Oil and Global Adjustment
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Introduction

The current account surplus of the world's major oil exporting economies – defined as the IMF's fuel-exporting emerging economies plus Norway – increased from $110b to about $500b between 2002 and 2006. [2] In 2006, the current account surplus of the Gulf Cooperation Council (GCC) countries (population 40-45 million) rivaled the current account surplus of China (population 1,300 million). A fall in the external surplus of oil exporting economies – whether from a fall in the price of oil or a rise in domestic spending and investment -- is consequently a necessary condition for global adjustment.

The initial response of the oil exporting economies to the surge in oil prices from roughly $25 a barrel in 2002 to an average of close to $65 a barrel in 2006 was quite conservative. Government spending did not increase immediately. Even once the government spending did begin to move up, the overall increase was more subdued than in previous oil booms. The initial increase in oil prices also coincided with a sharp fall in the dollar, reducing the external purchasing power of the currencies of those oil exporters that pegged to the dollar. In 2003, 2004 and 2005 a very large share of the increase in oil export revenues was saved rather than spent. Up to three quarters of the oil windfall went toward building up the external assets of the oil-exporting economies. If, as is likely, oil exporting economies held the majority of their assets in dollars, the rapid growth in their dollar holdings helped to finance the deterioration of the US external account deficit. The oil-exporting economies – setting Mexico and Venezuela aside – tend to be far more inclined to hold US dollars in their reserve portfolio than to buy US goods.[3]

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[2] The overlap between OPEC countries and the world's major fuel exporters is incomplete. Russia, Norway, Mexico, Canada and Kazakhstan are not members of OPEC yet are major exporters of oil and gas. Saudi Arabia and Russia both had oil and gas export revenues of around $200b in 2006, as Russia's large gas exports offset its lower oil exports. Saudi Arabia and Russia are followed by Norway, Iran, Venezuela, the UAE, Kuwait, Nigeria – all of whom export more than 2 mbd, which translates into annual oil export revenue, with oil at $60, of over $40b. In September 2006, the IMF estimated that the surplus of Norway and the emerging world's fuel exporters would reach $570b in 2006. However, the September 2006 IMF estimate assumed an average 2006 oil price of around $70 a barrel. The fall in oil prices in q4 brought to the actual average down to around $65 a barrel, reducing the oil surplus by roughly $50b. The oil exporters also seem to have increased their imports by more than the IMF forecasted.

[3] For data on the composition of the imports of the major oil-importing economies, see Rebucci and Spatafora (2006) and the European Commission (2006). Hard data on the currency composition of the reserves and oil investment funds is hard to find. See Toloui (2007), Higgins and Klitgaard (2006) and Setser and Ziemba (2006 and 2007) for informed estimates.

The change in the global balance associated with the rise of the oil exporters' surplus was not equally distributed among the world's oil importing economics. The surplus of East Asia continued to rise, largely because of the rise in China's surplus. The Euro area's current account balance did swing from a surplus to a small deficit – though that deficit is now receding. But most of the offsetting change came from the continued deterioration of the US external balance. Between 2002 and 2006, the US current account deficit deteriorated by about $400b, a sum comparable to the increase in the current account surplus of the oil-exporting economies.

A growing body of evidence, though, suggests that the adjustment to higher oil prices is now underway in most oil exporting countries. Higher levels of budgeted spending – and government sponsored investment – have increased imports. Most oil states still resist nominal appreciation against the dollar. But rising inflation – combined with the dollar's broad stability since the end of 2004 – has generated a real appreciation in many oil exporters. Pressure for a real appreciation – through inflation -- is building in others. These trends are likely to continue in 2007. If oil averages $60 (Using the IMF WEO price as a benchmark), the oil exporting economies' surplus will be around two-thirds of its 2006 level;[4] if oil falls to $50, the current account surplus of the oil exporting economies could fall to around 1/3 of its 2006 level

The fact that the adjustment process is now underway, though, doesn't eliminate concerns about the nature of the adjustment.

- As a result of many emerging oil-exporting economies' commitment to dollar or basket pegs, most of the adjustment in the real exchange rates of the oil exporters is coming from a generalized rise in the price level – inflation – rather than from an appreciation of their nominal exchange rate. Work by the IMF suggests that a 100% increase in the real price of oil typically leads to a 50% appreciation in the real exchange rate of oil exporting economies. The large increase in the dollar price of oil combined with the dollar's nominal depreciation consequently implies a very large increase in inflation in many oil exporting economies. The rise in inflation needed to bring about the real exchange rate adjustment may prove difficult – and painful-- to reverse.
- High inflation – combined with nominal interest rates close to US levels – have led to low, and in many cases negative, real interest rates in many oil exporting economies. The current construction and property boom may reflect distortions from low real interest rates – creating future vulnerabilities. It isn't hard to find signs of a potential real estate bubble in Russia or the Gulf.
- The accumulation of large stocks of dollar reserves – or dollar holdings in their oil investment funds -- has created a gap between the composition of the financial portfolio of the oil exporting economies and the composition of the goods and services they are likely to import (Angermann, Schaefer and Thiesen, 2007). The potential "overhang" of dollars in the portfolios of the oil-exporting economies adds to the risk of a disruptive move in the dollar.

[4] An example: Fitch estimates that $50 a barrel Ural oil – a $11 a barrel fall from 2006 levels – would cut Russia's current account surplus in ½, from close to $100b to around $50b.

Much of the adjustment will occur after oil prices have stabilized. The real exchange rate of some oil exporting economies may overshoot. This could create problems if oil prices retreat from their 2006 levels.

Greater exchange rate flexibility would help oil exporting economies manage the volatility in export – and government -- revenues associated with oil price volatility. The case for additional exchange rate flexibility is symmetric: it would help oil-exporting economies adjust to both surges and large falls in the dollar or euro price of oil. Over the past ten years, the dollar has often appreciated when oil prices were low, and depreciated when oil prices were high. The disconnect between the move in the dollar and the move in the dollar price of oil adds to the inflationary pressures associated with rising oil revenues and oil spending when oil prices are high and creates deflationary pressures when low oil price cut into oil revenues and oil spending.

While the oil exporting economies themselves would be the largest beneficiaries of greater exchange rate flexibility, greater nominal exchange rate flexibility also would have sped up the process of adjusting to a permanent increase in the oil price. Dollar pegs likely have produced a back-loaded adjustment process, as real exchange rate adjustment from rising government spending and rising inflation is slow. The adjustment process in the oil exporting economies likely would have started more rapidly if more of the real exchange rate adjustment had come from an immediate nominal appreciation. Second, the rise in the dollar holdings of oil exporting economies' central banks and investment funds dollar pegs reduced pressure on the US to adjust. They are one reason why the rise in the oil-exporters surplus was largely accommodated by an increase in the deficit of the country with the largest pre-existing deficit. More exchange rate flexibility likely would translate into greater flexibility in the reserve portfolio of many oil exporting economies.

Nonetheless, the oil exporters' ability to address global imbalances – which stem in part from among the oil-importing economies -- is limited. The existing pattern of import demand in the major oil-exporting economies suggests that a higher levels of spending and investment in the oil exporting economies will generate a larger boost to European and Asian exports than US exports. As a result, Rebucci and Spatafora (2006) argue that the US current account deficit would increase from its pre-shock levels even if the oil exporting economies end-up spending all of the increase in their oil revenue.

Adjustment in the oil-exporting economies consequently would not eliminate the need for adjustment among the oil-importing economies. Otherwise, a reduction in the surplus of the oil-exporting economies may be associated with a rise in the surplus of Asian oil-importing economies and an improvement in Europe's current account balance rather that a fall in the United States deficit.

This paper is organized in three sections.

The first reviews looks at the role fiscal policy plays in the oil exporting economies adjustment to higher oil prices. Fiscal policy will inevitably be central to macroeconomic management in countries where most export revenues go to the state.

The second looks in more detail at the role exchange rate adjustment could play in both the internal adjustment of oil exporting economies to higher oil prices and global adjustment.

The third considers the likely evolution of the external balance of the oil exporter economies in 2007 and 2008.

1.Fiscal policy

1.1 Differences among the oil exporters

Oil exporting economies differ in a number of dimensions. Some oil exporting economies – particularly those on the southern shore of the Persian (or Arab) Gulf – have both high levels of current production and enormous reserves of oil and gas relative to their population.[5] They can expect large revenue streams from oil and gas production for a long time. Other oil exporting economies have relatively large current production but much more limited reserves, and thus a greater need to build up their financial assets to offset the projected decline in their oil revenues. Norway and Russia fit into this category. The oil-exporting economies differ in other important ways as well. Norway was a wealthy economy with well-developed political institutions prior to the discovery and development of North Sea oil. Other oil exporting economies were extremely poor with weak political institutions prior to the discovery of oil. Their capital-short economies need investment and they often faced strong pressures to use their oil revenues to generate an immediate rise in consumption and living standards. Ethnic, tribal and sectarian cleavages can contribute to strong preference for current spending over government saving, especially in the absence of institutions that give all groups confidence that the distribution of the income from an increase in the state's financial assets will be equitable (for a summary of salient differences, see Appendix 1).

The institutional structure for managing oil and gas revenues also differs across oil and gas exporting economies, with important macroeconomic consequences. In some countries, the government owns the national oil company and simply receives its (often undisclosed) profits. In other countries, the government collects a mix of royalties, taxes and its share of the profits from oil companies that are either partially or completely owned by private investors. Should the government auction off "oil rights" for a fixed

[5] Saudi Arabia has a native-born population of roughly 20 million – or around 5 million families. In 2006, it received about $200b from its oil and gas exports. Saudi production costs are extremely low, so most of its oil and gas revenue is pure profit. About half of that revenue was distributed internally, enough to provide an average income stream of around $20,000 per family. If all the oil revenue was distributed internally, the real income of every Saudi family could have been doubled, to roughly $40,000 per family. For some of the smaller Gulf states with more oil relative to their native-born Arab population, the income stream that could be sustained by the distributing all current oil revenues is even higher.

upfront price and receive relatively small royalty and tax income, most of the windfall from higher oil and gas prices will end up in private hands. The split between the government and private investors can vary across oil fields – or across energy sectors. Christian Gianella of the OECD – drawing on work by E. Gurvich – recently estimated that the Russian government receives 85% of the windfall from high oil prices, and a bit over 40% of the windfall from higher natural gas prices. Private ownership of oil can improve microeconomic efficiency, but it also can complicate macroeconomic management -- as the government of the oil exporting economy only indirectly influences the use of the oil windfall through its broader policy choices.

1.2. Fiscal policy and government savings central to the adjustment process

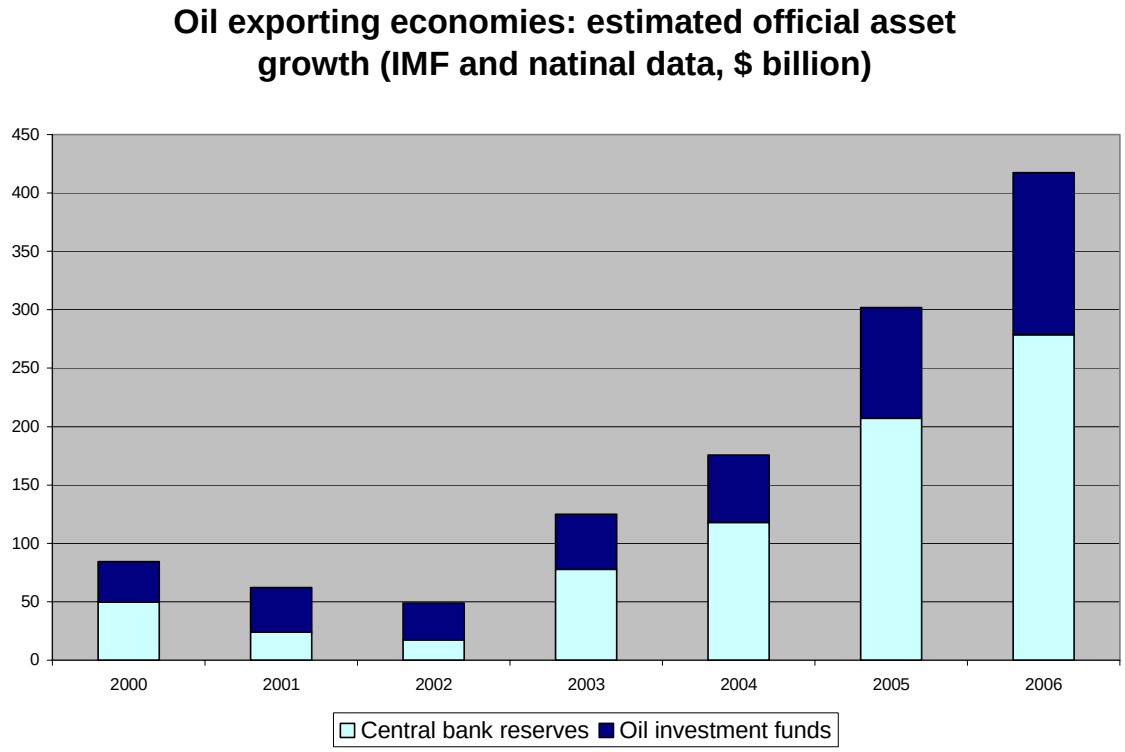
The majority of oil and gas producing assets in the major oil exporting economies are controlled by the national oil company or an oil company largely owned by the state. Most oil exporting economies consequently use revenues from the national oil company as a substitute for tax revenue. This institutional structure makes an increase in the budgeted spending the primary way of injecting the oil windfall into the local economy. More innovative policies could achieve a similar result: oil exporting economies could use, for example, their variable oil revenues to pay a variable oil "dividend" to the country's population (as Alaska does). In theory, a decline in government savings could be offset by higher private savings. In practice, this seems unlikely. The increased dividend payment from higher oil prices would likely lead to a higher level of current spending.

A rise in budget spending and the disbursement of oil rents are not the only way to inject the oil windfall into the national economy. State-sponsored – and even state-financed -- investment projects can also increase domestic absorption. The government's role in encouraging a higher level of domestic investment doesn't need to be direct. Using the oil windfall to pay domestic debt, for example, provides the domestic pension funds and domestic banks with additional funds to invest domestically. Converting the state's dollar revenue from oil exports into local currency and depositing the funds in the local banking system can achieve much the same result. Holding the oil surplus in foreign currency increases the liquidity in the international financial system. Holding the funds in local currency creates a surplus of local liquidity in the domestic banking system. While the long-term impact of state-led investment projects and a rise in government spending may differ, their immediate macroeconomic impact is often similar.

In addition to determining through its fiscal policy whether a surge in oil and gas revenue is spent (or invested) domestically or saved abroad, the governments of oil exporting economies often determine the composition of the country's foreign assets. The rise in the foreign assets of oil-exporters central banks and oil investment funds accounts for the majority of the recent increase in the foreign assets of oil-exporting economies. Higgins, Klitgaard and Lerner (2007), drawing on data in the IMF's WEO, estimate that $490b of the $570b capital outflow from oil exporting economies in 2006 will come from either a national central bank or a national oil investment fund. Recent work by Setser and Ziemba (2007) suggests that the rise in official assets may be a bit smaller than the IMF

assumed, largely because oil prices were a bit lower than the IMF assume. They estimate that central bank reserves and oil investment funds will account for roughly $415b of the $500b total increase in oil exporting economies foreign assets in 2006.[6] All agree official assets account for the vast majority – roughly 80% -- of the total recent increase in the foreign assets of the oil exporters.

Figure 1: Growth in official assets of oil exporting economies



1.3. Stabilization funds v. Endowment funds

Few doubt the centrality of fiscal policy to the adjustment process in oil-exporting economies. However, the right fiscal policy response to a surge in oil revenues remains a source of debate. Most would agree that a temporary surge in revenues should not be

[6] A relatively small number of institutions control the bulk of the world's "petrodollars." The increase in the foreign reserves of Russia's central bank accounted for over ¼ of the $410b overall increase in oil state official assets in 2006 and the Saudi Arabian Monetary Agency managed a bit under a quarter (with some of the rest in various pension funds) of the total. National data – and data pulled from IMF article IV reports – suggests that that the assets of the various oil investment funds in the other Gulf states by $100b. African central banks and Norway's government pension funds added about $50b to their existing stock of assets. Venezuela and Iran have significant oil revenues, but both also spend a relatively high fraction of their revenues and thus account for a small share of the overall increase in oil-state assets. The distribution of large stocks of assets generally matches the distribution of flows – with one important difference. The investment authority of Abu Dhabi has far more assets than either the Bank of Russia of the Saudi Arabian Monetary Agency. Abu Dhabi saved a large fraction of the oil windfall of the 70s and early 80s, and has invested that windfall relatively well. Kuwait might have given Abu Dhabi a run for its money but for the costly 1991 invasion of Kuwait and the ensuring reconstruction costs.

used to finance a permanent increase in spending. However, at least some of the recent increase in oil prices is now expected to be permanent.

Two issues arise:

- First, how large a fiscal buffer do oil exporting economies need to help buffer oil price volatility? Building up a stock of (foreign) assets when oil prices are (temporarily) high, and then drawing on those assets when oil prices are (temporarily) low is one way of preventing oil price volatility from leading to macroeconomic volatility.[7] Call this the "stabilization fund" question.
- Second, should a permanent increase in oil-revenues from a rise in the long-term price of oil be used to increase current spending (and domestic investment), to increase the country's stock of foreign assets or to finance a mix of the two. Call this the "endowment" question.

In theory, stabilization funds build up assets when oil prices are relatively high and run down those assets when oil prices are relatively low, but don't have a consistent tendency to accumulate or lose assets. In practice, uncertainty over the long-run price of oil complicates the management of stabilization funds (Davis, Ossowski, Daniel and Barnett, 2001). Stabilization funds earned a bad name in the 1990s in part because most countries assumed a higher long-term oil price than materialized. Consequently, the assets of the stabilization fund provided a way of deferring adjustment – including necessary adjustments. More recently, most countries have based their fiscal policy on a lower oil price than materialized, leading to consistent surpluses and a far larger build up more of external assets than expected. A stabilization fund built around a lower oil price than actually materializes also defers adjustment – though in the opposite direction. The accumulation of assets in the stabilization fund effectively creates the nucleus of an endowment fund.

This increasingly seems to be happening. Saudi Arabia doesn't have a formal stabilization fund, but the government's deposits with the Saudi Arabian Monetary Agency (SAMA) can be considered an informal stabilization fund. Those deposits could cover the 2007 budget even in the absence of any oil revenues. If all of SAMA's foreign assets – not just the government's formal deposits – are considered part of the Saudi's informal stabilization fund, the available buffer is even larger. The Saudi Arabian Monetary Agency's total foreign assets now are twice 2006 government spending, 3 times its 2003 government spending and 4 times the 1998/99 government spending. Russia's oil stabilization fund receives nearly all of Russia's oil revenues from oil above $27 a barrel. Its assets totaled $89b at the end of 2006, or about 10% of Russia's GDP,

[7] In principle, oil exporters could borrow in the markets during periods of low oil prices and pay down their debt in good times rather than maintaining a large stock of assets. However, capital flows to emerging economies are notoriously pro-cyclical. Money tends to flow towards oil exporters when oil prices are high, and out of oil exporters when oil prices are low. Markets also seem more willing to lend to countries that already have a large stock of assets than to lend to countries with few assets (Lipschitz, Messmacher and Mouramas, 2006).

and are projected to rise to $135b by the end of 2007.[8] $90b is roughly equal to one year's oil revenue with oil at $50.[9] It is enough to cover 2/3s of federal government spending – or about a 1/3 of overall government spending.[10] Total Russian foreign exchange reserves – including those reserves held outside the stabilization fund – reached $300b at the end of 2006. They are on track to approach $400b by the end of 2007.

In addition to allowing previously stretched governments to rebuild their financial position, the unexpected rise in oil revenues since 2003 also provides the governments of large oil-exporting economies with an opportunity to hold spending below the current estimated long-run oil price and thus try to build-up an endowment.[11] When oil was around $20 a barrel, most oil states spent every cent of oil revenue that came into their Treasury. Only Norway, Kuwait and Abu Dhabi (the emirate with the most oil) -- all states with small populations and large quantities of oil – were consistently adding to their foreign assets. Conversely, with oil at $65, all but the most profligate of oil-exporting economies are running large surpluses.

The improved fiscal position of the oil-exporting economies has led to a new discussion over the optimal use of oil and gas revenues. A range of different fiscal policy rules have been proposed.

At one end of the spectrum, an oil exporting economies could spend all its current oil income. Volatility in oil prices translates directly into volatility in government spending, so oil exporting economies adjust quickly to any changes in oil prices. A variation of the spend-what-you-get rule would be a spend-what-you-expect-to-get-over-time rule. That requires both an accurate estimate of the long-term oil price and either a stabilization fund or the capacity to borrow. It reduces volatility in government spending, but also creates the risk that a country will either over-estimate the long-term oil price and end up deferring necessary adjustment or under-estimate the long-term price of oil and build up an endowment.

At another end of the spectrum, all income from oil could be used to build up foreign assets -- the so called ""bird in hand rule." As the stock of foreign assets increases, the interest and dividend income from the endowment can be used to support current spending. This approach avoids oil related fiscal volatility – though volatility in the financial performance of the endowment fund could lead to revenue volatility. It also does not depend on an accurate forecast of recoverable oil reserves or future oil prices. Higher than projected oil prices – or a better than expected performance of an oil field –

[8] The external assets of Russia's oil stabilization fund increased by $18.7b in 2004, $24.2b in 2005 and $46.8b in 2006. Russia also used the oil fund to pay back $22.6b in external debt in 2005 and another $22-23b in 2006.

[9] The government of Russia's oil revenues averaged $25b in 2001-2003. They rose to $50b in 2004 and around $100b in 2005.

[10] The World Bank (2006)'s Moscow office believes that Russia's stockpile will soon exceed that needed for fiscal stabilization. It has recommended that Russia hold fewer very short-term, liquid foreign assets and more long-term debt and equity in its porfolio.

[11] For an analysis of Russia's policy choices, see Jafarov, Takizawa, Zebregs and Ballasone (2006).

translates into more foreign assets, not more current revenue. By sequestering oil revenues offshore, it also effectively addresses concerns about Dutch disease.

However, such a policy rule defers most of the gains from a large stock of oil until far in the future. The population of the oil state has to trust that the build up of national assets will generate benefits for their descendents, and prefer the build up of national assets to the broad distribution of the oil windfall and the build up of private assets. It consequently works best for countries with limited current needs, limited oil reserves, strong institutions and/or strong existing non-oil economies. If adopted on a global scale, it also implies that the major oil exporting economies would build up a very large stock of financial claims on the oil importing economies.

An alternative to both the "save all you get" policy rule and the "spend all you get" policy rule is a "permanent consumption" policy rule. Enough oil revenue is set aside to build up a large stock of financial assets and those financial assets, in turn, will generate sufficient interest and dividend income to replace oil income once the country's oil has been exhausted (Jafarov, Takizawa, Zebregs and Ballasone, 2006). This approach requires an accurate assessment of the country's recoverable oil reserves, an accurate estimate of the long-term price of oil, an accurate estimate of the likely long-term return on financial assets and confidence in the government's financial management.

To date, only Norway has adopted the conservative "bird in hand rule" -- and Norway is unique in many ways. It was a rich and wealthy country with strong institutions and a high level of social cohesion and trust prior to the discovery of oil. Its government consequently viewed the oil windfall as temporary and thus not a solid basis for financing the government. Its population was wiling to defer many of the gains from its oil production. Countries in a different position likely will opt to use some of their current oil income to support current spending.

1.4. Recent experience

Most oil exporting economies seem to have responded to the recent surge in oil prices by building up assets in a stabilization fund – and in some cases paying down their external debt -- while waiting to see if the increase in the oil price would be sustained. The experience of the two largest oil and gas exporters – Russia and Saudi Arabia – is not atypical. Both Russia and Saudi Arabia were in a rather precarious financial position when oil was under $20 in the late 1990s. Russia ran down its reserves and ran up its external debt in the late 1990s – and ultimately ended up defaulting on a large fraction of its external debt. The Saudis ran down their external assets and ran up their domestic debt. The legacy of the 1990s, though, has been erased by the recent surge in oil prices – and both Russia and Saudi Arabia are in very sound financial shape. The increase in the external assets of the Russian government, in conjunction with the reduction in its external debt, changed the Russian government's net foreign asset position from negative 100b in 2000 (at the conclusion of Russia's debt restructuring) to a positive 250b in 2006. The Saudi government has also built up its external reserves and paid down its domestic

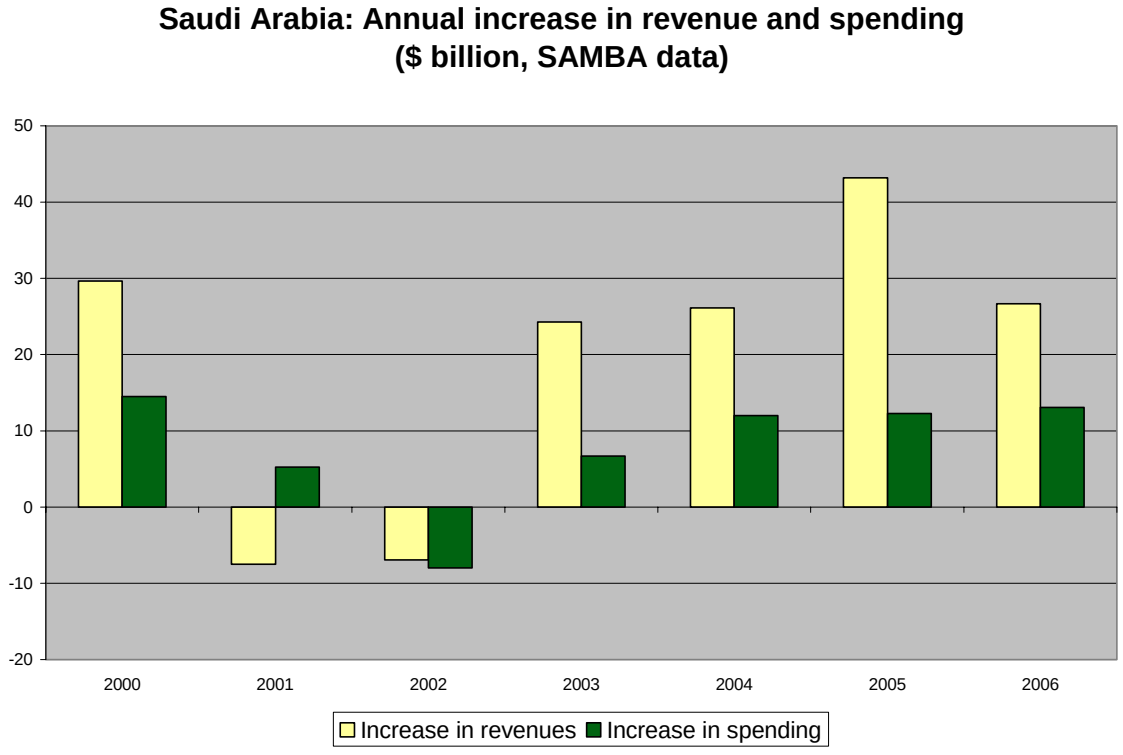
debt. This allowed Saudi domestic pension funds to build up their external assets as well as invest in a range of domestic projects and financial assets.

However, after several years of higher prices, spending levels are creeping up. Many previously high spending oil states saved over ½ the income stream from their oil (and 2/3s of the increase in oil income from higher oil prices) in 2005. However, pressures to increase spending are clearly rising – in part because much of the recent rise in oil prices looks permanent. A far smaller share of the increase in oil prices in 2006 was saved than in 2004 or 2005.

The experience of Saudi Arabia and Russia is again instructive. The Saudis – perhaps chastened by their financial difficulties in the 1990s –allocated a larger share of the incremental increase in their oil revenue toward building up their foreign assets in 2004 and 2005 than most other oil exporting economies. Between 2002 and 2005, Saudi revenues increased by $93b, rising from $54.4b to $148b. Spending increased by $31b, rising from $60b to $91b. Roughly 1/3 of the government's oil windfall was spent and 2/3s was used to repay debt and increase the kingdom's deposits with the central bank.

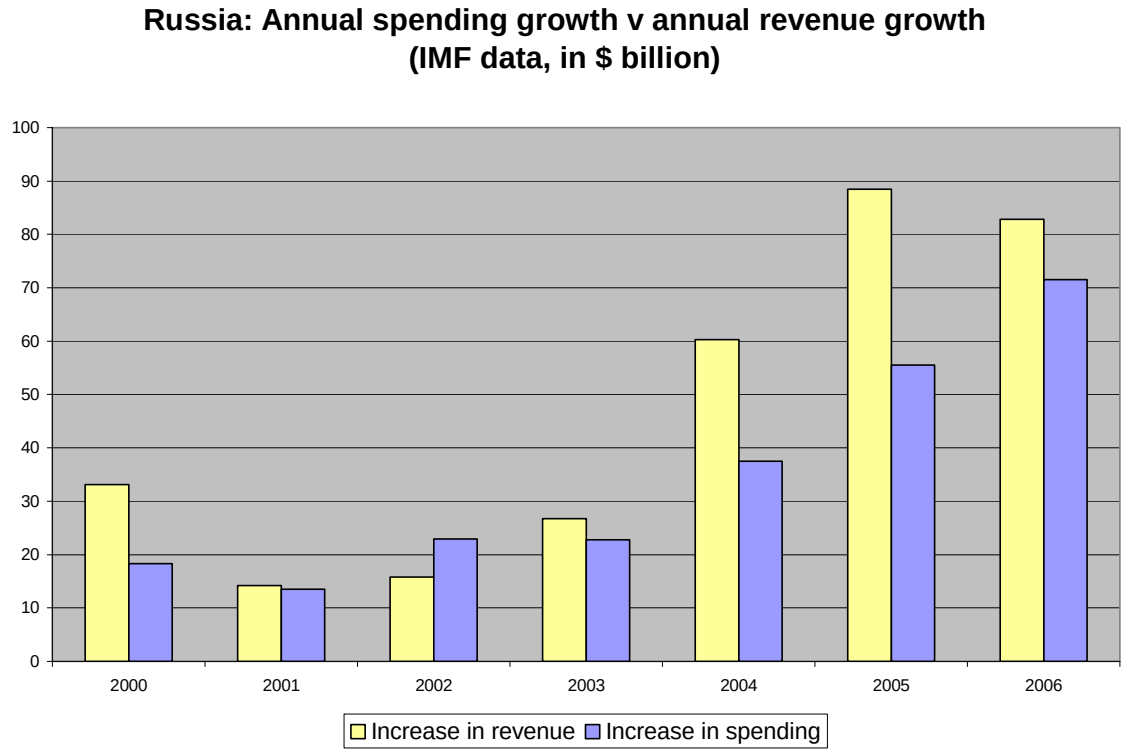
In 2006, by contrast, spending increased by $13.1b, while revenues increased by 26.7b. The overall surplus still increased, but about ½ of the 2006 windfall was spent – a higher ratio. Bourland (2006) estimates that the 2007 Saudi budget balances at an implicit oil price for the Saudi export blend of around $40 ($45 IMF blend), assuming 9 mbd in production.

Figure 2: Saudi spending increases lagged revenue increases



Russia has also taken advantage of the recent run up in oil prices to build up its foreign assets and pay down its external debt. A comparison of the year over year changes in spending and revenues, though, shows that Russia was less conservative than the Saudis in 2004 and 2005 – in part because its non-oil revenues were also growing rapidly. While the Saudis saved about 2/3s of the increase in their government revenue between in 2004 and 2005, the Russian's only saved about 1/3 of the increase. As Figure 3 shows, the ratio of spending growth to revenue growth increased in 2006. In 2006, total government revenues rose by $80b, but total spending rose by $70b.

Figure 3: Russian spending increased more than Saudi spending



Fitch estimates that Russia's 2007 budget will balance with an Ural oil price of $38 a barrel. While the oil stabilization fund automatically receives most of the government's royalties and export tax revenues when the Ural oil price is above $27, revenues from higher gas prices are not automatically channeled into the stabilization fund. Automatic contributions to the stabilization fund also can be offset by deficits elsewhere.[12] If the Ural price is $50 in 2007, Fitch estimates Russia's fiscal surplus will fall to around 3% of GDP – down from 8% in 2006.

[12] Russia has a more diverse economy and more non-oil and gas revenues than most Gulf oil exporters, which can make the calculation of the break-even oil price to the budget a bit more sensitive to swings in spending (the mechanics of the calculation effectively offset all swings in total spending against only a portion of the government's revenues – that from oil and gas). Fitch notes that the estimated oil price embedded in Russia's budget has increased even faster than Russia's spending.

Both Russian and Saudi Arabia have moved from a budget that roughly balances with oil in the low 20s to one that roughly balances with oil in the 40s. Both also retain substantial scope to increase spending further. Russia's long-term budget framework now assumes that oil (Ural blend) will slowly fall from $61 a barrel in 2006 to $48 a barrel in 2010– a path that would be accompanied by large surpluses and the buildup of substantial foreign assets if budgeted spending is held at its 2007 levels.[13] Large assets and small debts allow both Russia and Saudi Arabia to, for example, budget for oil at $50 should they so desire, and dip into their accumulated assets to cover any revenue shortfall.

In many ways Saudi Arabia – and to a lesser extent Russia – have been among the more conservative emerging oil exporters. Latin oil exporters like Venezuela and Ecuador have increased spending more aggressively. Some Gulf countries – Qatar and Dubai most notably – have increased state-led investment more rapidly. Judging from past experience, a further increase in the overall level of government spending in the oil exporting economies seems likely. The increase in government spending in oil exporting economies tends to lag a rise in oil prices. The emergence of fiscal restraint in oil-exporting economies also tends to lag a downturn in oil prices.

The large initial accumulation of foreign assets by the governments of the major oil exporting economies almost certainly represented a prudent policy of waiting to see if the increase in oil prices was permanent or temporary, not a policy decision to dramatically increase the share of oil export revenues devoted to the accumulation of financial assets. Even if the oil states in aggregate decide to use more of their oil income to build-up a financial endowment should the long-term oil prices prove to be closer to $60 a barrel than $20 a barrel, the total external savings of oil states governments is likely to fall from its current, elevated level.

2. Exchange rate regimes

2.1. The average emerging oil exporter pegs to the dollar

The fiscal response of the oil-exporting economies to the recent surge in oil prices have varied – some have increased spending faster than others. Nonetheless, a common pattern is fairly easy to discern. Initial caution led to large surpluses and the rapid build-up of foreign assets. By 2006, though, caution almost universally gave way to higher levels of spending. Over time, variation is likely to reemerge. Some countries will hold spending below the long-term price of oil; others won't.

Finding commonalities in the exchange rate regimes – and the real exchange rate moves – of the oil exporting economies is far harder. The exchange rate regimes of oil-exporting

[13] Christian Gianella, citing Evsey Gurvich, the head of the experts economics group at Russia's Ministry of Finance. Russian Finance Minister Kudrin, based on these oil price projections, estimated that Russia's oil fund would rise from$89b at the end of 2006 to $160b at the end of 2007, $209b at the end of 2008 and $245b at the end of 2009. Fitch now estimates that a crude price in the 50s would lead the stabilization funds' assets to increase to $135b by the end of 2007.

economies vary tremendously. Some float. Others peg to the dollar extremely tightly – or even have adopted the dollar.

However, if advanced economies are excluded from the sample – Canada exports a fair amount of oil and gas and Norway (3 mbd of exports) is a far larger oil exporter than most think -- the typical emerging market oil exporter clearly either pegs to the dollar or pegs to a dollar-based basket. The GCC countries (14 mbd plus in oil exports) peg tightly to the dollar, as do Venezuela (2.4 mbd), Nigeria (2 mbd) and Iraq (1.5 mbd) . Algeria (1.7 mbd) manages its currency against the dollar. Ecuador (less than 0.5 mbd) is fully dollarized. Together these countries account for well around 1/2 of total net oil exports. Others -- Russia (7 mbd of oil exports, and a lot of gas – its total oil and gas revenues nearly match those of the Saudis), Libya (1.4 mbd) and Iran (2.5 mbd) – effectively peg to a basket, whether a euro/ dollar basket or the SDR – even if their exchange rate is formally considered a managed float by the IMF. [14] Mexico (net exports of 2 mbd in 2005 – but far less in 2006) is the major counter-example, with a true managed float.

2.2. The real exchange rate path of oil exporting economies has varied

Oil exporting economies that allow their currencies to float have generally experienced a real appreciation – though the scale of Norway's real appreciation has been mitigated by the general rise in all European currencies as well as Norway's policy of saving nearly all of its oil revenue. But there is substantial variation even among the oil exporters that peg to the dollar or a dollar/ euro basket and thus have seen their nominal exchange rate depreciate against a basket of their trading partners. Inflation in Russia, Venezuela and Ecuador has been sufficient to produce a real appreciation. The GCC currencies have, by contrast, depreciated in real terms, at least according to the IMF's data.

Table 1. Exchange rate regime and real exchange rate change of emerging oil exporters

	2006 Oil and Gas Export Revenues	2006 Average Oil Exports (mbd)	Exchange rate regime	Cumulative Increase in REER * (since Dec 2001)
Saudi Arabia	195.8	8.8	fixed exchange rate (dollar peg)	-20.6
Russia	189.4	7.4	managed float (managed v. euro/ dollar basket)	34.9
Iran	56.3	2.4	managed float	14.0
Venezuela	60.3	2.4	fixed exchange rate	-29.2
Norway	75.7	2.3	Floating	14.1
Algeria	53.0	1.7	managed float to dollar	-21.2
Nigeria	45.0	1.9	managed float (rates unified 2005)	23.1
Bahrain	9.4	0.0	fixed exchange rate (dollar peg)	-21.5
Kuwait	53.2	2.3	fixed exchange rate (dollar peg)	
Oman	19.0	0.7	fixed exchange rate (dollar peg)	-18.4*
Qatar	27.1	1.0	fixed exchange rate (dollar peg)	

[14] Oil export data generally comes from BP's oil data tables from 2005. 2006 data are not yet available.

UAE	66.6	2.2	fixed exchange rate (dollar peg)	-18.9*
Libya	35.9	1.3	peg to SDR	
Kazakhstan	23.3	1.5	managed float	

* Increase in real exchange rate through September 2006 for all countries except Oman and UAE. For Oman and the UAE, the change is through the end of 2005

A comparison of the path of Russia's real exchange rate and the Saudi real exchange rate is instructive. Russia experienced a significant real appreciation, while Saudi Arabia's -- judging from the IMF's data, which is based on data reported by the Saudi authorities – experienced a significant real depreciation since 2001

Figure 4. Russian real exchange rate v. real oil price

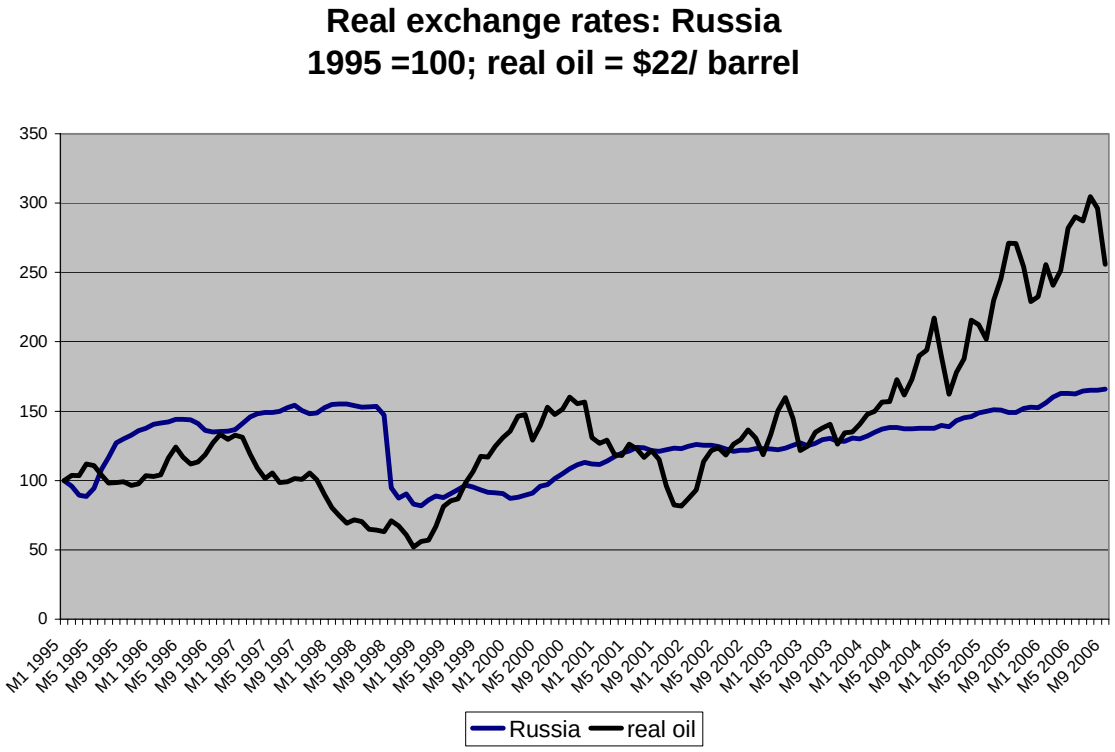
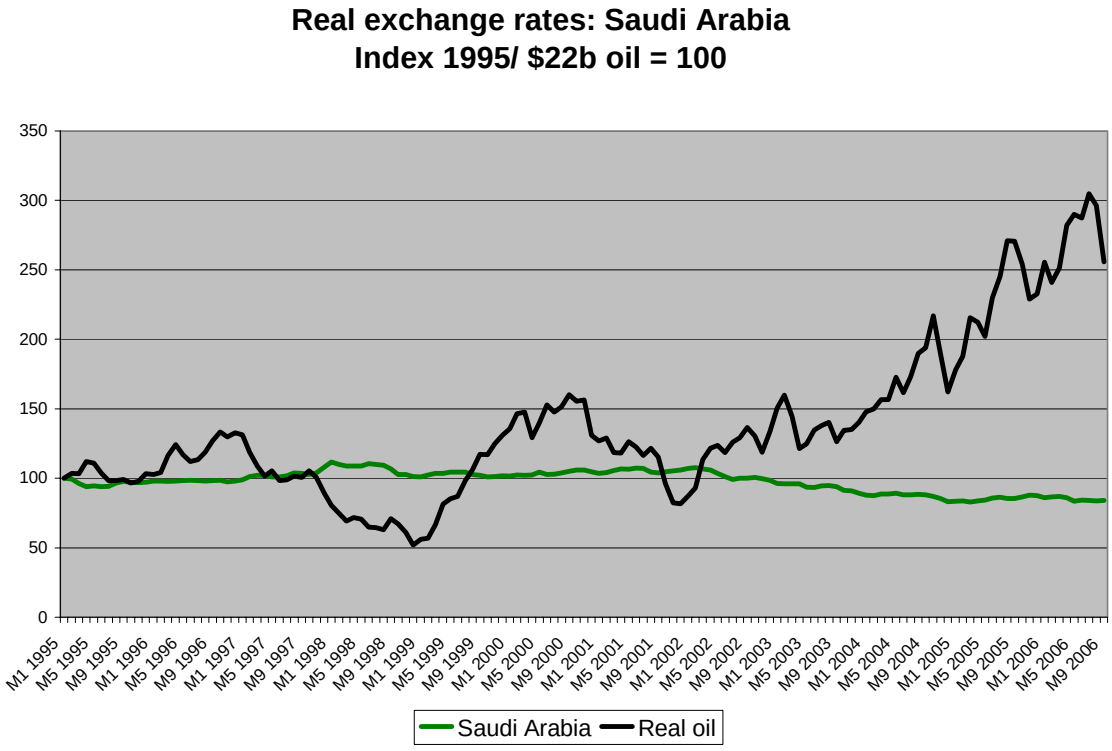
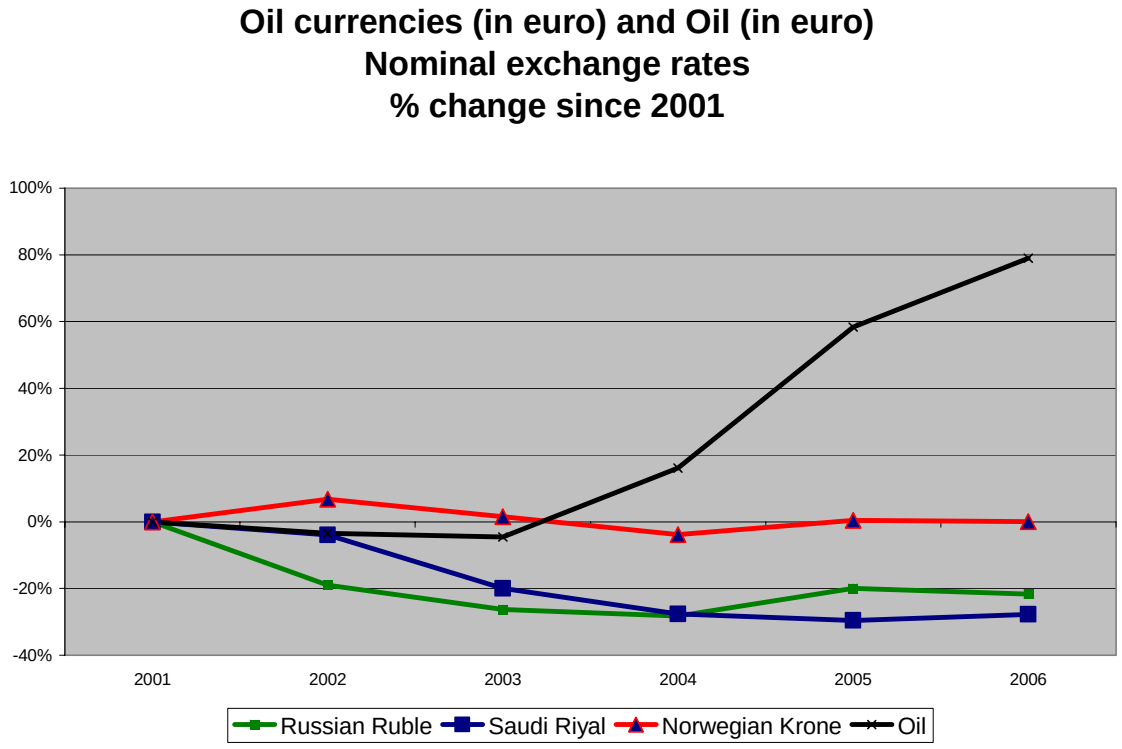


Figure 5. Saudi Real exchange rate v. real oil price



Russia pegs to a euro/ dollar basket and Saudi pegs to the dollar. But that difference alone doesn't explain why Russia had a real appreciation and Saudi Arabia had large real depreciation. In nominal terms, the depreciation of the ruble and riyal against the euro has been similar – as figure 6, which presents the value of the ruble, the riyal, the Norwegian krone and oil in euro terms shows.

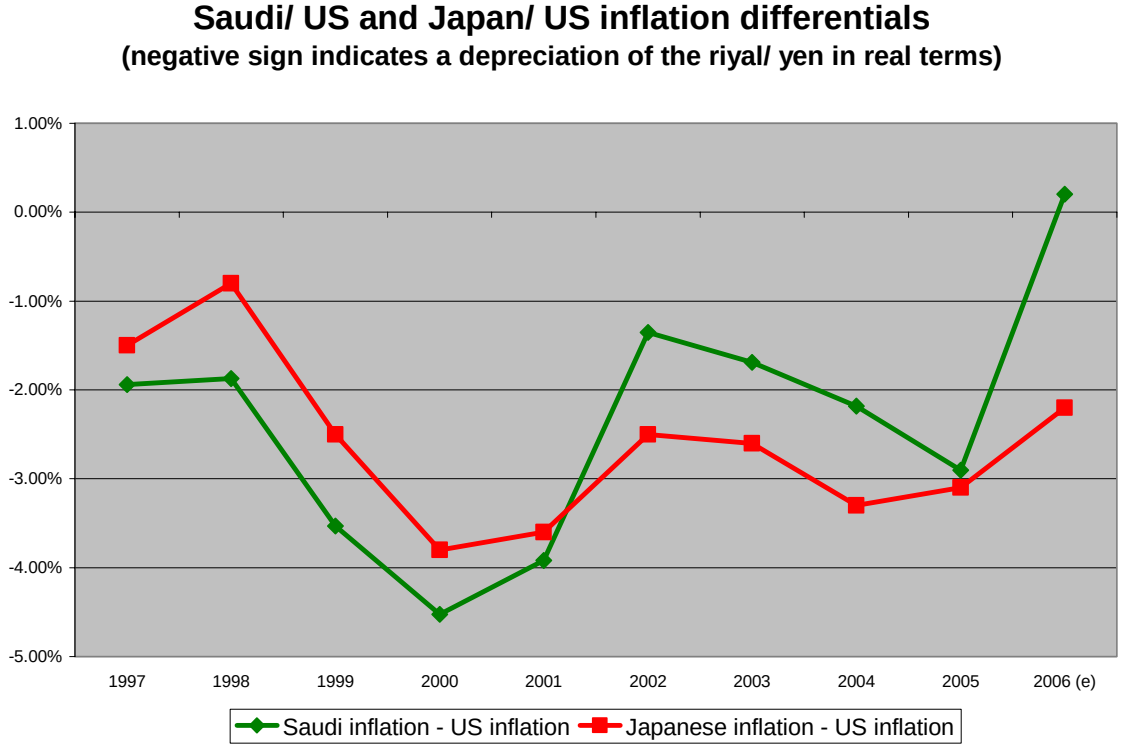
Figure 6. Russian ruble, Saudi riyal, Norwegian Krone and oil in euros



Most of the real appreciation of the ruble has come from inflation – not the presence of the euro in its basket-peg. Russia had a relatively high rate of inflation prior to the rise in oil prices. The influx of oil cash – and the associated rapid growth in the monetary base – hasn't pushed Russia's inflation rate up so much as kept Russia's inflation rate from falling as rapidly as expected. The net result, though, has been that Russian inflation rates have been consistently above inflation rates in Russia's trading partners.

Saudi Arabia, by contrast, has actually had lower reported inflation rates than its trading partners. As following chart shows, Saudi inflation rates – like Japanese inflation rates--have been below US inflation rates over the past several years. Consequently, the Saudi riyal has depreciated by 7-8% in real terms on a bilateral basis against the dollar since 2002. It also has depreciated against other GCC currencies that have experienced more inflation.

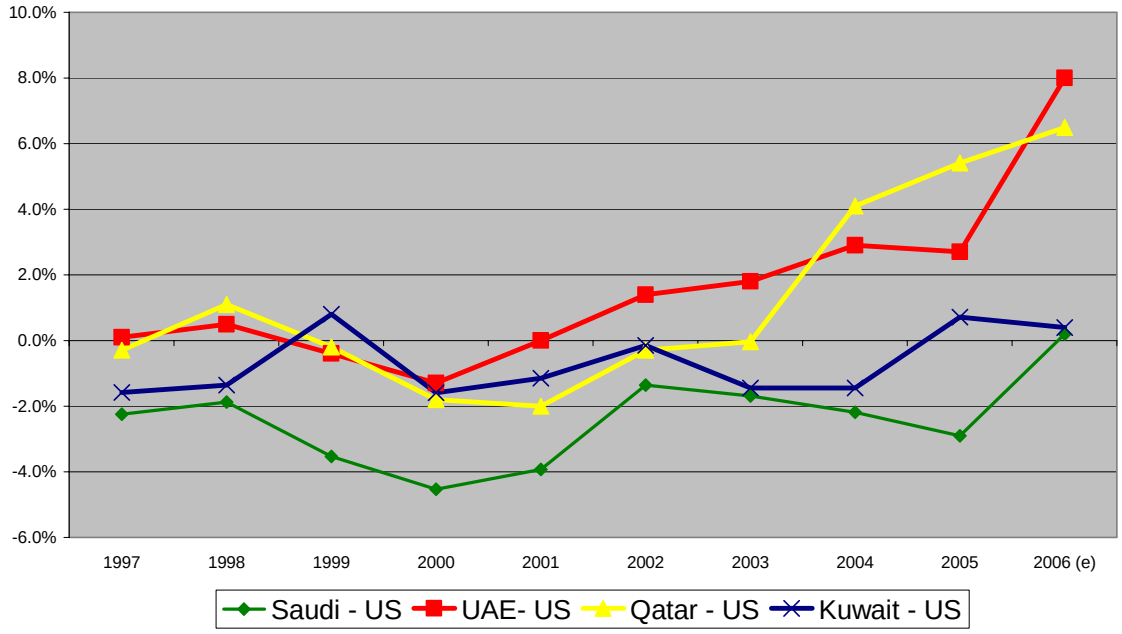
Figure 7. Saudi-U.S. Inflation differentials



The IMF doesn't produce real exchange rate data for most of the smaller GCC countries. But there is little doubt that all have experienced faster inflation and thus a smaller real depreciation than Saudi Arabia – if not a real appreciation. As Figure 6 shows, measured inflation has increased substantially in many booming Gulf states. Moreover, most analysts think that the index of prices used to calculate the official inflation rate is underweight services and overweight goods and consequently understates actual inflation.

Figure 8: Inflation differentials between various Gulf economies and the US

Inflation differentials between Gulf economies and the US
positive = real appreciation, negative = real depreciation



The GCC countries subsidize the domestic price of oil and they are open to both imported goods and imported labor. However, low gasoline prices and openness have not eliminated all inflationary pressures. The influx of labor into Dubai, Doha and Abu Dhabi, for example, pushed up rents and service prices. Local banks generally believe that the official data understates actual inflation levels – as rising service prices generally have a small weight in the official data series. Actual inflation in the UAE likely topped 12% in 2006. Qatar's inflation rate is estimated to have approached 10%.[15]

If sustained, the high inflation rates in booming GCC economies eventually will generate a large real appreciation. Local banks now estimate that prices in UAE have increased by a cumulative 33% since 2002 -- perhaps 17% more than US prices since 2002. However, the overall appreciation in the UAE's real exchange rate probably remains modest because of the dollar's large slide against most European currencies since 2002.

2.3. Fiscal sterilization and the real exchange rate

Variation in inflation rates and thus the real exchange rate of oil-exporting economies with relatively similar exchange rate regimes appears to be largely a function of variation

[15] Inflation also may be higher than reported in Saudi Arabia. The scale of the real depreciation against the dollar implied in the official data is hard to square with strong growth in Saudi spending and rapid import growth. The latest (October) data puts 2006 inflation at 2.7% -- roughly in line with the US inflation rate and insufficient to generate a real appreciation against the dollar, let alone Saudi Arabia's trading partners.

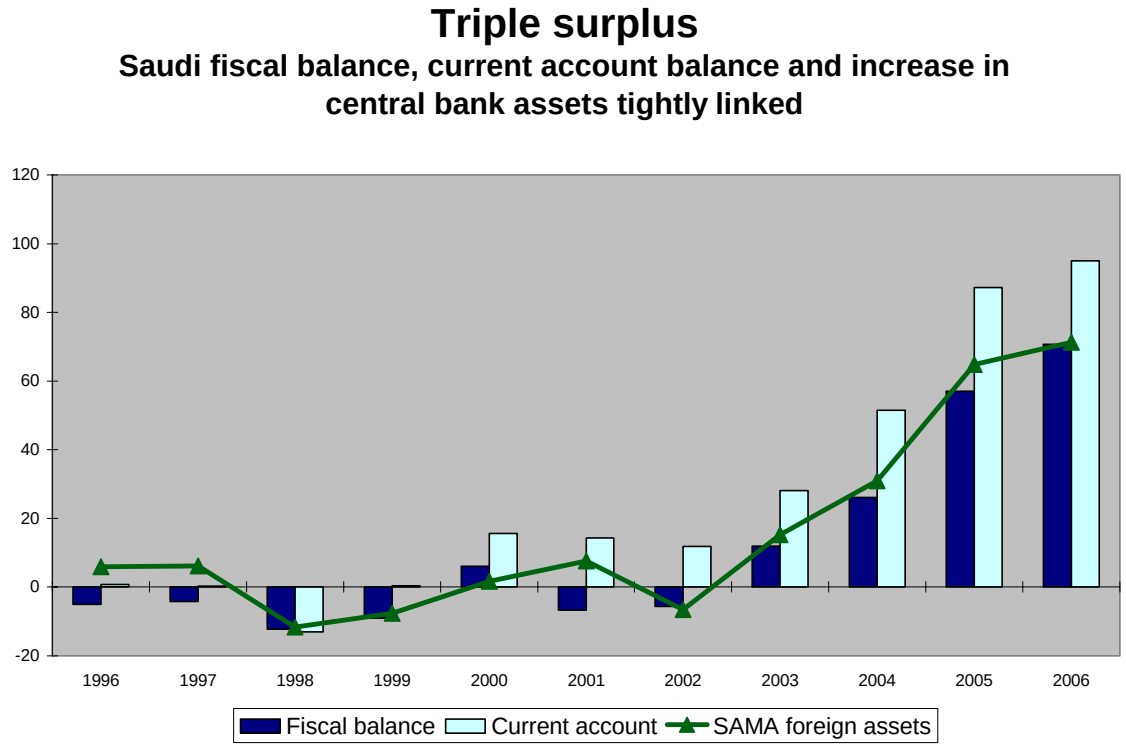
in fiscal policies, along with variation in the timing and pace of the increase in state-led investment. Oil exporters that pegged to the dollar effectively had to choose among:

- Maintaining restrictive fiscal (and investment) policies even as government revenues soared, avoiding a rise in inflation and a real appreciation.
- Increasing spending, maintaining the peg and accepting that a rise in inflation would eventually lead to a real appreciation.
- Abandoning the peg, and accepting a nominal appreciation.

Large budget surpluses that "sterilized" the influx of dollars (and euros) from soaring oil prices provided one way to insulate the local economy from the impact of rising oil prices. Countries that opted to use the surge in foreign exchange from rising export revenues primarily to build up the government's foreign assets effectively sequestered the oil windfall outside the local economy – reducing the need for a real adjustment.

Saudi Arabia is the best example. The Saudi current account surplus (deficit) correlates closely with the Saudi budget surplus (deficit) and the change in the foreign assets of the Saudi Arabian monetary agency. The Saudis clearly understand the tight link between fiscal policy and inflation: After the head of the Saudi Monetary Agency recently ruled out any changes in the peg, the Saudi Finance Minister, Abdel Aziz Al-Assaf, indicated: "If there is need, then we will hold back on expenditures."[16]

Figure 9. Saudi fiscal sterilization



[16] Abdel Aziz Al Assaf quoted in *Gulf News*, January 27, 2007

Large fiscal surpluses also have helped to sterilize the surge in Russia's foreign exchange earnings. The World Bank (2006):

> The sterilization of huge foreign inflows through the accumulation of fiscal surpluses in the stabilization fund has been critical to maintaining macroeconomic stability and preventing even more rapid appreciation of the real exchange rate. Weaknesses in financial markets and the banking sector effectively prevent the effective sterilization of inflows of this magnitude through monetary policy.

Nonetheless, Russian inflation has been far higher than in Saudi Arabia, for three reasons. First, the Russian state doesn't capture as much of the gas windfall as the oil windfall. The resulting unsterilized influx of foreign exchange from gas – and from iron and aluminum exports – added to inflationary pressures. Second, Russia's capital account is relatively open, and the rise in oil prices contributed to surge in private capital inflows and a fall in private capital outflows. Net private capital inflows are now substantially positive. Since underdeveloped financial markets make it difficult to mop up the surge in domestic liquidity from these inflows (Gianella, 2007), they ended up contributing to the expansion in broad money and thus inflationary pressures. Finally, Russia has a history of high levels of inflation.

2.4. Rising inflation and negative real interest rates

The extent of fiscal sterilization in Saudi Arabia is somewhat atypical. Most oil exporters have opted to raise government spending more rapidly – or to use government policy to support a higher level investment. As a result, most have higher inflation rates that the Saudis – and their trading partners. Inflation rates in the "high investment" Gulf states are close to 10%. Russian inflation was around 10% in 2006. Iranian inflation topped 11% in the official data, which likely understates inflation by undercounting services. Venezuelan y/y inflation reached 17% in December 2006. One result: the real interest rate in many large emerging oil exporting economies that peg to the dollar is now negative, as nominal interest rates have tracked dollar interest rates.

Negative real interest rates help to increase domestic absorption by encouraging investment, and thus have contributed to the adjustment process. However, an adjustment path marked by high inflation rates and negative real interest rates is risky.

- Negative real rates have helped to fuel a surge in speculative property investment. They potentially set the stage for a boom/ bust cycle driven by an unsustainable surge in quasi private/ quasi public investment rather than by an unsustainable surge in government spending.
- In some oil exporters, high inflation rates likely will need to be sustained for some time to allow the appreciation in the real exchange rate to catch up with the rise in the real oil price. However, high inflation rates cannot be sustained for too long without generating a real overvaluation (particularly if oil prices fall). Inflation

rates will necessarily be quite volatile: a burst of inflation to offset dollar depreciation and the real appreciation of oil likely will be followed either by a period of disinflation -- even deflation if the price level overshoots.

2.5. Oil exporting economies would benefit from additional exchange rate flexibility

Despite high levels of inflation in most oil-exporting economies and the distortions from negative real interest rates, the oil-exporting economies remain committed to their dollar pegs. They have resisted periodic suggestions that they reduce inflationary pressures through a revaluation against the dollar – and in the case of the GCC, by shifting to a euro/dollar basket peg.

Three different arguments are often put forward for maintaining dollar-pegs in oil exporting economies. First, weak institutions increase the advantages of importing monetary and currency stability. Second, since oil is priced in dollars, pegging to the dollar provides a high degree of stability and predictability.[17] Third, pegging to the currency of a country that doesn't export oil helps avoid Dutch disease. All three arguments for tight dollar pegs are weaker than often assumed.

2.5.1. Dollar pegs often have not led to macroeconomic stability

The advantages of importing another country's monetary policy through a peg have to be balanced against the costs of importing a monetary policy that doesn't suit local circumstances. Importing another country's monetary policy also implies importing the moves in its currency. This is particularly important for economies that are more open than the US economy. Consequently, the advantages of pegging to the dollar have to be balanced against the disadvantages associated with importing – depending on the time -- either dollar weakness or dollar strength

The risks of importing an inappropriate monetary policy – and inopportune currency move -- rise when an oil-exporting economy pegs to the currency of an oil-importing economy. Generally speaking, oil exporting economies would benefit from tight monetary policy and a real appreciation to restrain activity when oil is high, and loose monetary policy and a real depreciation to encourage activity when oil is low (Frankel (2006).

In theory, pegging to the currency of an oil importer is the larger problem in the face of a supply shock than in the face of a demand shock. A supply shock calls for looser monetary policy (and a weaker currency) in oil importers and a tighter monetary policy (and a stronger currency) in oil exporters. A positive demand shock, by contrast, calls for monetary tightening in both oil importers and oil exporters, while a negative demand shock calls for loose monetary policy in both. In practice, though, the difference between supply and demand shocks may not be clean cut. For example, the recent rise in oil prices stems in part from strong global growth (a demand shock) and in part from the

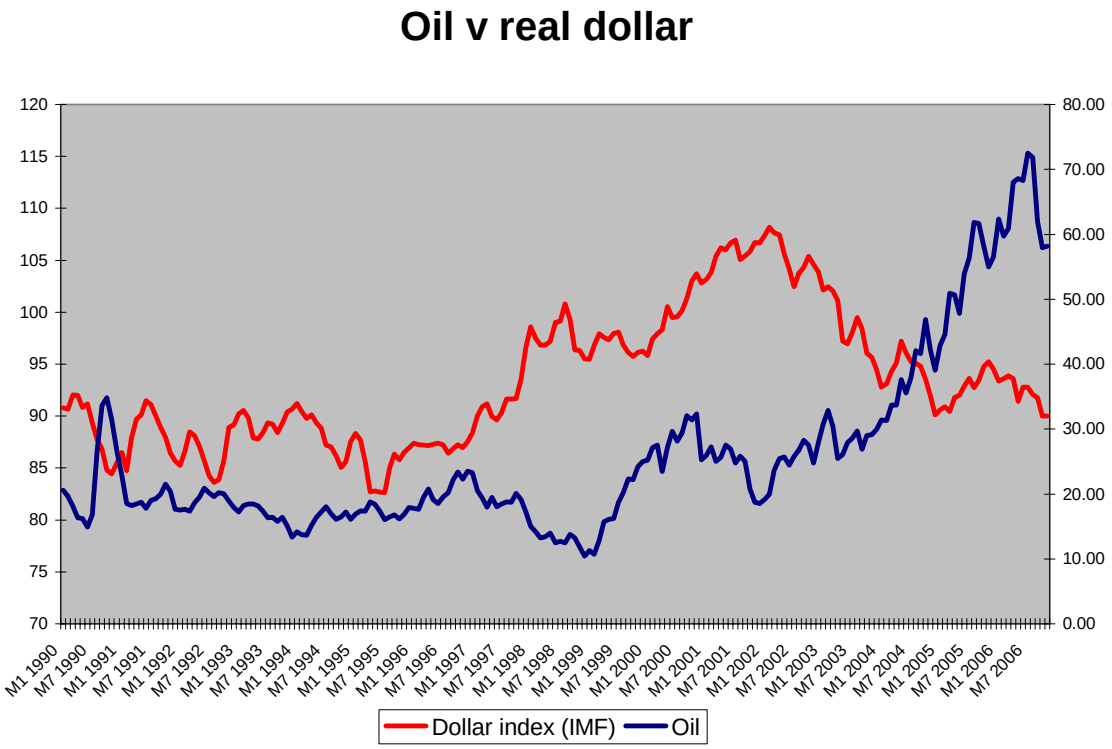
[17] The standard deviation of annual oil price moves over the past ten years is $11 a barrel (Gianella, 2006).

difficulties increasing production in many oil-exporting economies along with concerns about the stability of the Middle East (a supply shock/ fear of a supply shock).[18]

There is little doubt, though, that dollar pegs have complicated monetary policy in most oil exporting economies recently. Oil exporting economies imported both a relatively loose monetary policy -- policy rates where low in 2003 and 2004, when oil first started to rise, and the subsequent increase in US short-term rates famously has not been accompanied by a rise in long-term rates -- and the dollar's recent depreciation. They would have benefited from a currency regime that led their currencies to rise – not fall - along with oil prices.

The discrepancy between moves in the dollar and moves in the price of oil isn't unique to the recent oil price rise. As Figure 10 shows, the trade weighted dollar (with US trade weights) has moved in the opposite way as real oil prices during three of the last four major moves in oil prices (the fall in 97-98, the rise in 2000, the fall in 2001-02, and the rise in 2003-2006).

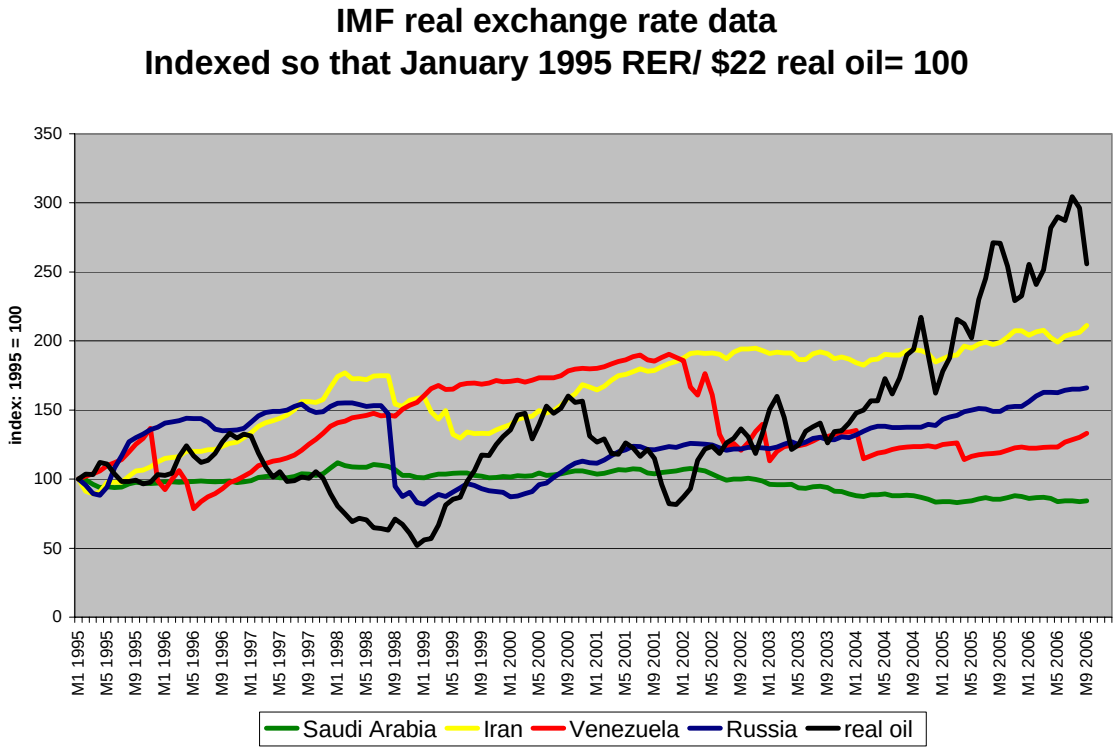
Figure 10: Oil hasn't moved consistently with the dollar



[18] Paul Krugman has argued that oil exporters find it more difficult to maintain supply restraint in the face of a demand shock that drives down prices, as each country is tempted to increase production to try to offset the fiscal impact of falling prices. The net result, of course, is further price pressure. Conversely, when prices are high and oil exporters are running large surpluses, it is easier for some to maintain supply discipline. This argument can be overstated, but it still highlights the difficulty drawing a clean distinction between supply and demand shocks: a demand shock can induce changes in the policies of major suppliers.

The dollar's appreciated in 1997-98 posed a particular problem for many oil exporting economies as it coincided with a sharp fall in the price of oil following the Asian crisis. Many oil exporters who pegged to the dollar faced strong deflationary pressures in the late 1990s – and deflation implied relatively high real interest rates. Saudi Arabia limited the needed adjustment by running down its foreign assets -- and running up its domestic debt. Other oil exporters filled budget gaps by running the printing presses – and in some cases by defaulting on their external debt. Russia and Ecuador both devalued and defaulted.[19] Consequently, pegging to the dollar or to a dollar/ euro basket hasn't guaranteed real exchange rate stability (Figure 11).

Figure 11: Dollar pegs haven't produced stable real exchange rates



2.5.2. Receiving payments in dollars isn't a good reason to peg to the dollar

Analysts of emerging economies have often emphasized the balance sheet mismatch created by domestic currency revenues and foreign-currency denominated liabilities. Governments that have domestic currency revenues (notably tax revenues) and foreign currency liabilities (usually debt) can encounter difficulty when a fall in the local currency increases the real value of their foreign currency liabilities. Oil exporters face the opposite mismatch: they have foreign currency revenues (oil exports) and domestic currency liabilities (domestic spending promises). Domestic spending expectations

[19] The dollar's strength in 2001 and early 2002 even as oil retreated from its 2000 levels contributed to Venezuela's 2002 devaluation.

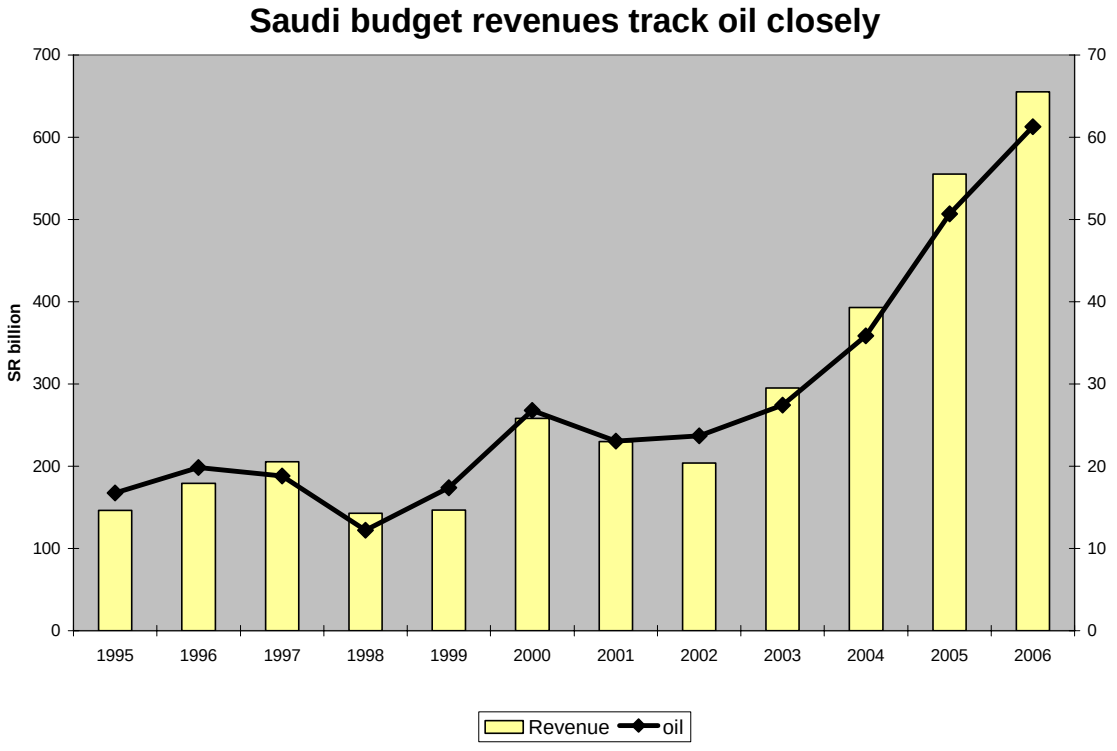
create implicit – not explicit – liabilities. But domestic spending commitments are nonetheless liabilities any government would want to honor.

Pegging to the currency used to settle oil contracts seems to solve this problem: The peg effectively turns local currency spending into foreign currency spending, matching the government's foreign currency revenue stream from oil. However, it only eliminates the mismatch if the dollar (or euro) price of oil is stable. Pegging directly to the dollar assures that swings in the dollar/ oil price translate directly into swings into the local currency revenue from oil.

The real problem most oil exporters face is not the mismatch between foreign currency revenues and the implicit domestic currency liabilities created by their domestic spending commitments, but rather volatility in government revenues associated with volatility in the oil price. The price of oil has been as low as $10-15 and has high as $70 plus over the past ten years, with annual volatility of about $11 (Gianella, 2006).

A concrete example is useful. Almost all the revenue of the Saudi government comes from oil. Over the past ten years, the Saudi riyal has been pegged to the dollar at a constant rate of 3.75 Saudi riyal to the dollar ($0.27 per riyal). Changes in the dollar price of oil lead directly to volatility in Saudi revenues in riyal, as the figure 12 illustrates.

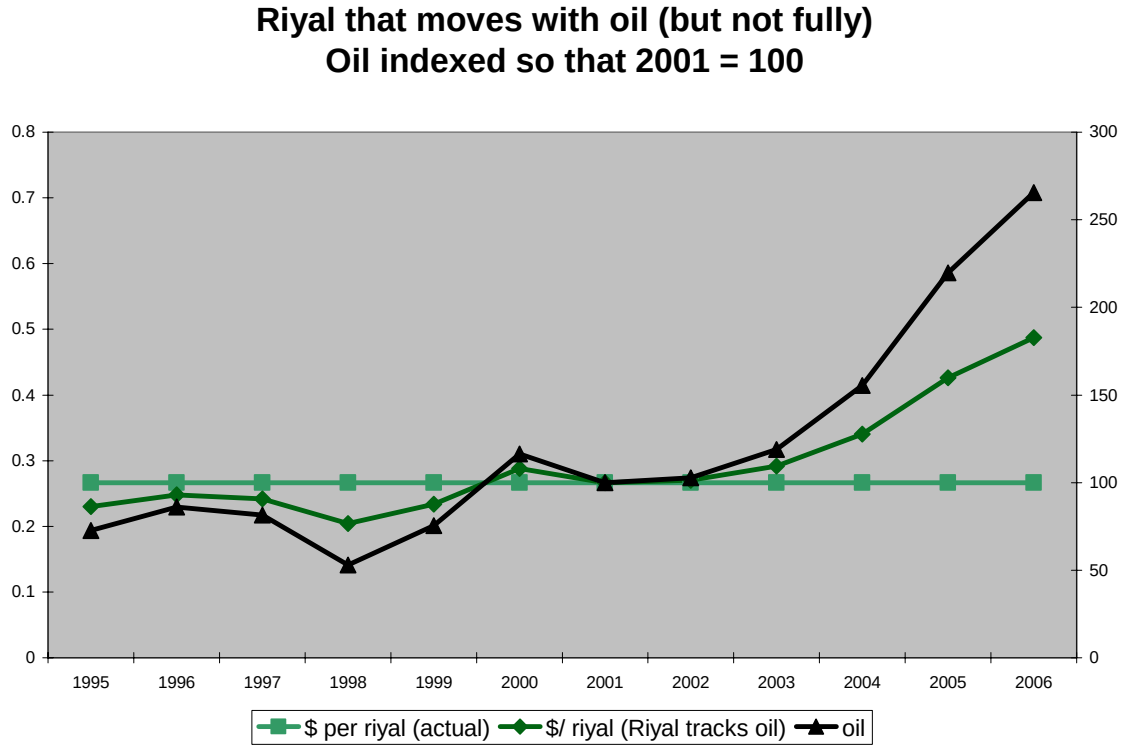
Figure 12: Saudi revenues move with oil



If the riyal had moved in tandem with the price of oil – appreciating when oil was appreciating and depreciating when oil was depreciating, the variation in Saudi revenues

would have been far smaller. Figure 13 shows a scenario where half the variation in the nominal oil price is reflected in the dollar/ riyal.

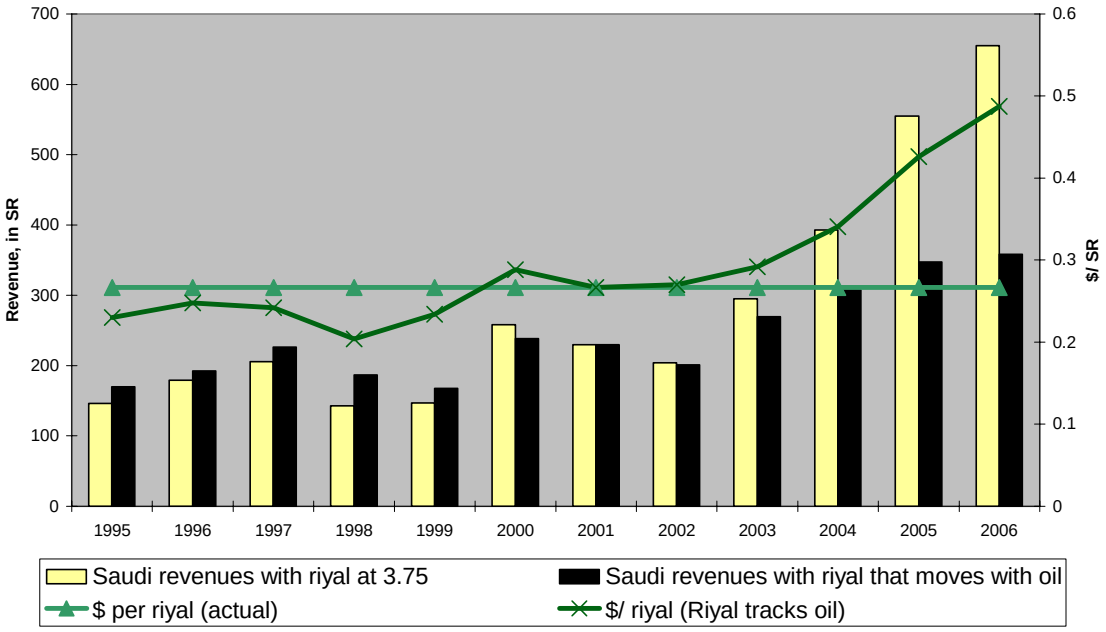
Figure 13: A more flexible riyal (50% oil peg/ 50% dollar peg)



The revenue stream from Saudi oil-exports – when expressed in Saudi riyal – still varies, but it varies by less if the riyal moves with the price of oil than if it is kept stable.

Figure 14: Exchange rate flexibility leads to lower revenue volatility

Exchange rate flexibility could stabilize Saudi revenue, in riyal



Exchange rate flexibility effectively translates some of the current volatility in the Saudi revenue stream from volatility in the dollar price of oil into volatility in the external purchasing power of domestic Saudi riyal payments. A riyal buys more foreign goods and services when oil is high, and fewer foreign goods and services when it is low.

2.5.3 Fiscal policy is the key to avoiding Dutch disease

The need to avoid a real appreciation that damages the non-oil sector – so called Dutch disease -- is often cited as a justification for oil exporter pegs. Oil tends to be a capital intensive industry. Consequently, this concern is particularly acute in countries with rapidly growing populations.[20] The expansion of the oil sector alone is unlikely to create a large number of jobs.

However, a country's capacity to avoid a real appreciation depends more on its fiscal policy and its willingness to save the majority of any surge in oil revenue – whether from a new discovery or from a sudden increase in the price of oil – than on its exchange rate policy. As discussed earlier, countries that peg to the dollar pegs haven't consistently avoided large real appreciations. A burst of oil-related spending or oil-financed investment in the non-tradable sector can trigger a burst of inflation and a real appreciation. Conversely, Norway has avoided Dutch disease in the context of a floating exchange rate regime by using its oil revenues to build up its government pension fund.

[20] The 2% of the Saudi population employed in the oil sector generates over 50% of the country's total output (the precise fraction varies with the oil price).

2.6 Exchange rate flexibility would also facilitate global adjustment

The oil exporting economies themselves have the most to gain from additional exchange rate flexibility. But more flexibility would likely facilitate global adjustment in three ways:

First, the process of adjustment to swings in the oil price – both upward and downward – would be faster.

In 2003 and 2004, the currencies of the oil exporters would have appreciated against the dollar, offsetting the dollar's general slide against European currencies. In 2005, their currencies would have continued to appreciate against the dollar – and the real value of their currencies would have appreciated even more on the back of the dollar's rebound. Even if budgets hadn't adjusted quickly, the real external purchasing power of existing budget spending would have gone up. Imports would be somewhat higher for any given level of budgeted spending.

The slow process of real adjustment from rising inflation – inflation that stems in part from increasing spending and state-sponsored investment – effectively means that the adjustment in the current account balances of the large oil-exporting economies will be back-loaded. Much of the real exchange rate adjustment to the rise in oil prices between 2003 and 2006 will likely occur after oil prices stabilize or head down. The real appreciation of many oil-exporting economies hasn't been commensurate with a rise in the long-term oil prices from $25 to $60 a barrel.

Second, dollar pegs likely led oil-exporting economies to disproportionately build-up their dollar assets, inhibiting adjustment of the U.S. current account deficit.

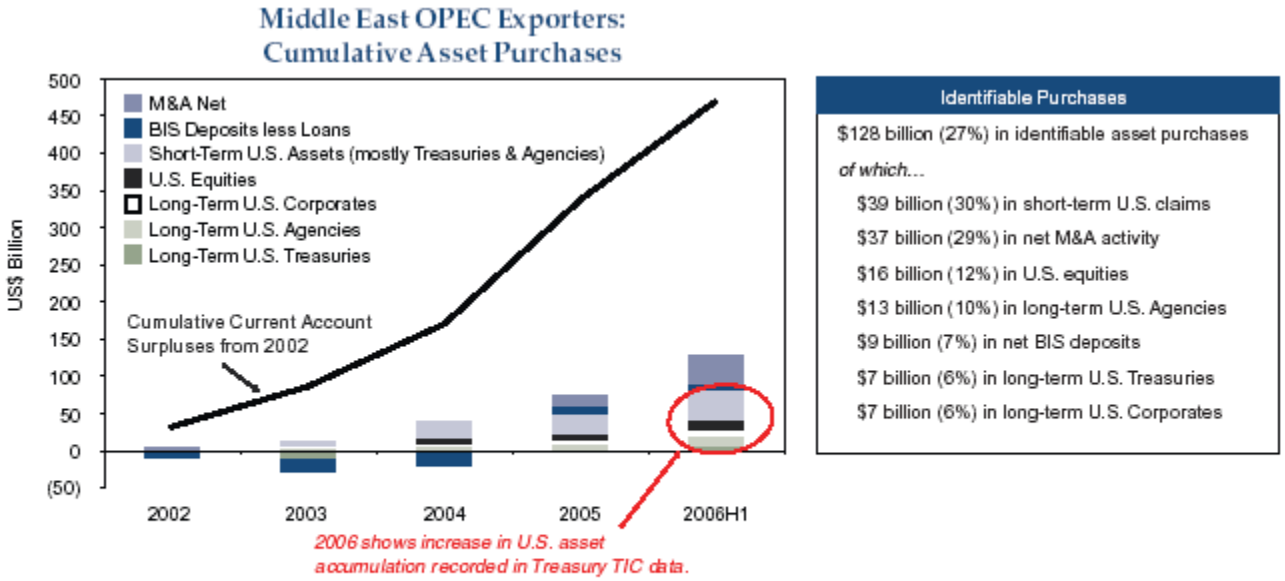
The influx of funds from oil state central banks and investment funds into US and European financial markets almost certainly pushed up the equilibrium price of financial assets and contributed to relatively low interest rates globally. It thus encouraged the oil-importing states to defer adjustment. The consequences of the United Sates' low levels of national saving – and structural fiscal deficits – were temporarily masked by the influx from oil states.

Gaps in the data – especially the difficulty tracking capital outflows out of the Gulf -- make this proposition difficult to test. The two large oil exporters that have been most transparent about their portfolio allocation -- Norway and Russia – now hold more European than US assets. For Norway, this is a long-standing policy. Russia, by contrast, decided to reduce the dollar's share in its portfolio in 2005 and carried out that policy in the first half of 2006. However, the GCC states peg more closely to the dollar than either Russia or Norway and likely hold more dollar assets.[21] This isn't apparent from the US

[21] Venezuela and Oman have indicated that they hold around 80% of their reserves in dollars (Venezuela's dollars are held outside the US). The UAE has 98% of its reserves in dollars, but has indicated that it intends to bring the dollar share of its reserves down to 90%. However, most of the UAE's foreign assets

data, as recorded inflows from the Gulf to the US are quite small relative to the Gulf's current account surplus. (See Figure 15). But most analysts (Nsouli, 2006; Higgins, Klitgaard and Lerner, 2006; Lubin, 2006; Setser and Ziemba, 2006; Setser and Ziemba, 2007) have concluded that the Gulf state make extensive use of offshore intermediaries and continue to hold a large fraction of their oil wealth in dollars. These offshore dollar assets, in turn, are a close substitute for direct financing of the United States. If the Gulf and North Africa put about 70% of their foreign assets in dollars and 30% in euros and pounds and if Russia and Norway put about 45% of their assets in dollars and 55% in euros, pounds and other European currencies, then in aggregate, about 60% of the growth in oil state official assets – or around $250b in 2006 – would have be in dollars.

Figure 15: Neither the US nor the BIS data captures the buildup of Middle East foreign assets. From Toloui, 2007



The ready availability of financing from the offshore accumulation of dollars by the oil exporters is potential one reason why the adjustment in the oil-importing economies has been asymmetric, with most of the deterioration in the current account balance of the the oil importing economies coming from a deterioration in the US deficit. Asia's surplus has increased – driven both by a growing a bilateral surplus with the US and a huge surge in Asian exports to Europe. Euroland swung from a 55b euro surplus in 2002 (and a 50b euro surplus in 2004) to a 15b euro deficit in 2006– a change of roughly $100b.[22] The

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are held by the Abu Dhabi Investment authority, not the central bank. Qatar's central bank has indicated that its dollar holdings fluctuate but never fall below 60% or rise above 90%. However, most of Qatar's foreign assets are also held by the investment authority.

[22] The eurozone current account deficit peaked at 30b euros in the four quarters through q3 2006, but fell sharply in q4

swing in the US deficit was closer to $400b. The United States $475b current account deficit in 2002 rose to around $860b in 2006. If more exchange rate flexibility led the oil-exporting economies to reduce the scale of the growth in their dollar holdings, it would encourage – or perhaps force – more rapid adjustment in the largest deficit economy.

Third, and more controversially, greater exchange rate flexibility also might generate more adjustment – not just faster adjustment.

Greater exchange rate flexibility should make adjustment easier – and thus could lead to more adjustment. Nominal flexibility, though, shouldn't imply throwing caution into the wind and treating every move in the oil market as permanent change in their income. Oil-exporting economies with more flexibility exchange rates likely would still want to maintain a stock of foreign assets that can help insulate their economy – and their exchange rate -- from fluctuations in the price of oil makes. The also would not want to adjust spending upward too rapidly when oil prices rise. Fiscal buffers have a role to play in smoothing the adjustment process to moves in the short-term and long-term oil price. Oil exporters that peg to the dollar in effect have given up one tool for managing volatility in the dollar (and euro) price of oil, increasing their reliance on other tools.

The absence of exchange rate flexibility also increases the cost of being wrong, and allowing the economy – and the budget – to be based on a higher oil price than materializes: deflationary real exchange rate adjustment is more problematic than a nominal depreciation

2.7 Alternatives to pegging to the dollar

Pegging to the dollar is not the only option available to oil exporters that worry about their capacity to conduct an autonomous monetary policy and do not want their currency to float freely.

One common suggestion is to peg to the euro. This allows the oil exporters to avoid linking their currencies to the currency of a country with a large current account surplus. Most oil exporters also trade – and specifically import -- more with Europe than the US. However, oil exporting economies would still import the monetary policy of one oil importer to importing the monetary policy of another oil importer. Moreover, while pegging to the euro helps if the dollar slides further against the euro, it doesn't help oil exporters if both the euro and the dollar slide over time against the currencies of major Asian economies. Pegging to a euro/ dollar basket offers many of the same problems.[23] Rather than pegging to the currency of one oil importing economy, oil-exporters would effectively peg to the currencies of two major oil importers. Fluctuations in a weighted

[23] The GCC countries are publicly committed to maintaining a dollar peg until they enter into a currency union in 2010. However, the probability that the Gulf states actually will form a currency union in 2010 is receding. Oman has already indicated that it does not intend to join. A delay would increase the odds of a policy adjustment by individual Gulf states. Kuwait has already allowed its currency to appreciate by a token amount (1%) against the dollar.

average of the dollar and euro price of oil haven't been as large as fluctuations in the dollar price of oil, but they have still been quite large. Russia's experience with a basket peg shows pegging to a basket wouldn't necessarily allow oil exporters to avoid a surge in inflation when oil is high (appreciating v both the dollar and euro), and deflationary pressures when oil is weak (depreciating v both the dollar and euro).

An alternative: pegging to an industrial country with large commodity exports. In principle, this would allow emerging oil-exporters to import a stable monetary policy of a country with well-developed institutions while also importing a monetary policy appropriate for a commodity exporting economy. The nominal and real exchange rates of most advanced commodity-exporting economies tend to move together with commodity prices. Pegging to the Australian dollar is one possibility. However, Australia doesn't actually export oil, has a large current account deficit and a negative net international investment position. The Canadian dollar is another possibility. Canada exports energy and its current account position is stronger than Australia's. Yet it still isn't a perfect fit: relative to most oil-exporting economies in the emerging world, Canada has larger non-oil commodity exports (and proportionally smaller oil and gas exports), a far larger manufacturing sector and trades far more heavily with the United States.

Another option: peg to the price of oil or, more realistically, to a basket that includes the price of oil. Jeffrey Frankel (2003 and 2006) argues that pegging to the export price would assure that the oil currencies rise and fall with the price of oil, as the external purchasing power of the local currency moved in line with the external purchasing power of a barrel of oil exports. However, pegging directly to the export price potentially would lead to very large swings in the nominal exchange rate – swings that in and of themselves might generate inflationary or deflationary pressures. A closely related option would be to add the oil price to the basket of currencies in a basket peg. The weight of oil in the basket would determine the extent that oil currencies would rise and fall with the price of oil.

3. Projections for 2007 and 2008

In 2004 and 2005, the oil exporting economies seemed to be saving a far higher fraction of the oil windfall than in past oil shocks. Rebucci and Spatafora (2006) calculated that the Gulf Cooperation Council (GCC) countries – a group that includes Saudi Arabia, the Emirates, Kuwait, Oman, Qatar and Bahrain – increased their imports (defined as the imports net of non-oil exports, income and transfers) by about 15% of the increase in their oil exports between 2003 and 2005. The increase in Russia imports was about 20% of the increase in its oil exports. In Iran and Venezuela, import growth accounted for between 35 and 45% of the increase in their oil revenues.

The story now looks somewhat different. Preliminary data suggests a major increase in both government spending and imports in the oil-exporting economies in 2006. The increase in both the Russian and Saudi current account surplus lagged the increase in their reported oil and gas revenues. Data from the UAE – clearly in the midst of a massive construction boom -- will likely tell the same story. In broad terms, the ratio

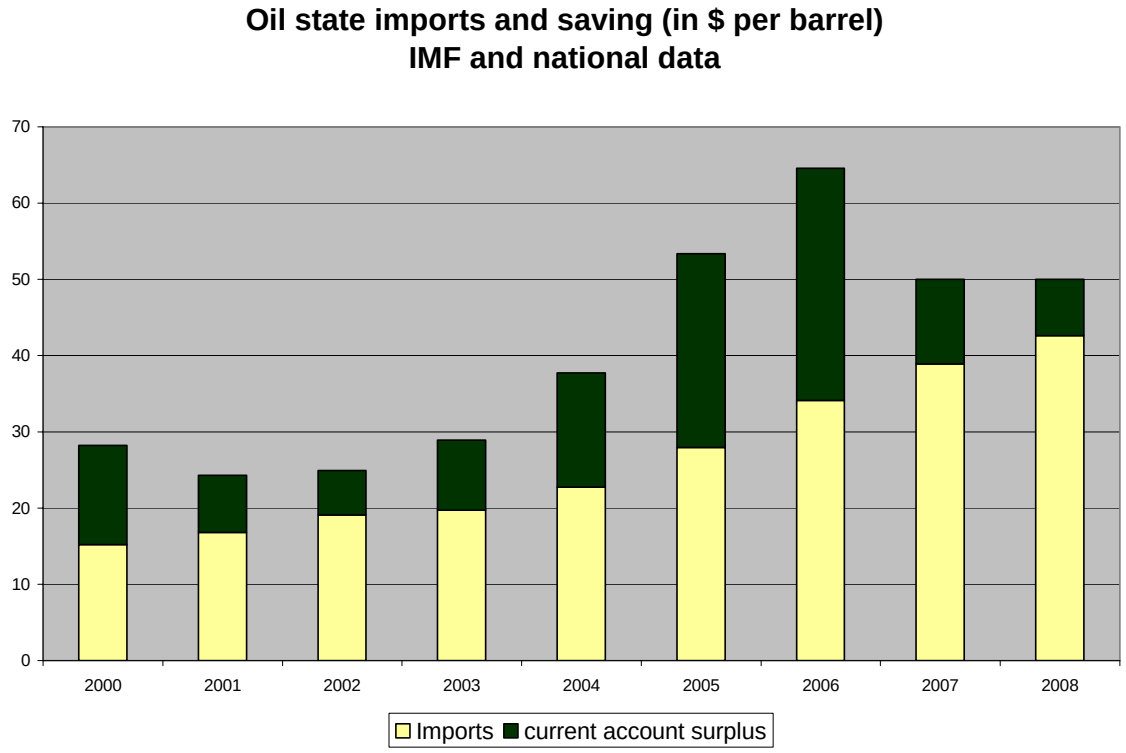
between spending and saving reversed itself: in 2004 and 2005, about 3/4s of the increase in oil revenue was saved and used to build up external assets and about ¼ was spent on higher imports; in 2006, about 3/4s of the increase in oil export revenue likely was used to finance imports, and only ¼ was saved.[24]

The reasons for the increase in absorption in the oil-exporting economies are not hard to find. 2004 budgets were based on 2003 oil prices. 2005 budgets were often based on an assumption that the 2004 price spike would not be sustained. 2006 budgets often were the first to reflect the rise in oil prices. Venezuela increased spending in real terms by 30% in 2006 (50% in nominal terms). Other oil exporters were less aggressive, but followed the same trend. A number of countries – led by Dubai – implemented massive state-led (and in some cases financed) investment projects and experienced a construction boom. The dollar's broad stability since the end of 2004 – it rose in 2005 and fell in 2006 – allowed the generalized rise in inflation in most oil states to emerge as a strong force for real exchange rate adjustment. The surge in inflation also pushed real interest rates down, contributing to construction boom in many oil-exporting economies.

As Figure 16 shows, emerging oil exporters spending on imports (defined as goods and services imports, transfers and income payments net of non-oil exports) have increased from the equivalent of around $20 a barrel in 2003 to around $35 a barrel in 2006. Most of the increase came in 2005 and 2006. However, oil prices rose more rapidly than imports, so the current account surplus of the oil-exporting economies rose from the equivalent of under $10 a barrel in 2003 to about $30 a barrel in 2006. This calculation is admittedly imprecise –but it nonetheless provides an easy way of thinking about the balance between oil prices, oil spending and oil savings.

Figure 16: Imports and current account surplus of Emerging Market oil exporters, in dollars per barrel of oil exports

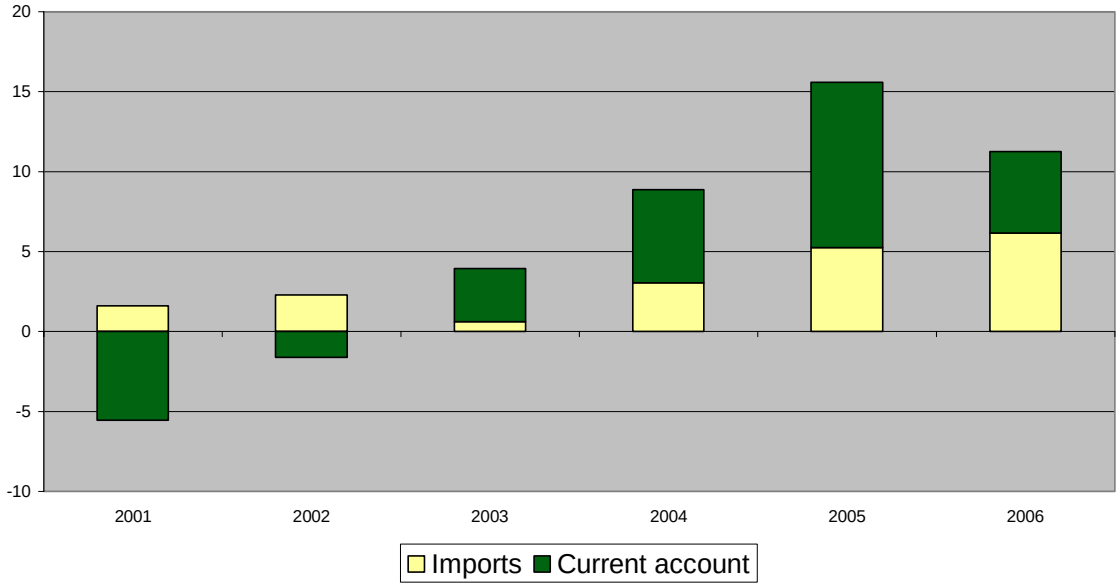
[24] SAMBA estimates that the Saudi current account surplus increased by only $8b in 2006 even though oil and gas revenue rose by $34b, the Bank of Russia estimates that Russia's current account surplus increased by $12b while its oil and gas revenues rose by $43b.



The oil exporting economies' external surplus should continue to fall in 2007 if oil remains at its 2006 price ($65, using the IMF blend), as rising government spending, new investment projects and real appreciation from rising inflation levels will lead to an ongoing increase in imports. The fall in the surplus will be more dramatic if 2007 oil prices are below 2006 oil prices. A modest fall in oil prices is unlikely to lead to a major change in the budget or real exchange rate trajectories of the major oil-exporting economies. As figure 17 illustrates, their imports inched up even as oil prices fell in 2001, leading to a large fall in the oil exporters' current account surplus. The oil exporters were still adjusting to the 2000 rise in oil prices in 2001 and 2002.

Figure 17. Change in imports and current account surplus of the major emerging oil exporting economies

Emerging oil exporters: Allocation of increase in oil price between current spending and saving ($ per barrel; IMF and national data)



On current trends, the oil-exporting emerging economies would need an oil price of around $40 a barrel to cover their projected 2007 import bill. If oil averages $50 a barrel, the savings of the oil states would be around $10 a barrel – or about $150b. If oil averages $60, oil savings would be around $20 a barrel, or around $300b. A rule of thumb: every $5 increase in the oil price above the "break-even" level generates a $75b increase in the current account surplus of the emerging oil exporters. Oil would need to be average $70 a barrel to generate a 2007 surplus comparable to the 2006 surplus.

The $5 a barrel increase in imports projected for 2007 could continue in 2008, as in aggregate, the oil-exporting economies have substantial scope to further increase spending and investment. However, by 2008, the fortunes of individual oil exporters may well start diverge. The Gulf states (Bahrain excepted), Algeria, Libya and Russia could continue to increases spending without running fiscal deficits and drawing on their existing assets if oil stays around $60 a barrel. However, Ecuador, Iran, many African nations and Kazakhstan may need to slow the pace of spending increases, scale back on investment, dip into savings, or increase their foreign borrowing should oil prices stabilize.

Conclusion

The substantial adjustment now in progress doesn't eliminate the question of how oil exporters should contribute to global adjustment. Existing mechanisms of adjustment are neither optimal nor robust to unanticipated changes in global conditions.

- Dollar pegs have forced countries that want to avoid inflationary real adjustment to run large fiscal surpluses to sterilize their rising oil revenues. Saudi Arabia's dollar peg and its commitment to price stability likely have contributed to a fiscal policy more conservative than implied by any but the most conservative approach to managing oil wealth.
- Many countries that peg to the dollar have nonetheless increased spending substantially, leading to rising inflation rates. Rising inflation has left real interest rates very low while oil prices are high, likely encouraging over-investment.
- Once inflation becomes entrenched, a potentially painful period of disinflation or even deflation may eventually be required to prevent real exchange rates from over-shooting on the upside.
- The slow pace of real exchange rate adjustment from appreciation likely back-loaded the adjustment process. This initially produced a "glut" of savings (particularly government savings) in oil-exporting economies – and sent market signals that inhibited adjustment in the oil-importing states.
- Oil exporters that continue to peg to the dollar remain exposed to further declines in the dollar. Further dollar depreciation would increase the amount of inflation needed to bring the real exchange appreciation of the oil exporting economies in line with the increase in the real price of oil. Oil exporting economies that peg to the dollar also likely have accumulated more dollar assets in their portfolios than they want, creating an additional form of exposure to any future falls in the dollar. Over time, a growing gap between the actual portfolios of many oil states and their desired portfolios may set the stage for a potentially disruptive adjustment.

Greater exchange rate flexibility would facilitate faster adjustment to oil price rises, as well as enabling more rapid adjustment should oil price falls. Nominal exchange rates that move in line with oil prices could help automatically stabilize revenue (and spending) in local currency terms. Additional exchange rate flexibility would oil-exporting economies less exposed to further falls in the dollar. The last thing most oil exporting economies need is a further nominal depreciation.

Adjustment in the oil states, however, is insufficient to guarantee global adjustment. A fall in the oil exporters' surplus could be offset in large part by a rise in the surplus of Asian economies or an improvement in Europe's current account balance rather than a fall in the deficit of the United States. This is not a small risk. Available data – while limited -- suggests that Asian and European exports to the Gulf and Russia are rising more rapidly than US exports.[25]

Oil exporting economies need to adjust -- and to reduce their exposure to further falls in the dollar. But adjustment in the oil exporters also needs to be complemented by further adjustment in the exchange rates of various oil importing regions. Absent other forms of

[25] Between 2001 and 2005, Qatar's imports from China increased by a factor of almost five, while its imports from the US only increased by a factor of two. Qatar's imports from China increased by 477%, its imports from Japan by 327%, Germany, 270%, US, 225%, the UK 190% and Italy 176%. Qatar Economic Review, September 2006, table 5.6.

adjustment, rising imports in the oil exporting countries may do more to redistribute the global current account surplus than to reduce imbalances.

Appendix

Summary of the policy regimes of different oil exporters

	Current Oil production to population	Size of oil reserves	Political system/ internal cleavages	Fiscal policy	Exchange rate	Outcome
Norway	Large current production to current population 3mbd v 5 million	Relatively small	Democracy, homogenous population, high levels of trust	Oil does not finance current budget; oil revenues used to build assets	Floating – but it probably doesn't matter	Limited pressure for real appreciation, low levels of inflation, large current account surpluses until oil production peters out
Russia	Modest current production to current population 7mbd in exports v 140m	Modest	Plebiscitary dictatorship, relatively homogenous, limited trust	Automatic fiscal stabilization from oil fund but spending rising – budget now balances with $40 oil	Dollar/ euro basket	Real appreciation, shrinking current account surplus over time
Saudi Arabia	Large production to current population by global standards, but not quite as large as Kuwait/ Qatar/ Abu Dhabi 8-9 mbd of exports v native – born population of around 21 million/ total population of 24 million (2006 estimate)	Large	Monarchy, relatively homogenous (setting aside guest workers), Sectarian cleavages (Shia in eastern provinces)	Fiscal stabilization in 04/05, but policy recently relaxed, "constant income rule" and $50 long-term oil likely implies higher current spending given size of oil reserves	Dollar peg. measured inflation rising but still low. Inflation likely understated. Expected future real appreciation	Real depreciation unlikely to be sustained; Current account surplus likely to fall over time
Kuwait	Large production to current population . Over 2 mbd exports v native population of 1 million	Enormous	Monarchy, homogenous (setting aside guest workers)	Fiscal stabilization in excess of automatic contributions to fund for future generations– large accumulation of foreign assets. Constant income rule implies higher levels of spending/ investment	Dollar peg (formerly dollar/ euro basket) 1% revaluation in 2006	Real depreciation from dollar peg. Inflation rising. Large ongoing surpluses
Nigeria	Small production v. current population 2.2 mbd plus v population of 130 million	Modest	New democracy, Sharp ethnic cleavages, very limited trust	Fiscal stabilization seemingly in the process of being relaxed. Permanent consumption	Dollar peg	Real appreciation, falling current account surpus

				rule likely implies higher savings/ lower spending. However, it is unlikely the political system can sustain less spending		
Iran	Small production v current population 3 mbd exports v 70 million	Large, especially including gas	Islamic republic, Ethnic/ political cleavages (Persians/ Azeris; islamists/ reformers)	Little fiscal stabilization, rapid increase in spending. Permanent consumption rule likely implies a reduction in spending if long-term price of oil is $50	Heavily Managed	Strong real appreciation, expected fall in current account surplus/ deficits
UAE/ Qatar	Large production v current population 1 mbd v 0.5 million native born population in Qatar, 2.5 mbd plus v maybe 1 million in the Emirates (with most of the oil revenue going to Abu Dhabi)	Very large – but unevenly distributed among the various emirates	Monarchy Homogenous native population Guest workers outnumber native population	Large off-budget transfers to investment funds. High levels of spending/ government sponsored investment. Dubai investment financed by inflows from rest of UAE/ Gulf; Permanent consumption rule likely implies ongoing increase in spending if long-term price of oil is around $50	Dollar peg	Inflation offset nominal depreciation of dollar; investment booms, especially in property; Building pressure for real appreciation
Venezuela	Modest production v current population	Very large, but weighted toward expensive heavy oil	Plebiscitary dictatorship; Sharp class cleavages overlaid with ethnic divisions	High levels of spending, especially after the end of the 2002/03 strike	Dollar peg, periodic devaluations	High and accelerating inflation, strong real appreciation in process

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