 25% of global supply, but also has facilities in the US, the Netherlands, and Germany. Tight regulation of uranium transport means firms locate close to their end-customer. Locating each part of the production chain in a different country is too costly. URENCO's US clients receive the uranium at its US factory, rather than from the UK. This generates income rather than exports. And because URENCO's sterling, dollar and euro costs and revenues broadly balance, it has a natural hedge and does not need to adjust production in response to currency fluctuations [2].

A big reason the UK exports so little is that jobs tend to be in large international firms like URENCO rather than in medium-sized ones like David Mellor Design. Of the UK's 24m private-sector workers, 10m had jobs in firms employing more than 250 workers in 2013. Foreign markets were reached by investing in them; currency shifts matter little to them. The weight of large firms in the economy explains why 70% of UK firms reported they were unaffected by exchange rates. The structure of UK business was not the whole story. There was a low rate of exporting among the country's small and medium-sized firms (SMEs). Of the UK's 200,000 or so SMEs, just 20% exported, according to government figures. If this could be lifted to 25%, the EU average, exports could have picked up [2].

Why do African countries like their currencies strong?

An undervalued currency makes a country's exports cheaper, and so acts as an implicit subsidy to firms that sell abroad. That can counterbalance institutional failures, such as the difficulty of enforcing contracts, which hurt exporters more than they do local businesses—barbers, taxi-drivers and the like. Exposure to world markets also helps companies learn and improve [3].

Dani Rodrik of Harvard University argues that governments in developing countries should not simply aim for an "equilibrium" exchange rate, as the IMF would urge, but actively engineer undervaluation. That may entail measures such as capital controls or reserve accumulation. Some Asian countries, including China, adopted this strategy as they industrialised. Empirical studies suggest that undervaluation boosts growth, and more so in poor countries than in rich ones [3].

Strange, then, that those African countries that do manage their currencies are still trying to prop them up. Nigeria restricts access to foreign exchange to keep the naira strong. Ethiopia's drive to become an Asian-style hub for export manufacturing had been hindered by an overvalued birr. A group of eight mostly francophone west African countries changed the name of their currency but not, tellingly, the rate at which it was pegged to the euro. The last devaluation, in 1994, sparked riots [3].

A tendency to keep the currency strong is built into the structure of African economies. Commodity exports and aid inflows raise demand for local currencies, making them stronger. Governments fear depreciation because they depend on imported capital to finance infrastructure projects; a weak currency forces them to raise more revenue to pay back foreign debts [3].

Depreciation also pushes up the cost of imported goods, including food, medicine and fuel. Those are mostly consumed by city folk, who are more prone to protest than those in the countryside. Inflation hits industry, too. Nigerian firms buy much of their machinery and inputs from abroad and so are hurt by higher import prices, says Segun Ajayi-Kadir, the director-general of the Manufacturers Association of Nigeria. Ethiopian factories import about half of their raw materials. Garment firms ship in fabric; shoemakers, leather [3].

Left unchecked, inflation erodes any boost to exports. Consider a 10% depreciation in the "nominal" exchange rate—that is, the rate advertised in newspapers or at a bureau de change. If domestic prices also rise by about 10% then there is no change in the "real" exchange rate, which measures relative prices of domestic and foreign goods, and that is what counts. In practice prices rarely jump that much: in 2012 IMF researchers estimated that in sub-Saharan Africa a 10% depreciation typically resulted in domestic price rises of only 4%. But to maintain an undervalued real exchange rate, governments would have to limit inflation by containing local demand, for example by trimming public spending, notes Abebe Aemro Selassie, the director of the IMF's Africa department. As this is difficult, countries do not typically contemplate strategic undervaluation [3].

Perhaps this is not a surprise. Much like tackling corruption or fixing the myriad other problems African economies face, strategic undervaluation is hard to pull off. It imposes real wage cuts on the workforce, notes Christopher Adam of Oxford University, so "you're imposing the cost on current workers and consumers for the benefit of future generations." No wonder politicians prefer their exchange rates strong [3].

Currency Intervention

Milton Friedman, a Nobel-prize winning economist was an early fan of floating currencies. Whenever there is a shortfall in demand for a country's goods and assets, it is easier to let one price, the exchange rate, drop than it is to cut all of the country's other prices instead. This is the analogy he used in the sedate 1950s when exchange rates seldom changed. In today's volatile markets things could be different [4].

Friedman thought currency defences were either unnecessary or impossible. If the shortfall in demand was large and lasting, intervention would only delay the inevitable, since the country would run out of foreign-exchange reserves. If the shortfall was small and fleeting, intervention was unnecessary. Instead of buying a temporarily cheapened currency, the government could rely on speculators to do the job, since they would profit whenever the currency regaining its footing. Intervention was necessary only if the government was better at spotting a temporary misalignment than financial speculators whose livelihoods depended on it [4].

Early studies of intervention reinforced this scepticism. In 1982 the G7 report concluded that currency intervention had little durable effect. There was unusual consensus among economists that currency intervention was not an "effective or lasting"

instrument, as Kathryn Dominguez of the University of Michigan and Jeffery Frankel of Harvard pointed out. But more recent work has overturned this consensus, thanks to theoretical and empirical advances. The longer-term impact of intervention can be hard to discern because central banks do not step into the currency markets at random. They sell foreign reserves when the currency is weakening and buy when it is under pressure to strengthen. So, a naïve look into the data might suggest that intervention backfires: reserve sales are associated with a weaker currency, just as firefighters are associated with fires [4].

One response is to look at currency interventions that are bigger or smaller than would be expected. That is one of several approaches taken by Andrew Filardo of Stanford University, as well as Gaston Gelos and Thomas McGregor of the IMF[1], in a paper of June 2022. They concluded that if a currency is undervalued by 10%, sales of foreign-exchange reserves worth about 0.1% of GDP can strengthen it by more than 4%. If the authorities intervene systematically over several quarters, they get an additional bang. The impact is also greater in shallow financial markets [4].

Why does intervention work? One reason is that speculators are not as reliable as Friedman assumed. The outfits that bet on currencies have a limited capacity to bear risk. These limits tighten in times of stress when financial institutions reduce the size of bets. In such circumstances, national authorities may be better placed to correct misalignments, even if they are not better at spotting them [4].

Intervention may also work by serving as a signal of policymakers' resolve. The government should, after all, now better than speculators what the government intends to do. It may be determined to pursue policies consistent with a stronger currency. But it may struggle to convince sceptical investors. Through currency intervention, it can put its (foreign) money were its mouth is. Of the 18 central banks from emerging economies surveyed by the Bank of International Settlements in 2018, nearly three-quarters identified signalling as "often or sometimes important" [4].

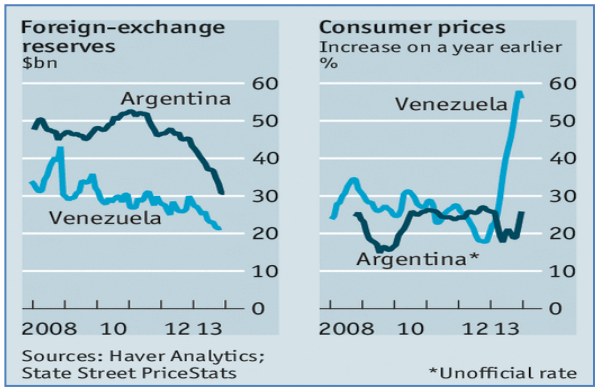
The results offer little encouragement to Japan or Britain, the two big economies suffering the steepest drop in their exchange rates in 2022. The BOJ was still committed to capping its government's bond yields, however high yields rose in other parts of the world. What ever the virtue of that policy stance, it was hardly consistent with a stronger yen. Given the size of the UK current-account deficit and the pace of inflation, the diminished pound was not obviously weaker than it should be. Currency intervention can serve as a signal of tighter policies, but not a substitute for them [4].

Multiple Exchange Regimes

In 2014, Argentina and Venezuela had both lived high on their export earning for years, blithely dishing out the proceeds of the unrepeatable commodities boom (oil in Venezuela; soya in Argentina). Both used a mix of central-bank interventions and administrative controls to keep overvalued exchange rates from falling and inflation from rising [5].

Nevertheless, high inflation was a shared problem. Argentina's rate, propelled higher by loose monetary and fiscal policies, was unofficially put at 28%. Argentina's official exchange rate was overvalued as a result, fetching 70% more dollars per peso than the informal "blue" rate in mid-January 2014. Venezuela's prices were rising even faster. In 2013, during an awkward political transition after the death of Hugo Chávez to the presidency of Nicolás Maduro, the Central Bank stepped up money-printing to finance public spending, pushing inflation to 56.2%. A dollar fetched between 75-80 bolívares on the black market, up to seven times the official rate [5].

Both countries had a dwindling arsenal of reserves with which to defend their overvalued currencies. Venezuela's reserves of gold and foreign currency, which stood at nearly $30 billion at the end of 2012, were down to just over $21 billion at the end of 2013. Argentina's reserves had also been tumbling (see chart, foreign-exchange reserves) [5].



With reserves falling, the official exchange rate overvalued, inflation rising and a continued dependence on imports, something had to give, and in January 2014 it had. Argentina first allowed the peso to plunge, and then announced a relaxation of the government's ban on buying foreign currency for saving purposes. Argentines making over 7,200 pesos ($900) monthly were allowed to change only 20% of their salary into dollars at the official exchange rate so long as they got approval from AFIP, Argentina's tax agency. The dollars were transferred to their bank accounts, not released in cash, and would be hit by a 20% fee if withdrawn before a year. If that sounds costly, it was cheaper than buying dollars in the illegal market [5].

The government's objective was to be to close the gap between the official and blue exchange rates, alleviating the need to spend more of those precious reserves to prop up the official rate. Although the gap closed a little, fear that devaluation would lead only to yet higher inflation explained the continued high demand for dollars, even at the less favourable exchange rate. So too does the fact that only a third of Argentine workers meet the declared-income threshold for buying dollars, according to analysis by IARAF, a think-tank [5].

Guido Sandleris of the University Torcuato di Tella said the plan was doomed to failure unless the government became more open about its intentions and adopted a genuinely restrictive set of policies to battle inflation. Although the Central Bank raised one of its interest rates by a full six percentage points, rates remained below inflation, giving Argentines little reason to hold pesos [5].

On the fiscal front the government needed to reduce subsidies and remain unyielding in the face of workers' demands for pay rises [5]. [The strong labour unions makes this always a challenge for Argentina.]

At least Argentina's partial liberalisation of currency controls was a halting step towards normality. In Venezuela, where the situation was even more perilous, policy was heading in the other direction. In January 2014, the government unveiled new rules under which a higher exchange rate for non-essential

[1] Filardo, A., G. Gelos, and T. McGregor (2022), "Exchange-rate Swings and Foreign Currency Intervention", IMF working paper, WP/22/158.

transactions was set weekly (it stood at 11.36 bolívares to the dollar in February 2014). The old rate of 6.3 still applied for government imports and basic items such as food and medicine, so reserves would keep falling as the government defended the currency [5].

Venezuela's economy is built on oil—its leaders boast having the world's largest proven reserves—and it is tempting to blame fickle crude prices for its woes. Oil accounts for more than 90% of Venezuelan exports. It helps to fund the government budget and provides the foreign exchange that the country needs to import consumer goods. The oil earnings went to public spending on social programmes and expanded subsidies for food and energy. Venezuelans felt the results, in higher incomes and improved standards of living. Chávez delivered on his promises to help the poor – for a time. From 2000 to 2013, spending as a share of GDP rose from 28% to 40%. Spending crowded out growth in foreign-exchange reserves. Nearly everything of consequence in the economy, from toilet paper to trousers, is imported from abroad [6].

As oil prices soared in the 2000s, Venezuela found itself awash in cash. In 2014 the boom ended. The volume of dollars flowing into the country tumbled, presenting the new government of Nicolás Maduro, who took over after Hugo Chávez's death, with an unappetising menu of options. He could have allowed the currency, the bolívar, to tumble in value. Yet prices for imported goods would have soared as a result, the market's way of curtailing Venezuelan demand for products it no longer had the dollars to afford. Soaring prices would have violated the egalitarian spirit of Venezuela's Bolivarian government [6].

Mr Maduro kept the wildly overvalued official exchange rate and rationed imports by tightening the government's control over access to hard currency. From early in the Chávez era, the government controlled the flow of dollars earned by the oil industry; importers had to prove they were trying to bring in something of value before being allowed to swap bolívars for greenbacks. Mr Maduro tightened the screws [6].

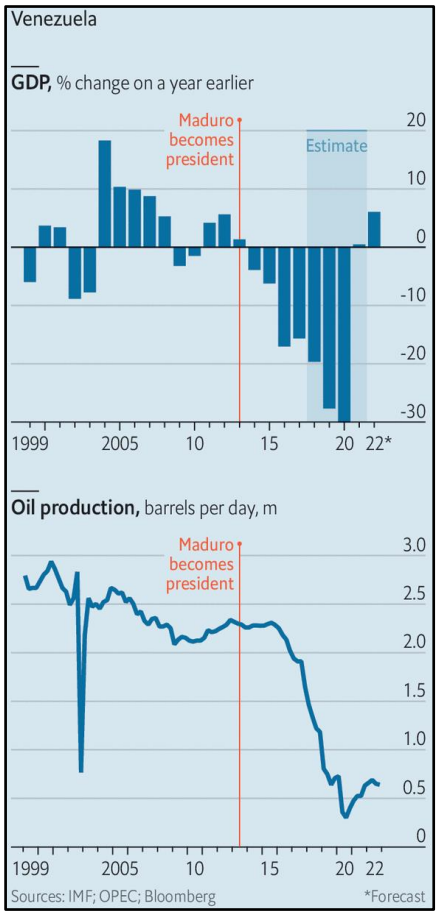
The effect was not as intended. As the flow of imports dried up, prices rose. Mr Maduro tried price controls; supply either evaporated or moved to the black market in response. The government's fiscal troubles added to the mess. With oil revenues slashed by half and the government deficit soaring, Mr Maduro might have opted to cut spending and broaden the tax base. But such measures must have looked like political poison to a freshly anointed president. Instead, Venezuela turned to the printing press to cover its bills. Devastatingly high inflation further undermined the workings of the economy [6].

Venezuela was running out of dollars to pay its bills. Although payments to its financial creditors of around $5 billion in 2014 were not at risk, the country's arrears on non-financial debt was put at over ten times that sum. These included more than $3 billion owed to foreign airlines for tickets sold in bolívares, and around $9 billion in private-sector imports that had not been paid for because of the dollar shortage [5].

The effects were apparent. Foreign airlines placed tight restrictions on ticket sales; some suspended them altogether. Many drugs and spare parts for medical equipment were unavailable. Car parts, including batteries, were increasingly hard to find; newspapers closed for lack of paper. The country's largest private firm, Empresas Polar, which makes many basic foodstuffs, struggled to make some products. In a statement Polar said the government owed it $463m and that production was "at risk" because foreign suppliers of raw materials and packaging were threatening to halt shipments [5].

The government blamed the crisis on private businesses and "irresponsible" use of hard currency by ordinary Venezuelans. It ordered drastic cuts in dollar allowances for travellers, especially to popular destinations like Miami. Remittances to relatives abroad were also slashed. In a bid to curb runaway inflation, a new law restricting companies' profits to 30% of costs was introduced with long jail sentences for violators [5].

Without a big injection of dollars from the state oil company, Petróleos de Venezuela, the crunch would continue. Better terms for foreign investors in the oil industry would have brought in much-needed cash and boost stagnant production. But the government's antipathy to private capital made the prospect of new investment dim (see chart, GDP and oil production [7]). Shortages of goods worsened. If Argentina was an outlier, Venezuela risked straying into a different category entirely [5].



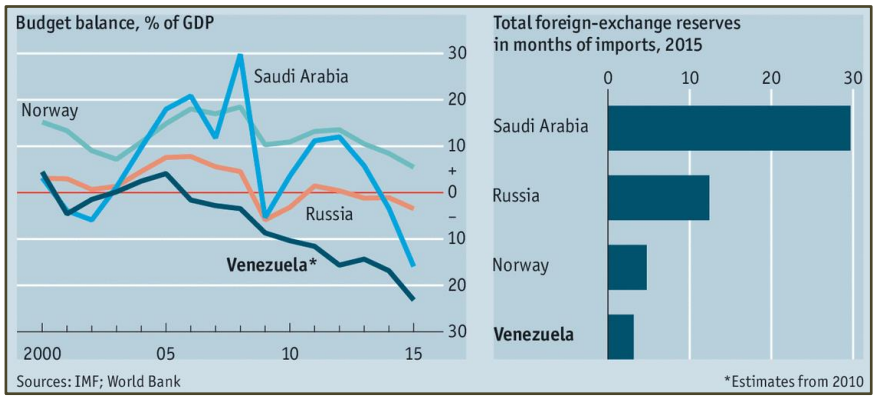
In February 2015, Caracas decided to make a byzantine currency system even more complicated by introducing another official exchange rate to the two that already existed (plus the black market version). The move came after further pressure from falling oil prices [8].

Multiple official exchange rates have to be buttressed by some form of capital control or they will collapse. The function they serve is to ration scarce foreign currency and, like all forms of rationing, that creates opportunities for the distribution of rents. Using multiple rates rather than letting a currency float offers the opportunity to reward political supporters at the expense of opponents [8].

In the case of Venezuela, the new third official rate, supposedly market-based, called the Simadi system, allowed individuals and companies to buy a limited amount of dollars through brokerages, money exchangers, banks and the public securities exchange. It replaced a previous similar system operating at a rate of about 50 bolívares to the US dollar and kicked off at a surprising exchange rate of 170 to the dollar – not far short of the black market rate that stood then at about 190 bolívares to the dollar, about 27 times the main official rate of 6.3 [9].

The system ran into glitches as many Venezuelans queued up to trade bolívares for dollars – a maximum of $300 per day, $2000 a month and $10 000 a year [9]. But it covered only a small part of the economy's needs, meaning that the role it played in unifying Venezuela's four exchange rates into a single market-determined currency was minimal [8]. Officials said 70% "of the economy's needs" would be supplied at the official exchange rate, and most of the rest at a complimentary rate of 12 bolívares [9].

By April 2017, the severity of Venezuela's unfolding crisis was witnessed by a shrinking of the economy by 10% over 2016 and 23% smaller than in 2013. Inflation was forecast to exceed 1,600% in 2017 [6]. With a widening fiscal deficit estimated at 20% of GDP (see chart, budget balance [6]), economists were calling for an outright devaluation [9]. In 2000 Venezuela had enough reserves to cover more than seven months of imports; that dropped to under three months by 2015 (over the same period Russia's reserves grew from five months of import cover to ten, and Saudi Arabia's from four months to 30) [6].



For Venezuela, the desire not to give in to the pressure to devalue was largely political. First, controlling distribution of the limited stock of dollars at the official rate when application backlogs reportedly were a year-long wait gave the government considerable power to pick and choose among favoured companies and institutions with foreign multinationals often discriminated against [8].

Second, allowing market forces to override the government's commitment to a fixed exchange rate would have been politically humiliating. In order for the – rampant – inflation not to get completely out of control through higher import prices, a depreciation would have also required a sharp retrenchment of fiscal policy, reducing the government's ability to direct public spending towards favoured groups. The new exchange rate was an attempt to mask the failure of the government's policy by allowing households to buy a few more imported goods while keeping the overall system intact [8].

Those in power always have a greater incentive to buy off political threats than to invest in projects that will only bear fruit over time, possibly after they have gone. In oil-rich economies, they also have the means. Chávez expropriated and redistributed wealth to weaken enemies and woo allies. In his careless economic management, he undercut the oil wealth that funded Venezuelan socialism. His assaults on private firms left the country short of the expertise and capital needed to develop its resources [6].

Other countries (Iran and Argentina) with similar problems also took the route toward multiple exchange regimes. In Iran, the loss of export earnings and consequent currency crisis in 2012 resulting from economic sanctions was only made worse by the fall in the global oil price. Tehran had a seven-layered exchange rate system before 1991, before replacing it with a three-tiered system in the rial and the categorization of goods by 1-10 in terms of importance. Imports of food and medicine were at the top and had privileged access to dollars, which were in much shorter supply for other consumer goods and intermediate inputs lower down the list [8].

The system allowed the Iranian regime to target the pain of sanctions on their natural opponents, the more western-oriented middle class, rather than the poor. Poorer Iranians do not transact much in imports, and those imported goods they do tend to buy, such as some foodstuffs including grain, were transacted at the most preferential rates. Business people who use imported inputs and foreign exchange currency dealers were furious, but their anger was evidently felt to be an acceptable price to pay by the regime [8].

Iran reduced some of the market distortions, returning to a single official rate in 2013. However, the fact that it reaches for the same multiple-rate solution each time there is pressure on its currency tells a clear story about the internal political pressures it is trying to manage [8].

Argentina was the only country that regularly vied with Venezuela for wrongheaded economic policy. Unlike the Iran and Venezuela though, it decided against multiple exchange rates when the idea was mooted in 2013. However, the combination of an overvalued official rate and currency controls meant that it still had a black market (so-called "blue dollar") rate trading well below it [8].

The fall in global commodity prices meant that Argentina, like Venezuela, struggled to earn dollars overseas. Meanwhile, the restrictions on buying dollars hurt Argentine firms which could not buy imported inputs. Letting the currency fall would have helped the country's agricultural exporters, of whom the government at the time was a sworn enemy. President Cristina Fernández had accused the farmers of creating food shortages by stockpiling soybeans ahead of an expected currency devaluation. As in Venezuela, a devaluation and fiscal tightening would have been a politically dangerous admission of failure [8].

It is a fair bet that, when a country has three or four exchange rates, something has gone wrong. Rather than mere eccentricity, though, the usual cause is that a usually autocratic government worried about its support has decided to shore up its position by handing out favours to its friends [8].

Dollar Dominance in Trade and Exchange Rate Changes

Crashing currencies hurt. They make imports more expensive, cutting into household budgets and raising businesses' costs. But economics has long held that this pain brings with it its own salve. More expensive imports should drive new demand for home-made replacements and thus for the workers who make them, geeing up the economy. What is more, a devalued currency means exports are suddenly cheaper to buyers abroad. That, too, should boost demand. When the value of the Colombian peso collapsed in the summer of 2014, it was on the basis of these assumptions that the country's finance minister greeted the fall as "a blessing in disguise" [9].

It wasn't. There were, the IMF opined in a subsequent report, a number of reasons for this, many specific to Colombia. But one problem was a factor which is embedded in the machinery of today's international commerce. Colombia does not trade in pesos. It trades almost exclusively in dollars; 98% of its exports are invoiced in them. This is an extreme example of a general point. The amount of trade carried out in US dollars vastly exceeds the amount that the US imports and exports. Although

that may seem like a detail of book-keeping, it matters a lot. A growing body of evidence suggests that the dollar's prominence in trade undermines the advantages which flexible exchange rates are meant to offer. And when the dollar strengthens, global trade tends to contract [9].

Economists' thinking about trade and currencies was summarised in a model created in the 1960s by two researchers at the IMF, Robert Mundell and J. Marcus Fleming. They assumed no special role for any dominant currency, but rather that traders would agree on prices in the exporter's currency. A Colombian devaluation, say, would immediately turn peso-priced batteries into bargains abroad, encouraging foreign buyers to scoop up more of them. Meanwhile shoppers in Bogotá wanting to buy Brazilian t-shirts would resent being made to fork out more pesos to cover the price fixed in real. This simplifying assumption was potentially consequential. As early as 1947, Joan Robinson of the University of Cambridge noted that the currency companies used for invoicing could mute the expenditure-switching effect. If the prices of Colombian exports were in dollars, not pesos, a devaluation would leave prices faced by US importers—and their demand—unaffected. But though that might matter in principle, did it matter much in practice [9]?

In 1973 Sven Grassman of the Institute for International Economic Studies used Swedish data to answer in the negative. He found that in 1968 around two-thirds of Swedish trade had been indeed invoiced in the currency of the exporter. This "fundamental symmetry in international payment patterns" became known as "Grassman's Law". Swedish exports to US, which were mostly invoiced in dollars not kronor, were written off as the exception. That suggested that Mundell and Fleming were right [9].

Over the next decades more data further supported Grassman's Law—always with the same US exception. But by the 1990s some researchers were beginning to doubt its validity. Their main argument was that the actual prices of goods did not vary as much or as quickly as would be expected if payments were in fact symmetrical. Grassman's Law said that the price of Brazilian t-shirts in Colombian markets should vary with the peso-real exchange rate, for example. But such prices were in fact much stickier [9].

In the mid-2000s Linda Goldberg and Cedric Tille of the Federal Reserve Bank of New York compiled data describing 24 countries in the late 1990s and early 2000s. This confirmed that Grassman's Law was wrong: exports were not generally priced in the currency of the country they came from. In 2001, for example, they found that South Korea invoiced 82% of its imports in dollars, despite only 16% of its imports coming from the US [9].

Other work confirmed and updated their findings: the dollar has a huge role as a "vehicle currency" in which to invoice transactions to which no Americans are party, particularly in developing countries (see chart, share of trade with US). Gita Gopinath of the IMF compiled data covering just over half of world trade to show that the dollar's share of invoicing was 4.7 times larger than the US's share of the value of imports, and triple its share of world exports. Another IMF study showed that the dollar's share has not decreased in step with the US's declining share of overall trade [9].

The euro's creators had hoped that it might supplant the dollar's status. But even though almost half of trade is invoiced in euros, that is mostly because of how much trade involves countries that use the currency. Between 1999 and 2014 euro-denominated trade was only around 1.2 times the euro zone's share of global imports [9].

Other would-be challengers appear to have failed even more miserably. Scant Chinese data suggest that in 2013 only 17% of Chinese trade was settled in renminbi, and in 2012 only around half of such settlements were invoiced in renminbi. In order to avoid financial sanctions, Russia has recently shifted away from the dollar when paying for imports from China. But the euro, not the renminbi, benefited most [9].

A lack of historical data makes it impossible to say whether Grassman's Law held in the 1970s and has since weakened or whether it was the always an artefact of insufficient data. Whichever is true, economists busied themselves trying to work out why exporters used dominant currencies [9].

One suggestion is that using the same vehicle currency when setting prices for a certain market lets companies avoid erratic price movements relative to their competitors. Ms Goldberg and Mr Tille offered some support for this when they showed that dollar invoicing was more common in markets, such as precious metals, where competition is cut-throat. Another suggestion is that the rise of global supply chains saw more exporters importing some inputs. Invoicing imports and exports in the same currency would preserve their profit margins in the event of a devaluation [9].

The arguments for a vehicle currency do not necessarily mean that that currency has to be the dollar. But why would it not be? The dollar already dominates the financial world. Central banks stash 58% of their official foreign-exchange reserves in it. It is the global currency of choice when issuing securities. Banks use it for around half of their cross-border claims. According to swift, a payments system, it is used in two-fifths of international payments. Indeed, the worlds of finance and trade are intertwined. Exporters borrowing in dollars will want to price their foreign sales in the same currency, to protect against a sudden devaluation which would increase the value of their debt. Assets denominated in dollars offer their owners more security, because they will hold their value relative to imports priced in dollars [9].

Having established the importance of dollar dominance for global trade, economists updated their understanding of exchange-rate gyrations. In the US sticky prices set in dollars mean the demand for imports is impervious to exchange-rate shocks. A Colombian light aircraft priced at $50,000 will cost the same when the dollar is worth 3,000 pesos as when it is worth 4,000. The change will eventually have an effect—but it will be partial, and slow. One study has found that two years after an exchange-rate shift only 44% of its effect would be seen in prices in the US. Another found that just as prices did not change much, neither did the volumes importers chose to buy. After a 1% dollar depreciation, they found that the volume of imports into the US fell by a measly 0.003% [9].

All this allows the US to enjoy what Ms Gopinath describes as a "privileged insularity". Its adjustment to a dollar depreciation happens almost entirely through exports, which immediately become cheaper in foreign markets. Devaluations against the dollar in other countries, by contrast, see them suffer. It becomes harder to afford imports while they don't get the added export oomph the old models suggested. Exporters' dollar earnings will be worth more in local currency, which might tempt some of them to expand. But that takes time. And the benefits are often offset by the higher cost of imported inputs [9].

Around the world invoicing imports in dollars means that it is devaluations against the greenback, rather than against the currency of the country you are trading with, that count. Emine Boz of the IMF, Ms Gopinath and Mikkel Plagborg-Muller of Princeton University found that prices of imported goods were relatively unresponsive to bilateral exchange-rate movements. Over short-term horizons they were six times more sensitive to the dollar exchange rate. The price of Brazilian-made football shirts in Mexico will stay the same if the peso depreciates relative to the real, but not relative to the dollar. If the peso drops with respect to the dollar, though, those shirts will become less affordable and may no longer be sold [9].

During the East Asian crisis of 1997-99 South Korea, Malaysia and Thailand all experienced currency depreciations of at least 60% relative to the dollar—and saw their export volumes stagnate or fall. With prices set in dollars devaluations did nothing for their export competitiveness within the region. And demand for imports from elsewhere in the region—also priced in dollars—plunged. Ms Boz and her co-authors have found that, after accounting for the business cycle, a 1% appreciation in the value of the dollar translates into a 0.6% decrease in the volume of trade between countries in the rest of the world [9].

Dollar dominance means trade is vulnerable to the global financial cycle, too. A study by Valentina Bruno and Hyun Song Shin of the Bank for International Settlements found that a dollar appreciation leads banks reliant on dollar funding to shrink their credit supply. Companies reliant on those banks—and their dollar-denominated financing of trade—then slow their exports, an effect particularly marked in companies with longer supply chains. Trade is a finance-hungry business [9].

Policymakers around the world yearn to be free of the dollar's grip. That seems unlikely. The dollar's dominance is the product of millions of individual decisions, each seemingly optimal, which in concert lead to collective problems. Each dip in the dollar's value leads to a rush of wishful chatter about the dollar's demise, but for long as these optimisations continue to make sense it is hard to see how that wish can come true. At least, though, for a while, the chatter-inducing weakness will provide a fillip to trade [9].

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