Topical Study #71:
FRODOR Guide

OAK ASSOCIATES, *ltd.*

May 20, 2005

Dr. Edward Yardeni

330-668-3326
eyardeni@oakassociates.com

Please visit our websites at
www.yardeni.com &
www.oakassociates.com

I. Who Is FRODOR?

This is not a Fodor travel guide. Nor is it about Frodo, the lead character in "Lord of the Rings." FRODOR is the acronym I recently coined for the Foreign Official Dollar Reserves of central banks.[1] It is the sum of U.S. Treasury and U.S. Agency securities held by foreign central banks. It is probably the best available measure of world liquidity because foreign central banks tend to transmit and to amplify U.S. monetary policy globally. The yearly growth rate of FRODOR is extremely pro-cyclical. It tends to rise during global economic expansions and to fall during recessions. Furthermore:

1) It is an excellent 52-week leading indicator of industrial commodity prices, which tend to be very sensitive coincident indicators of global economic activity (Figures 1 and 2). It coincides with the yearly percent change in the core PPI for crude goods (Figure 3). These relationships confirm that foreign central bank purchases of dollar reserves have an important influence on global economic activity and inflationary pressures. So does the high correlation between the growth rate of FRODOR and the U.S. yield curve (Figure 4).

2) The growth rate of foreign official dollar reserves has also been a great 12-month leading indicator of the growth rate of world oil demand, another coincident indicator of global economic activity. In addition, the price of oil has been highly correlated with the growth in FRODOR in recent years (Figures 5 and 6).

3) FRODOR is negatively correlated with the yearly percent change in the foreign exchange value of the dollar, and very positively correlated with the price of gold (Figures 7, 8, 9, and 10). In other words, a slowing in central bank purchases of U.S. Government securities tends to be bullish, not bearish for the dollar.

4) The growth of FRODOR tends to coincide with, and sometimes to lead, the yearly percent change in S&P 500 forward earnings. It suggests that the best time to buy stocks is when global liquidity growth is rising (Figures 11 and 12).

Currently, the growth rate of dollar reserves acquired by central banks is slowing dramatically, from a cyclical peak of 35% during the week of August 25, 2004 to 16.0% during the week of May 18, 2005. Consequently, FRODOR is predicting:

- Global economic activity should be slowing soon, if it isn't doing so already.
- Industrial commodity prices, crude oil prices, and precious metals prices may be at their cyclical peaks.

---

[1] See "Lord Of The Rings," February 15, 2005, http://www.yardeni.com/pub/a_050215.pdf. I wrote that FRODOR, like Frodo, "plays a central role in the outlook for the world. Frodo's role was more important because he ultimately determined whether good or evil would prevail. Nonetheless, FRODOR is a critical variable that helps to determine whether global booms or busts will prevail."

- The dollar could be surprisingly strong, or at least not as weak as widely expected given the size of the Twin Deficits.
- The yield curve may continue to flatten if global liquidity growth continues to slow.
- Inflation is probably peaking.
- Stock prices can still rise, but not as rapidly as during the past two years.

Will FRODOR get it right? I think so. I will be monitoring these forecasts in my new, complete "FRODOR Guide," which will be updated weekly on www.yardeni.com.

Could FRODOR be wrong? Yes, if the Twin Deficits are so huge that they continue to drive the Global Synchronized Boom despite the deceleration in liquidity growth provided by central banks. In this scenario, the savings of non-official foreign entities soar along with their incomes from selling their goods and services in the United States. In turn, these savings finance more of the Twin Deficits thus offsetting the tightening in liquidity provided by central banks. To a certain extent this is happening now, and may very well be a normal transition from a policy-driven economic recovery to a self-sustaining economic expansion. This is why I am not concerned that FRODOR is forecasting the end of the global boom.

The boom will end if global liquidity continues to slow and if savings of non-official foreigners decline. This could happen rapidly if the U.S. Congress succeeds in slapping tariffs of up to 27.5% on Chinese goods. Senator Chuck Schumer has sponsored a bill to do just that if the Chinese refuse to let their currency appreciate immediately. (The bill should be called the Global Depression Act of 2005, in my opinion). Odds are that it would be vetoed by President George W. Bush. More likely, the Chinese will allow their currency to appreciate to a limited extent in response to the political pressure. If they let their currency appreciate too much, too fast, then their banking system could experience a crisis as currency speculators take their money and run.[2]

II. A Star Is Born

FRODOR was born on August 15, 1971. On that day, President Nixon announced that the United States would no longer redeem currency for gold. This ended the Gold Standard and the Bretton Woods system, which had been in effect since 1946. Under this system, named after the New Hampshire town in which it was devised following the end of World War II, most countries settled their international balances in U.S. dollars. The U.S. government promised to redeem other central banks' holdings of dollars for gold at a fixed rate of $35 per ounce.

[2] Fed Chairman Alan Greenspan mentioned this risk in a December 11, 2003 speech: "Many in China, however, fear that an immediate ending of controls could induce capital outflows large enough to destabilize the nation's fragile banking system. Others believe that decontrol, but at a gradual pace, could conceivably temper such concerns." In that speech, he seemed rather skeptical that revaluing the renminbi would do much to reduce the U.S. trade deficit with China. The speech is available at http://www.federalreserve.gov/boarddocs/speeches/2003/20031211/default.htm.

However, persistent U.S. balance-of-payments deficits steadily reduced U.S. gold reserves. By the summer of 1971, other countries held three times more dollars than the United States. Confidence in the ability of the United States to redeem its currency in gold fell sharply, forcing the Nixon administration to abandon the gold standard. Paul Volcker, who was undersecretary of the U.S. Treasury at the time, was the architect of the bold move.[3] Subsequently, the price of gold soared, hitting a record high of $850 an ounce during January 1980.

Once the dollar was no longer pegged to the price of gold, the international monetary system began to operate on a kind of Dollar Standard. This has been very advantageous for the United States. Since the dollar is the key international reserve currency, any difference between the U.S. trade deficit and net private capital inflows will be completely financed by foreign central banks' purchases of U.S. Government securities. Because the overall balance of payments always balances, the role of the dollar in international finance virtually guarantees that foreign central banks provide some and maybe much of the financing of the Twin Deficits:

1) Since 1982, foreign central banks financed 23% of the U.S. merchandise trade deficit. Over the past 12 months through March, foreign central banks financed 33% of this deficit. Last year, they financed 41% (Figures 13 and 14).

2) There tends to be a negative cyclical correlation between central bank purchases of U.S. Government securities and net purchases of securities by private foreigners in the U.S. Recently, foreign central banks are buying U.S. Government securities at a slower pace as private foreign investors' pace of investing in U.S. securities rose to a 12-month near-record high of $605 billion (Figure 15).

3) This tends to support my view that there is a positive spin to today's record trade deficit: It is stimulating the global economy. Foreigners are getting rich exporting to the U.S. They are investing some of their new wealth back in the U.S. When the U.S. trade deficit exceeds net purchases of securities by private foreigners in the U.S., the dollar tends to weaken. When these net purchases exceed the deficit, the dollar tends to be strong (Figure 16).

4) During fiscal 2003 and 2004, foreigners financed 78% of the U.S. Federal budget deficit, with foreign central banks financing roughly half of this gap (Figures 17 and 18). The recent slowing in central banks' purchases of U.S. Treasuries has been offset by more buying of these securities by non-official overseas investors (Figure 19). It is absolutely true that foreigners have financed virtually the entire fiscal stimulus, i.e., tax cuts, implemented by the Bush administration over the past two years to revive U.S. economic growth. However, they have benefited greatly as our rebounding economy provided a wide-open market for their exports.

[3] Joseph B. Treaster, *Paul Volcker: The Making of a Financial Legend*, John Wiley & Sons, Inc, 2004, p. 39.

III. FRODOR Makes The World Go Round

The Dollar Standard encourages chronic U.S. trade and budget deficits. It also makes other countries dependent on the U.S. economy as a "locomotive" pulling their economies into trade surpluses.

During recessions, the United States tends to adopt very stimulative monetary and fiscal policies to revive U.S. economic growth. The resulting rebound in demand tends to widen the U.S. merchandise trade deficit because imports rise faster than exports. The growth of imports is boosted by recovering domestic demand. The growth of exports usually lags because overseas economic growth tends to trail the recovery in the United States. So the U.S. trade deficit as a percentage of nominal GDP tends to narrow during recessions and widen during expansions.

As the trade deficit widens during recoveries, the trade-weighted foreign-exchange value of the dollar tends to fall. This happens because the widening trade deficit increases the supply of dollars in the foreign exchange market as U.S. importers seek the foreign currencies they need to buy foreign-made goods. Foreign exporters who are paid in dollars by U.S. customers will seek to convert their dollar receipts into their local currencies.[4]

At this early stage of the global recovery, foreign central bankers often choose to prop up the dollar relative to their currency. To do so, they purchase dollars and sell their own currency in the foreign exchange market. Why? When a nation's currency appreciates relative to the dollar, the nation's exports to the United States become more expensive and therefore less competitive in the biggest and fastest recovering consumer and business market in the world. To fully benefit from the recovery in the U.S., central bankers naturally tend to intervene in the currency markets. Rapidly growing exports to the United States spread the U.S. boom to the rest of the world.

Furthermore, the central banks also tend to spread and to amplify the Fed's easy monetary policy worldwide. If they don't "sterilize" their U.S. dollar purchases (and domestic currency sales) through open market sales of domestic bonds—thus buying back their local currency—then the rapid growth of their international reserves, i.e., dollars, will increase their domestic monetary base and money supply.

---

[4] The dollar doesn't have to weaken if foreign capital inflows from private sources are large enough to offset the U.S. trade deficit. This might happen if foreign investors were attracted by rising returns in a rebounding U.S. economy. Indeed, it is conceivable that the dollar might even strengthen in value if enough foreign capital were attracted by investment opportunities in the U.S. However, the actual experience over the past three and a half decades has been for the dollar to weaken as the U.S. economy recovers from a recession.

When the Federal Reserve tightens monetary policy, FRODOR growth tends to slow. The dollar tends to strengthen when monetary policy turns more restrictive. Foreign central banks no longer have to intervene as aggressively in the currency markets to support the dollar. Also, as noted above, when the global economic expansion matures, policy-driven liquidity tends to be replaced by prosperity-driven liquidity, i.e., more jobs, more incomes, more consumption, and more private savings.

All this explains why the growth in FRODOR is such a good leading indicator of global economic activity. It also explains why the growth in dollar reserves is inversely correlated with the foreign-exchange value of the dollar.

IV. FRODOR's World Tour

Of course, the international financial system isn't totally based on the dollar. FRODOR data are released by the Federal Reserve on quarterly, monthly, and weekly bases. In mid-May, FRODOR totaled $1.4 trillion (Figures 20, 21, and 22). In addition, the International Monetary Fund (IMF) provides monthly data on non-gold reserves of central banks. In February, the total was $3.9 trillion. FRODOR has hovered around 33% of non-gold international reserves since the mid-1980s. In February, it was 35% (Figures 23, and 24). In other words, global liquidity has been provided by other currencies as well. The growth rates of non-gold reserves and FRODOR tend to be very close (Figure 25). In my opinion, U.S. monetary policy drives FRODOR, which drives total international reserves.

Let's review the latest non-gold reserves data from the IMF:

1) In the mid-1990s, the non-gold reserves of developing countries were around $800 million, the same as the reserves of industrial countries. By February 2005, developing countries held $2,510 billion, or about two times the holdings of the industrial countries (Figure 26).

2) Since the mid-1980s, Japan accounts for almost all of the increase in reserves among the industrial countries. The country has over $800 billion in reserves, more than any other country (Figure 27).

3) Coming from behind at a breakneck pace is China which now is the second largest holder of reserves totaling more than $600 billion. Asian nations, excluding Japan and China, have also increased their non-gold reserves at a rapid pace in recent years (Figures 28, 29, 30, and 31).

4) The four major Latin American nations (Brazil, Mexico, Chile, and Argentina) have $162 billion in reserves (Figures 32 and 33). In the Middle East, reserves are at a near-record $164 billion (Figures 34 and 35).

The U.S. Treasury Department reports monthly data on net purchases of securities by foreigners in the United States. We track the data in our monthly chart book, "Treasury International Capital System."[5] It includes charts showing purchases of U.S. Treasuries and Agencies in Europe, Asia, and the rest of the world, as well as in China and Japan. The latest data suggest that most of the recent slowing in FRODOR's growth is attributable to Japan.

V. FRODOR's Investment Advice

Should equity investors fear the recent slowing in global liquidity? As noted above, the best returns in the stock market tend to occur when the growth rate of FRODOR rises and when the yield curve becomes steeper. On the other hand, the recent slowing in the growth of dollar reserves and the flattening of the yield curve suggest that cyclical inflationary pressures may soon moderate and that the latest round of Fed rate hikes, which began in June 2004, may be nearly over. The available evidence suggests that global private sector savings is now providing more liquidity as monetary officials provide relatively less.

The surge in the international reserves of developing countries suggests that they are prospering most from the ongoing process of globalization that started when the Cold War ended in the early 1990s. Globalization and developing country reserves received another boost when China joined the World Trade Organization on December 11, 2001. Freer world trade has given the people of the developing countries more opportunities to increase their incomes and standards of living. Their prosperity enables them to save and provide liquidity to global financial markets, and especially to the United States.

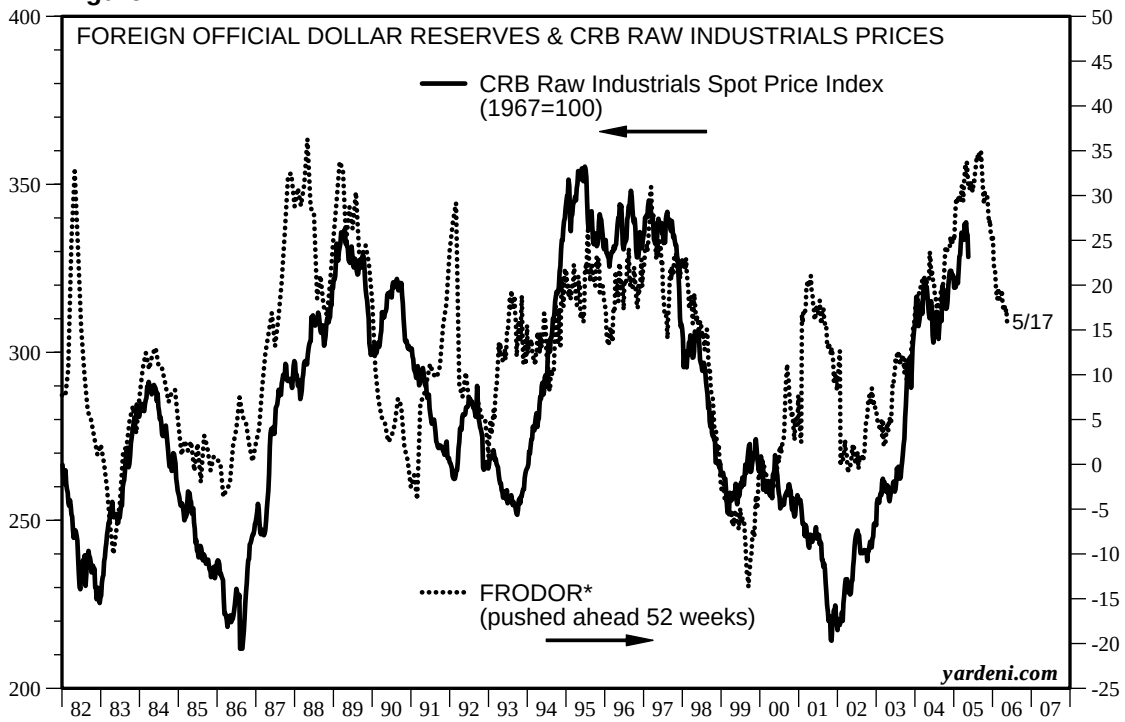
In my opinion, the investment environment remains bullish for stocks.

* * *

[5] See http://www.yardeni.com/PremiumData/tics.pdf

- FRODOR & Commodity Prices -

Figure 1.

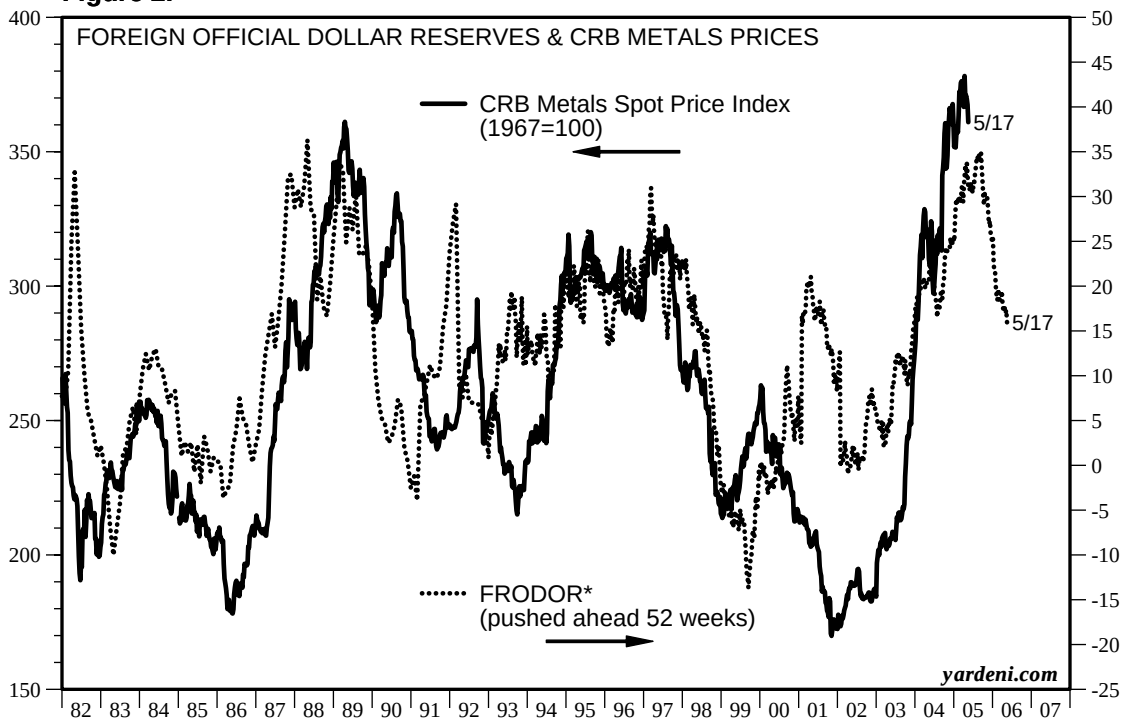


* Yearly percent change. U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Board of Governors of the Federal Reserve System and Commodity Research Bureau.

The growth rate of FRODOR (a great measure of global liquidity) continues to decline significantly. It has been a great leading indicator of industrial commodity prices, and suggests that they should soon peak, if they haven't already done so.

Figure 2.



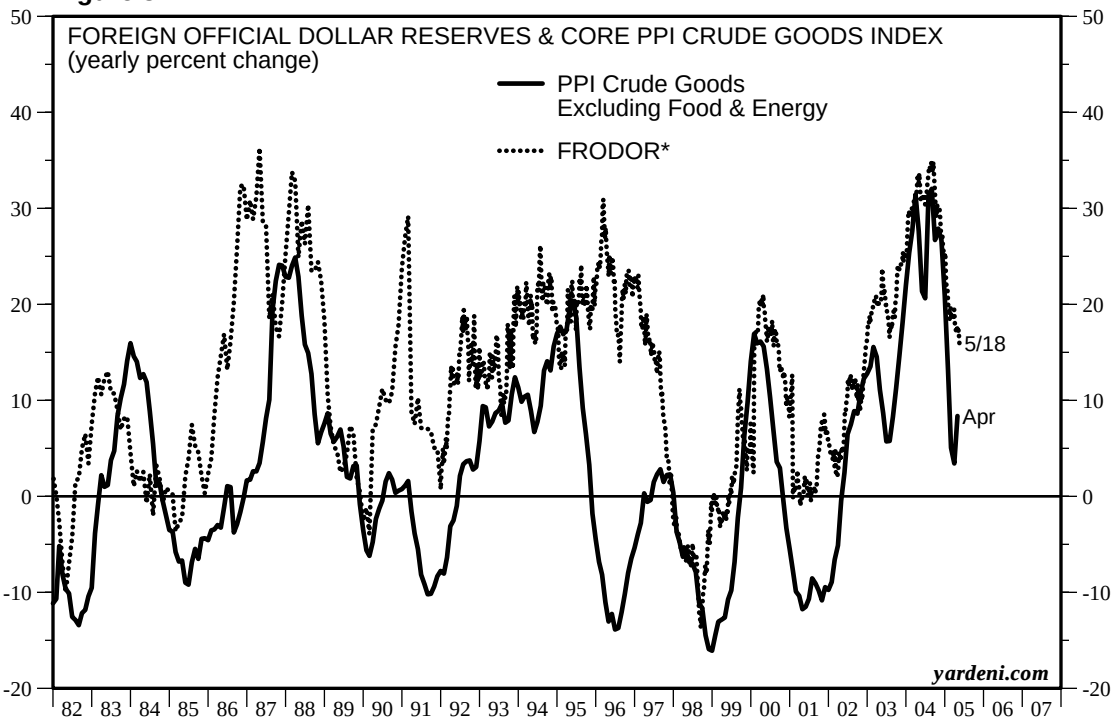
* Yearly percent change. U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Board of Governors of the Federal Reserve System and Commodity Research Bureau.

- FRODOR, Inflation, & Yield Curve -

There is a decent correlation between FRODOR and core PPI crude goods inflation. The year-over-year percent change in both is falling suggesting that "pipeline" inflation is actually moderating. (Notice scales are 1-to-1.)

Figure 3.

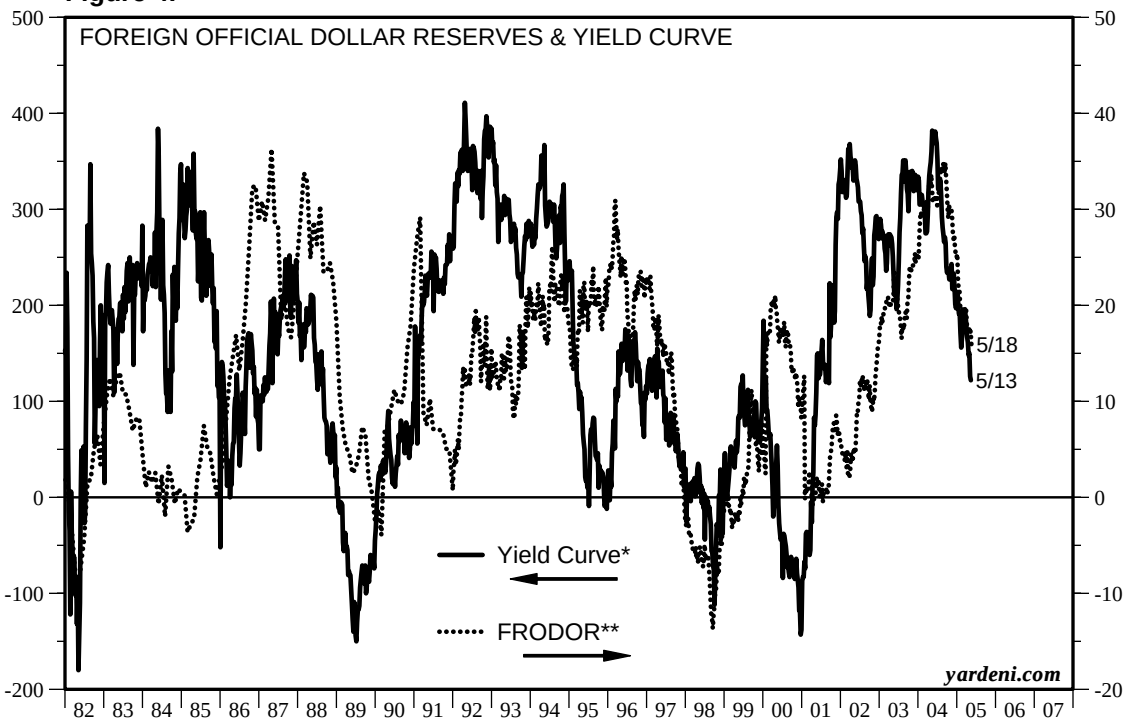


* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

The U.S. yield curve tends to coincide with, and sometimes lead the growth in FRODOR. (Notice scales are 10-to-100.)

Figure 4.



* Ten-year Treasury yield less federal funds rate in basis points.

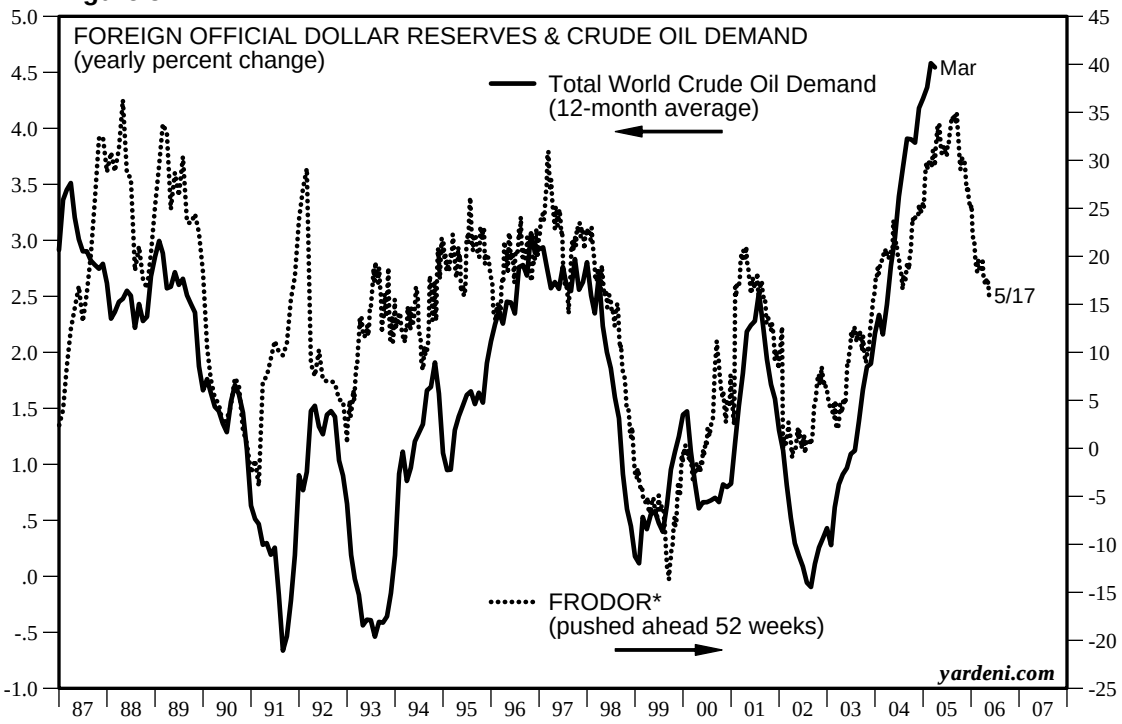
** Yearly percent change. U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Board of Governors of the Federal Reserve System.

- FRODOR & Oil -

Figure 5.

FRODOR has been a great 12-month leading indicator of the growth in world oil demand.

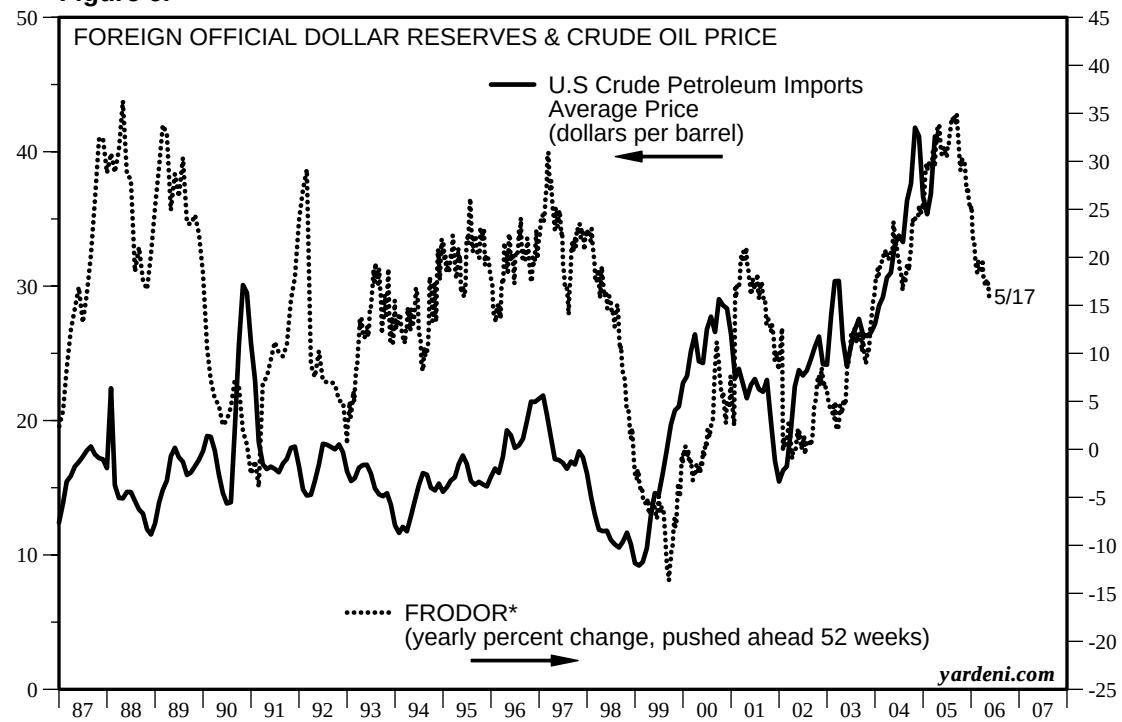


* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Oil Market Intelligence and Board of Governors of the Federal Reserve System.

Figure 6.

The oil price has been highly correlated with the growth in FRODOR in recent years.

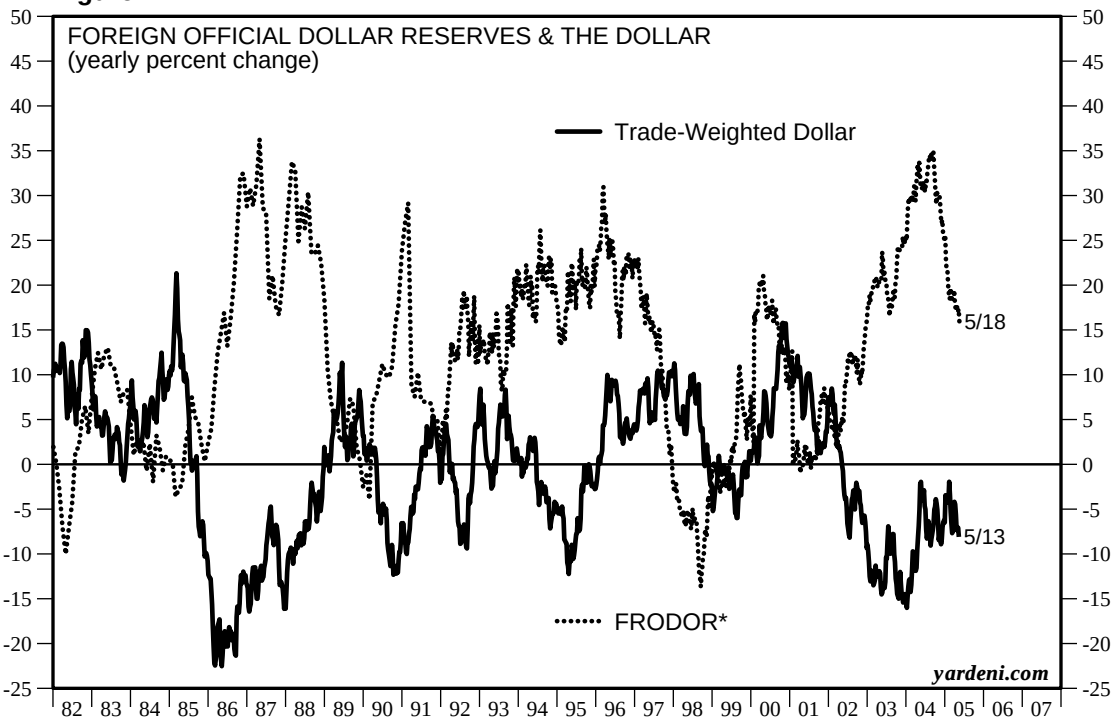


* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Census Bureau and Board of Governors of the Federal Reserve System.

- FRODOR & Currencies -

Figure 7.

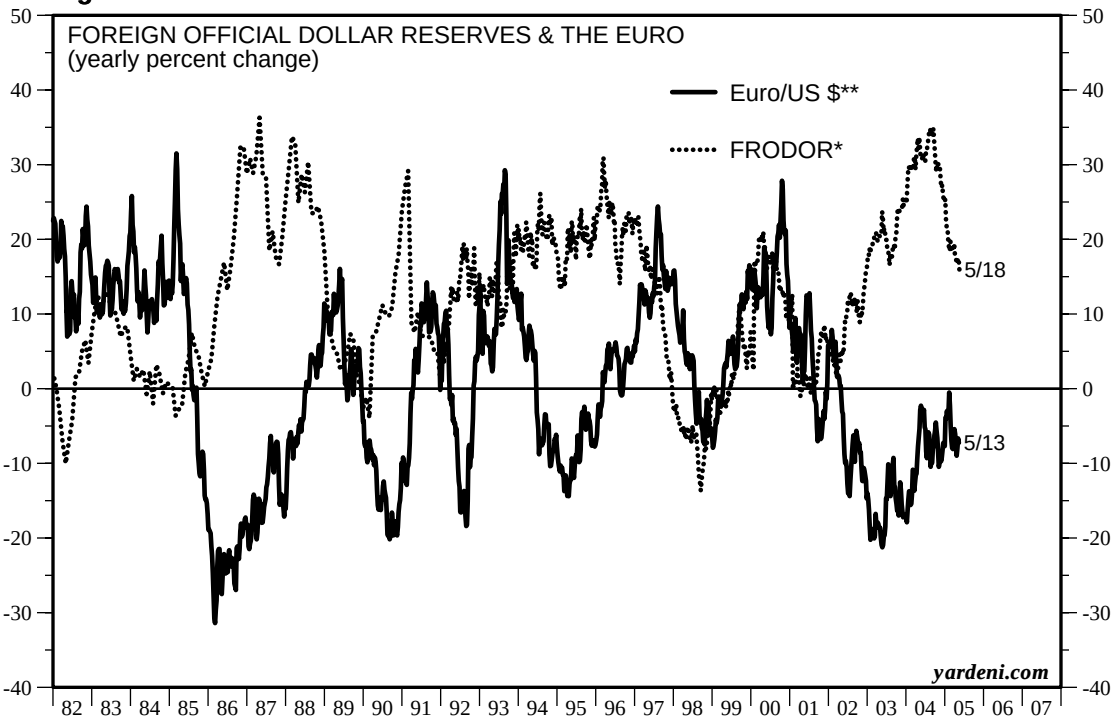


* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: Board of Governors of the Federal Reserve System.

Strong inverse correlation between the growth rate in FRODOR and yearly percent change in major currencies.

Figure 8.



* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

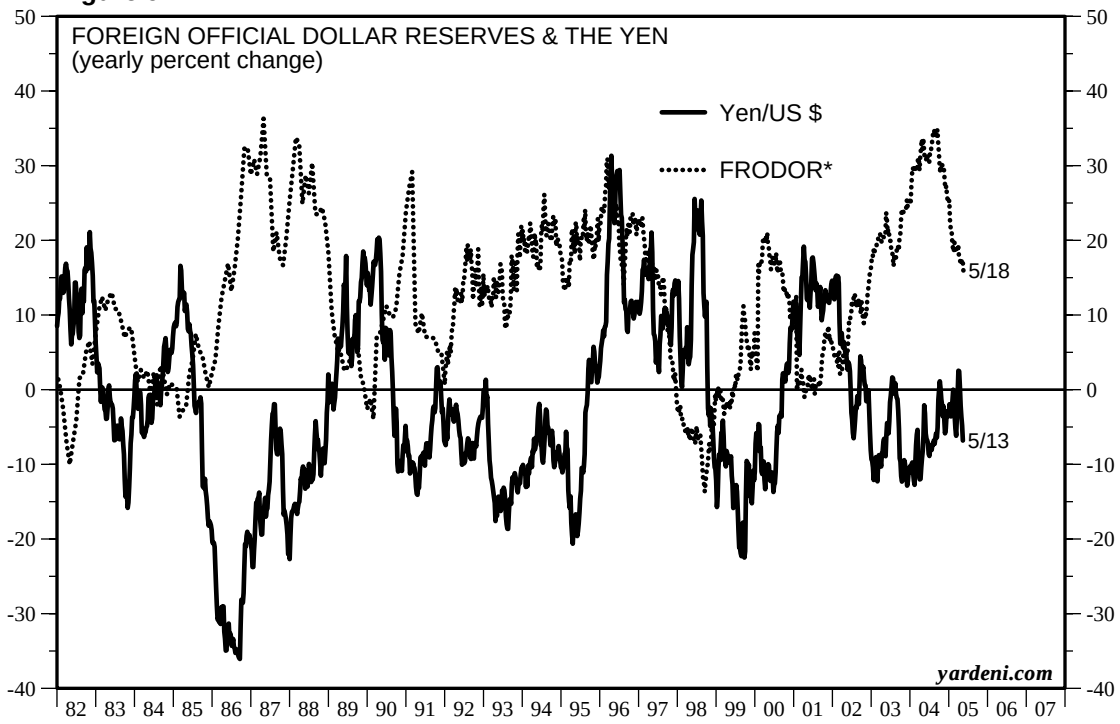
** Data prior to 1999 are derived from European currencies.

Source: Board of Governors of the Federal Reserve System.

- FRODOR, Currencies, & Gold -

Ditto.

Figure 9.

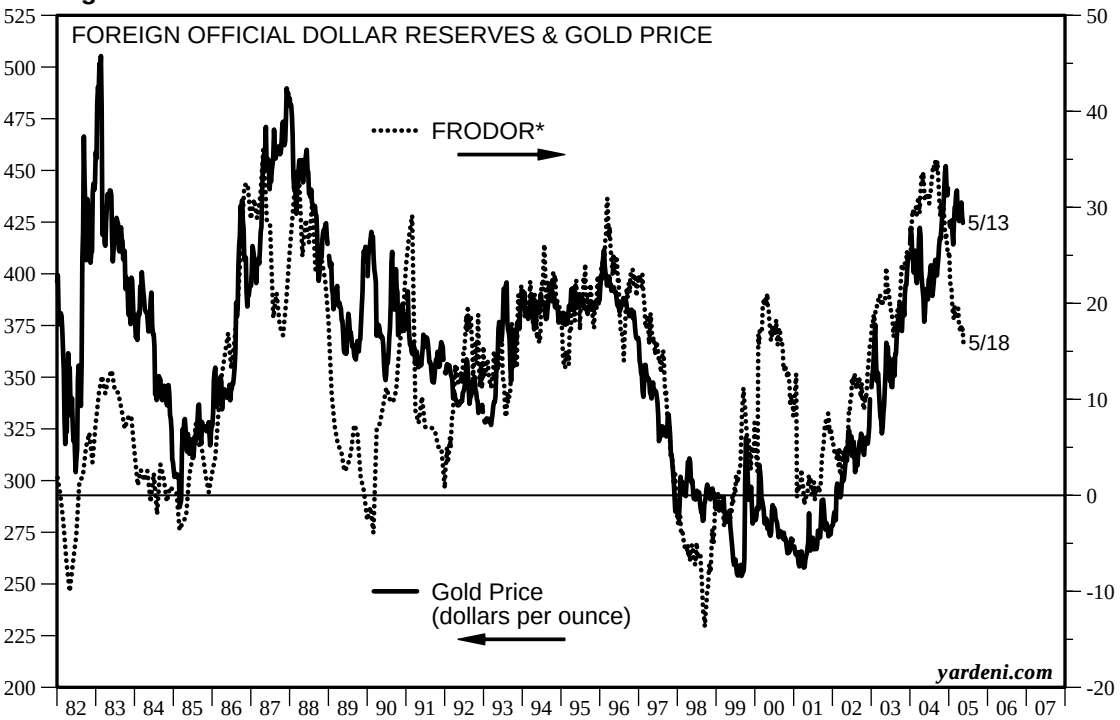


* U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: IMF International Financial Statistics and Board of Governors of the Federal Reserve System.

Gold price is highly correlated with FRODOR.

Figure 10.



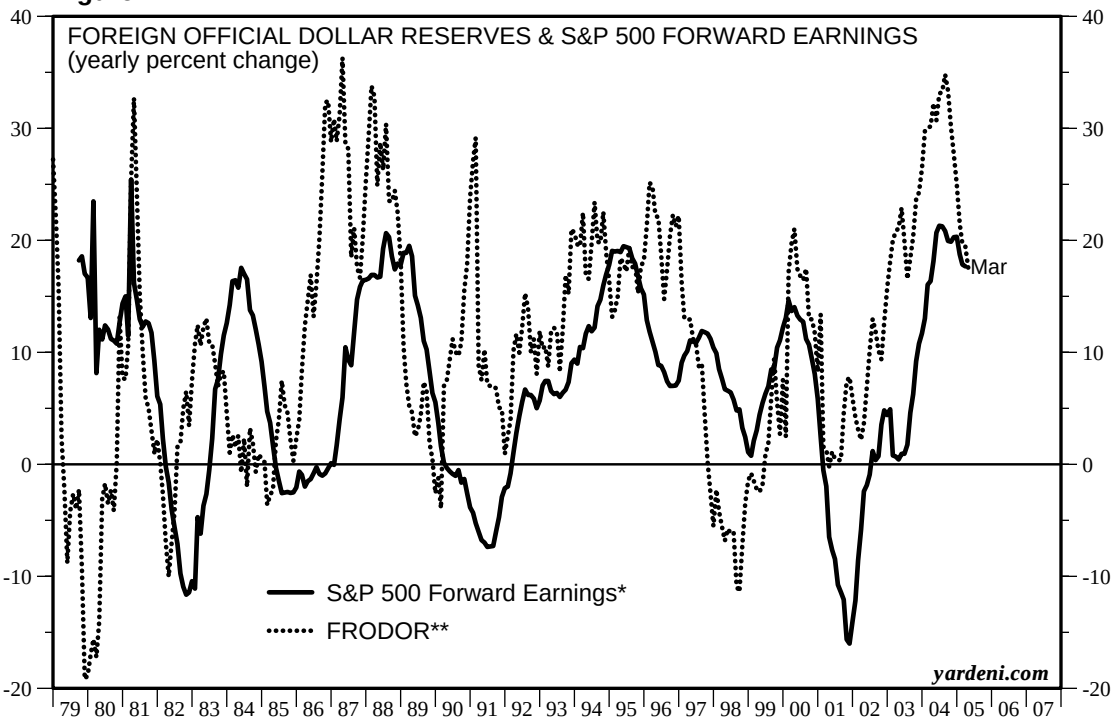
* Yearly percent change. U.S. marketable securities held in custody for foreign official and international accounts at the Fed. Monthly data from 1952 to 1990 include only U.S. Treasury securities. Weekly data from 1991 to 1999 include U.S. Treasuries. Weekly from 2000 on include U.S. Treasury and Federal agency securities.

Source: IMF International Financial Statistics and Board of Governors of the Federal Reserve System.

- FRODOR & Stocks -

The growth in FRODOR tends to coincide with, and sometimes to lead, the yearly percent change in forward earnings.

Figure 11.



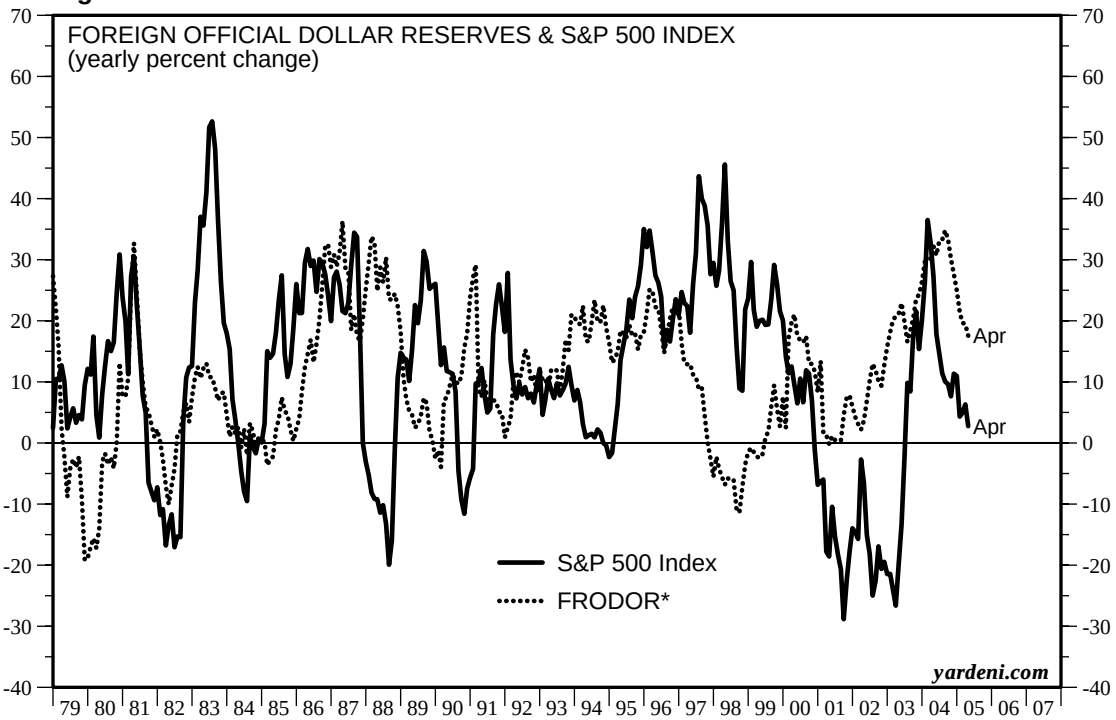
* 12-month forward consensus expected operating earnings per share.

** Data from 1952 to 1996 are foreign official assets held at the Fed in U.S. Treasuries. From 1997 to the present, data are marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities.

Source: Board of Governors of the Federal Reserve System and Thomson Financial.

The best time to own stocks is when FRODOR's growth rate is rising.

Figure 12.

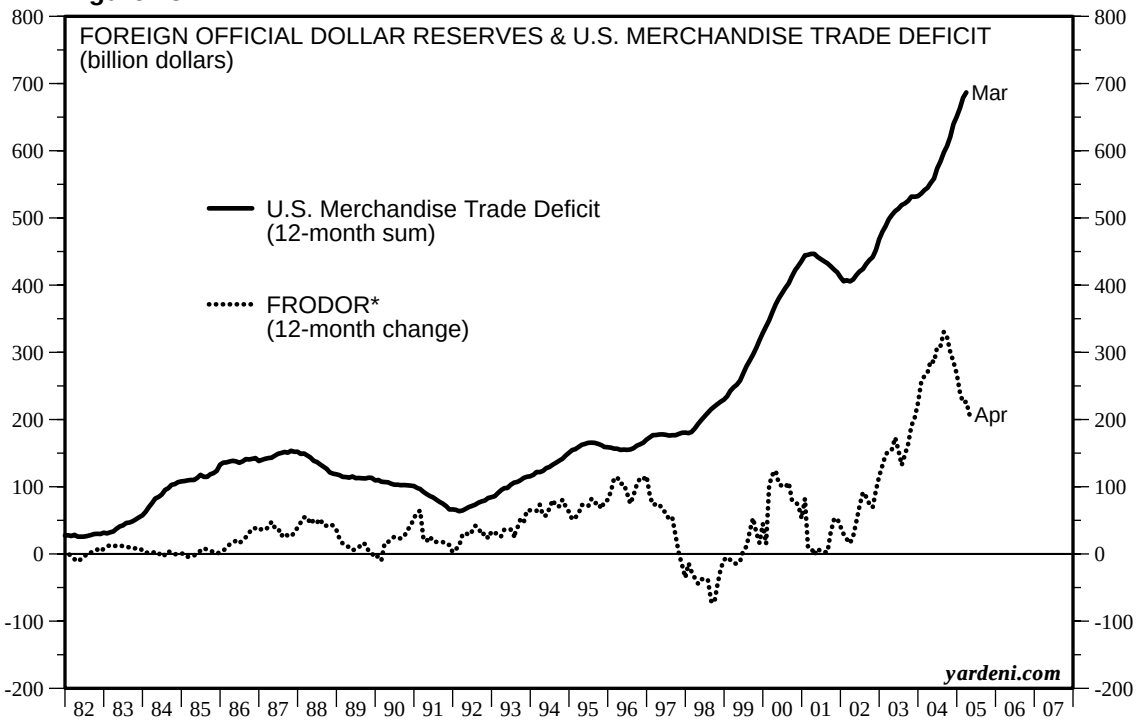


* Data from 1952 to 1996 are foreign official assets held at the Fed in U.S. Treasuries. From 1997 to the present, data are marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities.

Source: Board of Governors of the Federal Reserve System and Standard & Poor's Corporation.

- FRODOR & Trade -

Figure 13.

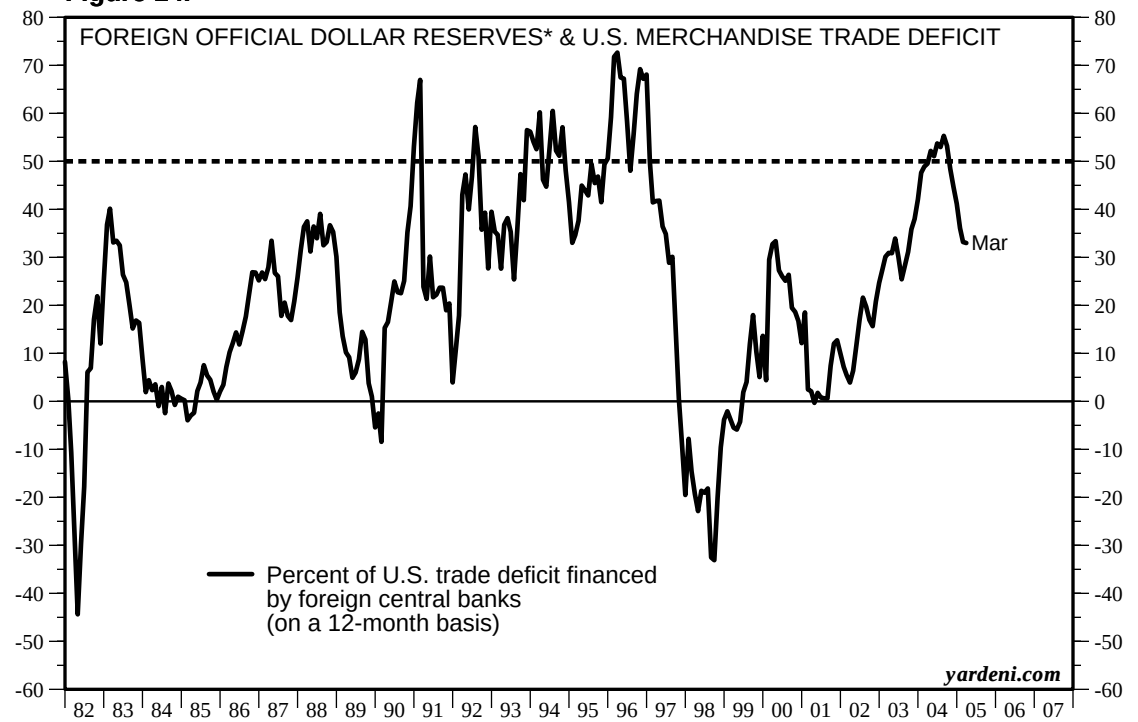


Over the past 12 months, foreign central banks financed 33% of the U.S. trade deficit. During the 1990s, they often financed 50% or more.

* Data from 1952 to 1996 are foreign official assets held at the Fed in U.S. Treasuries. From 1997 to the present, data are marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities.

Source: Board of Governors of the Federal Reserve System and U.S. Department of Commerce, Bureau of Economic Analysis.

Figure 14.



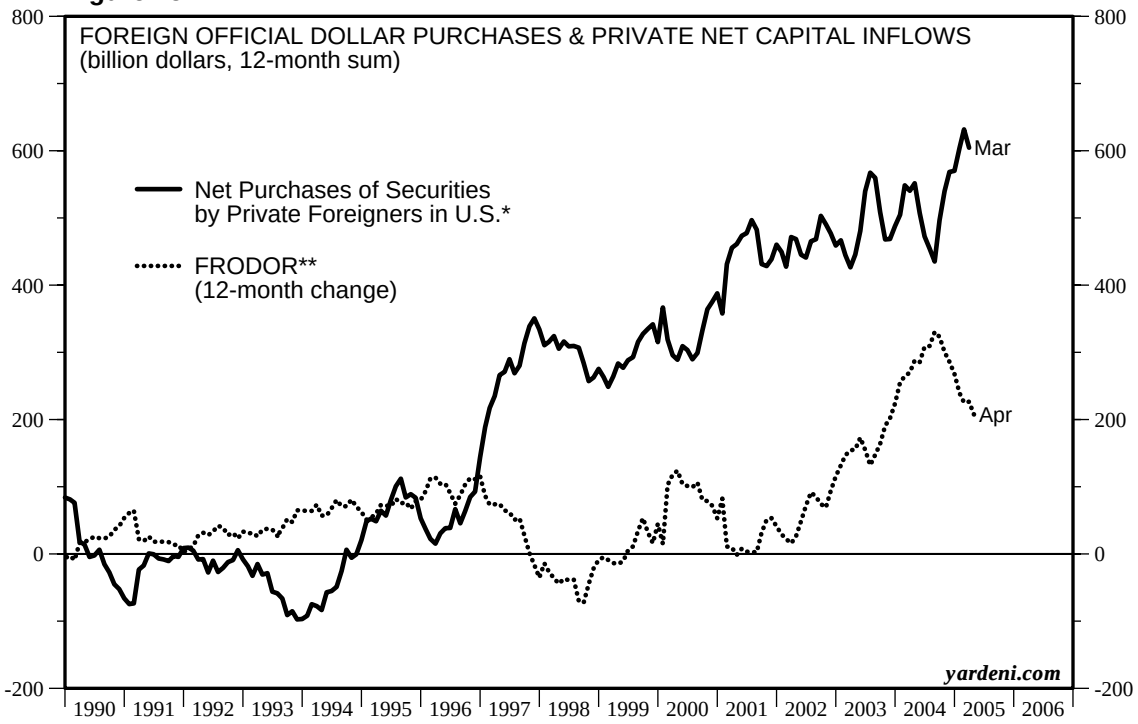
* Data from 1952 to 1996 are foreign official assets held at the Fed in U.S. Treasuries. From 1997 to the present, data are marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities.

Source: Board of Governors of the Federal Reserve System and U.S. Department of Commerce, Bureau of Economic Analysis.

- FRODOR, Trade, & Capital Flows -

Figure 15.

Foreign central banks are buying U.S. Governments at slower pace as private foreign investors' pace of investing in U.S. picks up.

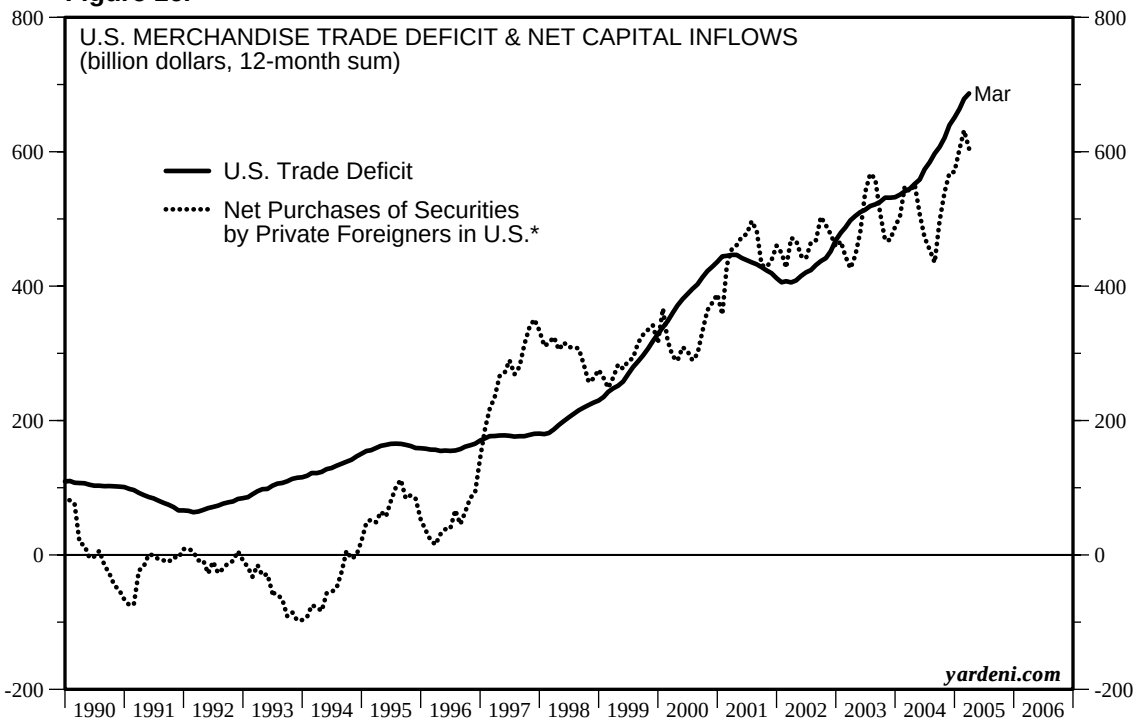


* Includes Treasury bonds and notes, government agency bonds, U.S. corporate bonds, U.S. corporate stocks, foreign bonds, and foreign stocks.

** Data from 1952 to 1996 are foreign official assets held at the Fed in U.S. Treasuries. From 1997 to the present, data are marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities. Source: U.S. Treasury Department and Board of Governors of the FRS.

Figure 16.

When U.S. trade deficit exceeds net securities purchases by private foreigners in U.S., the dollar tends to be weak. When these net purchases exceed the deficit, the dollar tends to be strong.



* Includes Treasury bonds and notes, government agency bonds, U.S. corporate bonds, U.S. corporate stocks, foreign bonds, and foreign stocks.

Source: U.S. Treasury Department, Board of Governors of the Federal Reserve System, and U.S. Department of Commerce, Bureau of Economic Analysis.

- FRODOR & U.S. Budget Deficit -

Figure 17.

Foreigners continue to finance almost the entire U.S. budget deficit.

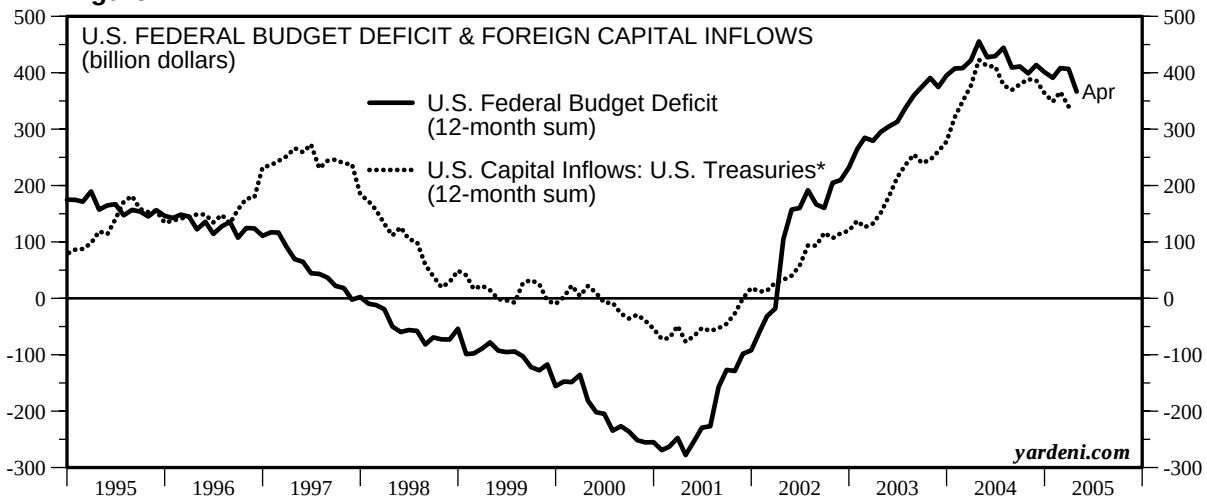


Figure 18.

Foreign central banks are financing less of the U.S. budget deficit, while foreign private investors are financing more of it.

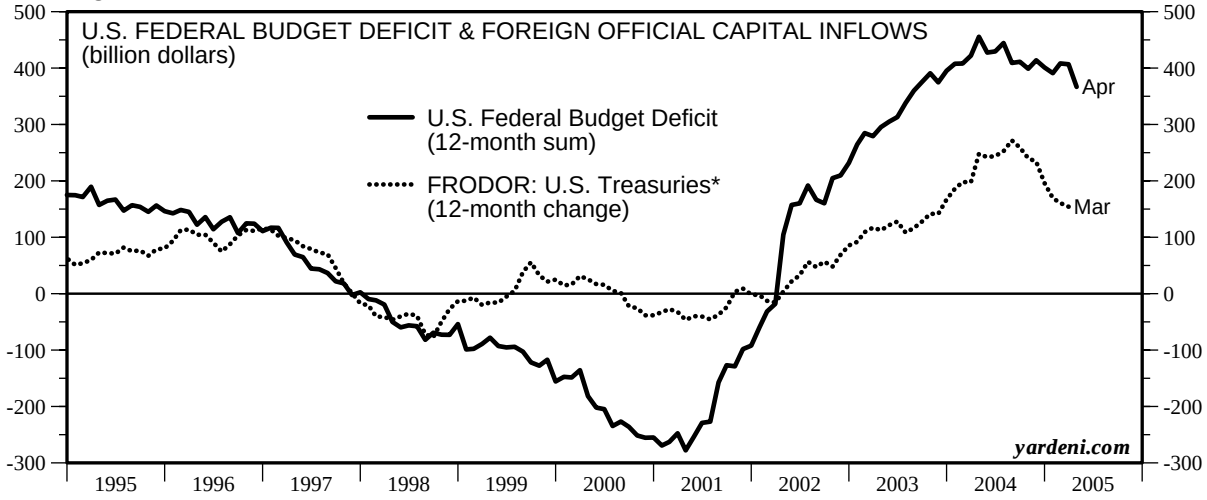
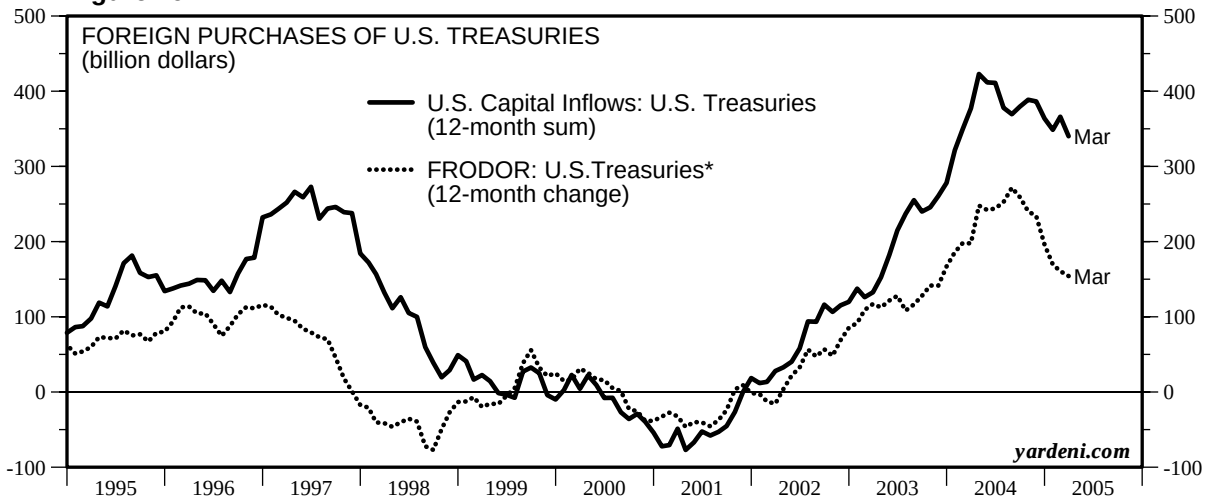


Figure 19.

While foreign central banks are slowing their purchases of U.S. Treasuries, private foreign investors are buying more.

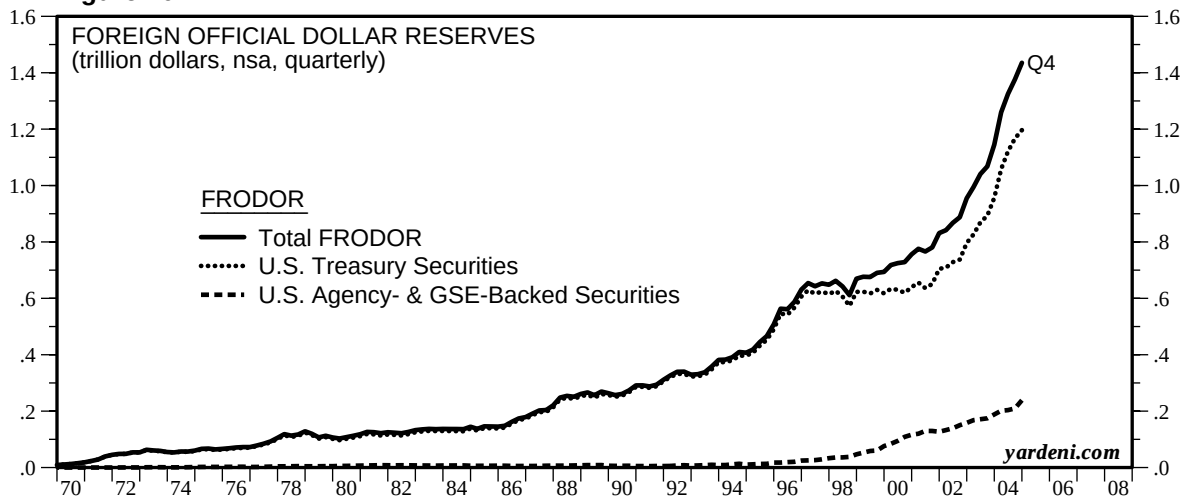


* Held in custody for foreign official and international accounts at the Federal Reserve.
Sources for all charts: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System, U.S. Treasury, and U.S. Department of the Treasury, Office of International Affairs.

- FRODOR -

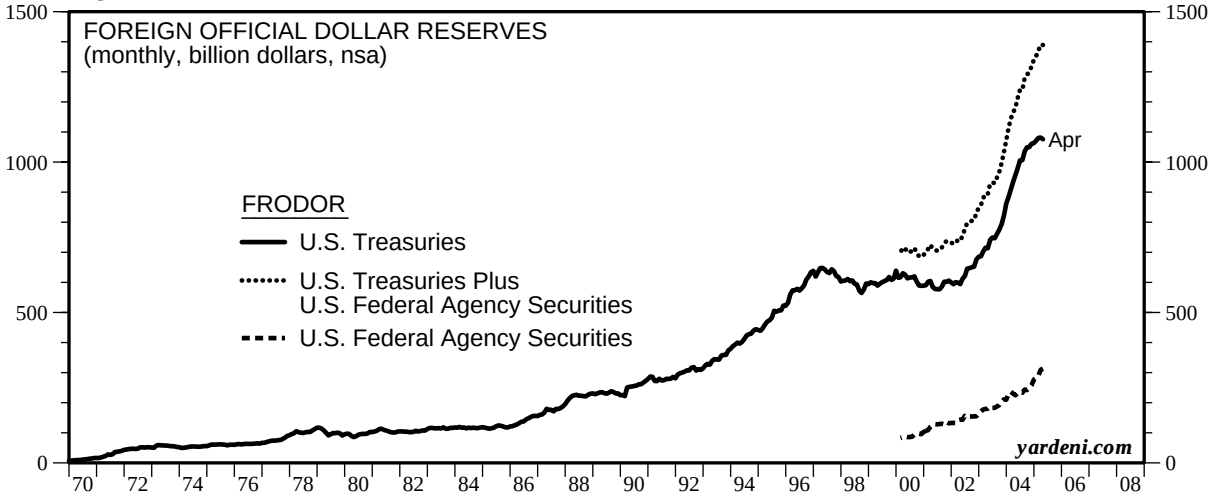
FRODOR data available quarterly...

Figure 20.



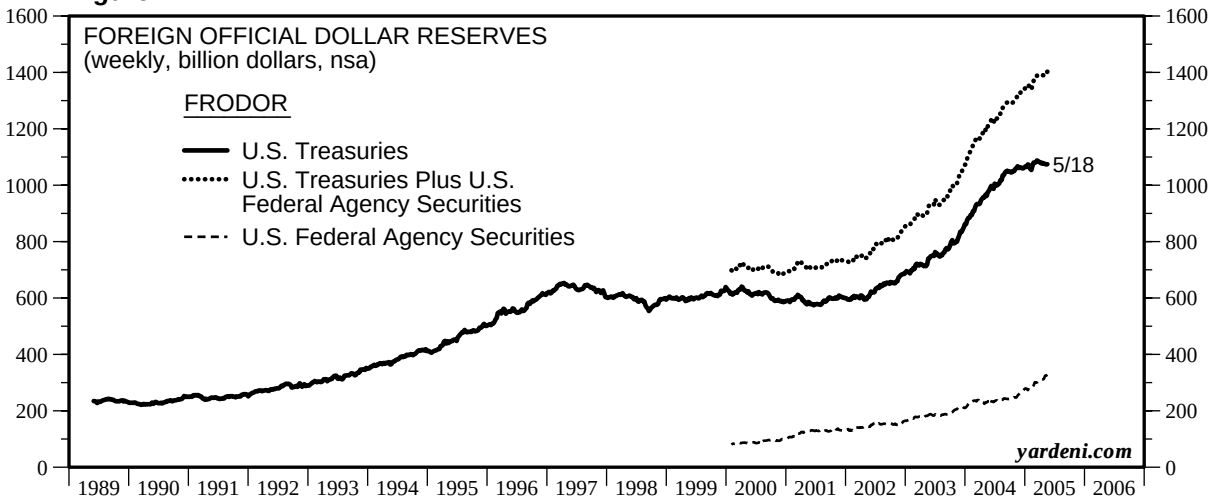
...monthly...

Figure 21.



...and weekly.

Figure 22.

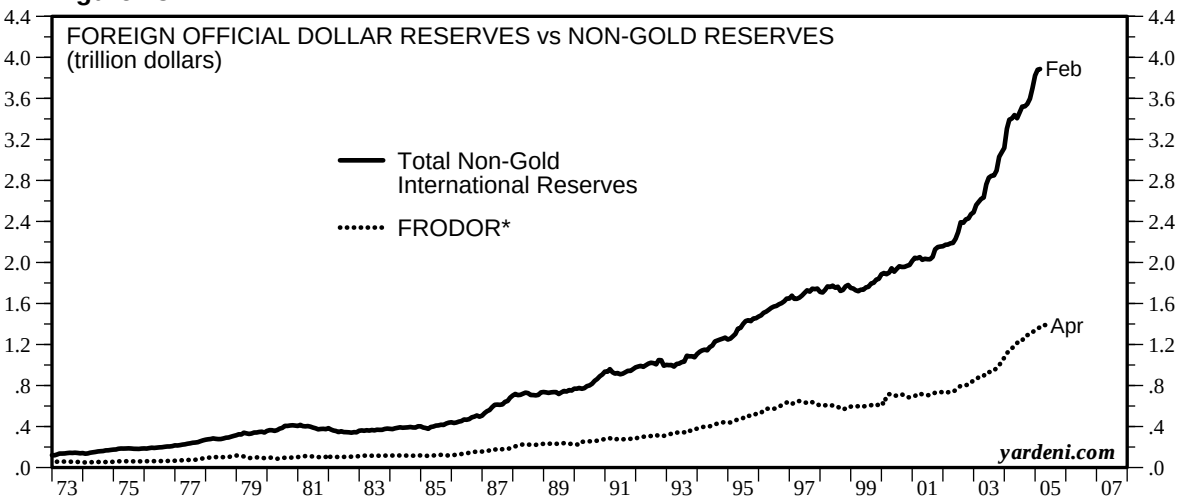


Sources for all charts: Board of Governors of the Federal Reserve System and Federal Reserve Flow of Funds Table L.107.

- FRODOR & International Reserves -

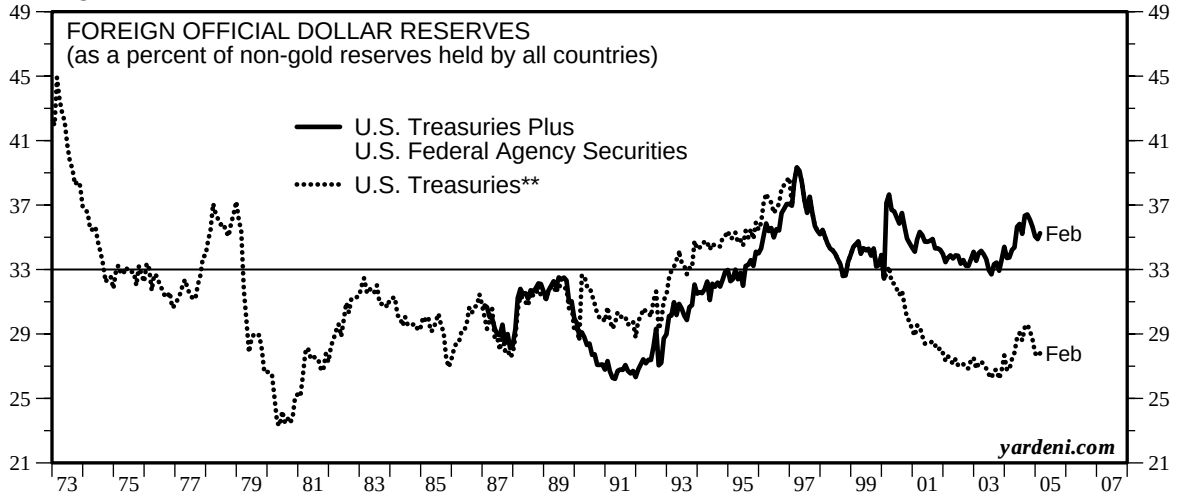
FRODOR has been soaring along with international reserves in recent years.

Figure 23.



FRODOR accounts for roughly one-third of non-gold international reserves.

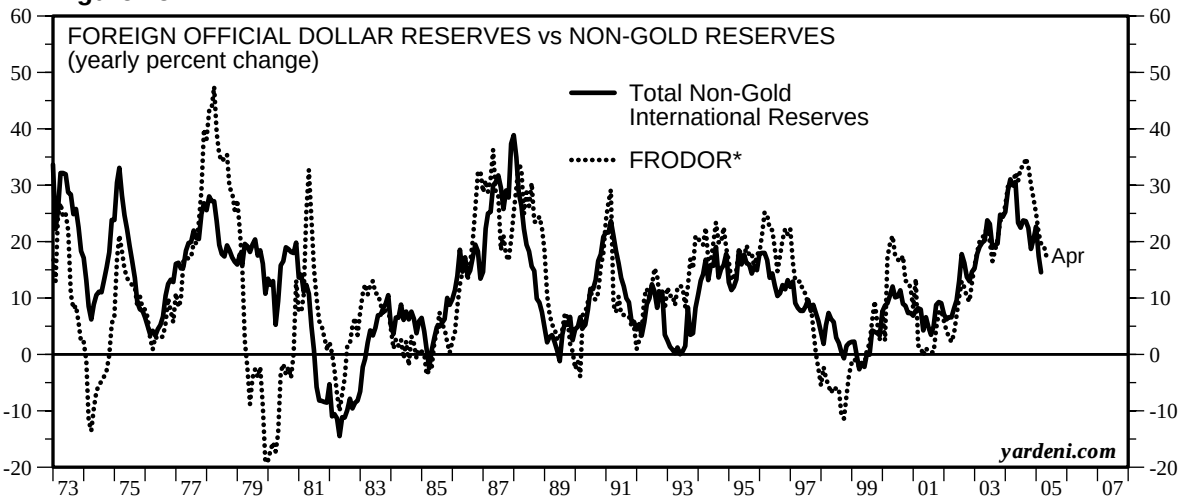
Figure 24.



** Data from 1952 to 1996 is foreign official assets held at the Fed for U.S. treasuries. From 1997 to the present data is marketable U.S. Treasury securities held by the Fed for foreign and international accounts.

The growth rates of FRODOR and total non-gold international reserves have been almost identical.

Figure 25.

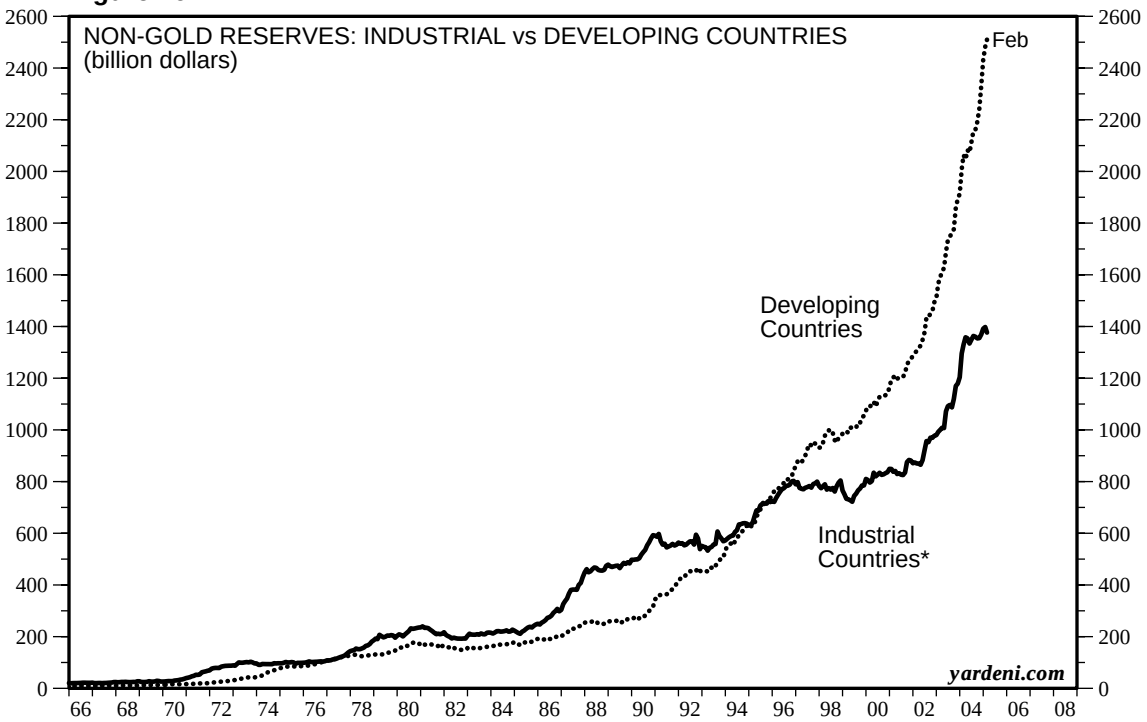


* Data from 1952 to 1996 is foreign official assets held at the Fed for U.S. treasuries. From 1997 to the present data is marketable U.S. Treasury securities held by the Fed for foreign and international accounts. Data from 2000 onward include Federal agency securities. Sources for all charts: Board of Governors of the Federal Reserve System and Federal Reserve Flow of Funds Table L.107.and IMF International Financial Statistics.

- Non-Gold Reserves -

Most of the growth in international reserves has been at the central banks of developing countries.

Figure 26.

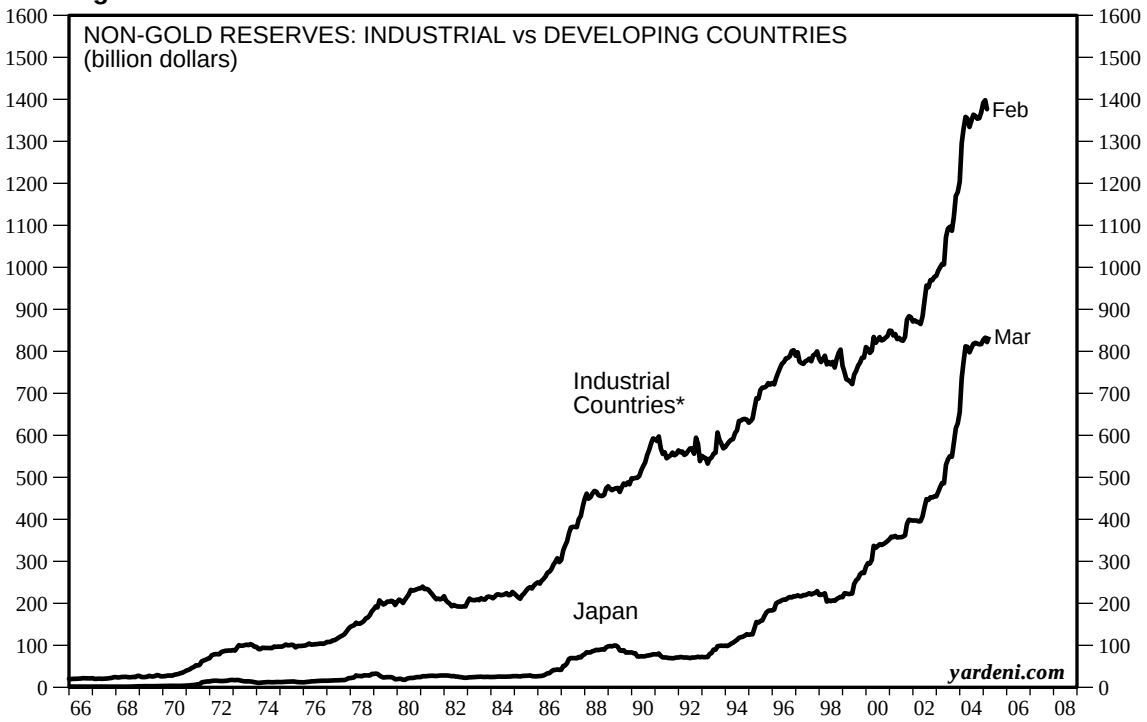


* Includes United States, Canada, Australia, Japan, New Zealand, Austria, Belgium, Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Source: IMF International Financial Statistics.

Japan accounts for most of the growth in reserves among the industrial countries.

Figure 27.



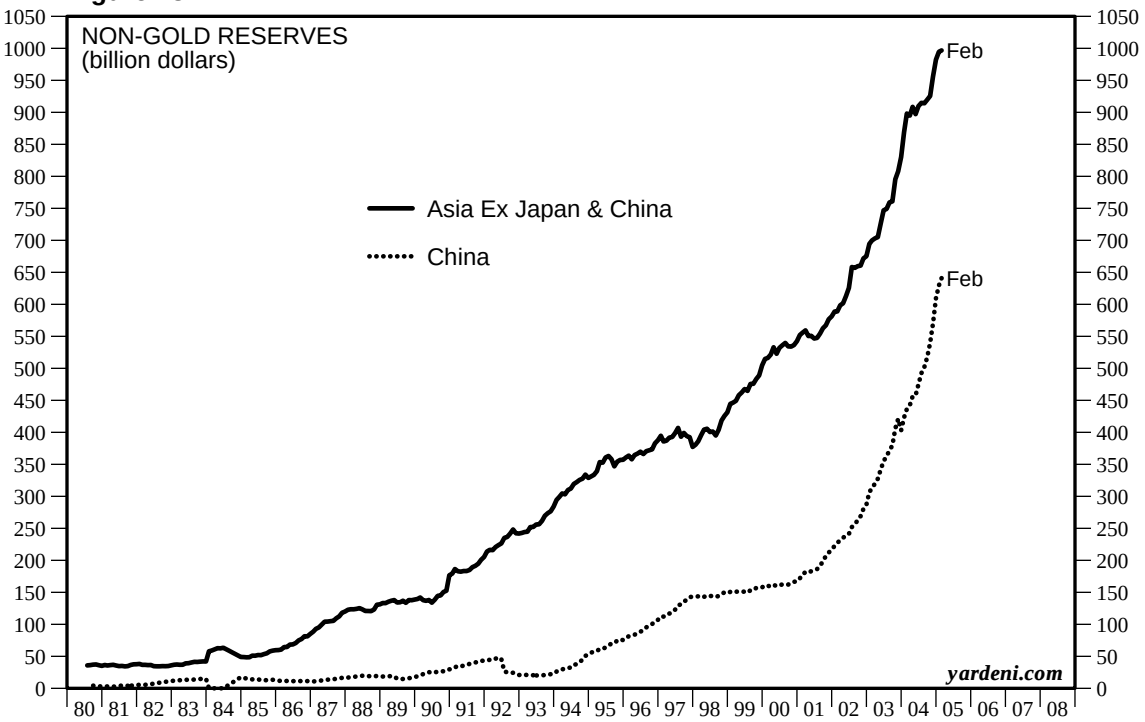
* Includes United States, Canada, Australia, Japan, New Zealand, Austria, Belgium, Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Source: IMF International Financial Statistics.

- Non-Gold Reserves -

In Asia, reserves are soaring not only in China.

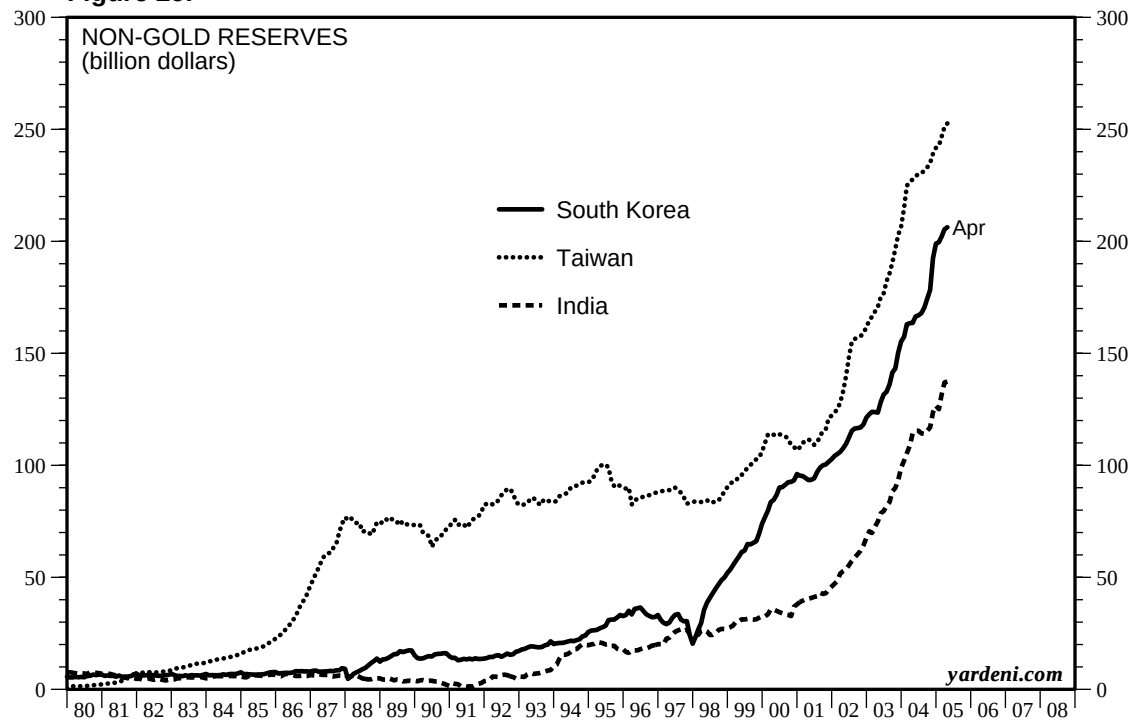
Figure 28.



Source: IMF International Financial Statistics.

These three Asian countries have also increased their reserves holdings significantly.

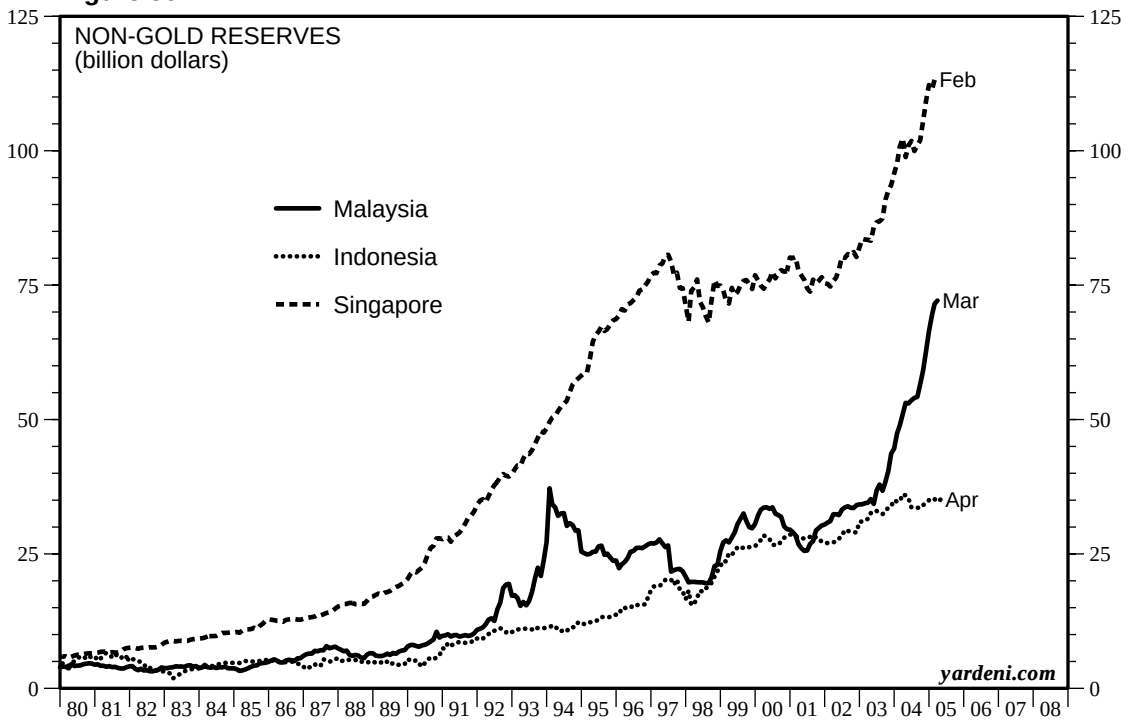
Figure 29.



Source: IMF International Financial Statistics.

- Non-Gold Reserves -

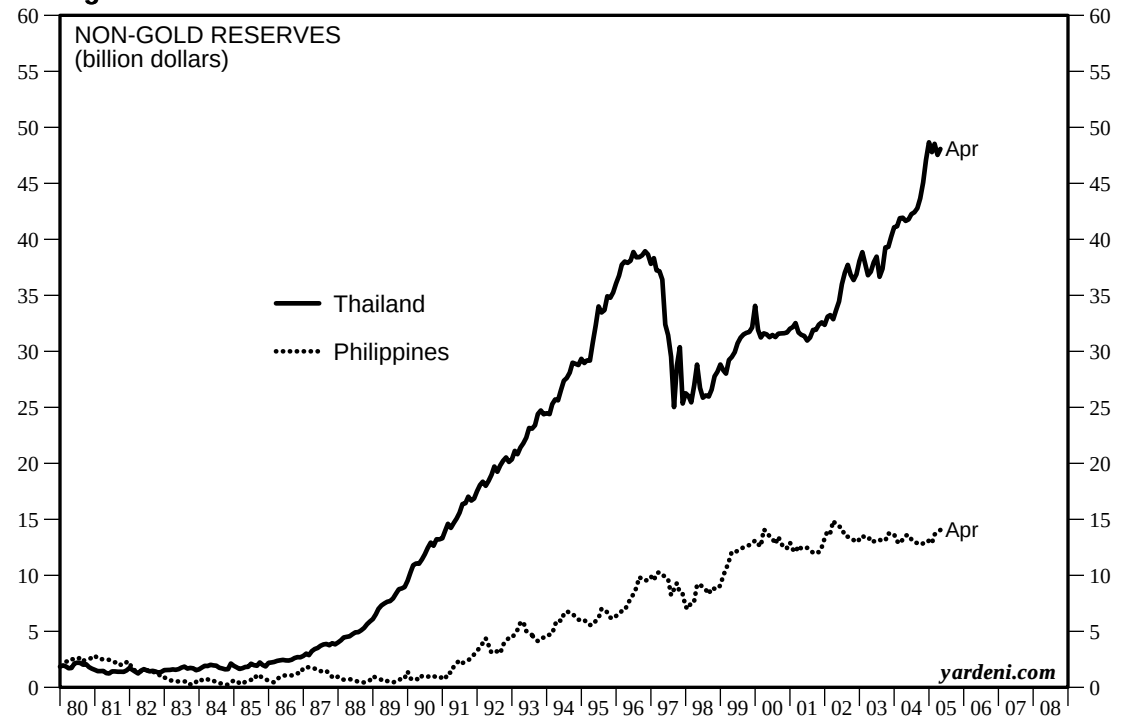
Figure 30.



Source: IMF International Financial Statistics.

In Southeast Asia, reserves are rising most rapidly in Malaysia, Singapore, and Thailand.

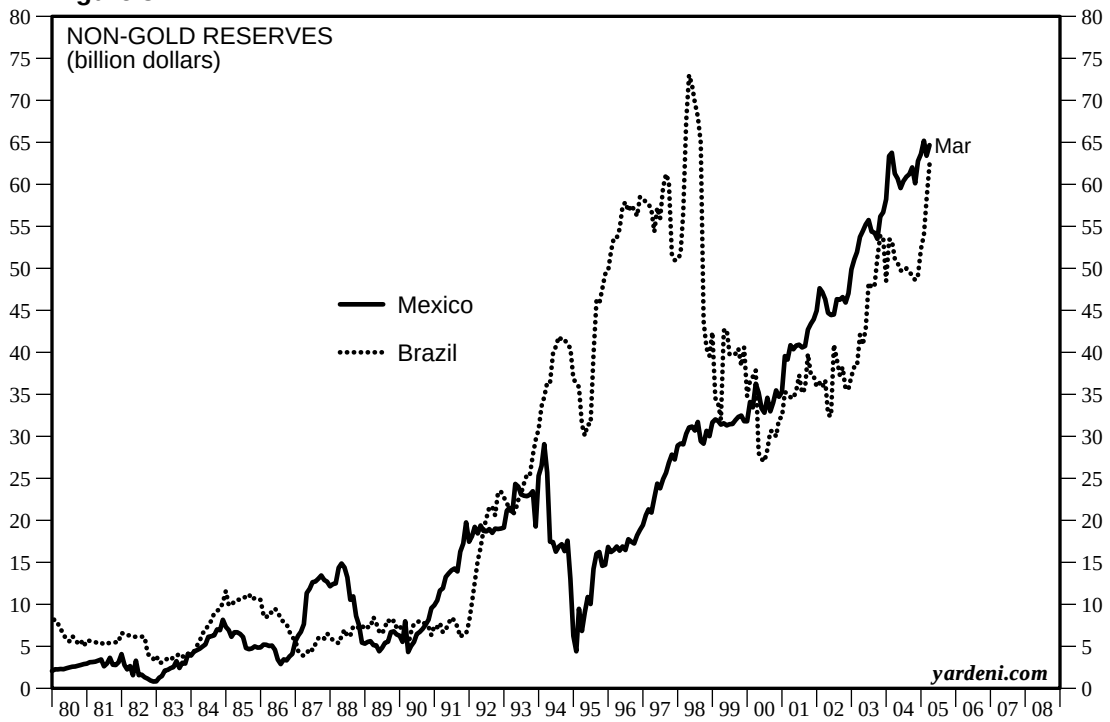
Figure 31.



Source: IMF International Financial Statistics.

- Non-Gold Reserves -

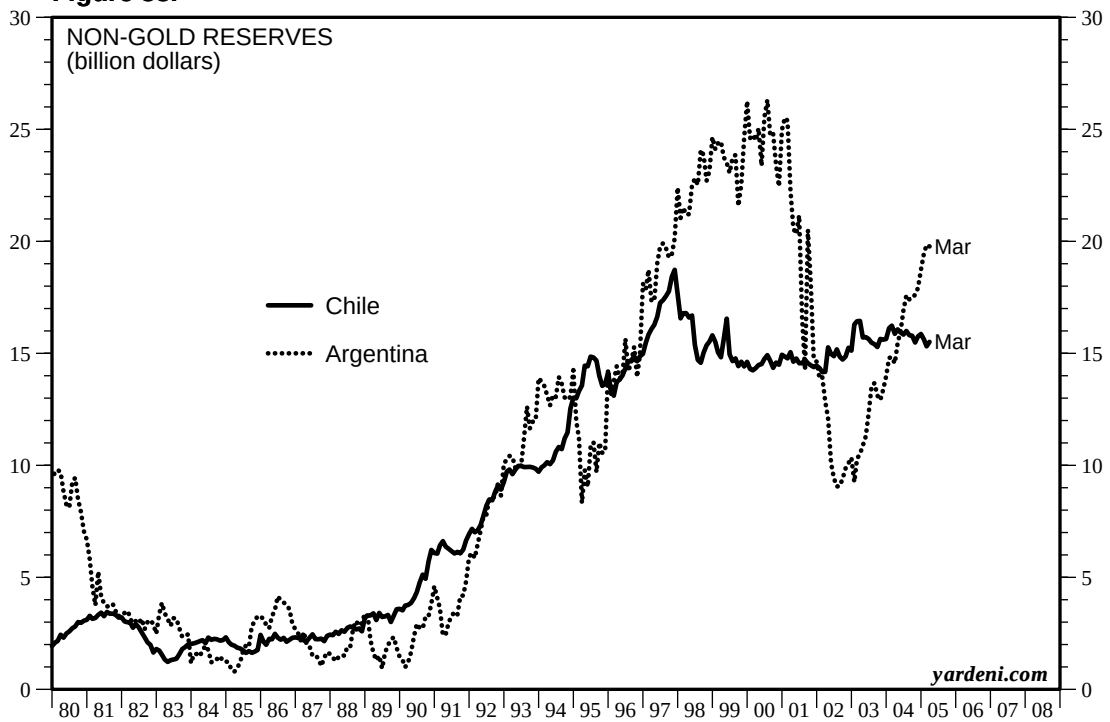
Figure 32.



Source: IMF International Financial Statistics.

Among these four major Latin American nations, only Chile isn't accumulating reserves.

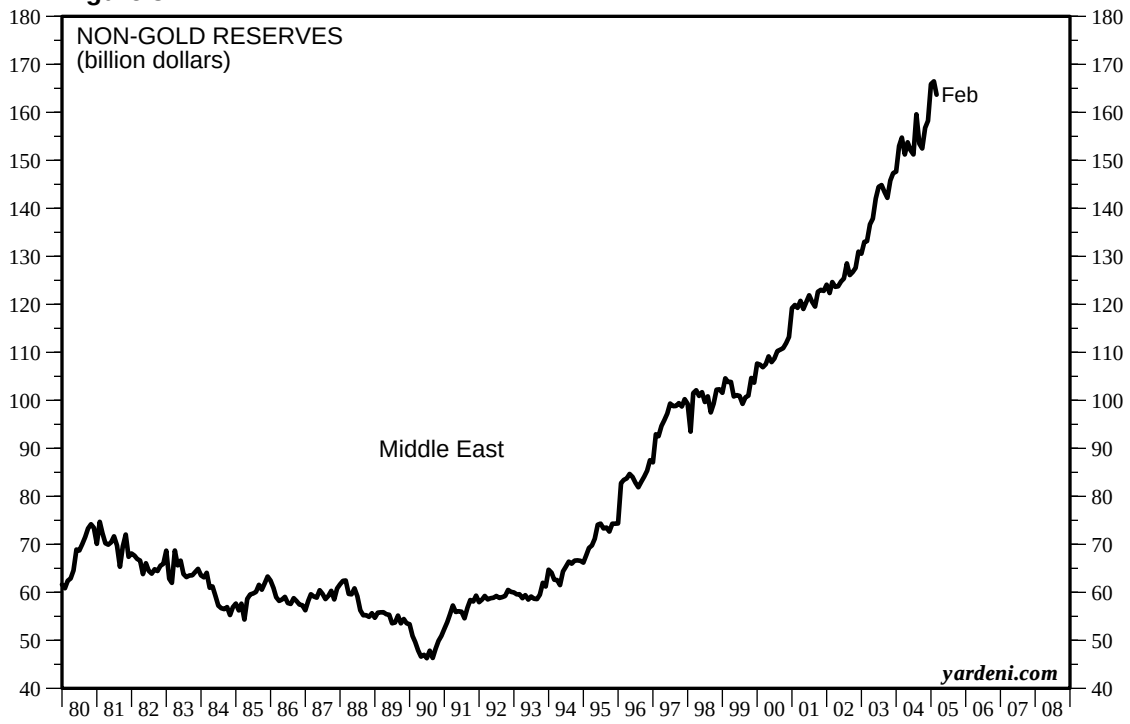
Figure 33.



Source: IMF International Financial Statistics.

- Non-Gold Reserves -

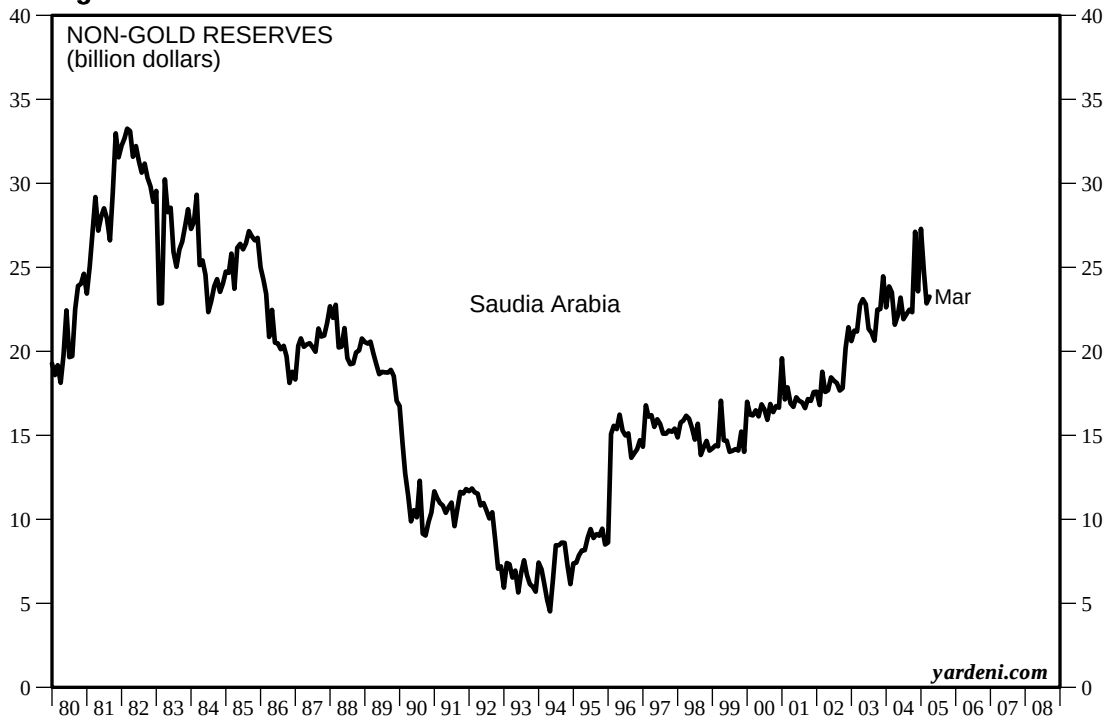
Figure 34.



Source: IMF International Financial Statistics.

Middle Eastern countries' reserves on long-term uptrends.

Figure 35.



Source: IMF International Financial Statistics.

Additional Information Available on Request.