ROADMAP FOR THE 21ST CENTURY

NATIONAL TAX-LIMITATION COMMITTEE | THE HEARTLAND INSTITUTE
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Monetary Policy: The Gold Standard

Prepared by the Working Group on the Gold Standard
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Introduction

This paper lays out how the gold standard made America great … and why it is essential to making America great again. We dispel the myth that switching back to the gold standard would be difficult to do, explain why the gold standard is great policy and great politics, and describe specifically how to present the gold standard, how to defend it against progressive hostility, how to implement it, and why it would be worthwhile to invest political capital to adopt it in the new president's first 100 days.

The President-elect's Position

President-elect Donald Trump has shown a complete grasp of the benefits and mechanics of the gold standard in two off-the-cuff comments. Michelle Jamrisko reported for *Bloomberg News*, "'We used to have a very, very solid country because it was based on a gold standard,' [Trump] told WMUR television in New Hampshire in March last year. But he said it would be tough to bring it back because 'we don't have the gold. Other places have the gold.'"

Forbes reports Trump also told *GQ*: "Bringing back the gold standard would be very hard to do, but boy, would it be wonderful. We'd have a standard on which to base our money." And as *Bloomberg* reminds, us: "Trump loves gold, and don't you forget it."

The Vice President-elect's Position

Reporting for *Forbes*, one of the authors of this Roadmap report, Ralph Benko quotes from *ThinkProgress* coverage of a major speech Vice President-elect Mike Pence delivered at the Detroit Economic Club:

> The first item of Pence's five-point [plan] for the economy is a "sound monetary policy." Pence elaborated that he believes a return to the gold standard could create such a policy:
> PENCE: Before I move on, I'd like to note, in the midst of all that's happened recently — massive borrowing and spending, QE2 — a debate has started anew over an anchor to our global monetary system. My dear friend, the late Jack Kemp, probably would have urged me to adopt the gold standard, right here and now in Detroit. Robert Zoellick, the president of the World Bank, encouraged that we rethink the international currency system including the role of gold, and I agree. I think the time has come to have a debate over gold, and the proper role it should play in our nation's monetary affairs. A pro-growth agenda begins with sound monetary policy.

The Gold Standard Is Great Policy

For almost 180 years the American economy benefitted from a variant of the gold standard. The gold standard economy fostered what came to be known as the American Dream: equitable prosperity, which is to say rapid economic growth conjoined with economic justice, abundant opportunity for "the little guy," including plentiful jobs and upward income mobility.

As Peter Ferrara, one of the authors of this Roadmap paper, pointed out in 2014, "the Gold

Standard is the foundation for restoring booming economic growth." Ferrara continued:

> Tying the dollar to gold, which has proved to maintain its value for thousands of years of recorded civilization, meant that the dollar maintained its stable value, without inflation, as well. The U.S. price level was almost exactly the same in 1913, when the Federal Reserve Board was established, as it was in 1792, when Congress passed the Coinage Act defining the value of the dollar under the Constitution. That value of the dollar was the same as well in 1934, when Franklin Roosevelt terminated the original, Constitutional right of every American to exchange every dollar for its defined amount of gold.
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> But since America abandoned the gold standard in 1971, the purchasing power of the dollar has declined by 85 percent. A dollar saved in 1971 was worth only 15 cents by 2012. While gold cost $20 an ounce in March, 1910, the same as in 1792, by April 15, 2012, it cost $1,658. A dollar, worth one twentieth of an ounce of gold when the Federal Reserve was established in 1913, was worth only 4 cents by 2010.
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> The original Founding Founders understood basic economics so much better than any Nobel Prize winner, or any of the other 20th Century economic sophists who convinced us to abandon the gold standard that worked so spectacularly for America. When America was on the gold standard, the real rate of economic growth averaged nearly 4% a year. Since then real annual growth has stagnated at about 25% less. Under Obama … real growth has been barely half what it was under the original American gold standard.

As Steve Forbes has pointed out:

> Look at it this way. In the 40 years that we have been off a gold standard our average growth rate is less than it was the previous 180 years when we were on a gold standard. … If we had maintained gold standard growth rates do you realize the American economy today would be 50% larger than it is now? Ponder that: $8 trillion bigger. Life would be a lot better. … There's a reason why people feel we are not moving ahead. And society turns on itself when it feels that mobility and opportunity is being corrupted. And they don't understand why. So we have to tell people why this is happening and what we can do about it. …

A 2011 study by the Bank of England, *Financial Stability Paper* No. 13, proves economic growth and stability under the Federal Reserve Note Standard is vastly inferior to that under the gold standard. The full paper is attached as Exhibit 2. It was capably summarized by Charles Kadlec (a former protégé of Arthur Laffer) at *Forbes*:

> Now, a Bank of England study with the ambitious title, "Reform of the International Monetary and Financial System," shows that the entire world economy has suffered a similar fate.
>
> The paper's authors, Oliver Bush, Katie Farrant and Michelle Wright break new ground by documenting the extraordinary short fall of the world economy under the now 40-year old mix of floating, pegged and fixed exchange rates.
>
> When compared to the Bretton Woods system, in which countries defined their currencies by a fixed rate of exchange to the dollar, and the U.S. in turn defined the dollar as 1/35th of an ounce of gold:
>
> - Economic growth is a full percentage point slower, with an average annual increase in real per-capita GDP of only 1.8%
> - World inflation of 4.8% a year is 1.5 percentage point higher;
> - Downturns for the median countries have more than tripled to 13% of the total period;
> - The number of banking crises per year has soared to 2.6 per year, compared to only one every ten years under Bretton Woods;
>
> Moreover, abandoning the gold standard in favor of free floating currencies was supposed to eliminate currency crises and

lead to an automatic adjustment in trade imbalances. Instead:

- The number of currency crises has increased to 3.7 per year from 1.7 per year;
- Current account deficits have nearly tripled to 2.2% of world GDP from only 0.8% of GDP under Bretton Woods.

These results demonstrate beyond a reasonable doubt that the experiment with floating paper currencies has been a disaster for the people of the world. Had the trends under Bretton Woods continued, the average person's real income would be nearly 50% higher, the increase in prices would be nearly 50% lower, trade imbalances would be nearly one-third smaller and the world economy over the past four decades would have suffered through 4 instead of 104 banking crises.

Let it be noted that Prof. Robert Mundell, the prime architect, with Arthur Laffer, of Reaganomics, devoted most of his 1999 Nobel Prize lecture (attached as Exhibit 3) to an appreciative retrospective of the gold standard.

Prof. Mundell, in his speech accepting this distinguished award, stated:

> The international gold standard at the beginning of the 20th century operated smoothly to facilitate trade, payments and capital movements. Balance of payments were kept in equilibrium at fixed exchange rates by an adjustment mechanism that had a high degree of automaticity. The world price level may have been subject to long-terms trends but annual inflation or deflation rates were low, tended to cancel out, and preserve the value of money in the long run. The system gave the world a high degree of monetary integration and stability.
>
> International monetary systems, however, are not static. They have to be consistent and evolve with the power configuration of the world economy. Gold, silver and bimetallic monetary standards had prospered best in a decentralized world where adjustment policies were automatic. But in the decades leading up to World War I, the central banks of the great powers had emerged as oligopolists in the system. The efficiency and stability of the gold standard came to be increasingly dependent on the discretionary policies of a few significant central banks. This tendency was magnified by an order of magnitude with the creation of the Federal Reserve System in the United States in 1913. The Federal Reserve Board, which ran the system, centralized the money power of an economy that had become three times larger than either of its nearest rivals, Britain and Germany. The story of the gold standard therefore became increasingly the story of the Federal Reserve System.
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> World War I made gold unstable. The instability began when deficit spending pushed the European belligerents off the gold standard, and gold came to the United States, where the newly-created Federal Reserve System monetized it, doubling the dollar price level and halving the real value of gold. The instability continued when, after the war, the Federal Reserve engineered a dramatic deflation in the recession of 1920-21, bringing the dollar (and gold) price level 60 percent of the way back toward the prewar equilibrium, a level at which the Federal Reserve kept it until 1929.
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> It was in this milieu that the rest of the world, led by Germany, Britain and France, returned to the gold standard. The problem was that, with world (dollar) prices still 40 percent above their prewar equilibrium, the real value of gold reserves and supplies was proportionately smaller. At the same time monetary gold was badly distributed, with half of it in the United States. In addition, uncertainty over exchange rates and reparations (which were fixed in gold) increased the demand for reserves. In the face of this situation would not the increased demand for gold brought about by a return to the gold standard bring on a deflation? A few economists, like Charles Rist of France, Ludwig von Mises of Austria and Gustav Cassel of Sweden, thought it would. ...
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> Rist, Mises and Cassel proved to be right. Deflation was already in the air in the late

1920?s with the fall in prices of agricultural products and raw materials. The Wall Street crash in 1929 was another symptom, and generalized deflation began in 1930.

Mundell concluded his remarks:

> The century closes with an international monetary system inferior to that with which it began, but much improved from the situation that existed only two-and-a-half decades ago. It remains to be seen where leadership will come from and whether a restoration of the international monetary system will be compatible with the power configuration of the world economy. It would certainly make a contribution to world harmony.

It also bears noting, as Benko did at *Forbes*, that in the speech as delivered Mundell observed (around minute 9'30") that it "did not require a great theoretical genius to run gold standards. … It was automatic. All that mattered is that countries would export or import gold, they'd fix their currencies to gold, and their exports or imports automatically changed the money supply, and the changes in the money supply brought about changes in expenditure which brought balance of payments into equilibrium." Mundell departed from his prepared text to observe (at 9'45"), "A monkey could run the gold standard because … it was automatic."

It is worthwhile noting that in 2011, shortly before he was disabled by a stroke, Mundell made a public and unequivocal recommendation for adopting the gold standard:

> [T]here could be a kind of Bretton Woods type of gold standard where the price of gold was fixed for central banks and they could use gold as an asset to trade central banks.
>
> The great advantage of that was that gold is nobody's liability and it can't be printed. So it has a strength and confidence that people trust.

An American Economic Miracle

Benko wrote at *The Gold Standard Now* website:

> As summarized in an exceptionally lucid article, the German Economic Miracle, by economist (and editor) David R. Henderson – a research fellow with Stanford University's Hoover Institution and an associate professor of economics at the Naval Postgraduate School in Monterey, California – and published in the estimable *Library of Economics and Liberty*:
>
> "After World War II the German economy lay in shambles. The war, along with Hitler's scorched-earth policy, had destroyed 20 percent of all HOUSING. Food production per capita in 1947 was only 51 percent of its level in 1938. ... Industrial output in 1947 was only one-third its 1938 level. Moreover, a large percentage of Germany's working-age men were dead. At the time, observers thought that West Germany would have to be the biggest client of the U.S. WELFARE state; yet, twenty years later its economy was envied by most of the world. And less than ten years after the war people already were talking about the German economic miracle.
>
> "What caused the so-called miracle? The two main factors were currency reform and the elimination of PRICE CONTROLS, both of which happened over a period of weeks in 1948. A further factor was the reduction of MARGINAL TAX RATES later in 1948 and in 1949.

As Benko wrote at *Forbes*:

> Good money was key to the Erhard German "Economic Miracle" of 1948, the *Wirtschaftswunder* – which started out from a much more dire baseline than America confronts. Ludwig Erhard took an utterly destroyed, destitute, and demoralized Germany from ruin to riches in stunning fashion. It is a forgotten story, but… Erhard, in his memoir *Prosperity Through Competition*, wrote:
>
> "The big chance for Germany came in 1948: it depended on linking the currency reform with an equally resolute economic reform, so as to end once and for all the whole complex of State controls of the economy-from production to the final consumer-which, following in the wake of the people's nonsensical demands, had lost

all touch with reality. Today few can realize how much courage and sense of responsibility were needed for such a step. Some time later two Frenchmen, Jacques Rueff and Andre Piettre, summed up the combination of economic and currency reform thus:

> 'The black market suddenly disappeared. Shop windows were full of goods; factory chimneys were smoking; and the streets swarmed with lorries. Everywhere the noise of new buildings going up replaced the deathly silence of the ruins. If the state of recovery was a surprise, its swiftness was even more so. In all sectors of economic life it began as the clocks struck on the day of currency reform. Only an eye-witness can give an account of the sudden effect which currency reform had on the size of stocks and the wealth of goods on display. Shops filled up with goods from one day to the next; the factories began to work. On the eve of currency reform the Germans were aimlessly wandering about their towns in search of a few additional items of food. A day later they thought of nothing but producing them. One day apathy was mirrored on their faces while on the next a whole nation looked hopefully into the future.'"

Circumstances forced Erhard to rely on a proxy for the gold standard in his currency reform. A proxy, such as Fed targeting commodities prices, is no longer necessary and would be suboptimal. Let it be noted that the Frenchman cited by Erhard, Jacques Rueff, was the premier gold standard economist and advocate of the late twentieth century. In addition to bearing witness to the dramatic rapidity of the results of the German economic miracle Rueff (with Pinay) is credited as co-author of the French Economic Miracle. Jack Kemp's chief economist, John Mueller, summarizes:

> Despite the unanimous opposition of his cabinet, de Gaulle adopted the entire Rueff plan, which required sweeping measures to balance the budget and make the franc convertible after 17.5% devaluation – though not without qualms. 'All your recommend-ations are excellent,' de Gaulle told Rueff. 'But if I apply them all and nothing happens, have you considered how much real pain it will cause across this country?' Rueff replied, "I give you my word, *mon General*, that the plan, if completely adopted, will re-establish equilibrium in our balance of payments within a few weeks. Of this I am absolutely sure; I accept that your opinion of me will depend entirely on the result.' (It did: ten years later, de Gaulle awarded Rueff the medal of the Legion of Honor.)

The Experts, Proponents, and Opponents

Experts tend to misunderstand and detest the simplicity and performance of high integrity money (of which the gold standard is the gold standard.) To again cite Henderson:

> Journalist Edwin Hartrich tells the following story about Erhard and Clay. In July 1948, after Erhard, on his own initiative, abolished rationing of food and ended all price controls, Clay confronted him:
>
> *Clay:* "Herr Erhard, my advisers tell me what you have done is a terrible mistake. What do you say to that?"
>
> *Erhard:* "Herr General, pay no attention to them! My advisers tell me the same thing."
>
> Hartrich also tells of Erhard's confrontation with a U.S. Army colonel the same month:
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> *Colonel:* "How dare you relax our rationing system, when there is a widespread food shortage?"
>
> *Erhard:* "But, Herr Oberst. I have not relaxed rationing; I have abolished it! Henceforth, the only rationing ticket the people will need will be the deutschemark. And they will work hard to get these deutschemarks, just wait and see."
>
> Of course, Erhard's prediction was on target. ...
>
> The effect on the West German economy was electric. Wallich wrote: "The spirit of the country changed overnight. The gray, hungry, dead-looking figures wandering about the

> streets in their everlasting search for food came to life."
>
> Shops on Monday, June 21, were filled with goods as people realized that the money they sold them for would be worth much more than the old money. ...
>
> Output continued to grow by leaps and bounds after 1948. By 1958 industrial production was more than four times its annual rate for the six months in 1948 preceding currency reform. Industrial production per capita was more than three times as high. East Germany's communist economy, by contrast, stagnated.

Proponents

Classical liberals (i.e. conservatives) tend to hold the gold standard in high esteem.

Among those who firmly understand and endorse the classical gold standard as crucial to equitable prosperity can be counted Lewis E. Lehrman (the author of the definitive plan on how to restore the gold standard, *Paper Money or The True Gold Standard: A Monetary Reform Plan Without Official Reserve Currencies, How We Get From Here To There: From World Financial Crisis To Monetary Order*, The Lehrman Institute 2012), Steve Forbes, Sean Fieler, George Gilder (author of the "bible" of Reaganomics), William Walton, David Hoppe, James Kemp, Dr. Kurt Schuler, Prof. Lawrence White (George Mason University), Dr. Norbert Michel (Heritage Foundation), Dr. Judy Shelton, Dr. Brian Domitrovic, journalists James Grant, William Kristol and John Tamny, financial services sector analysts Richard Lowrie and Nathan Lewis, former Senate aide Sean Rushton, and the authors of this paper. We are available for further consultations.

It also bears noting that prominent technologist and venture capitalist Peter Thiel, President-elect Trump's most high-profile supporter in Silicon Valley, has praised the gold standard.

It is also worth noting that Zhou Qiren, dean of Peking University's National School of Development and a member of the People's Bank of China Monetary Policy Committee recently told a reporter Ye Weiqiang:

> If the currency of each major country is bound to gold, financial headaches would of course be reduced. Taking QE2 as an example, if this were the 1880s, the currencies of the major western countries would be measured in gold. Unless the U.S. Treasury suddenly gained a large quantity of gold reserves, it would be impossible for (U.S. Federal Reserve Chairman Ben) Bernanke to print US$600 billion to purchase long-term debt. If there is a commitment to a gold standard system, such as the Bretton Woods system in place until 1971, the Fed could not easily ease its monetary policy, because not only could each country with dollar holdings hold them accountable, they could also redeem their dollars for gold to see how much Uncle Sam's promise is worth.
>
> A gold standard also would eliminate exchange rate wars. Since all major currencies could be exchanged for gold or other currencies pegged to a currency that follows the gold standard, exchange rates would remain stable without anyone doing anything. Where would exchange rate disputes come from? In short, the gold standard would effectively prevent each country's government from recklessly levying 'inflation taxes' domestically and passing troubles to others by manipulating currency exchange internationally.
>
> Of course, this is an excellent monetary system.

Opponents

Neo-Keynsians tend to denigrate the gold standard. Among its most virulent opponents may be counted Profs. Paul Krugman, Brad DeLong, and Austan Goolsby, journalists Matthew O'Brien, Mike Konczal, and Matthew Yglesias, 40 academic economists (few of whom are monetary economists) polled several years ago by the Booth School, and many other elite progressive thinkers.

Among the gold standard's most preeminent opponents should be counted former Fed chairman Ben Bernanke who, as chairman, launched the most virulent attack on it in recent decades. In doing so, Bernanke contradicted his own position taken as Fed governor wherein, in a 2004 speech at Washington and Lee University, he said:

> The gold standard appeared to be highly successful from about 1870 to the beginning of World War I in 1914. During the so-called "classical gold standard period," international trade and capital flows expanded markedly, and central banks experienced relatively few problems ensuring that their currencies retained their legal value.

Current Fed Vice Chairman Stanley Fischer, when chief economist for the IMF, stated in a 1999 interview:

> It's hard to quarrel with nostalgia for what the 19th century must have been like. But there is no good reason to tie the growth of the world's money supply, and global inflation, to the vagaries of gold production. Nor is there good reason to waste real resources to produce gold for use as money. And there is reason to think we can do better than the gold standard: The United States has certainly done so recently, and the development of the inflation targeting approach to monetary policy suggests most countries will do so in future too. It may be hubris to believe that human beings can do better than depend on the supply of gold, but we certainly should be able to do so, and are doing so now.

Of course, the economy soon thereafter came a cropper, furnishing further evidence for the hubris displayed. (Moreover let it be noted that the gold standard in no way ties the growth of the world's money supply, or global inflation, to the vagaries of gold production, and there is no evidence that "we can do better than the gold standard.")

From the right, it bears noting that Prof. Milton Friedman, the father of monetarism, was an irredentist foe of the gold standard. That said, it is noteworthy that toward the end of his life Friedman quietly repudiated monetarism. As William Keegan reported for *The Guardian*, "The economic quote of the month – and probably the decade – is that Milton Friedman now admits: 'The use of quantity of money as a target has not been a success.' He added: 'I'm not sure I would as of today push it as hard as I once did.' (FT, 7 June 2003)."

Successors to monetarism, the "market monetarists" who advocate NGDP targeting – such as the Mercatus Center's Dr. David Beckworth, the American Enterprise Institute's James Pethoukoukis, and *National Review*'s Ramesh Ponurru – have levelled badly constructed criticisms of the gold standard and appear to be outliers on the right. That said, we note that NGDP targeting has a gained a firm foothold at Mercatus and the Cato Institute, although not on Capitol Hill or in the conservative movement at large.

Gold Goes Mainstream

As Benko wrote at *Bloomberg News* on June 20, 2106, over the past five years the gold standard has moved from fringe to mainstream.

> A report by Michelle Jamrisko in *Bloomberg News* on May 17th, headlined "Make America Gold Again: Calls for Everyone's Favorite Standard Are Back," suggests that the headline may have outrun its pass coverage. The gold standard is by no means "everyone's" favorite standard. It has many critics.
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> And yet, giving due deference to an element of dramatic license, this report makes several very significant points, scooping the rest of the mainstream media.
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> The first key points are that, in the reported words of Jesse Hurwitz, a U.S. economist at Barclays Capital in New York — who considers the gold standard a bad idea — "The fringe has become the mainstream." He considers the gold standard "something we'll increasingly talk about." This is an astute observation, far more so than Hurwitz's facile dismissal of the gold standard itself.
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> Jamrisko points out that both Donald Trump, the presumptive Republican presidential nominee, and Ted Cruz, the runner up, have unflinchingly praised the gold standard:
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> Ted Cruz, in one of the early candidate debates last year, said the Fed "should get out of the business of trying to juice our economy and simply be focused on sound money and monetary stability, ideally tied to gold." …
>
> Then there was Donald Trump. "We used to have a very, very solid country because it was based on a gold standard," he told

WMUR television in New Hampshire in March last year. But he said it would be tough to bring it back because "we don't have the gold. Other places have the gold."

Kate Davidson in *The Wall Street Journal* recently took note of a GOP 2016 plank that had been largely overlooked in all the focus on the social issues in the Platform Committee:

> The Republican Party's 2016 platform calls for a commission to explore the feasibility of effectively returning the U.S. to a gold standard.
>
> The idea has been popular with parts of the GOP for years, but hasn't gone very far.
>
> The new platform, approved at the party's convention Monday, echoes similar language in the 2012 GOP platform by calling for a commission to "investigate possible ways to set a fixed value for the dollar." …
>
> The party platform isn't binding on the president or other elected GOP officials, but reflects the thinking of many party activists.
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> Several Republican presidential primary candidates expressed support or interest in the idea during the campaign. Sen. Ted Cruz of Texas reiterated his support for returning to the gold standard in a debate last November. Sen. Rand Paul of Kentucky said the idea should be studied. Neurosurgeon Ben Carson alluded to the idea, saying, "We'll have to tie our currency to something," while former Arkansas Gov. Mike Huckabee advised, "Tie the dollar to something fixed and if it's not going to be gold, make it the commodity basket."

The Gold Standard Is Great Politics

The gold standard is excellent politics. According to a 2011 Rasmussen poll summarized by Benko, the gold standard had dominating plurality support in most demographics. It holds majority support in the blue collar and African-American demographics. As an electoral matter the gold standard unites the right and center while it splits the left.

> Superpollster Scott Rasmussen has pulled the pin and rolled one of his patented hand grenades under the chair of the Political Class. Rasmussen's "October Surprise" is contained in a recent poll showing 44% of likely voters favor returning to the gold standard, 28% opposed. That intensifies. If the public knew that it would "dramatically reduce the powers of bankers and the political class to steer the economy" support goes up to 57%. Opposition drops to 19%.
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> Reducing the power of bankers and the political class — along with gold's empirical record of turbo-charging job-creation and economic growth — is core for gold's proponents. Thus, that inevitably will become public knowledge and make gold a potentially huge electoral asset.
>
> And there's more. Rasmussen's results show that 79% of Tea Party voters (and 69% of simply self-described Republicans) would favor such an elitism-constraining gold standard. The only solid majority opposition comes, unsurprisingly, from self-described members of the political class. If anybody picks up on this dynamic it could prove decisive in what remains a remarkably fluid field with early contests fast approaching.
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> Rasmussen's numbers strongly suggest gold is an electoral jet stream. Fly with it and enjoy the tailwind; into it and suffer from headwinds.

A more recent poll commissioned by the American Principles Project confirms the gold standard's solid popularity with rank and file voters.

How To Do It

How can the United States return to the gold standard? Enact the Jack Kemp Gold Standard Act of 1984, which was cosponsored by Reps. Newt Gingrich, Vin Weber, Connie Mack, and others. The bill is easy to understand, easy to defend, and worth investing the political capital to enact. It is the *sine qua non* of restoring sizzling growth and job creation to the American economy across the board, from workers to investors. It is attached Exhibit 1.

As summarized by the Congressional Research Service:

> 6/29/1984--Introduced. Gold Standard Act of 1984 - Requires the Secretary of the Treasury,

> by one year after enactment of this Act, to establish a permanent definition of the dollar, expressed as a fixed weight of gold, nine-tenths fine. Declares that the dollar so defined shall be the standard and unit of value of the United States. Permits any person, after such time, to redeem for gold at any Federal Reserve bank any currency or coin of the United States or any demand note or demand liability of a Federal Reserve bank. Requires the Secretary to mint gold coins in such weights, denominations, and forms as will best serve the maintenance of gold payments and the needs of commerce. Makes such gold coins legal tender for all debts, public charges, taxes, and dues. Permits the exchange of gold bullion for gold coins which contain an equal weight of fine gold minus a charge which shall not exceed mint costs and related expenses. Requires the Secretary and the Board of Governors of the Federal Reserve System to prescribe rules and regulations to carry out this Act. Repeals restrictions on gold payments and gold ownership.

In addition to the Jack Kemp Gold Standard Act of 1984 there are two other notable and constructive policies worth pursuing and highly recommended.

The first of these is the Centennial Monetary Commission. This legislation, passed in the House of Representatives, constitutes a bipartisan independent commission to perform an objective empirical study of the real-world outcomes of Fed monetary policy, including but not limited to the era in which it administered the gold standard. Both the 2012 and 2016 GOP platforms contained a plank calling for such a commission. It already has political momentum and, should the recommendation to move directly to adoption of the gold standard not find favor with the Trump administration, would be a valuable, albeit slower and process-oriented, mechanism toward re-establishing high integrity monetary policy.

In addition, there is a strong argument, grounded in the work of Nobel economist Friedrich Hayek, that in the long run the most sustainable way to implement the gold standard will be to remove the federal government's de facto monopoly on money by repealing all regulatory and tax barriers to the use of gold (and silver) as competing currencies.

We strongly recommend that an internal White House or Treasury task force be constituted to lay the foundation for such action as a complement to adoption, in the administration's first 100 days, of the Jack Kemp Gold Standard Act of 1984 and the ensuing adoption of the classical gold standard by the secretary of the treasury.

If the Gold Standard Is So Great, Why Aren't We On It?

In *General Theory of Unemployment, Interest, and Money* (chapter 24, part V), English economist John Maynard Keynes wrote:

> [T]he ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.

Ironically, Keynes is the academic scribbler of a few years back from whom our current crop of madmen in authority are distilling their frenzy. Keynes, a practical man and humanitarian, of whom Hayek once wrote, "He was the one really great man I ever knew, and for whom I had unbounded admiration," must be spinning in his grave.

The academic and political aversion to the gold standard was elegantly summed up by the aforementioned Prof. Jacques Rueff, the premier gold standard economist of the late twentieth century: "[W]hat went down in the disaster and shame of the Great Depression was not the gold standard but its grotesque caricature in the form of the gold-exchange standard," Rueff observed in his 1972 work, *The Monetary Sin of the West*. That misunderstanding was anchored by Eichengreen in his book *Golden Fetters*.

Dispelling the Myths and Misinformation

Several prevalent myths surround the gold standard. Some say there isn't enough gold, or that America doesn't have enough gold. Others say restoring the classical gold standard would be difficult to do, or that the gold standard would constrain rather than unleash economic growth, leading to recessions, depressions, and panics. Still others claim the gold standard caused the Great Depression.

All of these statements are untrue.

America, the International Monetary Fund, and Germany hold about as much gold as the entire rest of the world, and America holds more than the IMF and Germany combined. America possesses vastly more gold than did the Bank of England during its two centuries of prime stewardship of the classical gold standard. As Nathan Lewis wrote for *Forbes*, "In 1941, when the U.S. ran the world gold standard, the government held 52% of all the gold in the world. However, in 1910, when Britain ran the world gold standard, the Bank of England had only about 1.2% of all the gold in the world."

The gold standard simply maintains the integrity of the value of the currency; it does not constrain the currency's issuance. To maintain otherwise would be akin to saying the National Institute of Standards and Technology's meticulous definition of the length of an inch would lead to a shortage of yardsticks. Nonsense. From 1775 to 1900 the amount of gold in the world increased by 3.4 times while the U.S. base money supply increased by a factor of 163 times without inducing inflation.

Nor did the gold standard have anything to do with the Great Depression. The international gold standard had ceased to function in 1914, 15 years before the onset of the Great Depression. It was replaced by a defective and dishonest "interwar gold standard" that indeed played a major role in causing the Great Depression. The classical gold standard is perfectly sound.

Prof. Lawrence White of George Mason University wrote a definitive paper published in the *Cato Journal*, dispelling the myths surrounding the gold standard. It is attached as Exhibit 4.

The Federal Reserve's Management of the Dollar Has Failed

The Federal Reserve System's economic predictions are the laughingstock of both Washington and Wall Street. If its predictions are always wrong, its policies simply cannot be right. As Benko has written for *Forbes*:

> One of the most curiously persistent surrealisms of Washington, DC is the reflexive deference given the Federal Reserve System. The Washington elite tends to accord more infallibility to the Fed than do Catholics the Pope.
>
> Now comes one of the world's top monetary reporters, Ylan Q. Mui, to make a delicate observation at the *Washington Post's Wonkblog*, in *Why nobody believes the Federal Reserve's forecasts*. Mui:
>
> "The market recognizes that the Fed has repeatedly erred on the optimistic side," said Eric Lascelles, chief economist at RBC Global Asset Management. "Fool me 50 times, but not 51 times."
>
> Even the government's official budget forecasters are dubious of the Fed's own forecast.
>
> This is a theme that Mui has touched on before. In 2013, she wrote *Is the Fed's crystal ball rose-colored?*
>
> The big question is whether Fed officials can get it right after years in which they have regularly predicted a stronger economy than the one that materialized. In January 2011, Fed officials predicted that GDP would grow around 3.7 percent that year. It clocked in at 2 percent. In January 2012, they anticipated growth of about 2.5 percent. We ended up with 1.6 percent.
>
> To give Ms. Mui's competition its due, Dr. Richard Rahn at the *Washington Times* last April crisply noted:
>
> The Federal Reserve had forecast the U.S. economy to grow about 4 percent near the beginning of each year for the last five years. But during each year, the Fed was forced to reduce its forecast until it got to the actual number of approximately 2 percent. (Other government agencies have been making equally bad forecasts.) These mammoth errors clearly show that the forecast models the official agencies use are mis-specified and contain incorrect assumptions.
>
> What's going on here?

A good bet would be that there's a problem with the Fed's reliance on an arcane art. This art is designated "Dynamic Stochastic General Equilibrium" modeling.

Sound scientific? Well.

With admirable intellectual honesty an assistant vice president in the Federal Reserve Bank of New York's Research and Statistics Group, Marco Del Negro, Wharton Ph.D. student Raiden Hasegawa and University of Pennsylvania professor of economics Frank Schorfheide (speaking for themselves and not the Fed) open a two part analysis at the NY Fed's own excellent *Liberty Street Economics*, *Choosing the Right Policy in Real Time (Why That's Not Easy)*:

Model uncertainty is pervasive. Economists, bloggers, policymakers all have different views of how the world works and what economic policies would make it better. These views are, like it or not, models. Some people spell them out in their entirety, equations and all. Others refuse to use the word altogether, possibly out of fear of being falsified. No model is "right," of course, but some models are worse than others, and we can have an idea of which is which by comparing their predictions with what actually happened.

The authors go on to conclude in the second part of their analysis:

In the end, we have shown that policy analysis in the very oversimplified world of DSGE models is a pretty difficult business. Contrary to what it may sometimes appear from listening to talking heads, deciding which policy is best is very rarely a slam dunk.

Dynamic Stochastic General Equilibrium modeling sure sounds amazing. And the New York Fed recently detailed how its research group goes about compiling its *Whitebook*, *Blackbook*, contributing to the full FOMC's *Tealbook*, in *The Monetary Policy Advice Process at the New York Fed.* It is a very methodical process.

That said let's be blunt. If NASA suffered from comparable inaccuracy the manned spaceflight program would have been shut down by an endless series of Challenger-type catastrophes many years ago. With forecasts this bad is it any wonder the American economy continually crashes and burns?

Rich Lowrie of *Put Growth First* proposes an erudite explanation for the Fed's propensity for error:

> The entire basis for raising interest rates in December 2015 centered on "tight labor markets," despite non-confirmation from any market based signals, just as before. Notwithstanding that real income for the bottom 90% is at the lowest level in a generation, it has ticked up in the last year. This occurred within the context of an unemployment rate that breached the Fed's theoretical "natural rate" of unemployment or NAIRU. The textbook tells them that inflation will accelerate, so the Fed acted accordingly. They are following in the exact same predictable footsteps. Despite the sound and fury usually coming from the Fed, there is basically only one thing that actually moves them from talk to action: wage growth. Given labor force participation of 62.8% today, there remains considerable slack in labor markets. Even if labor markets were as tight as the Fed thinks, they never have and never can "cause" inflation.
>
> How convenient, but truly tragic, for the Fed to change the very definition of inflation from a monetary phenomenon characterized by too much money chasing too few goods to a labor market phenomenon characterized by too many people working and prospering. And some people wonder why not enough people are working and prospering. There is zero accountability in a Fed that blames workers for "causing" inflation.

The Lowrie white paper is attached as Exhibit 5.

The Gold Standard Is Constitutional Money

James Madison's *Notes on the Debates in the Federal Convention* and abundant other sources make it clear the framers of the U.S. Constitution contemplated gold and silver as money and were deeply averse to paper money, based on their extensive bad experience during the colonial,

revolutionary, and post-revolutionary eras. As is noted at *The Gold Standard Now* website:

> On August 16, 1787, Madison records, the delegates to the Constitutional Convention gathered and discussed the powers to be included in what became Article I section 8 clause 2 of the Constitution of the United States.
>
> The delegates squarely addressed the issue of whether to give the federal government the power to issue inconvertible paper money. The power was debated and went down to defeat by the resounding margin of nine states opposed to paper money, only two in support. In their own words (and retaining Mr. Madison's original spelling), this is what some of the wisest statesmen in history had to say, before stripping it out, about the power to issue inconvertible paper money:
>
> Mr. Govr. MORRIS moved to strike out "and emit bills on the credit of the U. States" -If the United States had credit such bills would be unnecessary: if they had not, unjust & useless.
>
> Mr. BUTLER, 2ds. the motion.
>
> Mr. MADISON, will it not be sufficient to prohibit the making them a tender? This will remove the temptation to emit them with unjust views. And promissory notes in that shape may in some emergencies be best.
>
> Mr. Govr. MORRIS. striking out the words will leave room still for notes of a responsible minister which will do all the good without the mischief. The Monied interest will oppose the plan of Government, if paper emissions be not prohibited.
>
> Mr. GHORUM was for striking out, without inserting any prohibition. if the words stand they may suggest and lead to the measure.
>
> Col. MASON had doubts on the subject. Congs. he thought would not have the power unless it were expressed. Though he had a mortal hatred to paper money, yet as he could not foresee all emergences, he was unwilling to tie the hands of the Legislature. He observed that the late war could not have been carried on, had such a prohibition existed.
>
> Mr. GHORUM. The power as far as it will be necessary or safe, is involved in that of borrowing.
>
> Mr. MERCER was a friend to paper money, though in the present state & temper of America, he should neither propose nor approve of such a measure. He was consequently opposed to a prohibition of it altogether. It will stamp suspicion on the Government to deny it a discretion on this point. It was impolitic also to excite the opposition of all those who were friends to paper money. The people of property would be sure to be on the side of the plan, and it was impolitic to purchase their further attachment with the loss of the opposite class of Citizens.
>
> Mr. ELSEWORTH thought this a favorable moment to shut and bar the door against paper money. The mischiefs of the various experiments which had been made, were now fresh in the public mind and had excited the disgust of all the respectable part of America. By witholding the power from the new Governt. more friends of influence would be gained to it than by almost any thing else. Paper money can in no case be necessary. Give the Government credit, and other resources will offer. The power may do harm, never good.
>
> Mr. RANDOLPH, notwithstanding his antipathy to paper money, could not agree to strike out the words, as he could not foresee all the occasions which might arise.
>
> Mr. WILSON. It will have a most salutary influence on the credit of the U. States to remove the possibility of paper money. This expedient can never succeed whilst its mischiefs are remembered, and as long as it can be resorted to, it will be a bar to other resources.
>
> Mr. BUTLER. remarked that paper was a legal tender in no Country in Europe. He was urgent for disarming the Government of such a power.
>
> Mr. MASON was still averse to tying the hands of the Legislature altogether. If there was no example in Europe as just remarked,

it might be observed on the other side, that there was none in which the Government was restrained on this head.

Mr. READ, thought the words, if not struck out, would be as alarming as the mark of the Beast in Revelations.

Mr. LANGDON had rather reject the whole plan than retain the three words "(and emit bills")

On the motion for striking out

N. H. ay. Mas. ay. Ct ay. N. J. no. Pa. ay. Del. ay. Md. no. Va. ay. N. C. ay. S. C. ay. Geo. ay.

One also takes note of Madison's *Federalist Paper No. 44*, directed to the revocation of state power to issue paper money with logic equally applicable to the federal government:

> The extension of the prohibition to bills of credit [inconvertible paper money] must give pleasure to every citizen, in proportion to his love of justice and his knowledge of the true springs of public prosperity. The loss which America has sustained since the peace, from the pestilent effects of paper money on the necessary confidence between man and man, on the necessary confidence in the public councils, on the industry and morals of the people, and on the character of republican government, constitutes an enormous debt against the States chargeable with this unadvised measure, which must long remain unsatisfied; or rather an accumulation of guilt, which can be expiated no otherwise than by a voluntary sacrifice on the altar of justice, of the power which has been the instrument of it.

It bears noting that George Washington is on record as anti-paper money, as were his cabinet members (who agreed on little else) Alexander Hamilton and Thomas Jefferson, second Treasury Secretary Albert Gallatin, Thomas Paine, Chief Justice John Marshall, and virtually all of the other founders who addressed the issue, with the exception of printer Ben Franklin.

The Founders left in their writings extensive warnings against paper money, too extensive to reproduce here at length. Representative samples from Jefferson:

"Paper money is liable to be abused, has been, is, and forever will be abused, in every country in which it is permitted. …

"Paper is already at a term of abuse in these States, which has never been reached by any other nation, France excepted, whose dreadful catastrophe should be a warning against the instrument which produced it. …

"The unlimited emission of bank paper has banished all Great Britain's specie, and is now, by a depreciation acknowledged by her own statesmen, carrying her rapidly to bankruptcy, as it did France, as it did us, and will do us again, and every country permitting paper money to be circulated, other than that by public authority, rigorously limited to the just measure for circulation. …

"When I speak comparatively of the paper emission of the old Congress and the present banks, let it not be imagined that I cover them under the same mantle. The object of the former was a holy one; for if ever there was a holy war it was that which saved our liberties and gave us independence. The object of the latter is to enrich swindlers at the expense of the honest and industrious part of the nation."
— To J.W. Eppes, 1813

"The errors of that day cannot be recalled. The evils they have engendered are now upon us, and the question is how we are to get out of them? Shall we build an altar to the old money of the Revolution, which ruined individuals but saved the Republic, and burn on that all the bank charters, present and future, and their notes with them? For these are to ruin both Republic and individuals. This cannot be done. The mania is too strong. It has seized, by its delusions and corruptions, all the members of our governments, general, special, and individual."
— To John Adams, 1814

"M. Say will be surprised to find, that forty years after the development of sound financial principles by Adam Smith and the Economists, and a dozen years after he has given them to us in a corrected, terse, and lucid form, there should be so much ignorance of them in our country; that instead

of funding issues of paper on the hypothecation of specific redeeming taxes (the only method of anticipating, in time of war, the resources of times of peace, tested by the experience of nations), we are trusting to the tricks of jugglers on the cards, to the illusions of banking schemes for the resources of the war, and for the cure of colic to inflations of more wind.
— To M. Correa, 1814

"Even with the flood of private paper by which we were deluged, would the treasury have ventured its credit in bills of circulating size, as of fives or ten dollars, &c., they would have been greedily received by the people in preference to bank paper. But unhappily the towns of America were considered as the nation of America, the dispositions of the inhabitants of the former as those of the latter, and the treasury, for want of confidence in the country, delivered itself bound hand and foot to bold and bankrupt adventurers and pretenders to be moneyholders, whom it could have crushed at any moment. Even the last half-bold, half-timid threat of the Treasury showed at once that these jugglers were at the feet of the government. For it never was, and is not, any confidence in their frothy bubbles, but the want of all other medium, which induced, or now induces, the country people to take their paper; and at this moment, when nothing else is to be had, no man will receive it but to pass it away instantly, none for distant purposes."
— To Albert Gallatin, 1815

"Not Quixotic enough to attempt to reason Bedlam to rights, my anxieties are turned to the hundred millions of paper in the hands of the people (and less cannot be from the employment of a banking capital known to exceed one hundred millions), is a fearful tax to fall at haphazard on their heads. The debt which purchased our Independence was but of eighty millions, of which twenty years of taxation had, in 1889, paid but the one-half. And what have we purchased with this tax of two hundred millions which we are to pay, by wholesale, but usury, swindling, and new forms of demoralization"
— To Charles Yancey

"We are now taught to believe that legerdemain tricks upon paper can produce as solid wealth as hard labor in the earth. It is vain for common sense to urge that *nothing* can produce but *nothing*; that it is an idle dream to believe in a philosopher's stone which is to turn everything to gold, and to redeem man from the original sentence of his Maker, "in the sweat of his brow shall he eat his bread.
— To Charles Yancey, 1816

The Next Steps

The first steps to reform are educational. We don't mean sending everyone back to school and waiting for their re-education. We mean just gaining widespread understanding of a few basic points.

First, the gold standard does not mean the money supply is limited to the supply of gold. The gold standard simply means the value of the money (currency) is tied to the value of gold. Since the value of gold is very stable over the long run, that means the value of the currency (money) would be very stable over the long run. (No, the value or market price of gold is not unstable. It is the value of the dollar, in which that market price is expressed, that is unstable. That is what the gold standard would fix).

That is so important primarily because in a market economy, prices are expressed in money (the currency). When the value of the currency is unstable, the price system cannot function optimally. The most important information in the economy, the market price or value of goods and services, is communicated imperfectly, in a hazy fashion. That distorts every transaction in the economy.

Just about as important, the long-term stability of the currency (money) maximizes incentives for long-term investment. Long-term investment is discouraged when the value of the currency (money) is unstable, because investors cannot be sure of the relation between the value of what they will be paid back from the investment and the value of what they paid into the investment.

Under the gold standard, the money supply (or supply of the currency) would be adjusted to equal

the demand for money. That would be guided by market prices for gold. This equality of the money supply with money demand keeps the value of the currency stable.

That would be the second step to a gold standard. The next president would appoint as chairman and members of the Fed those who will use the price of gold to inform monetary policy. If the market price of gold is falling, that is a signal that monetary policy should be eased. And if the market price of gold is rising, that will be a signal that monetary policy should be constrained. That will begin to help discover the best market price for future convertibility.

Ultimate convertibility is necessary to enforce the gold standard, rather than leaving it to the discretion of the appointed members of the Fed. Elites disdain the gold standard because it eliminates their discretionary power over monetary policy. Under the gold standard, monetary policy must follow the course that will maintain the convertibility price of the dollar, and so maintain stability for the long-term value of the dollar. Long experience with the Fed has demonstrated that seat-of-the-pants discretion cannot improve monetary policy or its results.

The next step to adopt the gold standard is to pass the Jack Kemp Gold Standard Act. That simple law would mandate the remaining steps to implement a fully convertible gold standard, as discussed above and in Exhibit 1.

Conclusion

Both Donald Trump and Mike Pence are on record as favoring the gold standard.

The gold standard was crucial to making America great. It brought prosperity and justice to all. It is crucial to making America great again. The classical gold standard is excellent politics and excellent policy. The classical gold standard is mainstream. It has many distinguished proponents.

The Jack Kemp Gold Standard Act of 1984 is the optimal vehicle for implementing the gold standard. It would be worthwhile for President Trump to invest political capital in enacting that measure during his first 100 days. We also recommend enactment of the Centennial Monetary Commission, a measure that already has achieved House passage, and the assembly of a White House or Treasury internal task force dedicated to removing the federal government's de facto monopoly on issuance of money by the removal of all tax and regulatory barriers to the use of gold and silver as money.

The gold standard is essential to making America great again and can be implemented far more easily than is generally appreciated.

About the Authors

Peter Ferrara is senior fellow for entitlement and budget policy at The Heartland Institute and a senior fellow at the Social Security Institute. He served in the White House Office of Policy Development under President Ronald Reagan and as associate deputy attorney general of the United States under President George H.W. Bush. He is a graduate of Harvard College and Harvard Law School.

Ferrara is author of several books, including *The Obamacare Disaster,* from The Heartland Institute, *President Obama's Tax Piracy,* and *America's Ticking Bankruptcy Bomb: How the Looming Debt Crisis Threatens the American Dream – and How We Can Turn the Tide Before It's Too Late*. Ferrara's latest book (Heartland Institute, 2015) is *Power to the People: The New Road to Freedom and Prosperity for the Poor, Seniors, and Those Most in Need of the World's Best Health Care.*

Ralph Benko serves as senior advisor, economics, for the American Principles Project. He is an internationally syndicated political columnist and member of the Conservative Action Project. Benko is editor-in-chief of *The Supply Side* and, with Charles Kadlec, author of *The 21st Century Gold Standard: For Prosperity, Security, and Liberty,* and lead co-editor of the Laissez Faire Books edition of Copernicus's *Essay on Money*.

Benko wrote *The Websters' Dictionary: How to use the Web to transform the world* and was editor of The Lehrman Institute's gold standard website. He was one of 23 official witnesses before the Reagan Gold Commission, testifying on the constitutional history of American monetary policy. He later was detailed from his career position with the U.S. Department of Energy as a deputy general counsel in the Reagan White House; founded the Prosperity Caucus; and was a member of the original Supply Side movement of which Jack Kemp was principal. Benko received his B.A. from Amherst College and his J.D. from Boston University Law School and is a member, in retired status, of the New York State bar.

Ferrara and Benko express their appreciation for valuable contributions from other members of the Gold Standard Working Group, including Lew Uhler (ex officio), Richard Lowrie, and Jimmy Kemp, among others.

About the National Tax Limitation Committee

The National Tax Limitation Committee (NTLC) was organized in 1975. Its mission is to provide national leadership to achieve the optimal size and functions of government and promote candidates and initiatives that support these goals.

NTLC and its foundation, the National Tax Limitation Foundation (NTLF), have organized numerous conferences and seminars around the nation on critical issues. Uhler speaks regularly at the annual Conservative Political Action Conference (CPAC) in Washington, sponsored by the American Conservative Union (ACU), on whose board he served for many years. NTLC's operating philosophy has always been to partner with other groups and individuals in the accomplishment of mutual goals. NTLC and NTLF are further supported by a distinguished Board of Advisors.

For more information, visit our website at www.limittaxes.org or visit us at 1700 Eureka Road #150A, Roseville, CA 95661.

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The Heartland Institute is a national nonprofit research and education organization based in Arlington Heights, Illinois. We are a publicly supported charitable organization and tax exempt under Section 501(c)(3) of the Internal Revenue Code.

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For more information, visit our website at www.heartland.org, call 312/377-4000, or visit us at 3939 North Wilke Road, Arlington Heights, Illinois.

98TH CONGRESS
2D SESSION

H. R. 5986

To resume a stable monetary standard in the United States.

IN THE HOUSE OF REPRESENTATIVES

JUNE 29, 1984

Mr. KEMP (for himself, Mr. HILER, Mr. MACK, Mr. WEBER, Mr. GINGRICH Mr. DANNEMEYER, Mr. WALKER, and Mrs. VUCANOVICH) introduced the following bill; which was referred to the Committee on Banking, Finance and Urban Affairs

---

A BILL

To resume a stable monetary standard in the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Gold Standard Act of 1984".

REESTABLISHMENT OF THE GOLD STANDARD

SEC. 2. (a) Not later than one year after the date of the enactment of this Act, the Secretary of the Treasury shall establish a permanent definition of the dollar, expressed as a fixed weight of gold, nine-tenths fine.

(b) The dollar defined as such fixed weight of gold shall be the standard and unit of value of the United States, and all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard.

RESUMPTION OF GOLD CONVERTIBILITY

SEC. 3. (a) Beginning one year after the date of the enactment of this Act, any person may, on demand, redeem for gold at any Federal Reserve bank any currency or coin of the United States, or any demand note or demand liability of a Federal Reserve bank.

(b) Such redemptions shall be made either in gold coins or in an equivalent value of gold bullion.

PROVISION FOR COINAGE

SEC. 4. (a) The Secretary of the Treasury shall cause gold coins to be minted in such weights, denominations, and forms as the Secretary determines will best serve the maintenance of gold payments and the needs of commerce.

(b) Coins minted under this section shall be legal tender for all debts, public charges, taxes, and dues.

(c) Beginning one year after the date of the enactment of this Act, upon presentation of gold bullion to the Secretary of the Treasury at locations to be designated by the Secretary, the Secretary shall exchange such gold bullion for gold coins which contain an equal weight of fine gold, minus a charge which shall not exceed mint costs and related expenses.

CONFORMING REGULATIONS

SEC. 5. The Secretary of the Treasury and the Board of Governors of the Federal Reserve System shall prescribe such rules and regulations as are necessary to carry out the provisions of this Act.

REPEAL OF RESTRICTIONS ON GOLD PAYMENTS AND OWNERSHIP

SEC. 6. (a) The first sentence of section 5118(b) of title 31, United States Code, is hereby repealed.

(b) Section 5119(a) of title 31, United States Code, is amended—

(1) in the second sentence, by striking out "However, the" and inserting in lieu thereof "The"; and

(2) by striking out the first sentence and the third sentence thereof.

(c) Section 5111(d)(1) of title 31, United States Code, is amended by inserting ", other than gold coins," after "treatment of United States coins".

(d) Section 11(n) of the Federal Reserve Act (12 U.S.C. 248(n)) is hereby repealed.

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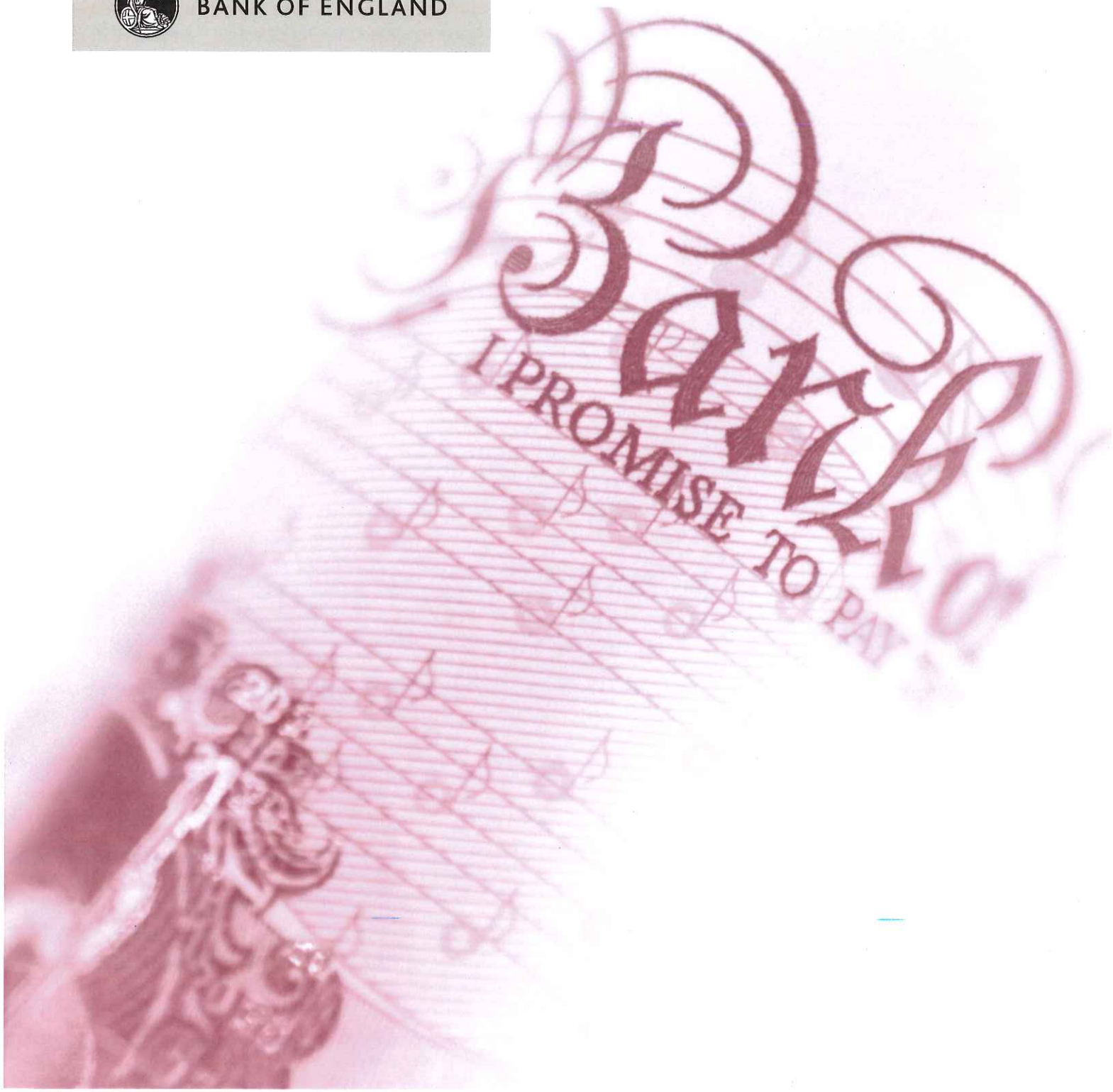
Financial Stability Paper No. 13 – December 2011

Reform of the International Monetary and Financial System

Oliver Bush, Katie Farrant and Michelle Wright

BANK OF ENGLAND



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Contents

Reform of the International Monetary and Financial System

Oliver Bush, Katie Farrant and Michelle Wright

The financial crisis has imposed large costs on the global economy and revealed deficiencies in policy frameworks around the world. While the ongoing reforms to financial regulation aim to make the financial system more resilient, they cannot eliminate all the risks associated with large global capital flows. This paper argues that broader reforms to the International Monetary and Financial System (IMFS) are also required.

The paper sets out three objectives for a well-functioning IMFS: i) internal balance, ii) allocative efficiency and iii) financial stability. The IMFS has functioned under a number of different regimes over the past 150 years and each has placed different weights on these three objectives. Overall, the evidence is that today's system has performed poorly against each of its three objectives, at least compared with the Bretton Woods System, with the key failure being the system's inability to maintain financial stability and minimise the incidence of disruptive sudden changes in global capital flows.

There is little consensus in the academic literature, or among policymakers, on what are the underlying problems in the global economy which allow excessive imbalances to build in today's IMFS and/or which impede the IMFS from adjusting smoothly to counteract these imbalances. This paper attempts to provide a framework for thinking about these underlying problems, and thus a means for discriminating among the reform solutions.

Finally, the paper proposes a number of reforms to today's IMFS. Measures that countries could implement themselves to reduce the underlying frictions include greater flexibility in nominal exchange rates; reforms to make national balance sheets more resilient; and measures to improve financial market participants' understanding of the risks on countries' balance sheets. Policy initiatives that require some degree of international co-operation to be effective include improvements to global financial safety nets; international initiatives to close data gaps; co-ordination on financial regulatory reform; and possibly revisiting the application of WTO rules. But the paper also notes that it may be impossible to remove the frictions entirely, and so there may be a need for a more fundamental overhaul of the IMFS in which a rules-based system would prevail, to force countries to internalise the externalities that result from their policies.

1 Introduction

The financial crisis has imposed large costs on the global economy. And it has revealed deficiencies in policy frameworks around the world. Policymakers are learning from the mistakes made and reforms are already in train. These include a range of international financial regulatory initiatives that will have fundamental implications for the way the global financial system operates.

Given that the proximate cause of the crisis was excessive risk-taking within the financial sector, it is appropriate that improving financial regulation and supervision are among the top reform priorities. But this paper argues that in today's highly interconnected global economy, a broader reform agenda is needed. In particular, reforms to the international monetary and financial system (IMFS) are also required.

The IMFS is the set of arrangements and institutions that facilitate international trade and the allocation of investment capital across nations. A well-functioning system should promote economic growth by channelling resources in an efficient manner across countries, over time, and in different states of the world. It should do this by creating the right conditions for international financial markets to operate in a smooth and sustainable fashion, discouraging the build-up of balance of payments problems, and facilitating access to finance in the face of disruptive shocks.

These functions suggest that the ideal system should satisfy the following objectives:(1)

- *Internal balance* — the IMFS should enable countries to use macroeconomic policies to achieve non-inflationary growth.
- *Allocative efficiency* — the IMFS should facilitate the efficient allocation of capital by allowing flows to respond to relative price signals.
- *Financial stability* — the IMFS should help to minimise the risks to financial stability.

While there are some complementarities between these objectives, there may also be conflicts. For instance, the pursuit of allocative efficiency is likely to be associated with increased financial integration, which has a complicated relationship with financial stability. While high levels of financial interconnectedness can facilitate greater risk-sharing and therefore lower the *probability* of financial crises, it can exacerbate the *impact* of any crises that do occur by providing numerous channels through which risk can spread (Gai and Kapadia (2010)). Similarly, although internal balance can eliminate the harmful effects of inflation volatility on financial stability, low inflation environments may also be associated with potentially destabilising increases in leverage, credit and asset prices (Borio and Lowe (2002)). And when countries attempt to mitigate risks to financial stability by managing their exchange rates closely, the problem becomes analogous to the Mundell-Fleming 'Impossible Trinity' (Mundell (1963) and Fleming (1962)). Under these circumstances, countries must choose between maintaining control over monetary policy (*internal balance*) and allowing capital to flow freely (*allocative efficiency*).

In a world where there were no underlying imperfections, or *frictions*, market forces should lead to an IMFS where all three objectives are achieved simultaneously. There would be no need for any 'rules of the game' — market forces would automatically result in the optimal outcome for the global economy. But in reality, of course, there are frictions in today's IMFS. And those frictions can result in externalities, which mean that one country's actions distort the choices open to others. The result is an IMFS that is unable to achieve its three objectives and a global outcome that is sub-optimal.

Over the past century or so, the IMFS has been through a number of incarnations, which have placed different weights on these objectives. That may, in turn, reflect changing views on the relative importance of the underlying imperfections in the IMFS and the externalities that exist. The various IMFS regimes have involved different combinations of international and national frameworks. Members of the Gold Standard, for example, fixed their currencies to gold, allowed capital to flow freely across borders and tended not to use monetary policy actively. So they gave up on the *internal balance* objective to achieve *allocative efficiency* and *financial stability*. The Bretton Woods System (BWS) featured fixed but adjustable nominal exchange rates, constrained monetary policy independence and capital controls — effectively sacrificing the *allocative efficiency* objective to allow greater control over *internal balance* and *financial stability*.

In contrast, in today's system there are almost no binding international rules; rather there exists a hybrid arrangement in which countries are free to choose whether to fix or float their exchange rate and whether to impose capital controls or not. While today's IMFS affords countries the freedom to pursue policies to suit their domestic objectives, this flexibility has also created problems. The main externalities in today's IMFS are most visible in the interaction between the advanced and emerging market economies (EMEs) (King (2011)). Trade has promoted development in China and other EMEs, and has benefited the rest of the world as the costs of a range of traded goods and services have been driven down. But the rise in trade has been accompanied by large changes in the global pattern of spending, which is currently reflected in sizable current account imbalances.

(1) These are loosely based on Krugman's (1998a) categorisation of the three objectives as 'adjustment', 'liquidity' and 'confidence'.

To put the performance of the current system into context, Section 2 of this paper provides an historical overview of the IMFS, focusing in particular on the Gold Standard and the BWS. Section 3 examines today's system in more detail and makes some qualified assessments of its performance relative to previous regimes against the three key objectives. Without placing undue emphasis on causation, the comparison of today's system with historical regimes suggests that better global outcomes are indeed possible.

Section 4 of the paper goes on to highlight our assessment of the key frictions in the global economy that explain the sub-optimal performance of today's IMFS. There is little consensus in the academic literature, or among policymakers, on what the *underlying* problems are in today's IMFS. In fact, relatively little has been written on this topic. Rather, the focus of the literature is on reform solutions, where proposals range from encouraging countries to allow greater flexibility in their exchange rates (Bernanke (2010a)), to ideas for a new rules-based IMFS with sanctions to ensure compliance (Eichengreen (2010)). But without a framework for thinking about what the underlying problems are, it is difficult to discriminate among the reform solutions. This paper attempts to provide such a framework, setting out what the frictions are in the global economy that today's IMFS has to resolve.

In our assessment, the main frictions are: *nominal rigidities* (stickiness in prices and wages) which have been exacerbated by fixed exchange rates in some EMEs and contributed to unsustainable patterns of spending; *missing markets*, which encourage countries to manage their exchange rates and/or accumulate excessive reserves; *imperfect information*, which may amplify movements in exchange rates and capital flows, and contribute to greater than warranted capital flows to 'riskier' parts of the financial system; and *international institutional arrangements*, which may encourage countries to undervalue their exchange rates in the pursuit of export-led growth. These frictions, some of which are very apparent in the ongoing euro-area crisis, have encouraged the build-up of large current account imbalances in today's IMFS and/or meant that adjustment to those imbalances, when it happens, is more costly. In view of this, the potential gains that could be realised from a better-functioning IMFS are considerable.

This framework of identifying the frictions in the IMFS is a useful disciplining device for assessing which reforms will be most effective. Section 5.1 takes each of the frictions identified and proposes remedial measures that could be implemented by individual countries, independently of international policy initiatives. Such measures include: greater flexibility in prices, wages and nominal exchange rates, reducing the problem of *nominal rigidities*; reforms to make national balance sheets more resilient and thus discourage excess reserve accumulation, through completing some *missing markets*; and measures to improve financial market participants' understanding of the risks on countries' balance sheets and thus reduce the problem of *imperfect information*.

However, in some instances it will not be possible for individual countries to correct the underlying failures completely, at least not acting on their own. In these cases, international policy initiatives will also be required to mitigate these frictions, or if this is not feasible, to internalise the externalities that result. Section 5.2 discusses policy initiatives which will require some degree of international co-operation to be effective, but which stop short of requiring countries to co-ordinate their policies on an ongoing basis. These include: improvements to global financial safety nets to reduce the impact of *missing markets* frictions; international initiatives to close data gaps and co-ordination on financial regulatory reform to reduce the impact of *imperfect information*; and possibly revisiting the application of WTO rules to help limit *international institutional frictions*.

Section 5.3 outlines reform options which would require a more active form of policy co-ordination. This could be through voluntary agreements, where the G20 Framework for Strong, Sustainable and Balanced Growth is an important attempt to develop such a mechanism. However, its effectiveness remains to be seen. In view of this, Section 5.3 also considers the possible need for a more fundamental overhaul of the IMFS, such as a move toward an explicit rules-based system. This would be a mechanism to *force* countries to internalise externalities related to current account imbalances, enforced by taxes on current or capital flows.

While there are a number of reform solutions proposed in this paper, there are no recommendations to reduce the dominance of the dollar. As well as requiring substantial policy co-operation in the near term and a considerable amount of time for the system to readjust, it is not clear which of the underlying imperfections such a reform would be targeting. And it has not been proven that a multiple reserve currency system would be more stable than one that is concentrated around a single currency. Section 6 offers some conclusions.

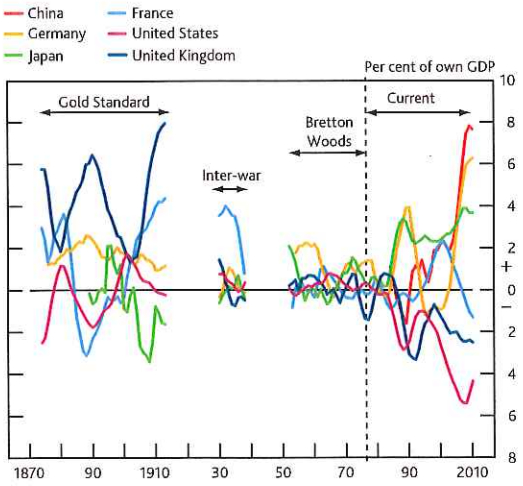
2 A brief history of the IMFS

The IMFS has functioned under a number of different regimes over the past 150 years. Each of these regimes has placed different weights on achieving the *internal balance, allocative efficiency* and *financial stability* objectives, and with varying degrees of success. That may reflect the changing importance of the underlying imperfections in the system and/or differences in countries' willingness to internalise the externalities from their policy actions. Both of these are difficult to know with any certainty. But either way, it is helpful to have some understanding of the features of past IMFS regimes as background to discussions on today's IMFS.

Under the Gold Standard, the money supply was linked to the availability of gold. Countries with current account surpluses accumulated gold, while deficit countries saw their gold stocks diminish. This, in turn, contributed to upward pressure on domestic spending and prices in surplus countries and downward pressure on them in deficit countries, thereby leading to a change in relative outlays and prices that should, eventually, have reduced imbalances. The credibility of countries' commitments to pursue this passive monetary policy approach was underpinned by the fact that central banks were under little pressure to help minimise unemployment or to pursue other potentially conflicting domestic objectives at the time (Eichengreen (1996)). There was no formal mechanism to force countries to adjust their domestic policies under the Gold Standard. Instead, they did so out of convention.

Net capital flows tended to be large under the Gold Standard (**Chart 1**). However, passive domestic monetary policy responses meant that they were not accompanied by large cross-country policy inconsistencies and so did not pose the same threat to global financial stability as those of today. **Table A** below, which presents a range of summary statistics on the performance of different IMFS regimes, shows for example that the incidence rate of banking and currency crises in the Gold Standard was much lower than in today's system. Of course these summary statistics should be treated with caution, as the variables included will also have been influenced by a wide range of third factors — such as globalisation, financial liberalisation and regulation.(1)

Chart 1 Current account balances(a)



Sources: Global Financial Data, IMF *World Economic Outlook* (September 2011), Taylor (2002) and Bank calculations.

(a) Five-year moving average.

The direction of net capital flows during the Gold Standard seemed broadly consistent with the efficient allocation of capital across countries. In particular, these imbalances were associated with 'downhill' flows of capital from the older, advanced economies in Europe to more productive opportunities in the younger, fast-growing economies in Asia and the Americas (Kenwood and Lougheed (1999)). Further, private sectors played the dominant role in these capital flows, which is consistent with the notion that economic fundamentals were at work.

Overall, the Gold Standard appeared to perform reasonably well against its *financial stability* and *allocative efficiency* objectives, while the *internal balance* objective was of secondary importance. But the effective sacrifice of this latter objective was the undoing of the Gold Standard, as growing recognition of the need to pursue domestic policy objectives (most notably, to respond to rising unemployment) and achieve internal balance eventually undermined the credibility of the restored Gold Standard in the interwar period. Against the backdrop of increasing concern about domestic objectives, political disputes over war reparations meant that central bank co-operation was not forthcoming when Germany faced a banking crisis in 1931, eventually triggering the collapse of the system (Eichengreen (1992)).

The BWS was established in the late 1940s in an attempt to allow countries greater domestic policy autonomy while still insulating them from excessive exchange rate volatility. Policymakers appeared to assign greater importance to achieving *internal balance* and *financial stability*, and less to obtaining *allocative efficiency*. Capital controls were sanctioned explicitly to prevent speculative activity from forcing premature and destabilising realignments. As a result, net capital flows were at their lowest during the BWS period. The US dollar was pegged to gold and all other currencies maintained their parities to the US dollar, although pegs were 'adjustable' in the case of fundamental disequilibria.

The International Monetary Fund (IMF) was created as an integral part of the BWS, with responsibility for supervising a pool of reserves that could be used to finance temporary imbalances and adjudicating changes to exchange rate parities. The IMF's Articles of Agreement also incorporated a 'scarce currency clause' which, although never invoked, allows members to impose tariffs and export restrictions on countries running persistent current account surpluses.

(1) And, of course, different countries participated in the different systems, further complicating comparisons. In particular, today's system has many more members than the BWS. Period averages can also mask differences.

Table A Selected metrics for measuring the performance of the IMFS over time[a]

PANEL A:

		World GDP (per capita)[b]		World inflation[c]	
		Growth	Volatility	Average	Volatility
		Annual average			Standard deviation
		Per cent	Coefficient of variation	Per cent	Percentage points
Pre-Gold Standard	(1820-1869)	0.5	—	—	—
Gold Standard	**(1870-1913)[d]**	**1.3**	**1.2**	**0.6**	**3.0**
Interwar Period	**(1925-1939)[d]**	**1.2**	**3.3**	**0.0**	**4.6**
Bretton Woods	**(1948-1972)[e]**	**2.8**	**0.3**	**3.3**	**2.1**
memo:	*1948-1958[e]*	*2.7*	*0.4*	*3.1*	*2.9*
	1959-1972	*3.0*	*0.3*	*3.5*	*1.3*
Current	**(1973-2008)**	**1.8**	**0.7**	**4.8**	**3.5**
memo:	*1973-1989*	*1.4*	*0.8*	*7.5*	*3.4*
	1990-2008	*2.2*	*0.6*	*2.3*	*0.9*

PANEL B:

		Downturns		Current account balances
		Years of negative world GDP growth	Years of negative country GDP growth[f]	Surpluses and deficits
		Share of period	Share of period, median country	
		Per cent	Per cent	Per cent of world GDP[g]
Pre-Gold Standard	(1820-1869)	—	—	—
Gold Standard	**(1870-1913)[d]**	**7**	**19**	**2.4**
Interwar Period	**(1925-1939)[d]**	**21**	**27**	**1.2**
Bretton Woods	**(1948-1972)[e]**	**0**	**4**	**0.8**
memo:	*1948-1958[e]*	*0*	*0*	*0.8*
	1959-1972	*0*	*0*	*0.8*
Current	**(1973-2008)**	**0**	**13**	**2.2**
memo:	*1973-1989*	*0*	*18*	*1.6*
	1990-2008	*0*	*11*	*2.8*

PANEL C:

		Incidence of crises		
		Banking crises[h]	Currency crises[i]	External default[j]
		Number per year	Number per year	Number per year
Pre-Gold Standard	(1820-1869)	0.6	—	0.7
Gold Standard	**(1870-1913)[k]**	**1.3**	**0.6**	**0.9**
Interwar Period	**(1925-1939)**	**2.1**	**1.7**	**1.5**
Bretton Woods	**(1948-1972)**	**0.1**	**1.7**	**0.7**
memo:	*1948-1958*	*0.0*	*1.4*	*0.3*
	1959-1972	*0.1*	*1.9*	*1.1*
Current	**(1973-2009)**	**2.6**	**3.7**	**1.3**
memo:	*1973-1989*	*2.2*	*5.4*	*1.8*
	1990-2009	*3.0*	*2.4*	*0.8*

Sources: Bordo *et al* (2001), Global Financial Data, Hutchison and Noy (2006), IMF *World Economic Outlook* (October 2010), Maddison (2006) with updated data from www.ggdc.net/MADDISON/oriindex.htm, Mecagni *et al* (2009), Reinhart (2010), Taylor (2002) and Bank calculations.

(a) The chosen start and end dates for the different IMFS regimes reflect historical data availability.
(b) Denominated in constant international dollars, as defined by Maddison (2006).
(c) Nominal GDP-weighted average of 12 countries.
(d) Where world-level data are unavailable, a subset of reporting countries is used.
(e) World GDP data begin in 1950.
(f) Sample of current G20 countries (including EU countries), where data available.
(g) Sum of absolute values of surpluses and deficits. Based on available data for a sample of G20 and EU countries.
(h) Based on a sample of 56 countries, using data based on methodology developed by Bordo *et al* (2001).
(i) Based on a sample of 56 countries, using data based on methodology developed by Bordo *et al* (2001) and supplemented by Reinhart (2010), Mecagni *et al* (2009) and Hutchison and Noy (2006).
(j) Based on a sample of 45 countries. External defaults as defined by Reinhart (2010).
(k) Currency crises data begin in 1880.

As **Table A** shows, the BWS performed well against a number of metrics. The period stands out as coinciding with remarkable financial stability and sustained high growth at the global level. Moreover, the solid growth outcomes were not simply the result of post-war reconstruction efforts — growth in real per capita GDP was slightly stronger in the 1960s than it was in the 1950s.

Importantly though, **Table A** provides no information about causality. In particular, it is difficult to be definitive about whether the BWS was successful in *delivering* growth and stability, or whether it was successful *because* it operated during a period of growth and stability (Bordo (1993)). The fact that the BWS existed only for a relatively short period of time (24 years based on a generous definition,(1) compared to at least 37 years for today's IMFS) suggests that the latter interpretation is certainly plausible.

Indeed, despite its apparent strong performance, the BWS ultimately collapsed because of fundamental flaws in its design. In particular, tight controls on private capital flows meant that global liquidity was determined by the supply of gold and the size of US balance of payments deficits. This feature of the system meant that US external liabilities were required to increase to match rising global demand for reserves, which eventually undermined the credibility of the dollar's peg to gold. Relatedly, US policymakers' inability to contain inflationary pressures in the late 1960s also contributed to the collapse of the BWS. Inappropriately loose monetary policy settings were exported to other countries via their exchange rate pegs, and as sterilisation became increasingly difficult, prompted them to float their currencies in 1971 and then again in 1973 (Bordo (1993)).

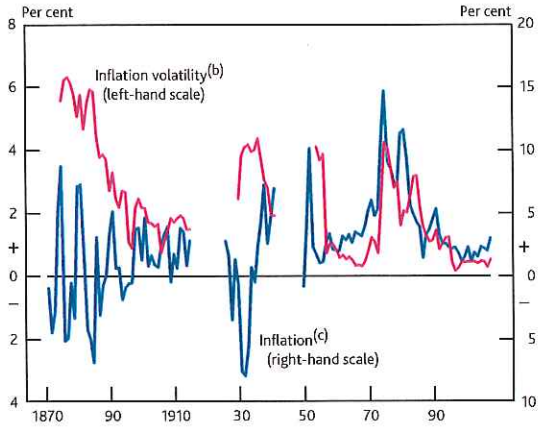
3 The performance of today's IMFS

Since the breakdown of the BWS, international monetary arrangements have evolved into a decentralised system, in which countries have chosen to make independent choices about their monetary, exchange rate and financial stability policies. Capital has become increasingly mobile between countries.

Against a range of metrics, today's system has performed poorly, at least relative to the BWS. **Table A** shows that the current system has coexisted, on average, with: slower, more volatile, global growth; more frequent economic downturns; higher inflation and inflation volatility; larger current account imbalances; and more frequent banking crises, currency crises and external defaults.

To some extent these period-average metrics obscure significant improvements over the current period. Inflation fell sharply over the 1990s (**Chart 2**), most likely reflecting greater recognition of the economic costs of high and volatile inflation in the 1970s and early 1980s.

Chart 2 World inflation(a)



Sources: Global Financial Data, IMF *World Economic Outlook* (September 2011) and Bank calculations.

(a) Calculated using CPI data for Australia, Belgium, Denmark, France, Germany, Italy, Japan, Norway, Sweden, Thailand, United Kingdom and United States. The period of German hyperinflation is excluded.
(b) Volatility measured as the five-year rolling standard deviation of the weighted inflation measure.
(c) Countries' CPI inflation rates weighted by their GDP in 1980.

Given the freedom that countries have in today's IMFS, they have chosen to adopt independent domestic monetary policy regimes, often with explicit inflation-targeting mandates. Nevertheless, with the (important) exception of inflation, the outcomes achieved during the BWS period were still better than those attained since 1990.

Examining the performance of today's IMFS in more detail, it is apparent that greater capital mobility has been one of the defining features of the current regime. In theory, financial globalisation should allow agents to: smooth the path of their consumption in the face of positive and negative shocks to their income; smooth consumption over the life cycle or between generations; and allocate capital to its most productive use. To take an extreme example, in the complete absence of *frictions*, net capital flows would simply reflect the efficient allocation of capital across countries and over time. These 'efficient' net capital flows would raise global welfare by allowing capital to flow from low-productivity to high-productivity countries and/or from countries with a higher preference for future consumption to countries with a relatively strong preference for current consumption.(2)

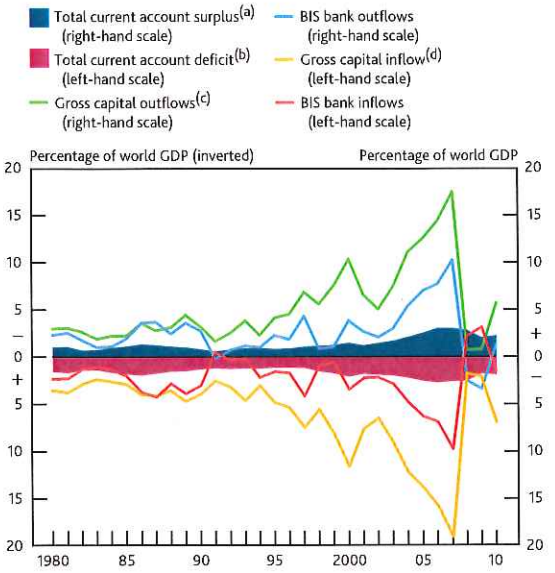
These capital flows would be entirely consistent with, and indeed facilitate, the IMFS simultaneously achieving its *internal balance, allocative efficiency* and *financial stability* objectives. In theory then at least, there is potential for

(1) Based on a stricter definition, the BWS only operated as truly intended for a nine-year period between 1959 (when advanced Western European countries made their currencies fully convertible) and 1968 (when the Gold Pool was eliminated).
(2) Differences in countries' stage of development are an important determinant of productivity differences, while demographic profiles and natural resource endowments are widely accepted as important influences on saving propensities. For further discussion on the drivers of capital flows, see Speller *et al* (2011).

financial globalisation to deliver large benefits (Dell'Arricia *et al* (2008)).

However, the evidence on the extent to which financial globalisation has translated into actual benefits is more mixed. Net capital flows have increased substantially in today's system relative to the Bretton Woods era. This has, however, been dwarfed by the rise in gross flows associated with the process of financial globalisation (**Chart 3**).

Chart 3 Gross and net capital flows

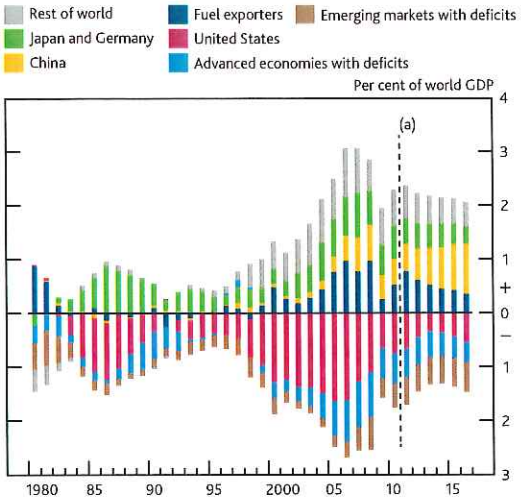


Sources: Bank for International Settlements, IMF *World Economic Outlook* (September 2011) and Bank calculations.

(a) Sum of global current account surpluses.
(b) Sum of global current account deficits.
(c) Sum of global net purchases of foreign assets by residents.
(d) Sum of global net purchases of domestic assets by foreigners.

Today's IMFS has permitted large imbalances to build between countries, particularly over the past fifteen years or so. After having averaged just under 1% of world GDP between 1980 and 1997, net capital flows (measured as either the sum of all countries' current account deficits or the sum of all countries' current account surpluses) roughly tripled to a peak of almost 3% of world GDP in 2006–07 (**Chart 4**). Although imbalances reversed sharply in 2009, they remain high by historical standards and are forecast by the IMF to continue at around 2% of world GDP over the next five years at least.

Chart 4 Global current account balances



Sources: IMF *World Economic Outlook* (September 2011) and Bank calculations.

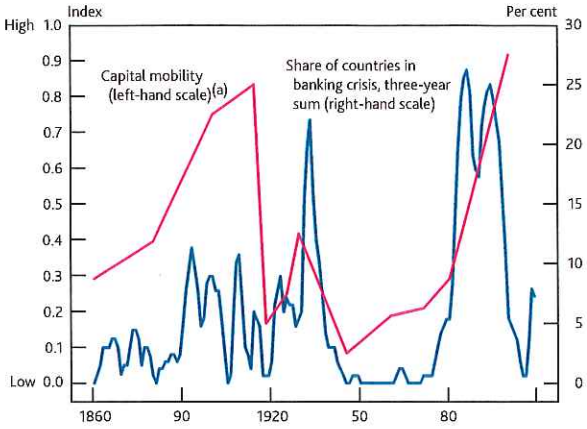
(a) Forecasts begin after 2010.

These growing flow imbalances have also been accompanied by growing stock imbalances. Between 1998 and 2008, the US net external liability position quadrupled in size, rising to $3.3 trillion (or 23% of GDP). Over the same period, the net external asset positions of Japan and Germany rose by $1.3 trillion and $0.9 trillion respectively. Chinese data are only available from 2004, but show that net external assets increased by $1.2 trillion, to $1.5 trillion (33% of GDP) in 2008, mirroring the increase in the US net external liability position over this period.

In today's system, 'uphill' flows of capital from EMEs to advanced economies are prevalent, suggesting that factors other than productivity have been at work (Lucas (1990)). One explanation is that differences in local property rights are behind this pattern. Some others are described in Section 4.

The historical record is chequered with episodes of highly disruptive surges and reversals of international capital flows to and from EMEs, and the recent crisis has demonstrated that advanced economies are by no means immune. **Table A** shows that the incidence of banking and currency crises has been higher in the current IMFS than in any previous regime, with the incidence of sovereign default second only to the interwar period. Since the 1980s in particular, the reappearance of episodes of global financial instability has coincided with a rapid increase in international capital mobility (**Chart 5**).

Chart 5 Capital mobility and the incidence of banking crises



Sources: Obstfeld and Taylor (2003), Reinhart and Rogoff (2008) and Bank calculations.

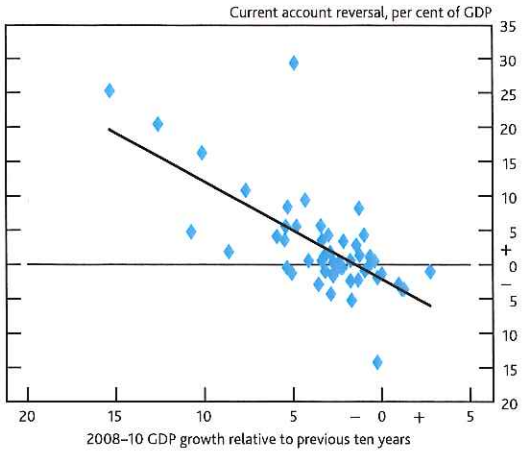
(a) A judgemental index on the extent of capital mobility constructed by Obstfeld and Taylor (2003).

A number of other papers also link the re-emergence of financial instability to the accumulation of global imbalances in today's IMFS. For instance, Barrell *et al* (2010) find that an increase in a country's current account deficit raises the probability of a banking crisis (in a sample of 14 OECD economies over a period of 26 years). Similarly, Reinhart and Reinhart (2008) find that the increase in the probability of a banking crisis, conditional on a capital inflow bonanza,(1) is 5.2% (although the figure for just advanced economies is much lower).

There is also some suggestive evidence that countries that have experienced the largest current account reversals in the recent episode have also seen the most pronounced slowdowns in output growth (**Chart 6**). Clearly the causality here could run in either, or both, directions. Historically, however, substantial pickups in unemployment have typically been preceded by large current account deficits and coincided with major current account reversals, suggesting that external financing problems often play an important role in crisis episodes (**Chart 7**).

It is clear that there have been many instances in which financial globalisation has imposed — or at least contributed to — large costs. Financial crises provide the most visible evidence of just how large these costs can be. And while it is too early to estimate the full impact of the most recent global crisis, clearly it has been severe and long-lasting.

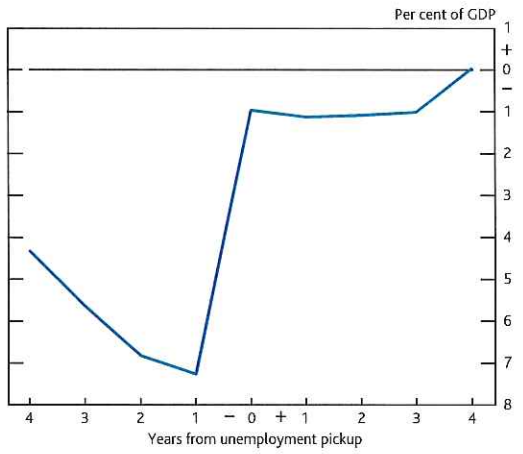
Chart 6 Current account reversals and output growth, 2007–10(a)



Sources: IMF *World Economic Outlook* (April 2011) and Bank calculations.

(a) Current account reversal is defined as the change in the current account balance from 2007 to 2010. Only advanced economies and EMEs are included.

Chart 7 Current account behaviour around large unemployment pickups(a)



Sources: IMF *International Financial Statistics*, IMF *World Economic Outlook* (April 2011), World Bank *World Development Indicators* and Bank calculations.

(a) A large unemployment pickup is defined as a rise in the unemployment rate of over 3 percentage points in one year. As the three datasets are not completely consistent, we only include episodes in which unemployment rises by over 3 percentage points in all three datasets. The series shows the average path of the current account before, during and after these episodes. The sample includes 22 such episodes.

The evidence from previous crises also points to very large effects. Cerra and Saxena (2008) find that currency crises and, even more so, banking crises have large, significant and persistent negative effects on output growth. In their sample of 190 countries between 1960 and 2001, currency and banking crises result in average losses of 4% and 7½% of GDP respectively over a ten-year horizon. Jordà, Schularick and Taylor (2010) suggest that for a smaller sample of advanced economies, recessions in the post-war period that have coincided with financial crises have been around twice as costly as recessions that have not. For EMEs, Hutchison and Noy (2005) find that between 1975 and 1997, currency crises

(1) A bonanza is defined as a current account deficit within the top 20% recorded by the country concerned (which gives a dispersion of figures — e.g. 1.8% of GDP for India and 6.6% of GDP for Malaysia).

reduced output by between 5% and 8% over a two to four-year period, while the output losses from banking crises were larger, at 8% to 10%. De Paoli *et al* (2009) also find that crises have very large and persistent effects, particularly when they combine a banking, currency and sovereign debt crisis.

Overall, the evidence suggests that today's system has performed relatively poorly against each of its three objectives. While inflation has fallen in both advanced and emerging economies (a positive from the perspective of the internal balance objective), per capita GDP growth has at the same time been slower and more volatile than in the BWS. The pattern of capital flowing 'uphill' suggests also that today's IMFS is not meeting its objective of allocative efficiency. But the key failure — as evidenced by the extraordinary severity of the 2007–09 global financial crisis — has been the system's inability to achieve financial stability and minimise the incidence of disruptive sudden changes in global capital flows. In light of these observations, the next section seeks to identify the underlying frictions in the current system, with a view to understanding why it has failed to achieve its three objectives.

4 What are the underlying imperfections that today's IMFS needs to resolve?

In order to design a policy response, it is useful to understand the frictions that have resulted in imbalances building, and/or which mean that adjustment to those imbalances is not smooth. An ideal IMFS would reduce the costs of these frictions, while still allowing the gains from inter and intra-temporal trade. In our assessment, the key frictions can be grouped into four categories: (i) missing markets; (ii) international institutional frictions (in particular, the role played by WTO rules in encouraging some countries to undervalue their exchange rates); (iii) imperfect information (particularly in financial markets); and (iv) nominal rigidities.

These frictions are in many cases closely interlinked, and in practice it is difficult to identify them separately. Generally speaking, the first two frictions (missing markets and international institutional frictions) have encouraged the build-up of risky imbalances, in particular by 'pushing' capital away from its most productive use. The third friction (imperfect information) has also contributed to the build-up of global imbalances, including by 'pulling' capital towards less productive uses. But the missing markets and imperfect information frictions have, in conjunction with the fourth friction (nominal rigidities), also played a large role in increasing the costs of the eventual adjustment to these imbalances.

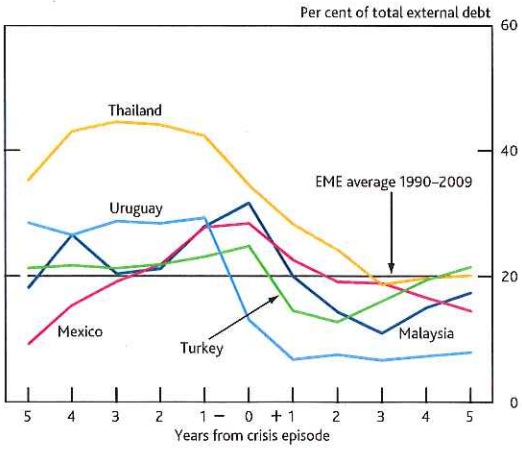
4.1 Missing markets

In the context of the IMFS, missing markets frictions stem largely from the interaction between financial market underdevelopment in EMEs and the process of financial globalisation. There are a number of missing markets in EMEs including the absence of deep and liquid local currency bond markets, the lack of hedging instruments and inadequate insurance markets, among others. Missing markets act primarily to push capital uphill from EMEs to advanced economies by incentivising reserve accumulation as a form of (self) insurance.

In general, there are three types of risks to which national balance sheets are vulnerable, each of which are heightened by missing financial markets: (i) maturity mismatch risk, which arises when assets are long term and liabilities are short term; (ii) currency mismatch risk, which arises in particular when assets are denominated in local currency and liabilities are denominated in foreign currency; and (iii) capital structure mismatch risk, which results from excessive reliance on debt financing, rather than equity.

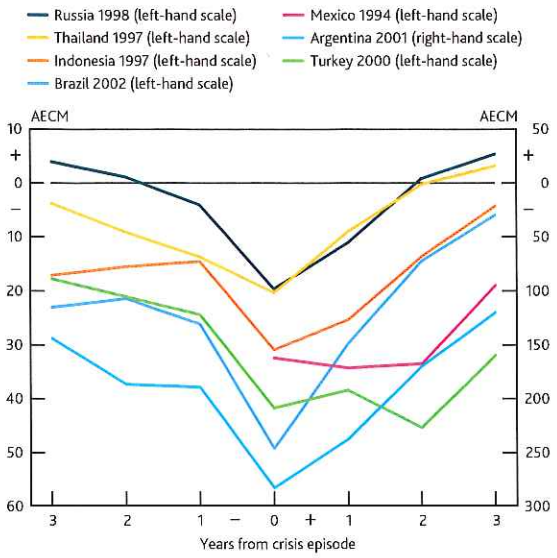
Maturity mismatch risk was significant in many recent EME crisis episodes. **Chart 8** shows that many of the recent EME crises were preceded by relatively high reliance on short-term external debt. In some cases, pressures came through short-term government debt (Mexico, Russia, Turkey and Argentina) while in others they arose from, or were augmented by, the short-term liabilities of the banking system (Korea, Thailand, Russia, Turkey, Brazil, Uruguay and Argentina) (Allen *et al* (2002)).

Chart 8 **Short-term external debt shares — selected crisis episodes**



Sources: World Bank and IMF *Quarterly External Debt Statistics* and Bank calculations.

Chart 9 National currency mismatch — selected crisis episodes[a]



Sources: Goldstein and Turner (2004) and Goldstein and Xie (2009).

(a) Goldstein and Turner Average Effective Currency Mismatch (AECM) measure. Negative values indicate a net short foreign currency position.

Currency mismatch risk is generally more pronounced in EMEs than in advanced economies, and has also featured in a number of previous crisis episodes. As **Chart 9** shows, borrowing in foreign currency was commonplace in several EMEs which subsequently suffered crises. Foreign currency borrowing was high because emerging market agents, public and private, have historically been less able to borrow in local currency from non-residents or even, in many cases, from residents — the 'original sin' problem, first coined by Eichengreen and Hausmann (1999).[1] Bordo, Meissner and Stuckler (2010) analyse data from 1880–1913 and 1973–2003 and find that higher ratios of foreign currency debt to total debt are associated with increased risks of currency and debt crises.

The underdevelopment of local currency bond markets is likely in large part to explain why some countries have currency and maturity mismatches on their balance sheets. If underdeveloped financial markets act to inhibit agents' ability to issue long-term local currency denominated bonds, currency and maturity mismatches can be particularly acute. Even though much progress has been made in this area — for example, Burger *et al* (2010) estimate that in Latin America in 2008, over 70% of outstanding bonds were denominated in local currency — there are specific areas where further progress can be made (see Section 5).

Capital structure mismatch risk — or an overreliance on debt finance — can be the result of weak corporate governance regimes and/or tax and regulatory distortions, or reflect a wider failure of property rights. These factors can inhibit the development of markets for equity, or equity-like, instruments. High debt to equity ratios were a feature of a number past EME crises (and of Japan in the early 1990s) and also, of course, were a feature of advanced country banking systems in the current crisis. Countries facing this risk may have a greater incentive to insure themselves against exogenous shocks, as debt service payments remain unchanged in bad times, even though borrowers will have reduced capacity to pay. In contrast, countries with lower debt-equity ratios will fare relatively better in the face of negative shocks, as payments from equity are state contingent, falling in bad times.

Each of these national balance sheet mismatches acts to increase countries' vulnerability to sudden capital flow reversals and balance of payments crises, creating strong incentives to seek insurance against these risks. But if there are missing markets, countries may be unable to access external sources of insurance, and may instead seek to self-insure by accumulating reserves. There are three key types of missing insurance markets which are important for explaining the accumulation of reserves and, consequently, global imbalances: (a) missing domestic insurance markets; (b) missing exchange rate insurance markets; and (c) missing country insurance markets. The self-insurance motive for reserve accumulation is argued by some to be significant. For example, Obstfeld, Shambaugh and Taylor (2008) estimate that between one half and two thirds of reserves accumulated between 2000 and 2009 were for precautionary purposes. Other commentators, however, most notably Dooley, Folkerts-Landau and Garber (2003), suggest that precautionary motives have played less of a role in countries' desire to accumulate reserves, rather seeing reserves accumulation as the by-product of countries promoting exports.

If households, firms and governments have incomplete access to domestic insurance markets, they will have an incentive to self-insure by accumulating foreign assets (Mendoza *et al* (2009)). Faced with an insufficient supply of 'safe' financial assets at home, the process of financial globalisation has allowed EME investors to accumulate 'safe' assets from advanced economies' financial markets (Caballero *et al* (2006)). This process has contributed to the build-up of current account surpluses in EMEs, and made it relatively easy for some of the major advanced economies (with highly developed financial markets) to finance their current account deficits. On the whole, EME purchasers of advanced economy assets have been EME public sectors rather than private sectors, consistent with the governments in these countries playing an intermediary role.

As highlighted in King (2011), incomplete markets for insurance against exchange rate volatility — for example, underdeveloped exchange rate derivatives markets — may

(1) Eichengreen and Hausmann (1999) define 'original sin' as 'a situation in which the domestic currency cannot be used to borrow abroad, or to borrow long-term, even domestically'.

encourage countries to choose to maintain fixed or managed exchange rate regimes. The incentives to limit short-term 'excessive' volatility are likely to be particularly strong for countries that run large currency mismatches (Goldstein and Turner (2004)). There is some evidence that a fixed exchange rate can lower the probability of banking crises in developing countries (Domaç and Martinez Peria (2003)), although this study also finds that once a crisis occurs, the costs are greater for countries with fixed exchange rate regimes.

While there is some evidence to support a link between exchange rate volatility and financial stability, the link to broader macroeconomic outcomes is less clear-cut (Rose (2010)). But regardless of whether the benefits of fixed exchange rate regimes are real or perceived, the fact remains that in practice, more than 90% of emerging and developing economies have opted to fix, or at least 'manage' their exchange rates.(1) And if these fixed exchange rate regimes impede desirable medium-term adjustments in real exchange rates, they can generate adverse spillovers for the global economy by perpetuating patterns of spending which are ultimately unsustainable and increase the output costs of eventual corrections. In this respect, the frictions associated with missing markets are closely related to nominal rigidities (discussed below).

Incomplete markets for country insurance may also encourage EMEs to accumulate foreign exchange reserves. If a country is unable to use financial markets to insure itself against national balance sheet vulnerabilities, the financial safety nets provided by international financial institutions or regional financing arrangements could offer an alternative. But if these financial safety nets are inadequate — or at least perceived to be — countries may consider that they have little choice but to self-insure by accumulating foreign reserves.

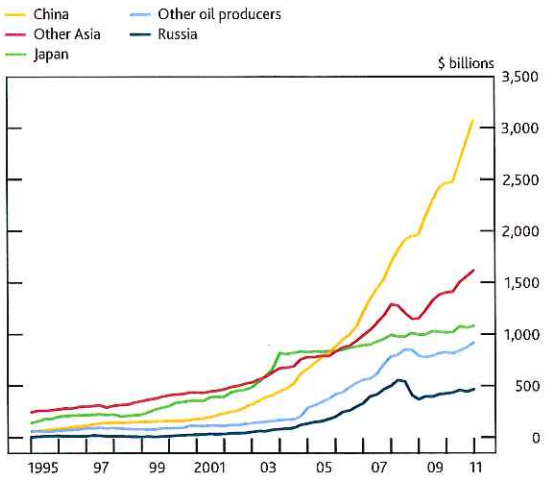
The Asian crisis in the late 1990s may have been a trigger for EMEs to accumulate reserves for precautionary reasons: foreign exchange reserve accumulation by non-oil exporting EME surplus countries rose by over half a percent of world GDP between 1998 and 2006 — matching the rise in their current account balances.

4.2 International institutional frictions

But missing markets are not the only explanation for reserve accumulation by EMEs. For individual countries, export-led growth can be an attractive development strategy over the short to medium term, because it allows output to expand rapidly, even if domestic demand is weak (Dew *et al* (2011)). Since existing WTO rules restrict the use of direct export or production subsidies, some countries have chosen instead to undervalue their exchange rates as an alternative policy tool. As a result, these international institutional frictions also act to push capital uphill, further contributing to the build-up of risky imbalances.

In order to maintain control over the exchange rate, the Chinese authorities have responded to upward pressure on the renminbi by accumulating reserves (which now exceed US$3 trillion (**Chart 10**)), while maintaining tight capital controls. Other countries have also pursued export-led growth models at various points in time (for example, Japan in the 1960s, South Korea in the 1980s). However, the recent Chinese experience stands out for the scale of imbalances built up as a result.

Chart 10 Reserve holdings



Sources: IMF *International Financial Statistics* and Bank calculations.

Export-led growth may be beneficial from the perspective of individual countries — at least in the short term.(2) Although reserve accumulation does impose some costs on the domestic economy (while difficult to estimate, costs of sterilised intervention could be of the order of 1%–2% of GDP per annum for most major reserve holders),(3) these costs may be small relative to the costs imposed on the global economy through its contribution to global imbalances. Moreover, because wealth and political power become concentrated in export-producing sectors, efforts to remove these distortions may be resisted by companies with vested interests. In this situation, countries may find it difficult to move away from this growth model even if it is in their own long-term interests to do so.

4.3 Imperfect information

While missing market and international institutional frictions have acted primarily as 'push' factors in the accumulation of global imbalances, imperfect information frictions have acted as important complementary 'pull' factors — most notably

(1) Based on the IMF's De Facto Classification of Exchange Rate Regimes and Monetary Policy Frameworks as at end-April 2010.
(2) In the long term, export-led growth is ultimately unsustainable, as countries cannot increase their share of world exports indefinitely. Moreover, maintaining an undervalued exchange rate may also lead to inflationary pressure, or alternatively if the authorities choose to combat this through sterilised intervention, it may contribute to banking sector fragility (domestic financial institutions may be unable to absorb sufficient quantities of expensive domestic bonds).
(3) See for example, International Monetary Fund (2010a) and Mohanty and Turner (2006).

through their contribution to excessive leverage in advanced economies. Imperfect information frictions include asymmetric information, legal uncertainties and differences in accounting practices among others, many of which are likely to be more problematic in the international environment than the domestic one. In addition to contributing to the initial build-up of imbalances (for example, through their impact on tail risk taking), imperfect information frictions have also acted to increase the costs of the unwinding of imbalances, for example through encouraging herding behaviour and contagion. Herding and contagion can amplify changes in exchange rates and capital flows, exacerbating the impact of a shock and meaning that the impact on output is much larger than it might otherwise be.

Imperfect information can result in moral hazard problems in banking sectors with implicit guarantees. Under these conditions, banks — and in particular, banks that are perceived to be "too important to fail" — will have an incentive to take on more risk than is socially optimal, ignoring the downside risks to depositors, and ultimately, to taxpayers. These risk-taking incentives will be present even if there are no frictions related to missing markets.

Imperfect information is crucial in this context, as it prevents investors and regulators from accurately observing the extent to which banks are taking on excessive risk (De Nicolò *et al* (2010)). It may also impede banks' own ability to assess the nature of the risks they are taking on — particularly if financial instrument structures are complex (Bank of England (2011)). In this setting, capital inflows can lead to strong credit growth which, in turn, contributes to over-inflated asset prices, over-borrowing and over-investment (e.g. McKinnon and Pill (1996) and Krugman (1998b)).

But imperfect information does not just encourage banks to take on more risk. Allen and Gale (2000) show how the same basic mechanism can work without a guarantee-induced moral hazard problem. As long as debt holders cannot observe risk-taking perfectly and there is limited liability, equity holders can still shift risk onto the debt holders. This leads equity holders to reallocate their portfolios towards risky assets and under-price risk.

Borrowers' ability to take advantage of imperfect information frictions will be amplified if various 'push' factors are resulting in large net capital inflows. For instance, banks are likely to find it easier to become "too important to fail" if they play an important role in intermediating foreign funds to domestic borrowers. Although there is some debate about the relative importance of foreigners' desire to save (the so-called 'saving glut' view) and loose US monetary policy settings in creating easy financing conditions for US financial institutions over recent years, Box 1 outlines the case for favouring the former. Kaminska *et al* (2011) find, for example, that foreign purchases of US Treasuries in the year to July 2004 may have lowered the ten-year rate by around 100 basis points.

In addition to contributing to the build-up of risky imbalances, imperfect information frictions also increase the likelihood that the eventual adjustment process will be disorderly. After an initial shock, there are two key channels through which imperfect information can have an impact. First, it can lead to herding behaviour, which can amplify movements in exchange rates and capital flows, including for countries which are not directly impacted by the shock. And second, it can lead to larger increases in credit spreads than would otherwise be the case, and consequently larger feedback effects on the real economy.

If investors face imperfect information, it may be rational to simply mimic the actions of other investors, as for example, in Keynes' (1936) beauty contest. This 'herding' behaviour may be rational from the individual investor's perspective if the pay-offs from acting 'alike' are increasing in the number of investors who adopt the same action — as in, for example, Diamond-Dybvig (1983) style bank runs.

In an international context — where imperfect information problems between lenders in one country and borrowers in another country are likely to be particularly acute — the herding phenomenon can cause exchange rates and capital flows to display excessive volatility, exacerbating the impact of any initial shock. Indeed, for countries with some pre-existing weaknesses in their economic fundamentals, herding behaviour can lead to full-blown self-fulfilling crises (Obstfeld (1996)). There is some evidence to suggest that imperfect information has played an important role in precipitating previous emerging market crises. For example, Frankel and Schmukler (2000) find evidence that imperfect information played an important role in crises in Mexico, Thailand, Indonesia, the Philippines and Malaysia.

Imperfect information can also contribute to disorderly adjustments by perpetuating adverse feedback loops between the real economy and the financial sector. Fisher's (1933) debt-deflation theory provides a useful framework for illustrating this effect in a generic context. In this model, an unanticipated deflation shock results in a transfer of wealth from debtors to creditors and erodes the value of collateral. As asset prices fall, debtors face a rising real debt burden, and the number of defaults increases. Lenders faced with imperfect information will respond by increasing their risk premia, and/or rationing credit (as in Stiglitz and Weiss (1981)) with consequent feedback effects for the real economy and financial stability.

So imperfect information frictions can act to make the eventual deleveraging process in countries with unsustainable current account deficits more costly than it would be otherwise.

And, given cross-country trade and financial linkages, the adverse consequences for output and financial stability could spill over to other economies. Moreover, as discussed below, the global consequences of disorderly deleveraging in deficit countries will be particularly large if these informational frictions also interact with nominal rigidities.

4.4 Nominal rigidities

In an ideal world, smooth adjustments to global imbalances would be achieved through relative price adjustments — prices, wages and exchange rates. In particular, deleveraging in deficit countries would be accompanied by falls in the price of their home output relative to the price of surplus country output. This would boost deficit country exports and surplus country demand. But if nominal rigidities are pervasive, the relative price adjustment process may be too small and/or too slow. In addition to compromising the ability of individual countries to achieve internal balance, nominal rigidities could also lead to deficient demand at the *global* level.

Downward price and wage rigidities can act to increase the output costs associated with negative demand shocks (in the context of global imbalances, it is helpful to think of a negative demand shock as an unanticipated rise in desired saving in current account surplus countries). There is evidence, for example, that wage stickiness was an important factor during the Great Depression. Bordo, Erceg and Evans (2000) attribute 50%–70% of the decline in US real GNP in the years to 1933 to the combination of sticky wages and unanticipated monetary shocks. For a broader sample of countries, Eichengreen and Sachs (1985) and later Bernanke and Carey (1996) also suggest that wage rigidities were important during the Great Depression, supported by evidence of a strong inverse relationship between output and real wages across countries and over time.

While the importance of nominal wage rigidities may be expected to have declined somewhat over time, there is still some evidence in more recent episodes. For example, Kuroda and Yamamoto (2003) find that nominal wage rigidities raised Japanese unemployment by almost 2 percentage points over 1993–98.

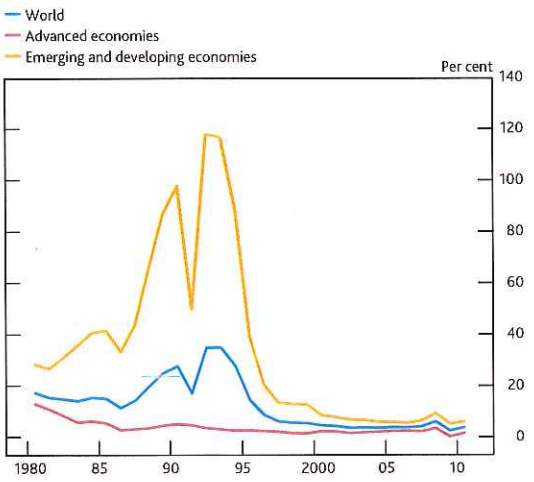
In theory, downward nominal price and wage rigidities can be offset by an easing in domestic monetary policy. But if monetary policy becomes constrained by the zero lower bound for nominal interest rates, this offset may only be partial. Recent studies for the United States find that the zero lower bound constraint prevented short-term interest rates from falling by around 400 basis points (Williams (2009), Chung *et al* (2011)), but that the Federal Reserve's asset purchase programme provided only partial compensation, amounting to the equivalent of a 300 basis point cut in short-term rates (Chung *et al* (2011)). The recent experience in the United States suggests that monetary policy alone may not be able to maintain sufficient global demand in all conditions.(1) In particular, its effectiveness may fall if global demand for saving were to rise further or global demand for investment were to decline even more.

With conventional monetary policy constrained by the zero lower bound in the United States at present, the need for relative price adjustment in surplus countries — more specifically real exchange rate appreciation — is even more crucial to minimise the costs of global rebalancing. But the extent to which this can occur is hampered by the prevalence of fixed or managed nominal exchange rate regimes in EMEs, which creates yet another nominal rigidity. Around one fifth of the world (in terms of global GDP in PPP terms) has some form of fixed or pegged exchange rate arrangement with the dollar (IMF (2010b)).

With fixed nominal exchange rates, monetary policy settings in the United States are more likely to spill over to EMEs, placing the burden of real exchange rate adjustment squarely on inflation. Even though inflation rates in EMEs have fallen markedly since the early 1990s (**Chart 11**), inflationary pressures picked up in 2010–11, coinciding with the easing in US monetary policy settings. In East Asian EMEs for example, consumer price inflation rose by an average of around 5 percentage points between the summer of 2009 and the summer of 2011.(2) But in China, which maintains a relatively tight peg to the US dollar, inflation has increased over 8 percentage points over the same period. This increase in inflation is helping to deliver the required real exchange rate appreciation but the pace at which it is happening is not rapid enough.

Spillovers from US monetary policy to EMEs via managed exchange rates may also be costly in tightening phases. Eichengreen and Rose (1998) estimate a probit regression on 39 emerging market banking crises between 1975 and 1992 and find that a 1 percentage point increase in the world real interest rate increases the probability of a banking crisis in an EME by 3%. In their data, movements in the world interest rate are primarily driven by the US interest rate. With a standard deviation of 2 percentage points over their sample, this channel is quantitatively important.

Chart 11 Inflation



Source: IMF *World Economic Outlook* (September 2011).

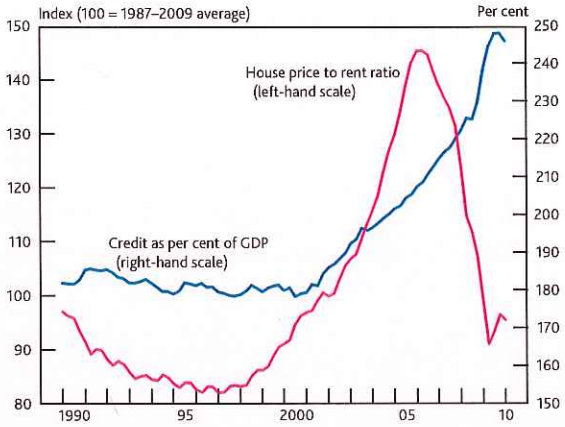
(1) Bernanke (2010a), for example, has stated that '[m]onetary policy is working in support of both economic recovery and price stability, but there are limits to what can be achieved by the central bank alone.'

Box 1
'Saving glut' versus monetary policy errors

There are three pieces of evidence which cast doubt on the claim that US monetary policy errors explain the US credit and house price boom leading up to the crisis.

First, low long-term interest rates, and the rapid expansion in US credit and house prices, were decade-long phenomena (**Chart A**) which partly pre-dated the period of very low Fed Funds rates.

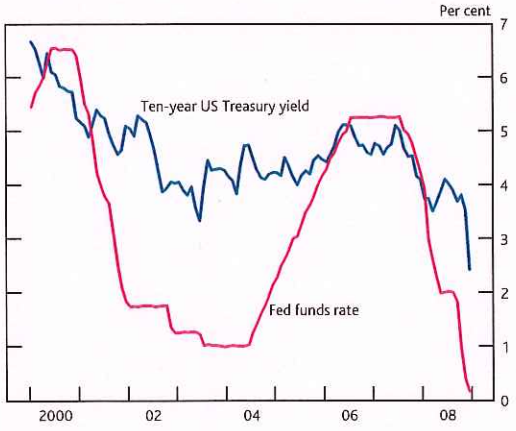
Chart A US credit and house prices



Sources: Federal Reserve, Thomson Reuters Datastream, US Bureau of Economic Analysis and Bank calculations.

Second, even as the Federal Reserve tightened monetary policy in 2004, long-term interest rates remained low (**Chart B**) and lending growth remained firm, suggesting some other factors were at play.

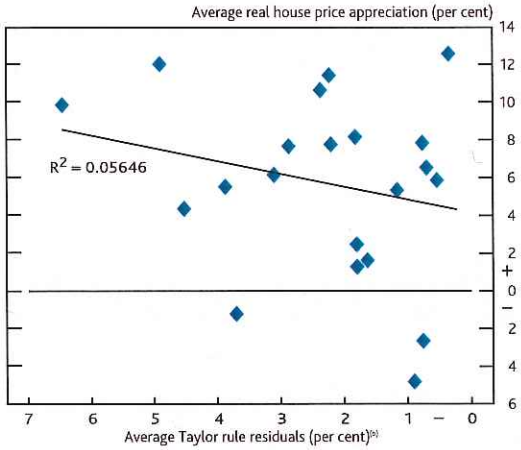
Chart B US federal funds rate and long-term interest rate



Source: Federal Reserve.

Third, there is no cross-country evidence of any relationship between countries' monetary stance (measured by the residuals from a Taylor rule) and real house price inflation (**Chart C**), Bernanke (2010b). If overly loose monetary policy had been the main driver, one would expect a strongly negative relationship between the Taylor rule residuals and house price inflation.

Chart C Monetary policy and real house price appreciation, 2002–06(a)



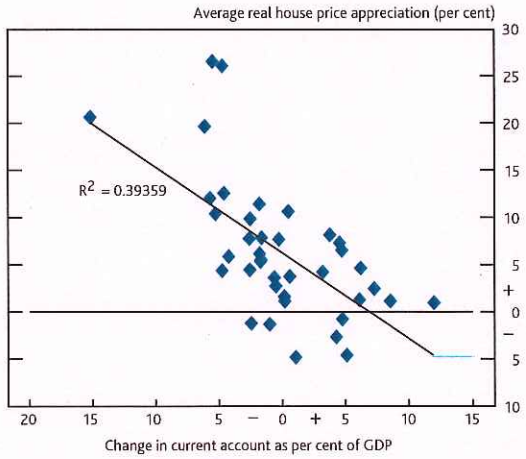
Sources: OECD *Economic Outlook* accessed via Thomson Reuters Datastream, Cesa-Bianchi (2011) and Bank calculations.

(a) Advanced economies only.
(b) A negative residual indicates that monetary policy was looser than a Taylor rule suggests it should have been.

By contrast the saving glut hypothesis is more consistent with the data. Around the same time as the sharp pickup in surplus country saving, long-term interest rates started to fall and the US current account deficit worsened. The boom in mortgage lending and house prices also intensified.

And there is some cross-country evidence that suggests a link between current account deficits and house price appreciation (**Chart D**). Sá and Wieladek (2010) have also examined the link between capital flows and house prices. They find that US house prices would have been 13% lower by the end of 2007 if the current account to GDP ratio had remained at its 1998 level. By contrast, tighter monetary policy would have had much smaller effects. That said, the direction of causation in their work is not clear.

Chart D Real house price appreciation and current account balances, 2000–06



Sources: Cesa-Bianchi (2011), IMF *World Economic Outlook* (September 2011) and Bank calculations.

4.5 Why might these frictions have become more costly over time?

Three of the frictions described above — missing markets, imperfect information and nominal rigidities — exist in economies that have closed capital accounts. Why might they have become more costly since Bretton Woods ended? There are two possible reasons. First, the frictions themselves might be more pervasive in an economy that has an open capital account. Second, factors which mitigate the costs of these frictions in a domestic setting might be less effective when capital is internationally mobile.

There are a number of factors which suggest that imperfect information problems may be more severe in a financially open economy. Most obviously, information asymmetries may be greater across country borders than within countries. Perhaps related to this, Giannetti and Laevan (2011) show that home bias[1] can pick up in financially stressed periods. This might explain why external funding is less stable than domestic funding. In addition, regulatory policies that mitigate the costs of imperfect information may be less effective in an open economy. This is likely to be the case if regulation is conducted on institutions rather than transactions and foreign lenders are less tightly regulated.

It is less clear that nominal rigidities or missing market failures are any more severe when capital accounts are open. But fiscal policy might be better placed to reduce the costs of both in a financially closed economy. If, for instance, there is a rise in desired saving, the government in a closed economy should find it easier to borrow and offset any downward pressure on employment which might otherwise occur if wages are sticky. Similarly, automatic stabilisers should be able to replicate insurance markets (by increasing transfers to those who suffer an adverse shock) more easily in an economy that is closed to capital flows.

5 How should the IMFS be reformed?

The large costs associated with the IMFS failing to meet its three objectives of *internal balance, allocative efficiency* and *financial stability* illustrate the need to consider ways to reform the IMFS. The preceding discussion suggests that the first-best policy solution would consist of a set of reforms that deal directly with the frictions that exist in today's IMFS. Section 5.1 discusses some ideas for how this might be done, focusing in particular on reforms that individual countries can implement *independently*.

However, in many instances it will not be possible for individual countries to mitigate the underlying failures, at least not acting on their own. In these cases, international policy initiatives will be required to mitigate these frictions. If this is still not feasible — for example, if it is too costly to do so — then it will be necessary to accept that the underlying imperfections will persist, and instead countries need to try to internalise the externalities that result. Section 5.2 discusses policy initiatives which will require some degree of international co-operation to be effective, but which stop short of requiring countries to co-ordinate their policies on an ongoing basis. Section 5.3 outlines reform options which would require a more active form of policy co-ordination, either through voluntary agreements, or a more rules-based approach.

5.1 Reforms that can be implemented without international policy co-ordination

Section 4 highlighted a number of underlying imperfections that either allow excessive imbalances to build in today's IMFS and/or impede the smooth adjustment of the system to those excessive imbalances. By their very nature, *international institutional frictions* cannot be affected by countries acting in isolation. But there may be actions that countries can take individually to help mitigate the other three sets of frictions.

5.1.1 Missing markets

As highlighted in Section 4, frictions related to missing markets act to push capital uphill from EMEs to advanced economies by incentivising reserve accumulation as a form of (self) insurance. One set of reform proposals aims to find ways to reduce countries' desire to accumulate excessive precautionary reserves through completing missing financial markets. There are two potential strands to this that countries can pursue independently: (i) develop domestic financial markets; and (ii) create exchange rate insurance markets so that investors are better able to hedge against exchange rate fluctuations. While the second of these is self-explanatory, the most pertinent aspects of the first are discussed below.

One reason why countries accumulate reserves is because their balance sheets are vulnerable to shocks. Those vulnerabilities stem from the currency, maturity and capital structure mismatches that exist on those balance sheets, which in turn reflect the absence of deep and liquid local financial markets (Section 4). Even though there has been much progress, there are specific areas where further progress can be made.

The development of local currency bond markets is emphasised in this year's G20 agenda. The main benefits of this agenda should be to reduce the *currency and maturity mismatches* on countries' balance sheets. In line with reports by the Committee on the Global Financial System (2007) and the World Bank (2011), the following areas should be prioritised:

(1) Home bias refers to the tendency for financial portfolios to be overweight in domestic assets relative to what theory might suggest.

- *Liquidity* needs to be improved. Domestic financial institutions need to be developed, as the domestic investor base is often too narrow. In particular, repo and derivative markets remain undeveloped, preventing investors from lending securities they do not wish to trade.

- The *maturity* of debt instruments needs to be extended, which in turn will extend the overall yield curve. This will require commitments from domestic policymakers to issue debt across a range of maturities.

- *Private sector issuance* needs to expand as issuance is often concentrated in a few highly-rated firms.

- *Risk concentration* needs diluting — in several countries, domestic banks hold the bulk of bonds outstanding. In some cases these holdings are dominated by short-term sterilisation bonds related to reserve accumulation.

Capital structure mismatches reflect in part the fact that firms in many countries can offset interest payments against corporation tax, but the same tax advantage does not apply to dividend payments. This distortion reduces the relative cost of debt financing and is likely to be an important factor in explaining high private sector leverage (IMF (2009)). Indeed, it was one of the key motivations for leveraged buyouts which were popular in the run-up to the financial crisis. Removing the subsidy for debt financing could reduce excessive leverage and help the IMFS to achieve its financial stability objective.

Some economists have gone further and proposed that the tax system should favour equity over debt. For instance, Bianchi and Mendoza (2010) and Jeanne and Korinek (2010) advocate a countercyclical tax on debt to prevent over-borrowing. And Rogoff (2011) emphasises that the IMFS would be more robust with a higher share of liabilities as equities.

Sovereigns cannot issue equity of course. But they too can take steps to improve the structure of their own liabilities, to allow them to share better the risks of their income streams with their creditors. By making their debt contingent on measures correlated with their future income, such as nominal GDP, sovereigns can mimic some of the attractive features of equity. GDP-linked bonds promise to pay a return that varies with the behaviour of GDP: investors share some of the risk with the issuer, receiving a lower payout in bad times, and *vice versa*. These markets are, in general, missing. Such proposals have been advocated by Shiller (1993), among others.

These reforms would help to smooth the adjustment of the IMFS once imbalances have emerged. And to the extent that they reduce capital structure mismatches, they could encourage countries to accumulate fewer precautionary reserves, thus also helping to reduce the build-up of those imbalances.

The benefits of this proposal stem from the stabilising effect on debt to GDP ratios. Simple counterfactual simulations suggest that if sovereigns were to issue nominal GDP-linked debt rather than conventional debt, the volatility of the debt to GDP ratio would be lower and they would be significantly less exposed to tail risk. Countries that are particularly sensitive to sudden changes in their debt to GDP ratios (either because they are more vulnerable to technology shocks or because their debt to GDP ratios are high) may therefore find GDP-linked bonds particularly attractive.

The stability benefit may come at the cost of higher debt interest payments, on average, if investors require compensation for being exposed to systematic risk, in particular that payouts will be lower when investors need the money most. For instance, Kamstra and Shiller (2009) have suggested that this risk premium might be as high as 1.5%. But there are a number of reasons why this might be an over-estimate. These include: the potential for GDP-linked bonds to facilitate international risk-sharing; the access they provide to a broader range of income-earning potential in the domestic economy; their ability to reduce the risk of sovereign default; and the likely demand for such instruments from investors such as pension funds with wage-indexed liabilities (as returns from GDP-linked bonds will be highest when pension funds need it most).

Given the apparent risk-sharing benefits of these missing markets, why have they rarely been developed? These general ideas — to generate new markets for instruments that allow countries to structure their external assets and liabilities to provide a greater degree of explicit contractual risk-sharing — were emphasised in a G20 Working Group report on International Financial Crises (1998). But without a co-ordinated international push for such instruments to be introduced, no real progress was made. One obstacle may be that the pricing of such instruments is more complex than traditional government bonds. For example, investors may fear that GDP-linked bonds dull governments' incentives to measure GDP accurately. GDP data are also revised. Of course, bonds indexed to consumer prices are also more complicated to price and there could be an incentive to mis-measure inflation, but in practice this has not been a problem for most issuers. There are also ways to overcome the problem of revisions (coupon payments can be linked to initial estimates, or revisions could be rolled into future coupon payments), though they are not perfect solutions.

But there are also other options: sovereigns could link repayments to variables outside their direct control for instance. Bonds with repayments linked to commodity prices have been used, though rarely. Another option, that has not been used, is repayments linked to trading partners' performance. Caballero and Panageas (2005) have also

proposed that EMEs should index debt to external variables correlated with the risks that they face, such as the VIX. And these reform ideas should not be limited to the sovereign: corporate and household debt instruments could also benefit from adopting some of these ideas. A less radical proposal would be to encourage more economies to issue debt that is indexed to the consumer price level (as currently already occurs in a number of advanced economies and EMEs). This could be beneficial for some governments, for example those in the euro area, to protect them from terms of trade shocks that lower the domestic price level.

5.1.2 Imperfect information

As discussed in Section 4, imperfect information among investors is often at the root of financial instability. In the presence of imperfect information, poorly-informed investors' optimum strategy may be to mimic the actions of others, which may amplify movements in exchange rates and capital flows. Individual countries can take a number of actions to reduce the impact of imperfect information, including by improving financial regulation; better disclosure rules; implementing countercyclical macroprudential policies; and improving their capacity to identify — and consequently, mitigate — vulnerabilities on their national balance sheets.

These reforms, however, will largely deal with the financial sector only. And there is a risk that much tougher domestic banking regulation will lead to higher non-bank, cross-border and foreign-branch lending (Aiyar *et al* (2011)). In these instances, there may be a case for prudential capital controls, such as taxes on foreign borrowing (Chamon *et al* (2009)). These could increase the effectiveness of financial sector regulation and level the playing field between domestic and foreign lenders. The 2011 coherent conclusions on capital controls agreed by the G20 are welcome, as a means to promote a common understanding of the appropriate use of capital controls. But capital controls may not be very effective in countries with highly developed financial systems; they may also introduce unwanted distortions.

It is striking that there is very limited surveillance of the risks associated with the structure of a country's *national* balance sheet. In the event of a negative shock, investors can be very uncertain about the vulnerability of individual countries, increasing their susceptibility to sudden capital flow withdrawals induced by herding behaviour. This would suggest that a better understanding is required of what shock, or combination of shocks, might cause the nation as a whole to become credit constrained. Countries should seek to achieve this, in conjunction with the IMF and BIS (see Section 5.2).

5.1.3 Nominal rigidities

The problem of nominal rigidities — in particular downward stickiness in wages and prices — is present to varying degrees in all economies. This is most starkly illustrated by recent events in a number of vulnerable euro-area economies, where protests against wage cuts have been prevalent. It seems unlikely that such rigidities can be easily removed. Rather, policymakers have to accept their existence and set policy accordingly.

But the problem of nominal rigidities is exacerbated in today's IMFS by actions taken by some EMEs to impede required adjustments in their real exchange rates, in order to maintain their level of competitiveness as they pursue export-led growth strategies. Consequently, an obvious reform that is required in today's IMFS — and one which can be achieved through countries acting independently — is for countries to allow greater flexibility in their nominal exchange rates. If all countries allowed for this, the problem of nominal rigidities in today's IMFS would be much reduced.

5.2 Reforms requiring international policy initiatives

While the *missing markets, imperfect information* and *nominal rigidities* frictions can be mitigated — at least in part — by actions taken by individual countries, international policy initiatives could also help. This is particularly true for the *missing markets* and *imperfect information frictions*. Improved global financial safety nets (FSNs) may help to mitigate the effects of the *missing markets* frictions by reducing EMEs' incentives to accumulate precautionary reserves. Co-ordinated efforts to close data gaps and international co-operation on the financial regulatory reform agenda could further reduce the impact of *imperfect information*. And by definition, *international institutional frictions* will have to be tackled via international policy initiatives.

5.2.1 Missing markets

As highlighted in Section 4, one of the reasons why countries choose to self-insure is because there are limited alternatives to obtain insurance in the event of a negative shock.

Moreover, missing domestic markets could make them more vulnerable to such shocks. Some progress has been made over the past two years to improve the provision of global FSN arrangements, through reform of the IMF's Flexible Credit Line (FCL) and the introduction of the Precautionary Liquidity Line (PLL). However, because the qualification criteria for these instruments remain qualitative to a large extent, it is still uncertain which countries would benefit from access to FSNs. There is also some uncertainty about whether FSN resources will actually be available when needed. As a result, these instruments are not widely seen as alternatives to reserve accumulation. Moreover, to be genuine crisis prevention tools and act as an alternative to reserve accumulation, the IMF's resources would probably need to increase substantially. One promising avenue to pursue in terms of the FSN agenda would

be greater transparency in the eligibility criteria for existing FSNs. This implies making the criteria more quantitative and encouraging all IMF Article IV consultations to state whether a country is eligible for a particular FSN.

5.2.2 Imperfect information

To reduce *imperfect information* frictions the IMF, working with the BIS, could reinforce efforts by individual countries to improve surveillance of their own national balance sheet vulnerabilities by stepping up the provision of systematic cross-country analysis. As an important starting point, there are undoubtedly data gaps that need to be filled. Promisingly, much of this is being captured in the G20 Data Gaps workstreams. For instance, the G20 is pushing for an increase in the number of countries reporting data on external assets and liabilities. In addition, for those countries that do report, the G20 is asking for an increase in the frequency and granularity of those data, by sector and maturity, including the international investment position, cross-border asset and liabilities of resident banks reported to the BIS, and portfolio debt and equity positions reported in the IMF Coordinated Portfolio Investment Survey. Such analysis should help to reduce the underlying friction of imperfect information, and should be supported as a matter of priority.

International co-operation on the financial regulatory reform agenda would also be useful to help mitigate the *imperfect information* friction within the banking sector. An important discussion here will be on the reciprocity of capital requirements under Basel III. Under the new rules, national authorities will be expected to increase capital requirements (up to a 2.5% limit) on lending to a particular country when that country itself increases capital requirements on its banking system. This should prevent some international leakages. But it will be important to ensure that the Basel III rules are fully implemented. And in order to preserve financial stability, it will be essential that national authorities have the option to apply *larger* buffers to their banks' exposures than the buffer set by a fellow country. The latter point is currently under debate.

5.2.3 International institutional frictions

International policy initiatives — for example, revisiting the application of WTO rules — may also be appropriate for dealing with *international institutional frictions*. WTO rules have transformed the world trade environment. But, as highlighted in Section 4, they also restrict the use of direct export or production subsidies as a means of promoting export-led growth. So while China's growth strategy today is in many ways similar to the strategy pursued by economies such as Japan and Korea in the past, one difference is the size of the current account surplus that China has run. Indeed, during comparable phases of their growth strategies, other countries that have pursued export-led growth have had much smaller surpluses or even current account deficits (Dew *et al* (2011)). In these earlier periods, WTO restrictions on the use of industrial policy were less strict, so WTO-member countries were more able to subsidise directly industries that were manufacturing based. WTO rules today mean that this is no longer possible and so countries have chosen to undervalue their exchange rates as an alternative means of promoting manufacturing. This may be one explanation behind the different patterns of current account balances during the periods of export-led growth and the consequent externalities in the IMFS from a country pursuing such a strategy.

Rodrik (2009) has suggested that advanced economies could agree to allow EMEs to adopt more active industrial policies to support their development, as a *quid pro quo* for allowing real exchange rate appreciation, arguing that the former would cause less of a distortion. But this conclusion is clearly open to debate and the WTO was set up initially because such direct export subsidies were creating tensions in the IMFS. So it may be preferable to focus international co-ordination efforts in other areas given how thorny an issue this is.

5.3 Reforms requiring active international policy co-ordination

This paper has argued that in today's highly connected world, actions in one country can affect outcomes in others. In the absence of any frictions, such spillovers would be benign. But as highlighted in Section 4, in reality there are frictions that mean such spillovers are often costly. Section 5.1 discussed ways in which national policy changes could partly mitigate these frictions and Section 5.2 examined how international policy initiatives could also help with this objective. While every effort should be made to reduce the underlying imperfections in today's IMFS, it is unrealistic to expect them to be eliminated altogether. In some circumstances, it may well be impossible or too costly for individual countries to mitigate the frictions directly.

In these same circumstances, it makes sense to describe spillovers as externalities. Because the full costs of the friction are not suffered by the originator of the spillover, incentives are misaligned and inefficient outcomes result. It is therefore also necessary to consider mechanisms to deal with the externalities that are a consequence of the frictions — a process which will require more active international policy co-ordination.

5.3.1 The G20 Framework for Strong, Sustainable and Balanced Growth

The G20 Framework for Strong, Sustainable and Balanced Growth agreed by G20 heads of state in Pittsburgh in September 2009 is an important step towards such international policy co-ordination. It brings together all the systemically important economies and asks: are countries' policy frameworks consistent or is it possible to achieve a better outcome for all and, if so, what policy action is required? It makes clear that joint action is needed and it

offers the opportunity to achieve this, on an ongoing basis. As a result, the Framework has the potential to play a critical role in identifying, and mitigating, policy externalities that lead to instability in the IMFS. And given that the G20 is responsible for co-ordinating the process, it is clear who should be accountable if it fails.

The G20 Framework is needed when global outcomes are sub-optimal and when countries' policies are leading to significant cross-border externalities. The first stage of the process should therefore be to identify when these conditions exist. An example of such a world is when global desired saving is high relative to desired investment. If underlying imperfections exist, in particular imperfect information and nominal rigidities, then countries with current account deficits may find it hard to maintain sufficient demand without running the risk of financial instability (most obviously triggered by a fiscal crisis).

So in order to identify whether the global outcome is sub-optimal, a useful starting point could be indicators of the global balance of supply and demand for goods and services, and indicators of the global balance of desired saving and investment. Of course this type of exercise will always require some degree of judgement, not least because of its risk-based, forward-looking nature. This suggests some kind of collective (but not necessarily consensual) judgement should be made as to the need for global policy co-ordination in the first part of the G20 Framework process.

Should a sub-optimal global outcome be identified in this first stage, the process would move to a second stage. The aim of this second stage would be to identify which countries were contributing most to the identified global imbalances. At this stage, analysing the *sources* of these countries' imbalances (including an assessment of whether they are justifiable or due to inappropriate national policies or distortions) would be important to inform policymakers about the *nature* of the policy response required.

But even if these first two stages work well, the hardest part of the G20 Framework process will be agreeing and implementing a set of actions that mitigates cross-border externalities. This is because the Framework is a peer-pressure based process. To maximise the chances of reaching agreement on a co-ordinated set of policies that mitigate the externalities, it may be necessary to achieve a Pareto improvement — in which every country is better off (or at least not worse off). While this might be feasible for a small group of countries with similar views of how the world works, the bargaining process may simply prove to be too complex for such a large and diverse group as the G20. Nevertheless, the exercise is to be welcomed and certainly has other benefits such as regular information exchange.

5.3.2 A rules-based system for global economic management

If a peer pressure-based system proves unworkable, then a rules-based framework with hard incentives may be necessary. This would clearly be a major change in global arrangements. This section is intended to spark debate rather than to call for a particular proposal to be implemented.

A rules-based system might work along the same lines as those suggested above for the G20 Framework, except that hard incentives would replace peer pressure as the enforcement mechanism. Countries should again focus on whether the global pattern of demand is leading to cross-border externalities. Should countries collectively agree that it is, economic theory suggests that Pigouvian taxes could be used to deal with these externalities.

In particular, if global desired saving were high relative to desired investment, or global demand deemed to be deficient, a collective decision could be made to allow countries with current account deficits to tax net capital or current inflows. Under the rules of the scheme, countries with current account deficits would be allowed to tax current inflows from countries with whom they run bilateral current account deficits. In this framework, the burden of adjustment would be on *all* countries with current account surpluses, regardless of whether their respective imbalances were justifiable with respect to fundamental determinants.(1)

As demand shifted from surplus to deficit countries, countries with current account surpluses would have three choices. They could (a) adjust domestic policies to boost domestic demand; (b) do nothing; or (c) choose to try to counteract the tax by subsidising their exports to countries with whom they run bilateral current account surpluses, leading to a transfer to deficit countries. In all three cases, the sanctions would remain in place until global conditions were deemed to have returned to normal. And in all three cases, deficit countries should find it easier to maintain sufficient demand without running such a high risk of a painful external adjustment. This mechanism would effectively mimic the role of exchange rate realignment (rotating demand towards deficit countries and away from surplus countries (who are better placed to offset any fall in their output)), or would work by transferring resources to deficit countries which could then be spent.

(1) This would avoid the need to separate out 'good' and 'bad' imbalances according to their causes. In addition, imbalances would be penalised in proportion to their negative effects on other countries, consistent with the spirit of the optimal taxation literature. And the system would incentivise countries running 'good' imbalances to put pressure on those countries with 'bad' imbalances to adjust their policies. This idea is similar to that of Fahri *et al* (2011)'s suggestion of import taxes and export subsidies as a means to tax net inflows. The difficulty with their proposal is that it is almost impossible to contain large-scale fraud when subsidies are used. This alternative has the advantages that it would discourage *net* rather than gross trade and would require only national data to implement, as in Fahri *et al*, but would be less subject to fraud.

Ideally, these taxes would never need to be applied: countries would anticipate their application and adjust policies pre-emptively. But for this to work, the sanctions must be credible, so it must be in countries' interests to apply the taxes should global macroeconomic conditions require. One way of ensuring this is to devise sanctions which bring direct fiscal benefits to the countries applying them: the fiscal benefits of applying the sanctions should exceed the costs when the framework is respected. Application of the sanctions by any country would be voluntary. This aspect would likely limit the application of sanctions to countries with larger imbalances.

Clearly, the big risk with this kind of framework is that it leads to a generalised increase in trade protectionism. But it is expected that countries would realise the high costs for all countries that this would entail and therefore refrain from pursuing such a strategy. Furthermore, the risks of a trade war absent a reform proposal such as this should not be ignored.

This proposal is highly controversial, not least because it would also involve changing WTO rules to allow taxes on current flows (tariffs). This might argue for a system which only taxes capital flows. However, capital flows might be harder to measure and control in practice. And the idea that taxes on current flows are legitimate tools for macroeconomic management in certain circumstances is already embodied in the IMF Articles (in the scarce currency clause). In addition, the notion that the WTO should promote reductions in the structural level of tariffs, but that another body might judge circumstances when cyclical variations in tariffs are needed, has a natural parallel in the regulatory sphere, with the Basel framework setting minimum requirements and other bodies such as the Bank of England's Financial Policy Committee applying additional cyclical variations.

This section has sketched out a vision for a rules-based system aimed at limiting cross-border externalities associated with large net capital flows. There are undoubtedly many pitfalls with such a framework, not least that a better understanding of these cross-border externalities will be required. Inevitably, such a system would also rely heavily on judgement, which could also be problematic. But there should be a debate on a rules-based framework and what it might look like given the risks surrounding a lack of meaningful reform of the IMFS.

6 Conclusion

Since the breakdown of the BWS in the early 1970s, the IMFS has evolved into a decentralised system. Countries have been free to pursue independent monetary policies and to choose their exchange rate regimes, and capital account liberalisation has led to an unprecedented rise in global capital flows. While today's IMFS has afforded countries the freedom to pursue policies to suit their domestic objectives, this has not been reflected in significantly better outcomes for the global economy and financial system.

The severity of the 2007–09 financial crisis and the ongoing problems in the euro area suggest there is scope for improvement. Some progress is already being made through the financial regulatory reform agenda. But regulatory reform will not eliminate all of the risks associated with large global capital flows, so a broader set of reforms to the IMFS should also be considered.

In order to understand precisely which reforms are likely to be most effective, this paper has attempted to identify the underlying failures in today's IMFS. It argues that the ability of today's system to achieve simultaneously the three key IMFS objectives — *internal balance, allocative efficiency* and *financial stability* — has been compromised by the existence of underlying frictions. These frictions have interacted to encourage the build-up of excessive current account imbalances and to increase the welfare costs of the eventual adjustments to these imbalances.

This paper has identified four key categories of frictions: (i) *missing markets*, which can encourage EMEs to accumulate official reserves and manage their exchange rates; (ii) *international institutional frictions*, which may incentivise EMEs to undervalue their exchange rates in pursuit of an export-led growth strategy; (iii) *imperfect information*, which can amplify exchange rate and capital flow volatility, and encourage excessive leverage in countries that receive net capital inflows; and (iv) *nominal rigidities*, which can exacerbate the output costs of eventual corrections. Each of these frictions has resulted in externalities, which have in turn led to sub-optimal global outcomes.

The first-best policy response would be to pursue a suite of reforms which deal directly with — and ideally eliminate — these frictions. In some cases, there is scope for reforms to be implemented without the need for international policy co-ordination. But given the inherent cross-country nature of many of the problems in today's IMFS, this will not always be the case. International policy co-ordination may be required to deal collectively with the frictions, or, if this is not feasible, to proceed on the basis that the underlying imperfections will persist and instead seek to internalise the externalities that result. In any case, the objective of reform should be to improve the ability of today's IMFS to meet its three objectives: *internal balance; allocative efficiency*; and *financial stability*.

Reforms that can — and should — be pursued without the need for international policy co-ordination include: domestic financial market development (to address the *missing markets friction*); improved financial regulation, better macroprudential policy frameworks and the elimination of

data gaps (to mitigate the *imperfect information* friction); and greater flexibility in prices, wages and nominal exchange rates (to mitigate the impact of *nominal rigidities*).

While the *missing markets, imperfect information* and *nominal rigidities* frictions can be tackled — at least in part — by actions taken by individual countries, international policy initiatives will also be needed. This is particularly true for the *missing markets* and *imperfect information frictions*, where improved FSNs, co-ordinated efforts to close data gaps and international co-operation on the financial regulatory reform agenda should all be encouraged. While international policy initiatives would also be required to tackle *international institutional frictions*, the feasibility and/or desirability of doing so is unclear, and it may be preferable to focus international co-ordination efforts on other areas.

Although there is much progress that could be made from efforts to deal directly with the frictions, it is unrealistic to expect to eliminate these frictions altogether. It is therefore necessary to develop a mechanism to deal with the externalities that are a *consequence* of these frictions — a process which will require more active international policy co-ordination. International co-ordination through the G20 Framework for Strong, Sustainable and Balanced Growth is an important attempt to develop such a mechanism. The Framework is designed to identify and resolve policy inconsistencies among systemically important countries, and if it functions as intended, could result in significantly better global outcomes.

But the effectiveness of the G20 Framework remains to be seen. Even at this relatively early stage there are operational risks around the process, not least because of difficulties associated with reaching agreement on the problems facing the global economy. But moving beyond this first stage, the subsequent task of reaching agreement on the required policy responses — and, even more so, ensuring they are implemented — will be more challenging still. In the absence of a formal mechanism to force countries to internalise the externalities created by their policies, there is no guarantee that the process will deliver to its potential.

In light of these uncertainties, this paper has also considered whether a more fundamental overhaul of the IMFS — in particular, a move towards an explicit rules-based framework — could be beneficial. Although the idea of a system which seeks to tax externality-generating activities in the IMFS is certainly one of the more radical policy options, it nevertheless warrants serious consideration given the very large potential costs of inaction.

The objective of this paper has been to provide a framework for thinking about the *underlying* problems in today's IMFS. Much work remains to be done to identify these problems further, and to quantify their relative importance. That work will make the case for particular reforms even stronger.

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A RECONSIDERATION OF THE TWENTIETH CENTURY

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by

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By comparison with past centuries, the twentieth has produced extremes. Its earliest part was a benign continuation of the pax of the nineteenth century. But this calm before the storm was followed by World War I, communism, hyperinflation, fascism, depression, genocide, World War II, the atom bomb, and the occupation of Eastern Europe. There followed a period of comparative stability, punctuated by the balance of terror of the Cold War, the NATO Alliance, and decolonialism. Toward the end of the century the Cold War ended, the Soviet Empire was dismantled, democracy emerged in Eastern Europe, the *Pax Americana* flourished, and the euro came into being. The clue to the twentieth century lies in the links between its first and last decades, the bookends of the century.

In 1906, Whitelaw Reid, the U.S. Ambassador to Britain, gave a lecture at Cambridge University with the title, *The Greatest Fact in Modern History,* in which the author, a diplomat, journalist, and politician, was given as his subject, the rise and development of the United States! It cannot have been obvious then that the rise of the United States was the "greatest fact in modern history" but it was true that in a matter of only two centuries a small colony had become the biggest economy in the world. The first decade of the century hinted at what the last decade confirmed, viz., American preponderance. Forget the 75 years between 1914 and 1989!

An underlying theme of my lecture today is the role of the United States in what has been aptly called the "American century." I want to bring out the role of the monetary factor as a determinant of political events. Specifically, I will argue that many of the political changes in the century have been caused by little-understood perturbations in the international monetary system, while these in turn have been a consequence of the rise of the United States and mistakes of its financial arm, the Federal Reserve System.

The twentieth century began with a highly efficient international monetary system that was destroyed in World War I, and its bungled recreation in the interwar period brought on the Great Depression, Hitler, and World War II. The new arrangements that succeeded it depended more on the dollar policies of the Federal Reserve System than on the discipline of gold itself. When the link to gold was finally severed, the Federal Reserve System was implicated

in the greatest inflation the United States has yet known, at least since the days of the Revolutionary War. Even so, as the century ends, a relearning process has created an entirely new framework for capturing some of the advantages of the system with which the century began.

The century can be divided into three distinct, almost equal parts. The first part, 1900–1933, is the story of the international gold standard, its breakdown during the war, its mismanaged restoration in the 1920's, and its demise in the early 1930's. The second part, 1934–1971, starts with the devaluation of the dollar and the establishment of the $35 gold price and ends when the United States took the dollar off gold. The third part of the century, 1972–1999, starts with the collapse into flexible exchange rates and continues with the subsequent outbreak of massive inflation and stagnation in the 1970's, the blossoming of supply-side economics in the 1980's, and the return to monetary stability and the birth of the euro in the 1990's. The century ends, however, with our monetary system in deficit compared to the first decade of the century and that suggests unfinished business for the decades ahead.

I. MISMANAGEMENT OF THE GOLD STANDARD

The international gold standard at the beginning of the twentieth century operated smoothly to facilitate trade, payments, and capital movements. Balance of payments were kept in equilibrium at fixed exchange rates by an adjustment mechanism that had a high degree of automaticity. The world price level may have been subject to long-term trends but annual inflation or deflation rates were low, tended to cancel out, and preserve the value of money in the long run. The system gave the world a high degree of monetary integration and stability.

International monetary systems, however, are not static. They have to be consistent and evolve with the power configuration of the world economy. Gold, silver, and bimetallic monetary standards had prospered best in a decentralized world where adjustment policies were automatic. But in the decades leading up to World War I, the central banks of the great powers had emerged as oligopolists in the system. The efficiency and stability of the gold standard came to be increasingly dependent on the discretionary policies of a few significant central banks. This tendency was magnified by an order of magnitude with the creation of the Federal Reserve System in the United States in 1913. The Federal Reserve Board, which ran the system, centralized the money power of an economy that had become three times larger than either of its nearest rivals, Britain and Germany. The story of the gold standard therefore became increasingly the story of the Federal Reserve System.

World War I made gold unstable. The instability began when deficit spending pushed the European belligerents off the gold standard, and gold came to the United States, where the newly created Federal Reserve System mone-

tized it, doubling the dollar price level and halving the real value of gold.[1] The instability continued when, after the war, the Federal Reserve engineered a dramatic deflation in the recession[2] of 1920–1921, bringing the dollar (and gold) price level 60 percent of the way back toward the prewar equilibrium, a level at which the Federal Reserve kept it until 1929.

It was in this milieu that the rest of the world, led by Germany, Britain, and France, returned to the gold standard. The problem was that, with world (dollar) prices still 40 percent above their prewar equilibrium, the real value of gold reserves and supplies was proportionately smaller. At the same time, monetary gold was badly distributed, with half of it in the United States. In addition, uncertainty over exchange rates and reparations (which were fixed in gold) increased the demand for reserves. In the face of this situation would not the increased demand for gold brought about by a return to the gold standard bring on a deflation? A few economists, like Charles Rist of France, Ludwig von Mises of Austria, and Gustav Cassel[3] of Sweden, thought it would.[4]

Cassel (1925) had been very explicit even before Britain returned to gold:

The gold standard, of course, cannot secure a greater stability in the general level of prices of a country than the value of gold itself possesses. Inasmuch as the stability of the general level of prices is desirable, our work for a restoration of the gold standard must be supplemented by endeavours to keep the value of gold as constant as possible ... With the actual state of gold production it can be taken for certain that after a comparatively short time, perhaps within a decade, the present superabundance of gold will be followed, as a consequence of increasing demand, by a marked scarcity of this precious metal tending to cause a fall of prices ...

After gold had been restored, Cassel pursued his line of reasoning further,

[1] From a formal point of view it could be argued that the United States suspended the gold standard when, between September 1917 and June 1918, President Wilson barred the free export of gold, using, "oddly enough," the Espionage Act of June 1917 (Roy Jastram, 1981 p. 124). However, the domestic convertibility of notes into gold remained legal so that as far as the public was concerned, the gold standard remained in force.

[2] It was this episode of instability of the dollar and gold that led John Maynard Keynes, in his *A Tract on Monetary Reform* (Keynes, 1923), to pounce on the conflict between "internal" and "external" stability. With the value of gold failing in half, and then soaring in the postwar deflation, it seemed to be an unstable anchor for other currencies. On the basis of this episode, Keynes championed internal stability (a stable price level) over external stability (a fixed exchange rate or gold price), largely on the basis that the Federal Reserve Board would dominate an international system and that it had not yet proved its capacity for capable management.

[3] I have discussed this issue in my paper delivered on the occasion of the centenary of the birth of Jacques Rueff. (See Mundell, 1996.) Mention should also be made of John Parke Young, a young Princeton professor, who was appointed as a kind of one-man Gold Commission, and showed a considerable recognition of the problem raised by Cassel, Rist, and von Mises. (See Young, 1925.)

[4] There was ample evidence from monetary history that a restoration of a specie standard would introduce deflationary tendencies, as when Britain put India on the silver standard in the middle of the eighteenth century, when Britain and other countries returned to gold or silver standards after the Napoleonic Wars, and when countries shifted from silver to gold after the breakdown of bimetallism in the early 1870's.

warning of the need to economize on the monetary use of gold in order to ward off a depression. In 1928 he wrote:

The great problem before us is how to meet the growing scarcity of gold which threatens the world both from increased demand and from diminished supply. We must solve this problem by a systematic restriction of the monetary demand for gold. Only if we succeed in doing this can we hope to prevent a permanent fall of the general price level and a prolonged and world-wide depression which would inevitably be connected with such a fall in prices.[5]

Rist, Mises, and Cassel proved to be right. Deflation was already in the air in the late 1920's with the fall in prices of agricultural products and raw materials. The Wall Street crash in 1929 was another symptom, and generalized deflation began in 1930. That the deflation was generalized, if uneven, can be seen from the percentage loss of wholesale prices in various countries from the high in 1929 to September 1931 (the month that Britain left the gold standard): Japan, 40.5; The Netherlands, 38.1; Belgium, 31.3; Italy, 31.0; United States, 29.5; United Kingdom, 29.2; Canada, 28.9; France, 28.3; Germany, 22.0.[6]

The dollar price level hit bottom in 1932 and 1933. The highlights of the price level from 1914 to 1934 are given in Table 1.

TABLE 1 – U.S. PRICE LEVEL, SELECTED YEARS, 1914–1933 (1930 = 100)

1914	1920	1921	178.7	113	112.1
78.4	178.7	113.0	112.1	84.1	76.2

Source: Wholesale Price Index, U.S. Bureau of Labor Statistics. Adapted from Table 21 in Jastram (1981 p. 206).

For decades economists have wrestled with the problem of what caused the deflation and depression of the 1930's. The massive literature on the subject has brought on more heat than light. One source of controversy has been whether the depression was caused by a shift of aggregate demand or a fall in the money supply. Surely the answer is both! But none of the theories – monetarist or Keynesian – would have been able to predict the fall in the money supply or aggregate demand in advance. They were rooted in short-run, closed-economy models which could not pick up the gold standard effects during and after World War I. By contrast, the theory that the deflation was

[5] Later in the same year, Keynes had become alerted to the significance of restoration of the gold standard (which he had earlier opposed on grounds that the Federal Reserve might not keep gold stable) on the demand for gold and he became concerned especially about the implications of the 1928 French monetary law, which in effect required gold cover for every new franc note. Governor Moreau began to convert even existing balances into gold, embarrassing the Bank of England. For a thorough discussion of the French monetary law, see H. Clark Johnson (1997).

[6] The figures are from the U.S. Bureau of Foreign and Domestic Commerce, *Commerce Reports*, November 9, 1931 p. 301, quoted in Jastram (1981 p. 99).

caused by the return to the gold standard was not only predictable, but was actually, as we have noted above, predicted.

The gold exchange standard was already on the ropes with the onset of deflation. It moved into its crisis phase with the failure, in the spring of 1931, of the Viennese Creditanstalt, the biggest bank in Central Europe – bringing into play a chain reaction that spread to Germany, where it was met by deflationary monetary policies and a reimposition of controls, and to Britain, where, on September 21, 1931, the pound was taken off gold. Several countries, however, had preceded Britain in going off gold: Australia, Brazil, Chile, New Zealand, Paraguay, Peru, Uruguay, and Venezuela, while Austria, Canada, Germany, and Hungary had imposed controls. A large number of other countries followed Britain off gold.

Meanwhile, the United States hung onto the gold standard for dear life. After making much of its sensible shift to a monetary policy that sets as its goal price stability rather than maintenance of the gold standard, it reverted back to the latter at the very time it mattered most, in the early 1930's.

Instead of pumping liquidity into the system, it chose to defend the gold standard. Hard on the heels of the British departure from gold, in October 1931, the Federal Reserve raised the rediscount rate in two steps from 1 1/2 to 3 1/2 percent, dragging the economy deeper into the mire of deflation and depression and aggravating the banking crisis. As we have seen, wholesale prices fell 35 percent between 1929 and 1933.

Monetary deflation was transformed into depression by fiscal shocks. The Smoot-Hawley tariff, which led to retaliation abroad, was the first: between 1929 and 1933 imports fell by 30 percent and, significantly, exports fell even more, by almost 40 percent. On June 6, 1932, the Democratic Congress passed, and President Herbert Hoover signed, in a fit of balanced-budget mania, one of its most ill-advised acts – the Revenue Act of 1932, a bill which provided the largest percentage tax increase ever enacted in American peacetime history. Unemployment rose to a high of 24.9 percent of the labor force in 1933, and GDP fell by 57 percent at current prices and 22 percent in real terms.[7]

The banking crisis was now in full swing. Failures had soared from an average of about 500 per year in the 1920's, to 1,350 in 1930, 2,293 in 1931, and 1,453 in 1932. Franklin D. Roosevelt, in one of his first actions on assuming the presidency in March 1933, put an embargo on gold exports. After April 20, the dollar was allowed to float downward.

The deflation of the 1930's was the mirror image of the wartime rise in the price level that had not been reversed in the 1920–1921 recession. When

[7] The establishment of the National Industrial Recovery Act in 1933 did more damage when it suspended the antitrust laws, encouraged cartels and labor unions, diminished wage differentials, limited hours of work to 35 hours a week, and imposed minimum wages, before it was declared unconstitutional in 1935.

countries go off the gold standard, gold falls in real value and the price levels in gold countries rise. When countries go onto the gold standard, gold rises in real value and the price levels fall. The appreciation of gold in the 1930's was the mirror image of the depreciation of gold in World War I. The dollar price level in 1934 was the same as the dollar price level in 1914.[8] The deflation of the 1930's has to be seen, not as a unique "crisis of capitalism," as the Marxists were prone to say, but as a continuation of a pattern that had appeared with considerable predictability before – whenever countries shift onto or return to a monetary standard. The deflation in the 1930's has its precedents in the 1780's, the 1820's, and the 1870's.

What verdict can be passed on this third of the century? One is that the Federal Reserve System was fatally guilty of inconsistency at critical times. It held onto the gold standard between 1914 and 1921 when gold had become unstable. It shifted over to a policy of price stability in the 1920's that was successful. But it shifted back to the gold standard at the worst time imaginable, when gold had again become unstable. The unfortunate fact was that the least experienced of the important central banks – the new boy on the block – had the awesome power to make or break the system by itself.

The European economies were by no means blameless in this episode. They were the countries that changed the status quo and moved onto the gold standard without weighing the consequences. They failed to heed the lessons of history – that a concerted movement off, or onto, any metallic standard brings in its wake, respectively, inflation or deflation. After a great war, in which inflation has occurred in the monetary leader and gold has become correspondingly undervalued, a return to the gold standard is only consistent with price stability if the price of gold is increased. Failing that possibility, countries would have fared better had they heeded Keynes' advice to sacrifice the benefits of fixed exchange rates under the gold standard and instead stabilize commodity prices rather than the price of gold.

Had the price of gold been raised in the late 1920's, or, alternatively, had the major central banks pursued policies of price stability instead of adhering to the gold standard, there would have been no Great Depression, no Nazi revolution, and no World War II.

[8] It was, of course, partly a coincidence that the price levels in 1914 and 1933 were about the same. Had the international gold standard remained in force over the period with or without the catastrophe of the world war, the real price of gold could have changed for the same reasons it changed over the history of the gold standard. Nevertheless, the broad influence of the restoration of the gold standard in bringing prices back down can hardly be disputed.

II. POLICY MIX UNDER THE DOLLAR STANDARD

In April 1934, after a year of flexible exchange rates, the United States went back to gold[9] after a devaluation of the dollar.[10] This decreased the gold value of the dollar by 40.94 percent, raising the official price of gold 69.33 percent, to $35 an ounce. How history would have been changed had President Herbert Hoover devalued the dollar three years earlier![11]

France held onto its gold parity until 1936, when it devalued the franc. Two other farreaching events occurred in that year. One was the publication of Keynes' *General Theory;* the other signing of the Tripartite Accord among the United States, Britain, and France. One ushered in a new theory of policy management for a closed economy; the other, a precursor of the Bretton Woods agreement, established some rules for exchange-rate management in the new international monetary system.

The contradiction between the two could hardly be more ironic. At a time when Keynesian policies of national economic management were becoming increasingly accepted by economists, the world economy had adopted a new fixed exchange-rate system that was incompatible with those policies.

In the new arrangements, which were ratified at Bretton Woods in 1944, countries were required to establish parities fixed in gold and maintain fixed exchange rates to one another. The new system, however, differed greatly from the old gold standard. For one thing, the role of the United States in the

[9] The devaluation of the dollar and the rise in the dollar price of gold in 1934 had been accompanied by measures eliminating the operation of the gold standard inside the United States. The dollar was no longer redeemable and U.S. citizens were forbidden to hold gold; the dollar was convertible only for foreign monetary purposes; the Federal Reserve was required to keep only a percentage (initially 40 percent) of gold cover behind notes and liabilities; and the Supreme Court had rendered null and void all gold clauses.

[10] The decision to devalue was strongly influenced by George F. Warren, Professor of Economics at Cornell University and one of the President's advisors. There were three possible, but related, benefits expected to follow from it. One was that an increase in the price of gold would raise the domestic price level, starting with an increase in the prices of imports and exports, but then expanding throughout the economy; this theory, which would be standard today for a small open economy, was then based on the long-run correlation of monetary gold stocks and the price level. A second was that higher gold prices would result in increased gold purchases which would increase the high-powered reserve base of the monetary system. A third was that devaluation, to the extent that exchange rates changed, would make the U.S. products more competitive in world markets. It turned out wholesale prices did rise by almost 30 percent between 1933 and 1937, then fell back about 10 percent in 1938–1940, before doubling by the end of 1948.

[11] One argument against devaluation was that the United States was the world's largest creditor and its claims were largely fixed in dollars; only later was it realized that the debts would be uncollectible. The avoidance of deflation should have sufficed but in the absence of a coherent theory that gold was undervalued, the argument might not have been convincing. No one knew in advance how far down prices would proceed. An opportunity arose when Britain left gold, but U.S. gold reserves were still the largest in the world. Had the Federal Reserve, however, been following a sufficiently expansionary monetary policy, gold would have flowed out and the situation would have become obvious.

A specious argument frequently raised against devaluation is that it is a "beggar-thy-neighbor" policy, in the sense that it creates employment at home at the expense of employment abroad. But this is precisely what was needed: competition to increase employment. If all countries devalue competitively, the price of gold could rise to eliminate the undervaluation and create the conditions for a revival.

system was asymmetric. A special clause[12] allowed any country the option of fixing the price of gold instead of keeping the exchange rates of other members fixed. Because the dollar was the only currency tied to gold it was the only country in a position to exercise the gold option. There thus came into being the asymmetrical arrangements in which the United States fixed the price of gold whereas other countries fixed their currencies to the dollar.[13] Another difference of the new system from the old was that not even the United States was on anything that could be called a full gold standard. The dollar was no longer in the old sense "anchored" to gold; it was rather that the world price level, and therefore the real price of gold, was heavily influenced by the United States. Gold had become a passenger in the system.

Was a new system created at Bretton Woods? From the early planning it seemed that this would be the case. The British and American plans both contained provisions for a world currency: John Maynard Keynes had his "bancor," and Harry Dexter White had his "unitas." But these forward-looking ideas were soon buried. No doubt the Americans came to believe that a world currency would clip the wings of the dollar.[14] There was not therefore a Bretton Woods "system" but rather a Bretton Woods "order" outlining the charter of a system[15] that already existed.

World War II brought a repetition of the monetary imbalances of World War I. The devaluation of the dollar and gathering war clouds in Europe made the dollar a safe haven and the recipient of gold to pay for war goods. The United States sterilized the gold imports and imposed price controls. It was therefore able to run deficits without going off gold. Because gold was still "overvalued" in this era of "dollar shortage," interest rates remained incredibly low. By 1945, the public debt had soared to 125 per cent of GDP.

At the end of the war, the U.S. price level doubled as a result of the end of price control, the unleashing of pent-up demand, and the expansionary monetary policies of the Federal Reserve System that continued to support the bond market. The postwar inflation halved the real value of the public debt, increased tax revenues as a result of "bracket creep" in the steeply progressive income tax system (which rose to 92.5 percent), halved the real value of

[12] Article IV (4)-b of the Articles of Agreement of the International Monetary Fund. This clause was put in at the last minute to accommodate the United States, which had never, as a general practice, fixed exchange rates and was not about to do so now: what a headache it would be to fix all currency prices in the New York foreign-exchange market!

[13] There was, however, still another unresolved problem. Would Britain, France, and every other of the 44 members of the Fund have to intervene in 43 exchange markets? As the Fund got started, its Executive Board had to grope toward a ruling that any country that was fixing its currency to a "convertible currency" was deemed to be fulfilling its function under the Articles. In conjunction with the gold clause, this by-law established the asymmetrical system by which the United States fixed the price of gold and the rest of the world fixed, directly or through a third currency, the dollar. That this asymmetry was not widely understood even as late as the 1960's can be seen from a discussion between myself and Sir Roy Harrod at a Brookings Institution conference in 1965.

[14] See Mundell (1995) for a discussion of how the plans for a world currency came to be dropped from the agenda at Bretton Woods.

[15] I have discussed the distinction between "system" and "order" in Mundell (1972).

gold, and eliminated its overvaluation. After further inflation during the Korean War and the onset of steady "secular" inflation, gold became undervalued.

Meanwhile, Germany and Japan, in the aftermath of their paper-money inflations, under the auspices of the U.S. occupation authorities, had currency reforms in which 10 units of old money were exchanged for 1 unit of new currency; both reforms took place in 1948, with the exchange rate for Germany set at DM 4.2 = $1, and for Japan at ¥360 = $1. The exchange rates later proved to undervalue German and Japanese labor and the two economies performed spectacularly in the postwar period, fulfilling their destiny of overtaking Britain and France as the second and third largest economies in the world.

Until the 1960's, U.S. macroeconomic policy was based more on closed-economy principles than on the requirements of an international monetary system. Monetary and fiscal policy were directed at the needs of internal balance and the balance of payments was all but ignored. In 1949 the United States had peaked at over 700 million ounces of gold, more than 75 percent of the world's monetary gold. Gold losses began soon after, but the effect of these sales on the money supply was sterilized by equivalent purchases of government bonds by the Federal Reserve System. The gold losses were at first looked upon as a healthy redistribution of the world's gold reserves but toward the late 1950's they were recognized as dangerous.

The Federal Reserve System was required to keep a 25-percent (reduced from 40 percent in 1945) gold cover behind its currency and deposit liabilities. If gold reserves fell below this level, interest rates would have to be raised. If the fall in gold reserves reached the level of required reserves, the United States would be forced to take account of its balance-of-payments constraint like any other country. The problem of the appropriate mix for monetary and fiscal policy came to the foreground during the administration of President John F. Kennedy, who took office in 1961.

At this time I played a part in the story. Newly arrived in the Research Department at the International Monetary Fund (IMF) in the fall of 1961, I was asked to look into the theoretical aspects of the monetary-fiscal policy mix.[16] The main problem in this post-Sputnik era was sluggish growth and subpar employment in the United States in contrast to Europe and Japan (precisely the reverse of the situation today), and a now-worrisome balance-of-payments deficit. Three schools of thought had emerged. Keynesians, led by Leon Keyserling, the first Chairman of the Council of Economic Advisers, pushed for easy money and an increase in government spending. The Chamber of Commerce argued for fiscal constraint and tighter money. The Council of Economic Advisers, following the Samuelson-Tobin "neoclassical synthesis," advocated low interest rates to spur growth and a budget surplus to siphon off excess liquidity and prevent inflation.

[16] I had already worked on models appropriate to solving the problem in earlier articles. See especially Mundell (1961c).

In my analysis, I showed that none of the above policies would work, and would lead the economy away from equilibrium. The correct policy mix was to lower taxes to spur employment, and tighten monetary policy to protect the balance of payments. My paper was circulated by the IMF to its members in November 1961 and published in *IMF Staff Papers* in March 1962.

It gradually came to be realized that the policies of the Kennedy administration were not working: the wrong policy mix had produced increasingly disequilibrating effects: a steel strike, a stock market crash, and stagnation. At the end of 1962, Kennedy announced a reversal of the policy mix, with tax cuts to spur the economy and interest rates to protect the balance of payments. Legislative delays meant that the tax cut had to wait until the summer of 1964, but its anticipation positioned the economy for the great expansion of the 1960's.[17]

The adoption of my policy mix helped the United States to achieve rapid growth with stability. It was not intended to, and could not, solve the basic problem of the international monetary system, which stemmed from the undervaluation of gold. Nevertheless the problem of the U.S. balance of payments was intricately tied up with the problem of the system. With very little excess gold coming into the stocks of central banks from the private market, and the U.S. dollar the only alternative component of reserves, the U.S. deficit was the principal means by which the rest of the world was supplied with additional reserves. If the United States failed to correct its balance-of-payments deficit, it would no longer be able to maintain gold convertibility; on the other hand, if it corrected its deficit, the rest of the world would run short of reserves and bring on slower growth or, worse, deflation. The last scenario hinted at a repetition of the problem of the interwar period.[18]

Two basic solutions were consistent with preserving the system.[19] One solution was to raise the price of gold. The founding fathers of the IMF had put a provision in the IMF Articles of Agreement for dealing with a gold scarcity or surplus: a change in the par values of all currencies, which would have changed the price of gold in terms of all currencies and left exchange rates unchanged. In the 1968 election campaign, candidate Richard M. Nixon chose Arthur Burns as his emissary on a secret mission[20] to sound out European opi-

[17] In June 1963, I was put on the IMF Article VIII Consultations team headed by Jacques J. Polak, with a U.S. team that included Under-Secretary Robert V. Roosa (who co-chaired the sessions with Polak) and Paul Volcker, then Director of the Treasury's Office of Financial Analysis.

[18] The problem came to known as the "Triffin Dilemma," named after the distinguished Belgian economist, Robert Triffin, Professor of Economics at Yale University.

[19] The G-32 academic study group. in which I took part, outlined four possible solutions for the system: (a) return to a gold standard; (b) creation of a world central bank; (c) a new reserve asset to replace or supplement gold; and (d) flexible exchange rates.

[20] Burns' account of the mission, quoted in William R. Neikirk (1987 pp. 143–44), is as follows:

> I went on a secret mission for Richard Nixon to test European opinion on the issue of raising the price of gold. I went about it very discreetly. I gave no indication to anyone, first that I was Nixon's emissary and, second, that he or I had anything like that in mind. I came to the conclusion that this would be accepted by Europeans. I recommended prompt action right after the election [to raise the price of gold]. I did that on a plane trip with Nixon during the campaign. The poor man had his mind on the speech and the election and then probably forgot about it. In any case, he did nothing about it. And that was the time to do it, right after the election.

nion on an increase in the price of gold. It turned out to be favorable and Burns recommended prompt action immediately after the election. Nothing, however, came of it.

The other option was to create a substitute for gold. This course was in fact adopted. In the late summer of 1967, international agreement was reached on an amendment to the IMF articles to allow the creation of Special Drawing Rights (SDRs), gold-guaranteed bookkeeping reserves made available through the IMF, with a unit value equal to one gold dollar, or $^1/35$ of an ounce. Somewhat less than SDR 10 billion were allocated to member countries in 1970, 1971, and 1972, but they proved to be inadequate – too little and too late – to meet the main problems of the system.[21]

On August 15, 1971, confronted by requests for conversion of dollars into gold by the United Kingdom and other countries, President Nixon took the dollar off gold, closing the "gold window" at which dollars were exchanged for gold with foreign central banks. The other countries now took their currencies off the dollar and a period of floating began.

But floating made the embryonic plans just forming for European monetary integration[22] more difficult, and in December 1971, at a meeting at the Smithsonian Institution in Washington, DC, finance ministers agreed on a restoration of the fixed-exchange-rate system without gold convertibility. A few exchange rates were changed and the official dollar price of gold was raised, but the act was almost purely nominal since the United States was no longer committed to buying or selling gold.

The world thus moved onto a pure dollar standard, in which the major countries fixed their currencies to the dollar without a reciprocal obligation with respect to gold convertibility on the part of the United States. But U.S. monetary policy was too expansionary in the following years and, after another ineffective devaluation of the dollar, the system was allowed to break up

[21] Prior to 1968, the dollar price of gold had been kept fixed between margins near $35 an ounce in the London gold market; any excess supply in the private market was rationed out among the eight members of the gold pool. In the summer of 1967, however, private demand closed the gap and soon there was an excess demand. France dropped out of the gold pool and the other countries, rather than supply the market with coveted gold reserves, let the gold price rise above the London limits, giving rise to the "two-tier system" as it was quaintly called. Thereafter, central banks were reluctant to sell gold at the official price when the market valued it at a much higher price. Gold reserves therefore became immobilized, creating a shock to the system and an explicit excess demand for gold that was not taken into account by the international monetary authorities. In the face of this shock to the system, the issues of SDRs were inadequate to make up the difference, let along solve the problems of the system. A less timid issue – perhaps double the actual issues – might have saved the system.

[22] I had introduced the issue of "Optimum Currency Areas" in Mundell (1961a). Europe had embarked on its path to monetary integration at the Hague Summit in December 1969. In the same month, I presented to a New York audience a plan for a European currency that was circulated in Brussels, as a consequence of which I was invited to consult with the European Commission to evaluate alternative approaches to monetary union, which I did the following June. A revised version of my paper was presented at the Optimum Currency Areas Conference in Madrid in March 1970 and published in the proceedings of the conference in Harry G. Johnson and Alexander K. Swoboda (1973). My recent thoughts on the optimum currency area issue are expressed in Mundell (1997a, b).

into generalized floating in the spring of 1973. Thus ended the dollar standard.

What lessons can be learned from the second third of the century? One is that the policy mix has to suit the system. Another is that a gold-based international system cannot survive if war-related inflation makes gold undervalued and the authorities are unwilling to adjust the gold price and create a sufficient quantity of gold substitutes. A third lesson is that the superpower cannot be disciplined by the requirements of convertibility or any other international commitment if it is at the expense of vital political objectives at home; the tail cannot wag the dog. A fourth lesson is that a fixed-exchange-rate system can work only if there is mutual agreement on the common rate of inflation. Europe was willing to swallow the fact that the dollar was not freely convertible into gold in the 1960's, but when U.S. monetary policy became incompatible with price stability in the rest of the world (and in particular Europe), the costs of the fixed-exchange-rate system were perceived to exceed its benefits.

A final lesson is that political events, and in particular the Vietnam War, soured relations between the Atlantic partners and created a tension in the 1960's that can only be compared with the pall cast over the international system by disputes over reparations in the 1920's. Fixed-exchange-rate systems work better among friends than rivals or enemies.

III. INFLATION AND SUPPLY-SIDE ECONOMICS

With the breakdown of the system, money supplies became more elastic, accommodating not only inflationary wage developments but also the monopolistic pricing of internationally traded commodities. Each time the price of oil was raised in the 1970's, the Eurodollar market expanded to finance the deficits of oil-importing countries; from deposits of $223 billion 1971 they would explode to $2,351 billion in 1982 (International Monetary Fund, *IMF International Statistics Yearbook,* 1988 p. 68).

Inflation in the United States had now become a major problem. It had taken 20 years, from 1952 to 1971, for U.S. wholesale prices to rise by less than 30 percent. But after 1971, it took only 11 years for U.S. prices to rise by 157 percent! This mainly peacetime inflation was greater than the war-related inflations from World War II (108 percent over 1939–1948), World War I (121 percent over 1913–1920), the Civil War (118 percent over 1861–1864), or the War of 1812 (44 percent over 1811–1814). The greatest inflation in U.S. history since the War of Independence took place after the United States left gold in the decade after 1971.

That inflation in the 1970's was worldwide can be seen from the price indexes of the G-7 countries in Table 2, noting the index values for 1971 in comparison with the standard base of 100 in 1980. Only in Germany did consumer prices in the decade of the seventies fall short of doubling. In Italy and the United Kingdom, prices more than tripled. The breakdown in monetary

discipline was worldwide, engulfing all the G-7 countries and to an even greater extent most of the rest of the world.

TABLE 2 – CONSUMER PRICES IN G-7 COUNTRIES, SELECTED YEARS, 1950–1998

Country	1950	1971	1980	1985	1990	1998
United States	29.2	49.1	100	130.5	158.5	197.8
Japan	16.3	44.9	100	114.4	122.5	134.4
United Kingdom	13.4	30.3	100	141.5	188.7	243.6
Germany	39.2	64.1	100	121.0	129.4	144.8
France	15.6	42.1	100	157.9	184.2	213.7
Italy	13.9	28.7	100	190.3	250.6	346.3
Canada	28.4	47.5	100	143.0	177.9	203.7

Source: IMF International Financial Statistics (International Monetary Fund, various years).

In the United States, three back-to-back years of two-digit inflation (1979–1981) created a crisis situation. The price of gold hit $850 an ounce in early 1980, and silver went to $50 an ounce. On March 14, 1980, President Jimmy Carter announced his new program: an oil import fee, and credit controls. The plan was a disaster and real output plummeted in the second quarter. In December 1980, a month after the presidential elections, the prime interest rate hit a record of 21.5 percent! The United States seemed to be on the brink of financial disaster.

Gone were the days when, with David Ricardo, economists could think of money as a "veil." The existence of big government and progressive income taxes guarantees nonneutrality. One route was through the fiscal system. With steeply progressive tax rates, rising from zero to 70 percent at the federal level, and up to 85 percent counting state and local taxes, inflation was pushing taxpayers into higher and higher tax brackets even at unchanged real incomes. Taxes had to be paid on interest receipts even though the bulk of the high interest rates represented inflation premiums. Soaring tax revenues coupled with government's high marginal propensity to spend led to an increasing share of government in the economy. No wonder the stock market hated inflation!

Supply-side economics began as a policy system alternative to short-run Keynesian and monetarist demand-side models. It was based on a policy mix that delivered price stability through monetary discipline, and economic stimulation of employment and growth through the tax and regulatory systems. It was partly a continuation of my work on the policy mix in the early 1960's.[23] In the spring of 1974 I presented a paper at a conference on global

[23] In 1968, with inflation beginning to break out, I was urging (not with much success) tighter monetary policies combined with a tax cut to prevent the disinflation from turning into a recession (Mundell, 1971). As it turned out, Congress passed, and President Lyndon B. Johnson signed, a bill in the summer of 1968 that imposed a 10-percent "tax surcharge." Later in the fall, the task force for the new Nixon administration recommended, incorrectly in my opinion, tight monetary and fiscal policies. In Canada during 1972–1974, I recommended the enactment of an "inflation-immune tax system" which would adjust tax brackets to offset "bracket creep," a policy which the Canadian government implemented in 1973.

inflation in Washington, an excerpt of which was reported (Rowland Evans and Robert Novak, 1981 p. 63) as follows:

While the Ford administration was insisting that only a tax increase could fight inflation, Mundell argued that an immediate $10 billion *reduction* was essential to avoid even bigger budget deficits fueled by "stagflation," the lethal combination of inflation and stagnation inherited from Nixon by Ford ...

With my arrival at Columbia University in the fall of 1974, a "club" of what later would become dubbed as "supply-siders" met from time to time at a Wall Street restaurant to discuss economic policy and particularly what to do about the rising inflation and unemployment. The conclusion was that cuts in marginal tax rates were needed to create output incentives to spur the economy, and tight money would produce price stability.[24] The need for tax cuts and tight money became more urgent as inflation increased in the late 1970's and inflation, via "bracket creep," was pushing taxpayers into ever-higher income tax brackets.[25] Within a short time, a political convert, Jack F. Kemp, congressman from Buffalo, parlayed the ideas into a bill calling for a 30-percent tax cut, most of which would be enacted in a sweeping 23-percent tax cut spread over three years, followed by an indexing of the tax brackets for inflation. In the election campaign of 1980, Kemp was a candidate for the presidency but bowed out after Ronald W. Reagan agreed to incorporate the Kemp-Roth bill in his agenda for the economy. After Reagan's election, the first phase of the new policy mix was introduced with the Economic Recovery Act of 1981.

Meanwhile, the Federal Reserve, under the chairmanship of Paul Volcker, at long last woke up and tightened monetary policy. After a steep, but short, recession, the economy embarked on one of its longest-ever expansions at the same time that inflation was increasingly brought under control. The new policies shifted the Phillips curve downward and to the left, allowing unemployment and inflation to decrease at the same time.[26]

There was a sequel to the tax cut, the arms buildup, the policy of disinflation, and Reagan's landslide reelection. The Tax Reform Act of 1986, the second phase of the supply-side revolution, lowered the marginal tax rate in the

[24] See Jude Wanniski (1978) for his account of supply-side economics, Martin Anderson (1988) for the related account of the Reagan Revolution, and Robert Bartley (1992) for an analysis of the role of supply-side economics during the 1980's.

[25] The best account of my thinking on supply-side economics in the fall of 1974 is contained in Wanniski (1974).

[26] The Reagan experience also provided a test of the Mundell-Fleming model under flexible exchange rates. For this model see Mundell (1960, 1961b, 1961c, 1962, 1963, 1964) and J. Marcus Fleming (1962). Prior to its development of this model in the early 1960's, there was no way of analyzing the effects of monetary or fiscal stimulus in a framework that took account of exchange rates, interest rates, the balance of payments, and budget deficit. The Mundell-Fleming model predicted that fiscal stimulus combined with tight money would lead to an increased budget deficit, an increase in interest rates, a capital inflow, an appreciation of the currency, and a worsening of the current account deficit and trade balance. All these consequences emerged after the Reagan fiscal stimulus of increased spending and sharp cuts in tax rates in the period 1982–1984.

highest tax bracket to 28 percent, the lowest top marginal rate since 1932.[27] The 1982–90 expansion was the second longest up to that time and, along with the arms buildup, helped to convince the leaders of the Soviet Union to leave Eastern Europe free to choose its own system.

Growth continued until the nine-month downsizing recession of 1990–1991, which probably cost President George H. W. Bush reelection. Expansion resumed in the spring of 1991 and continued at least until the end of the decade, making the combined period 1982–2000 the greatest expansion in the history of any country. Over the period no less than 37 million new jobs were created! The Dow-Jones average soared from below 750 in the summer of 1982 to over 11,000 by the turn of the century.

Meanwhile, the withdrawal of the Soviet Union from Eastern Europe – itself, as already noted, partly due to the success of supply-side economics – made unification of Germany possible and brought with it renewed impetus for European monetary and political integration. The fiscal spending associated with German spending on its new states gave a jolt to the exchange-rate mechanism (ERM) of the European Monetary System (EMS).[28] A few countries left the exchange-rafe mechanism, and others opted for devaluation within it. Nevertheless, by January 1, 1994, the European Monetary Institute came into being and, by the middle of 1998, so did its successor, the European Central Bank. On January 1, 1999, the euro was launched with 11 members. A new era in the international monetary system was unfolding.

The introduction of the euro redraws the international monetary landscape. With the euro – upon its birth the second most important currency in the world – a tri-polar currency world involving the dollar, euro, and yen came into being. The exchange rates among these three islands of stability will become the most important prices in the world economy.

The creation of the euro will doubtless lead to its widespread adoption in Central and Eastern Europe as well as the former CFA franc zone in Africa and along the rim of the Mediterranean. Expansion of the wider euro area – counting not only currencies entering with an enlargement of the European

[27] In Reagan's first term, the appreciation of the dollar had been successful in bringing inflation under control, but, with growth slowing at the end of the period, the high dollar no longer served the interest of the United States. A shift in the policy mix toward easier money in 1984 and early 1985 brought the dollar down, but not enough to satisfy the administration. In the fall of 1985, at a G-5 meeting at the Plaza Hotel in New York, the five "SDR" countries organized a more concerted depreciation, bringing the dollar closer to 1980 levels.

[28] In the late 1980's, Germany had been lending, mainly to Western Europe, about 4 percent of its GDP abroad with a corresponding current account surplus. The unification of Germany led to massive government expenditure in East Germany of more than $ 100 billion a year. This fiscal shock led to a large bond-financed deficit and higher interest rates that reversed the capital outflow and internalized Germany's savings, turning the large current account surplus into a small deficit. To resist inflationary pressure, the Bundesbank kept credit conditions firm and, faced with a surging demand for money, the mark soared, lifting with it all the other currencies that were in the exchange-rate mechanism. The appreciation helped to stabilize the German economy, but at the expense of some of its partners. The episode constituted another test of the Mundell-Fleming model, with similar results to that under Reagan except for the absence in Germany, and the presence in the United States, or supply-side growth effects.

Union, but also currencies fixed to the euro – will eventually give it a transactions area larger than that of the United States and will, inevitably, provoke countervailing expansion of the dollar area in Latin America and parts of Asia. Other currency areas are likely to form, adapting to local needs the example of Europe. But stability for the near future will be best assured by stabilization with one of the "G-3" areas.

The 1970's was a decade of inflation, but the 1980's was a decade of correction, and the 1990's a decade of comparative stability. The experiment with flexible exchange rates in the 1970's started off as a disaster, from the standpoint of economic stability, but nevertheless, it set in motion a learning mechanism that would not have taken place in its absence. The lesson was that inflation, budget deficits, big debts, and big government are all detrimental to public well-being and that the cost of correcting them is so high that no democratic government wants to repeat the experience. Consequently, virtually all of the developed OECD countries had drastically reduced budget deficits and whittled inflation rates down toward those of the pre-1914 international gold standard.

In many respects economic performance in the 1990's compares well with that of the first decade of the century. Prudent finance then as now produced similar effects. But in two respects our modem arrangements – I am trying to avoid the word "system" – compares unfavorably with the earlier system: the current volatility of exchange rates and the absence of a global currency.

The volatility of exchange rates is especially disturbing among countries each of which have achieved, according to local definitions and indexes, price stability. The volatility therefore measures real-exchange-rate changes and involves dysfunctional shifting between domestic and international-goods industries and aggravates instability in the financial markets.

How much flexibility is good? If we think of the euro as the "ghost of the mark," could we look at past variations in the mark-dollar rate as an augur of the dollar-euro rate in the future? Between 1971 and 1980 the mark doubled against the dollar, to $1 = DM1.7; between 1980 and 1985, it halved, to $1 = DM 3.4; between 1985 and the crisis of 1992, it more than doubled, to $1 = 1.39; and it has since fallen to $1 = DM 1.9. The mark-dollar rate has fluctuated up and down by more than 100 percent, a mountain of volatility that would make the ERM crisis of 1992 seem like a little hillock. Comparable movements of the dollar-euro rate would crack Euroland apart.

Nor does looking at the yen-dollar rate give us more comfort. The dollar has gone down from 250 yen in 1985 to 79 yen in 1995, and then it went up to 148 yen in 1998 (with fore-casters expecting it to hit 200!), and down to 105 yen in early 2000.

The twentieth century will not see fixed exchange rates again among the G-3. But it is entirely possible that a new international monetary system will emerge in the twenty-first century. Convergence of inflation rates has become remarkable, better than that associated with parts of the Bretton Woods era, comparable to the gold standard itself, as Table 3 shows.

It may seem a long way off, but I believe that given the degree of inflation

TABLE 3 – INFLATION RATES AMONG THE BIG THREE

					1999		
	1995	1996	1997	1998	I	II	III
United States	2.8	2.9	2.3	1.6	1.7	2.1	2.3
Japan	–0.1	0.1	1.7	0.6	–0.1	–0.3	0.0
Euro area*	1.8	1.5	1.8	1.0	0.8	1.0	1.1

Sources: IMF International Financial Statistics (International Monetary Fund, January 2000 p. 57).

* German cost-of-living index for 1995–1998, the European Monetary Union Index of Consumer Prices for 1999.

convergence some sort of monetary union of the three areas would not be impossible. The same conditions would result from a three-currency fixed-exchange-rate system with agreement over a common inflation rate and a fair distribution of seignior-age. If such a fixed-exchange-rate arrangement among countries that had converged is conceivable, it would not be such a far step toward a reformed international monetary system with a world money of the kind initially proposed back in the days of Bretton Woods.

To conclude this section, what lessons can we take from the last third of the twentieth century? One is that flexible exchange rates, at least initially, did not provide the same discipline as fixed rates. A second is that the costs of inflation are much higher in a world with progressive income tax rates. A third is that the need for, and means of, attaining monetary stability can be learned. A fourth is that the policy mix can shift the Phillips curve.

Experience breeds its own reaction: Plato the inflationist gave birth to Aristotle, the hardmoney man. The reaction in the 1980's gave a boost to central-bank independence. Governments forced into the Maastricht mold had to cut back on spending growth as well as deficits. Supply-side economics pointed to one of the mechanisms for strapping down ministers of finance.

One lesson, however, has yet to be learned. Flexible exchange rates are an unnecessary evil in a world where each country has achieved price stability.

IV. CONCLUSIONS

It is time to wrap up the century in some conclusions. A first conclusion is that the international monetary system depends on the power configuration of the countries that make it up. Bismarck once said that the most important fact of the nineteenth century was that England and America spoke the same language. Along the same lines, the most important fact of the twentieth century has been the rise of the United States as a superpower. Despite the incredible rise in gold production, Gresham's Law[29] came into play and the dollar elbowed out gold as the principal international money.

The first third of twentieth-century economics was dominated by the con-

[29] Gresham's Law was well known by the ancient Greeks and even used humorously in Aristophanes' play, *The Frogs*. For a recent analysis see Mundell (1998).

frontation of the Federal Reserve System with the gold standard. The gold standard broke down in World War I and its restoration in the 1920's created the deflation of the 1930's. Economists blamed the gold standard instead of their mishandling of it and turned away from international automaticity to national management. The Great Depression itself let to totalitarianism and World War II.

The second third of the twentieth century was dominated by the contradiction between national macroeconomic management and the new international monetary system. In the new system, the United States fixed the price of gold and the other major countries fixed their currencies to the convertible dollar. But national macroeconomic management precluded the operation of the international adjustment mechanism and the system broke down in the early 1970's when the United States stopped fixing the price of gold and the other countries stopped fixing the dollar.

The last third of the twentieth century started off with the destruction of the international monetary system and the vacuum sent officials and academics into a search for "structure." In the 1970's the clarion call was for a "new international monetary order" and in the 1990's a "new international monetary architecture." The old system was one way of handling the inflation problem multilaterally. Flexibility left each country to control inflation on its own. Inflation was the initial result, but a learning mechanism gradually educated a generation of monetary officials on the advantages of stability and by the end of the century fiscal prudence and inflation control had again become the watchword in all the rich and many of the poor countries.

Today, the dollar, the euro, and yen have established three islands of monetary stability, which is a great improvement over the 1970's and 1980's. There are, however, two pieces of unfinished business. The most important is the dysfunctional volatility of exchange rates that could sour international relations in time of crisis. The other is the absence of an international currency.

The century closes with an international monetary system inferior to that with which it began, but much improved from the situation that existed only two-and-a-half decades ago. It remains to be seen where leadership will come from and whether a restoration of the international monetary system will be compatible with the power configuration of the world economy. It would certainly make a contribution to world harmony.

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Policy Analysis

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Recent Arguments against the Gold Standard

by Lawrence H. White

Executive Summary

The presidential primary contests of 2011–12 brought renewed attention to the idea of reinstituting a gold standard. The 2012 Republican Party platform ultimately included a plank calling for the creation of a commission to study the issue.

The favorable attention given to the idea of reinstituting a gold standard has attracted criticism of the idea from a variety of sources. Considered here are the most important arguments against the gold standard that have been made by economists and economic journalists in recent years.

A few recent arguments are novel to some extent, but not all add weight to the case against a gold standard. Several authors identify genuine historical problems that they blame on the gold standard when they should instead blame central banks for having contravened the gold standard.

Gold standards, being real-world human institutions, fall short of perfection. No doubt a well-trained academic economist can describe on the whiteboard an *ideal* monetary system that produces greater stability in the purchasing power of money than a gold standard does—or scores higher on whatever one criterion the economist favors—while sparing us a gold standard's resource costs by employing fiat money. But other well-trained economists have proposed different criteria, and even a flawless central bank cannot pursue all criteria with one policy.

More important, fiat standards in practice have been far from perfect monetary systems. We need to examine historical evidence if we want to come to an informed judgment about whether *actual* gold-based systems or *actual* fiat-based systems display the smaller set of flaws. I find that the most automatic and least managed kind of gold-based system—a gold standard with free banking—can be expected to outperform a gold standard with central banking and to outperform the kind of fiat monetary systems that currently prevail.

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We need to examine historical evidence if we want to come to an informed judgment about whether *actual* gold-based systems or *actual* fiat-based systems display the smaller set of flaws.

Introduction

The presidential primary contests of 2011–12 brought renewed attention to the idea of reinstituting a gold standard. At least four candidates spoke favorably about the gold standard. One suggested a "commission on gold to look at the whole concept of how do we get back to hard money." The 2012 Republican Party platform ultimately included a plank calling for the creation of just such a commission, explicitly viewing it as a sequel to the U.S. Gold Commission of 1981: "Now, three decades later . . . , we propose a similar commission to investigate possible ways to set a fixed value for the dollar."[1]

The favorable attention given to the idea of reinstituting a gold standard has attracted criticism of the idea from a variety of sources. In the popular press, *Atlantic* writer Matthew O'Brien has expounded on "Why the Gold Standard Is the World's Worst Economic Idea,"[2] while *Washington Post* columnist Ezra Klein has declared that "The problems with the gold standard are legion."[3] On the more scholarly side, Federal Reserve Chairman and former Princeton economics professor Ben Bernanke, guest lecturing at George Washington University on the history of monetary policy in the United States, in the words of the *New York Times*' account, "framed much of this history as a critique of the gold standard, which was dropped in the early 1930s in a decision that mainstream economists regard as obviously correct, hugely beneficial and essentially irreversible."[4] Well-known University of California–Berkeley economist Barry Eichengreen has offered "A Critique of Pure Gold."[5]

In a Briefing Paper published by the Cato Institute, I addressed a number of then-common theoretical and historical objections to a gold standard, sorting those that have some substance from those that are ill-founded.[6] Here I consider the most important arguments against the gold standard that have been made by economists and economic journalists since then. Some of the less-substantial arguments that I criticized in 2008 reappear in the recent literature. Other arguments are novel to some extent, but not all add weight to the case against a gold standard. Several authors identify genuine historical problems that they blame on the gold standard, when they should instead blame central banks for having contravened the gold standard.

Bernanke told the students at George Washington University, "Unfortunately gold standards are far from perfect monetary systems."[7] We can all agree that gold standards, being real-world human institutions, fall short of perfection. There is no doubt that a well-trained academic economist can describe on the whiteboard an *ideal* monetary system that, through the flawlessly timed and flawlessly calibrated policy actions of a central bank, produces greater stability in the purchasing power of money than a gold standard does—or scores higher on whatever one criterion the economist favors—while sparing us a gold standard's resource costs by employing fiat (noncommodity) money.[8] But other well-trained economists have proposed different criteria, and even a flawless central bank cannot pursue all criteria with one policy.

More important, fiat standards in practice have been far from perfect monetary systems. We need to examine historical evidence if we want to come to an informed judgment about whether *actual* gold-based systems or *actual* fiat-based systems display the smaller set of flaws. We need to recognize the variety of institutional arrangements that the world has seen under gold standards and likewise under fiat standards. In particular, we need to distinguish an "automatic" gold-standard system—like the classical gold standard in countries without central banks—from the interwar gold-exchange system that was managed or mismanaged by the discretion of central bankers. I find that the most automatic and least managed kind of gold-based system—a gold standard with free banking—can be expected to outperform a gold standard with central banking, and to outperform the kind of fiat monetary systems that currently prevail.

What follows are critical analyses of the leading recent arguments against a gold standard. I spell out each argument as critics have made it, and evaluate its logical and historical merits. I begin with the least substantial arguments, and proceed to the weightier.

Claim 1: There Isn't Enough Gold to Operate a Gold Standard Today

Personal finance columnist John Waggoner recently claimed in *USA Today* that "there's not enough gold in the world to return to a gold standard."[9] He explained:

> In the gold standard, the amount of currency issued is tied to the government's gold holdings. The price of gold would have to soar to accommodate U.S. trade in goods and services. . . . Total gold owned by the [United States] government—including the Federal Reserve and the U.S. Mint—is 248 million ounces. That's about $405 billion dollars at today's prices, hardly enough to support a $15 trillion economy.
>
> The government could use a kind of semi-gold standard, limiting the amount of money printed to a percentage of its gold reserves. For example, it could say that at least 40% of all currency outstanding be backed by gold. This would limit the money supply, but be vulnerable to government manipulation—revising the limit downward to 5%, for example.

Waggoner's figures of 248 million ounces and $405 billion are approximately correct, but his claim that the price of gold would have to soar to make that an adequate stock of gold reserves is not. The August 31st *Status Report of U.S. Treasury-Owned Gold* puts the U.S. government's total holdings at 261.5 million ounces.[10] (The source of Waggoner's lower figure is unclear.) At a market price of $1,700 per fine troy ounces (to choose a recently realized round number), those holdings are worth $444.6 billion. Current required bank reserves (as of October 2012) are less than one fourth as large, $107.3 billion. Looked at another way, $444.6 billion is 18.4 percent of the current money supply measure "M1" ($2,417.2 billion as of October 22), which is the sum of currency in circulation and checking-account balances. That is a more than healthy reserve ratio by historical standards.[11]

Waggoner labors under several misconceptions. First, gold standards have historically required only fractional reserves—that is, the holding of enough gold to back only a small portion of the money supply. So long as banks or the government can satisfy the actual demand of conversion of money to gold, fractional reserves do not make a gold standard into a "kind of semi-gold standard." Second, it is not generally true that "the amount of currency issued is tied to the government's gold holdings." It is true only if the government monopolizes the issue of gold-redeemable currency and the holding of gold reserves, but history offers 60-plus examples of competitive private-note issue under historical gold and silver standards.[12] Third, the vulnerability of the average reserve ratio to government manipulation is not inevitable. It can be avoided by leaving commercial banks to determine their own reserve ratios, as in historical free banking systems.

Claim 2: The Gold Standard Is an Example of Price-fixing by Government

Barry Eichengreen writes that countries using gold as money "fix its price in domestic-currency terms (in the U.S. case, in dollars)." He finds this perplexing:

> But the idea that government should legislate the price of a particular commodity, be it gold, milk or gasoline, sits uneasily with conservative Republicanism's commitment to letting market forces work, much less with Tea Party–esque libertarianism. Surely a believer in the free market

Gold standards have historically required only fractional reserves—that is, the holding of enough gold to back only a small portion of the money supply.

> would argue that if there is an increase in the demand for gold, whatever the reason, then the price should be allowed to rise, giving the gold-mining industry an incentive to produce more, eventually bringing that price back down. Thus, the notion that the U.S. government should peg the price, as in gold standards past, is curious at the least.[13]

To describe a gold standard as fixing gold's price in terms of a distinct good, domestic currency, is to begin with a confusion. A gold standard means that a standard mass of gold (so many troy ounces of 24-karat gold) *defines* the domestic currency unit. The currency unit (dollar) is nothing other than a unit of gold, not a separate good with a potentially fluctuating market price against gold. That $1, defined as so many ounces of gold, continues to be worth the specified amount of gold—or, in other words, that x units of gold continue to be worth x units of gold—does not involve the pegging of any relative price. Domestic currency notes (and checking-account balances) are *denominated* in and redeemable for gold, not *priced* in gold. They don't have a *price* in gold any more than checking account balances in our current system, denominated in fiat dollars, have a price in fiat dollars. Presumably Eichengreen does not find it curious or objectionable that his bank maintains a fixed dollar-for-dollar redemption rate, cash for checking balances, when he withdraws cash at its automatic teller machine.

As to what a believer in the free market would argue, surely Eichengreen understands that if there is an increase in the demand for gold under a gold standard, whatever the reason, then the relative price of gold (the purchasing power per unit of gold over other goods and services) will in fact rise, that this rise will in fact give the gold-mining industry an incentive to produce more, and that the increase in gold output will in fact eventually bring the relative price back down.[14]

The world purchasing power of gold was better-behaved under the classical international gold standard than the purchasing power of fiat money has been since 1971.

Claim 3: The Volatility of the Price of Gold Since 1971 Shows that Gold Would Be an Unstable Monetary Standard

Eichengreen argues that "gold's inherent price volatility" makes it unsuitable to "provide a basis for international commercial and financial transactions on a twenty-first-century scale."[15]

Klein declares, "The problems with the gold standard are legion, but the most obvious is that our currency fluctuates with the global price of gold as opposed to the needs of our economy."[16] It is not entirely clear what "our currency fluctuates with the global price of gold" means in this declaration. If it means that, for a country that is part of an international gold standard, the purchasing power of domestic currency moves with the world purchasing power of gold, then it is true, but it fails to identify a problem. The world purchasing power of gold was better-behaved under the classical international gold standard than the purchasing power of fiat money has been since 1971. If it means to invoke the volatility of the real or dollar price of gold since gold was fully demonetized in 1971, it identifies a problem, but it is a problem experienced under a fiat standard and *not* under a gold standard. Today, demonetized gold rises and falls in price as savers and investors rush into and out of gold as a hedge against fiat-money inflation.

The respected University of California–San Diego economist and blogger James D. Hamilton makes an argument that is less ambiguous, but puzzling nonetheless. Hamilton charts how much the average dollar wage would have varied if it was initially fixed in ounces of gold but instead was paid in the dollar equivalent as the price of gold varied between January 2000 and July 2012.[17] He observes that "if the real value of gold had changed as much as it has since then, the dollar wage that an average worker received would need to have fallen from $13.75/hour in 2000 to $3.45/hour in 2012." That sounds alarming, but in fact it is of very little significance. It is relevant only if the behavior of the "real value" (purchasing power) of gold is in-

dependent of the monetary regime so that the purchasing power of gold-backed currency would fluctuate on the world market. Such a calculation would be relevant if a small open economy (say, the Bahamas) should unilaterally adopt the gold standard today. That would indeed be a bad idea.[18] But thoughtful advocates of the gold standard propose that it should again be an international standard. Hamilton's calculation is completely irrelevant to that proposal. A Lucas critique applies: observations drawn from a world of fiat regimes are not informative about the behavior of the purchasing power of money under an international gold standard.

Hamilton anticipates such an objection and has a reply ready:

> [G]old advocates respond with the claim that if the U.S. had been on a gold standard since 2000, then the huge change in the real value of gold that we observed over the last decade never would have happened in the first place. The first strange thing about this claim is its supposition that events and policies within the U.S. are the most important determinants of the real value of gold. According to the World Gold Council, North America accounts for only 8% of global demand.[19]

This, too, is irrelevant to the evaluation of proposals for an international gold standard. By the way, Hamilton's 8 percent figure is North America's share of global purchases of new gold jewelry, a nonmonetary and flow measure, rather than its share of the stock transactions demand to hold monetary gold, which under an international gold standard would presumably be closer to North America's 30 percent share of world output.

The purchasing power of money was more stable under the classical international gold standard (1879–1914) than it has been under fiat money standards since 1971. In a blog entry a few days after the one just quoted, Hamilton recognizes this fact: "It is true that the biggest concern I have about going back on a gold standard today—that it would tie the monetary unit of account to an object whose real value can be quite volatile—was not the core problem associated with the system of the 19th century." He then continues: "But the fact that this wasn't the core problem with the gold standard in the nineteenth century does not mean that it wouldn't be a big problem if we tried to go back to the system in the twenty-first century."[20]

But it's unlikely that purchasing-power instability would be any more of a problem for a present-day international gold standard. Hamilton attributes "recent movements in the real value of gold" to "the surge in income from the emerging economies rather than U.S. monetary policy," citing data showing global gold jewelry sales up strongly in 2010 over 2009, led by large increases in sales to India, Hong Kong, and mainland China.[21] It is reasonable to suppose that demand for gold jewelry rises with income. But real income in India and China is rising fairly steadily. It makes little sense to attribute volatility in the real price of gold to the growth in demand from steadily rising incomes.

Hamilton's drawing of a trend from two data points, moreover, is not a careful reading of the data source he cites. Even if we focus exclusively on 2010 over 2009, only a small fraction of the extraordinary increase of 69 percent in gold jewelry sales to India can possibly be attributed to India's real income growth, which was 10 percent that year according to the International Monetary Fund. The income-elasticity of demand for gold jewelry is nothing like 6.9 if we observe longer-run trends. The text of the article containing the data provides a clue to the lion's share of that one year's increase: "Historically savvy gold buyers, India's influx of buying implies an expectation that gold prices still have much higher to go. The [World Gold Council] says that 'Indian consumers appeared almost universally to expect that the local gold price was likely to continue rising.'"[22] That is, Indians did not buy so much

It makes little sense to attribute volatility in the real price of gold to the growth in demand from steadily rising incomes.

Inflation-hedging demand is volatile because inflation expectations are volatile under unanchored monetary systems.

gold jewelry in 2010 just for ornamentation, but also as an investment or inflation hedge. Likewise, the article notes, "many in China's middle class are looking to gold as a means for long-term savings and a possible hedge against inflation."

If we look at additional years of the data, we see that global gold jewelry sales in 2010 were *down* from the levels of 2007 or 2008, which is hardly consistent with the hypothesis that gold demand is rising mainly due to rising emerging-economy income. If we look at the article's entire 2004–10 range of sales data for gold in *all* forms, we see as much or more volatility in investment sales of gold (bars, coins, medallions, exchange-traded funds) as in jewelry sales. Absent fiat inflation hedging, there is little cause for concern about the volatility of demand for gold or gold's real price.

Like Hamilton, the respected George Mason University economist and blogger Tyler Cowen[23] also expresses concern about volatility in the real price of gold:

> Why put your economy at the mercy of these essentially random forces? I believe the 19th century was a relatively good time to have had a gold standard, but the last twenty years, with their rising commodity prices, would have been an especially bad time. When it comes to the next twenty years, who knows?

In a later blog entry, Cowen adds, "I think a gold standard today would be much worse than the 19th century gold standard, in part because commodity prices are currently more volatile and may be for some time."[24]

Cowen does not directly address the possibility that the current volatility of several commodity price series, most importantly that of gold, is principally caused by the inflation-hedging prompted by our current fiat monetary systems. Inflation-hedging demand is volatile because inflation expectations are volatile under unanchored monetary systems. Inflation-hedging involves other commodities in addition to gold and silver. Under a reliably anchored monetary system this source of commodity price volatility would disappear.

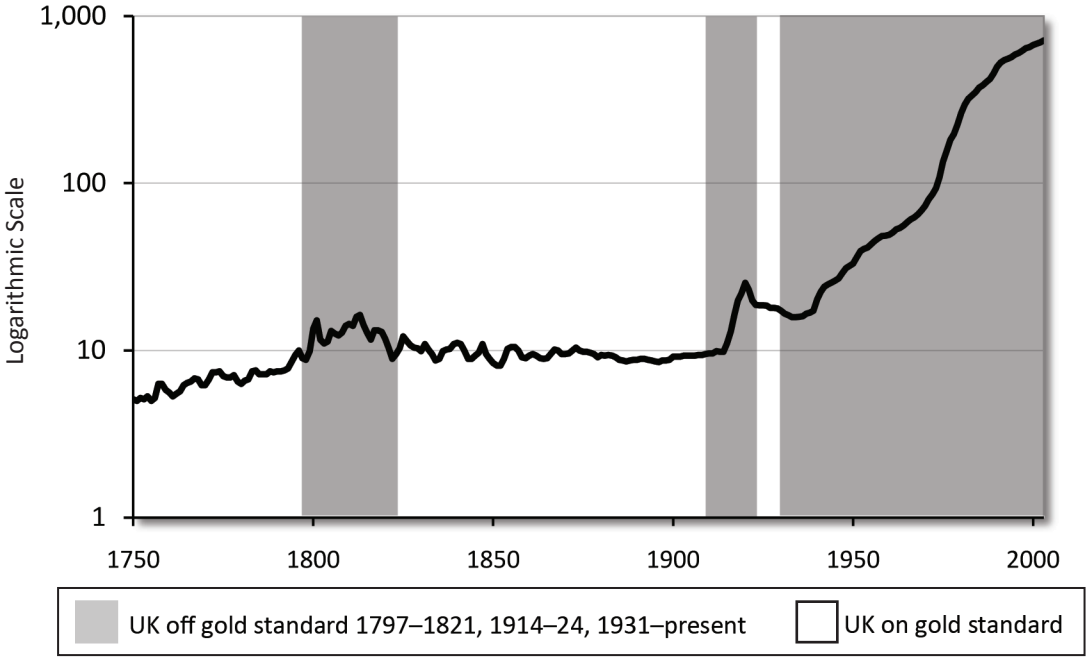
The answer to Cowen's first question—why put your economy at the mercy of "essentially random" supply and demand shocks for gold?—is that, to judge by the historical evidence, doing so engenders less volatility than the alternative of putting your economy at the mercy of a central bank's monetary policy committee. Monetary supply and demand shocks under fiat money systems have been much larger. Under the classical gold standard, changes in the growth rate of the base money stock were relatively small—perhaps surprisingly small to those who haven't looked at the numbers. The *largest* supply shock, the California Gold Rush, caused a cumulative world price level rise of 26 percent (as measured by the United Kingdom's Retail Price Index) stretched over 18 years (1849–67), which works out to an inflation rate of only 1.3 percent per annum. As Cowen recognizes, gold discoveries the size of California's are hardly likely today.[25]

Barry Eichengreen also worries that volatility in the demand for gold would persist even in an international gold standard:

> There could be violent fluctuations in the price of gold were it to again become the principal means of payment and store of value, since the demand for it might change dramatically, whether owing to shifts in the state of confidence or general economic conditions. Alternatively, if the price of gold were fixed by law, as under gold standards past, its purchasing power (that is, the general price level) would fluctuate violently.[26]

The concern that Eichengreen expresses in his first sentence seems baseless. It would require a separation of monetary functions such that gold serves as the commonly accepted medium of exchange, but a unit of something else (what?) serves as the unit of account. Only under such a peculiar ar-

Figure 1
Composite Price Index 1750 to 2003, January 1974 = 100 (logarithmic scale)



Source: Jim O'Donoghue, Louise Goulding, and Grahame Allen, "Consumer Price Inflation since 1750," Office for National Statistics [UK] *Economic Trends* 604 (March 2004): 38–46.

rangement could one ounce of monetary gold have a fluctuating price. In every historically known system where gold or gold-redeemable claims were the principal means of payment, a specified amount of gold also defined the pricing unit.

The concern Eichengreen expresses in his second sentence, that under a gold standard dramatic shifts in the demand for gold would result in "violently" fluctuating price levels, seems also to lack merit. The historical evidence shows that price levels during the classical gold standard of 1821–1914 did not fluctuate any more violently than the fiat money era post-1971. Figure 1 shows price index movements in the United Kingdom over 253 years under gold and paper sterling standards.

There is a good reason why the demand for monetary gold did not change dramatically under the classical gold standard. As Robert Barro noted 30 years ago, the classical gold standard constrained inflation in a more credible way, thereby better pinning down inflationary expectations and better stabilizing the demand to hold money relative to income (or stated inversely, it better stabilized velocity) than the fiat money system that followed it.[27] He explained:

> Since the move in 1971 toward flexible exchange rates and the complete divorce of United States monetary management from the objective of a pegged gold price, it is clear that the nominal anchor for the monetary system—weak as it was earlier [under Bretton Woods]—is now entirely absent. Future monetary growth and long-run inflation appear now to depend entirely on the year-to-year "discretion" of the monetary authority, that is, the Federal Reserve. Not surprisingly, inflationary expectations and their reflection in nominal interest rates and hence in short-run inflation rates have all become more volatile.

Volatility of inflation and expectations of volatility of inflation did diminish during

The classical gold standard constrained inflation in a more credible way, better pinning down inflationary expectations.

When productivity growth allows particular goods to be produced at lower cost, those goods become cheaper in both real and nominal terms.

the "Great Moderation" after the 1980s, but since 2006 they have returned. In the 14 years between August 1991 and August 2005, the annual U.S. Consumer Price Index inflation rate (year-over-year, observed monthly) stayed between 1 and 4 percent, a band of just 3 percentage points. But between July 2008 and July 2009, the year-over-year inflation rate went from a high of 5.5 percent to a low of *minus* 2.0 percent, a swing of 7.5 percentage points in a single year. It has since risen as high as 3.9 percent. As long as the Fed retains discretion, inflation expectations will remain variable.

Claim 4: A Gold Standard Would Be a Source of Harmful Secular Deflation

"The most fundamental argument against a gold standard," writes Cowen, "is that when the relative price of gold is go[ing] up, that creates deflationary pressures on the general price level, thereby harming output and employment."[28] Eichengreen offers a similar criticism:

> As the economy grows, the price level will have to fall. The same amount of gold-backed currency has to support a growing volume of transactions, something it can do only if the prices are lower, unless the supply of new gold by the mining industry magically rises at the same rate as the output of other goods and services. If not, prices go down, and real interest rates become higher. Investment becomes more expensive, rendering job creation more difficult all over again.[29]

Eichengreen concludes: "The robust investment and job creation prized by the gold standard's champions and the deflation they foresee are not easily reconciled, in other words." In a nutshell, he maintains that vigorous economic growth is at war with itself under a gold standard because the money stock won't keep up.

Eichengreen's argument here is theoretically incorrect and—surprisingly from a leading economic historian—inconsistent with the historical record of the gold standard. First, as Eichengreen surely understands, the condition for the price level not falling isn't an unlikely or "magical" exact equality (=) between the rate of growth in the stock of monetary gold and the rate of growth in the output of other goods and services (which proxies for demand to hold monetary gold for transactions), but rather that the rate of growth in the stock of monetary gold is *as at least as great* (≥) as that of the rate of growth of output. How rare was that? Not very. During the period of the classical gold standard, given that the long-run average inflation rate was close to zero, this condition was met about half of the time. The index numbers compiled by O'Donoghue, Goulding, and Allen in fact show a few *more* years of a rising, rather than a falling, price index during the 93 years from the United Kingdom's resumption of the gold standard in 1821 to its departure in 1914.[30] Over the period as a whole, the compound inflation rate was one-tenth of 1 percent per annum.

It is true that if the output of goods and services grows too fast for the stock of monetary gold to keep up, the price level falls. In such an environment, when productivity growth allows particular goods to be produced at lower cost, those goods become cheaper in both real and nominal terms. [31] Such deflation, which results from rapid growth in real output, can hardly be a cause for regret.

Eichengreen's case for fearing deflation under a gold standard overlooks the important historical findings of Atkeson and Kehoe.[32] Examining inflation rates and real output growth rates for 17 countries over more than 100 years, they found that there is no link between deflation (falling prices) and depression (falling real output) outside of one extraordinary episode, the Great Depression period of 1929–34. Their evidence suggests to them that the Great Depression should be considered "a special experience with little to offer policymakers considering a deflationary policy today." Outside of

the Great Depression, in their database "65 of 73 deflation episodes had no depression" (and most of these deflations without depression "occurred under a gold standard"), while 21 of 29 depressions occurred without deflation. We consider the Great Depression in more detail below, but the Atkeson-Kehoe evidence makes it clear that the combination of rapid deflation and rapid output shrinkage of 1930–33, which occurred under the interwar system managed (or mismanaged) by central banks, was unlike experience under the much milder deflations of the classical gold standard.

We need to recognize the basic distinction, which applies under any monetary standard, between a *good* deflation and a *bad* deflation. Selgin,[33] Atkeson and Kehoe,[34] and Bordo, Landon-Lane, and Redish[35] have made this distinction conspicuously clear, but Eichengreen neglects it, as does Bernanke routinely. In brief, a good deflation is a situation where the price level falls because output grows more rapidly than the money stock. It is a situation of ongoing approximate monetary equilibrium, involving no significant excess demand for money and therefore no significant excess supply of goods at any date's price level. Prices fall one by one as the selling prices of particular goods follow their costs of production downward. Real living standards rise as goods become cheaper. A deflation driven by real growth does not make real growth more difficult to sustain.

A bad deflation, in a world with some degree of downward price and wage stickiness, is a situation where prices fall as a lagged response to an unexpected shrinkage in the money stock or a spike in money demand. (The degree of price and wage stickiness is lower in a system where the expected inflation rate is lower, but stickiness was not zero even under the classical gold standard when the long-run expected inflation rate was near zero.) Such shocks create a monetary disequilibrium, an unsatisfied demand to hold money at the existing price level. Consumers and businesses cut their spending for the sake of adding to money balances, creating unsold inventories of goods, leading to recessionary cutbacks in production and employment until prices and wages decline sufficiently to clear the markets for goods, labor, and money balances (a classic discussion is provided by Yeager 1956.)[36]

A good deflation involves no such unplanned inventory accumulation, so it does not depress output. In terms of the standard equation of exchange, $MV = Py$, a good deflation has the price level P falling contemporaneously with real income y rising. A bad deflation has P falling with a lag (and y falling in the interim) behind a shrinking money stock M or shrinking velocity of money V. Bad deflation was a major problem in the early 1930s, as a series of banking panics led to the hoarding of currency by the public and the stockpiling of reserves by banks (events that can be described either as a fall in the velocity of base money or a fall in the quantity of broader money). It was briefly a problem during the pre-Fed banking panics in the United States. But banking panics are not caused by being on a gold standard (see Claim 6 below).

The nonconflict between deflation and robust growth is evident during the most extended deflationary period under the classical gold standard in the United States, the 15 years from 1882 to 1897. The Gross Domestic Product deflator (as constructed by Romer 1989), which is a measure of the price level, fell from 8.267 to 6.383, a compound inflation rate of approximately –1.7 percent per annum.[37] Over the same period, real GDP grew at the healthy rate of approximately 3.0 percent per annum. Robust investment and real income growth were easily reconciled with deflation. The similar experience in Britain during the same period has sometimes been called a "great depression," but use of that label confuses deflation, which did happen, with falling output, which did not.[38]

The same confusion is evident when political commentator Bruce Bartlett writes that "while a gold standard provided stable purchasing power over long periods of

We need to recognize the basic distinction, which applies under any monetary standard, between a *good* deflation and a *bad* deflation.

time, that was only because inflations were subsequently offset with debilitating deflations."[39] In fact, as the 1882–97 period shows, and as Atkeson and Kehoe show more generally, deflations under the classical gold standard were *not* debilitating.[40] That is, they were not associated with falling output. Bartlett is mistaken in thinking that, as a consequence of deflation, "there were greater economic instabilities, higher unemployment and longer recessions during the gold-standard era." Despite a weak banking system, the record of the gold-standard era before 1914 in the United States does not in fact show greater economic instabilities or longer recessions than the post–World War II era.[41]

Atkeson and Kehoe also address specifically the case of slow-growing Japan in recent decades, which has often been cited as evidence of the depressing effect of falling or negative inflation.[42] They show that Japan's growth rate began falling around 1960, while its inflation rate began falling around 1970, suggesting that the former is a secular trend independent of the latter. They aptly comment: "Attributing this 40-year slowdown to monetary forces is a stretch."[43]

Returning to the quotation from Eichengreen, let us consider his claim that when prices go down "real interest rates become higher" with the result that "[i]nvestment becomes more expensive, rendering job creation more difficult."[44] The statement unfortunately fails to keep straight the standard distinction between two kinds of real interest rates, ex ante (anticipated) and ex post (retrospective). The identity that defines a real interest rate is: (1 + real interest rate) = (1 + nominal interest rate) ÷ (1 + inflation rate). The inflation rate in question can either be an anticipated rate or a rate measured retrospectively. Correspondingly, the derived real interest rate can either be anticipated or retrospective. The standard theory of the Fisher Effect tells us that when (say) a drop to minus 1 percent from 0 percent annual inflation is anticipated, the nominal interest rate also drops by approximately 1 percent to keep the anticipated real interest rate constant. Therefore *an anticipated deflation has no effect on the cost of investment*. A decline in the price level greater than anticipated over the period of a loan does raise the ex post real interest rate paid on the loan. But such an unanticipated decline, occurring after an investment loan was taken out, does not raise the interest rate at the time of the loan contract, and thus cannot make investment more expensive.

To be fair, Eichengreen may have had in mind (and simply neglected to specify) the one atypical set of conditions where his argument would apply. Namely, if the nominal interest rate is already near or at the *zero lower bound*, then the nominal rate cannot fall enough in response to a large downward shift in the anticipated inflation rate to keep the ex ante real interest constant. The ex ante real interest rate then does rise. This was a problem during the extreme deflation of 1930–32; three-month Treasury rates fell close to zero at the end of 1932. Below I argue that this deflation—under the Federal Reserve's watch—was not due to the gold standard, but due to its contravention. The zero low bound may be a problem today under the Federal Reserve's deliberate policy of ultralow short-term interest rates. During the period of the classical gold standard, there were no cases of an anticipated deflation so great as to bring the nominal interest rate close to zero or create a lower-bound problem.

Deflations under the classical gold standard were *not* debilitating. That is, they were not associated with falling output.

Claim 5: A Gold Standard too Rigidly Ties the Government's Hands

One of the slides for Ben Bernanke's lecture at GWU reads as follows:[45]

> The strength of a gold standard is its greatest weakness too: Because the money supply is determined by the supply of gold, it cannot be adjusted in response to changing economic conditions.

Note the passive wording: *be adjusted*. Adjusted by whom or by what? On a previous slide

Bernanke indicated that he was assuming an automatic gold standard, without a central bank able to do any significant adjusting of the money supply. But under a gold standard, a change in the money supply can also be brought about by market forces. Under a gold standard, market forces in gold mining, minting, and banking *do* adjust the money supply in response to changing economic conditions, that is, in response to changes in the demand to hold monetary gold or to hold bank-issued money. The supply of bank-issued money is not determined by the supply of gold alone. If such a market-driven change counts as the supply being adjusted—and why shouldn't it?—then Bernanke's statement is false. The money supply does adjust in response to changing economic conditions.[46]

But perhaps the Bernanke slide's phrase "cannot be adjusted" only intends to say that under a fully decentralized and automatic gold standard there is no central monetary policy committee or other small group of people who can *deliberately* adjust the aggregate money supply. Under that reading the statement is true. But read that way the statement does not deny that market forces will adjust the money supply appropriately.

Bernanke neglects to provide a comparative analysis here. One might, with equal or greater justice, invert his statement and say, "The strength of a fiat standard is its greatest weakness too: because the money supply is not automatically determined by market forces but by the discretion of a committee, it can change in ways that are inappropriate to changing economic conditions." The comparative historical question remains: under which system—automatic adjustment by market forces under a gold standard or deliberate adjustment by central bankers on a fiat standard—is the money supply better adjusted to economic conditions? Those who understand why central economic planning generally fails should presume that market guidance works better, absent a persuasive rebuttal showing that money is an exception. The historical record does not show the Federal Reserve carrying its own weight, successfully adjusting the money supply to conditions.[47] That is, the Fed has not reduced cyclical volatility in the economy.

Bernanke apparently thinks that market determination of the money supply is a weakness because it eliminates the option to use monetary policy to reduce the unemployment rate (or in economists' jargon, rules out exploiting the short-run Phillips Curve). According to the *New York Times* account of his GWU lecture, Bernanke told the class that being on the gold standard "means swearing that no matter how bad unemployment gets you are not going to do anything about it." True, an automatic gold standard does eliminate the option to respond to the unemployment rate. But that is a feature, not a bug. Any economist who takes to heart the case that Kydland and Prescott have made for the benefit of rules over discretion in monetary policy will recognize that such a restraint is a strength rather than a weakness.[48]

When job seekers recognize the central bank's intention to use monetary expansion to reduce unemployment, they will raise their inflation-rate expectations and thus their reservation wage demands. Monetary expansion will then only ratify their expectations, not surprise them, and thereby will achieve only higher inflation and no reduction in the unemployment rate. Just as Ulysses strengthened his ability to sail home, past the island of the Sirens, by tying himself to the mast and plugging his helmsman's ears with wax, so too a monetary system strengthens its ability to achieve the good outcome it can achieve by foreswearing other goals. Kydland and Prescott identify the goal as zero inflation, but more generally the goal is to facilitate trade—including intertemporal trade—most efficiently.

Claim 6: A Gold Standard Amplifies Business Cycles (or Fails to Dampen them as a Well-managed Fiat Money System Does)

In response to my 2008 piece, Tyler Cowen wrote:[49]

The historical record does not show the Federal Reserve carrying its own weight, successfully adjusting the money supply to conditions.

> My main worry with the gold standard is simply the pro-cyclicality of the money supply. . . . For instance would you really want a contracting money supply in today's environment? And yes credit crunches of this kind happen in market settings too so you can't blame it all on Alan Greenspan.

Cowen's worry here does not appear to be about the pro-cyclicality of the gold supply. Gold mining is actually *counter*cyclical with respect to the price level: that is, a falling price level denominated in gold units raises the purchasing power of gold and so increases global mining output. For any single economic region, the price-specie-flow mechanism is likewise countercyclical with respect to the price level, meaning a falling local price level attracts gold from the rest of the world. Cowen instead appears to worry about the supposed pro-cyclicality of bank-issued money (deposits and banknotes) as a result of bank runs and credit crunches. He worries that the banking system is prone to contract its liabilities in a downturn, and thereby to amplify the economy's contraction.

The U.S. banking panics, both under the pre-Fed system and in the 1930s, came from legal restrictions that weakened the banking system, not from the United States being on the gold standard.

The inside money supply does fall in a banking panic if there are runs for base money, whether that base money is metallic or fiat.[50] But it is not true that a gold standard or free banking makes the banking system prone to bank runs and credit crunches.

The U.S. banking panics, both under the pre-Fed system and in the 1930s, came from legal restrictions that weakened the banking system, not from the United States being on the gold standard. Comparing the United States to Canada illustrates this strikingly. Canada was equally on the gold standard, and had a similar agricultural economy, but experienced no panics. Its banking system was far less restricted and consequently far stronger. The most important legal restrictions on U.S. banks were the prohibition of interstate branching, which would have allowed better diversification of assets and liabilities (Canada allowed nationwide branching), and the rules (originally imposed to help finance federal expenditures in the Civil War) requiring note-issuing banks to hold federal bonds as collateral (no such rules operated in Canada). The banknote restriction prevented banks from issuing more notes during seasons of peak currency demand, which in turn led to reserve drains every autumn (not seen in Canada). Because panics are not inherent to a gold standard, but rather to a banking system weakened by legal restrictions, the pre-1933 panics do not indict the gold standard, but rather indict legal restrictions that weaken banks. While Bernanke was correct to say in his lecture that "The gold standard did not prevent frequent financial panics," neither did it cause them.[51]

Financial Times columnist Martin Wolf expresses a worry similar to Cowen's, that a gold standard with fractional-reserve banking is inherently pro-cyclical: "In good times, credit, deposit money and the ratio of deposit money to the monetary base expands. In bad times, this pyramid collapses. The result is financial crises, as happened repeatedly in the 19th century."[52] In fact, free banks did not exhibit exuberant swings in their reserve ratios. [53] Less-regulated banking systems were more robust than Wolf suspects, as seen not only in Canada but also in Scotland, Sweden, Switzerland, and other systems without central banks under the gold standard. Repeated financial crises were a feature of the 19th-century banking systems in the United States and England, weakened as they were by legal restrictions, but not of the less restricted systems elsewhere.[54]

Claim 7: The Gold Standard Was Responsible for the Deflation that Ushered in the Great Depression in the United States

The most prominent set of criticisms of the gold standard among academic economists in recent years blames the gold standard for creating the Great Depression in the United States and for then spreading

it internationally. Douglas Irwin summarizes the case and identifies its most cited source:[55]

> Modern scholarship regards the Depression as an international phenomenon, rather than as something that affected different countries in isolation. The thread that bound countries together in the economic collapse was the gold standard. Barry Eichengreen's 1992 book *Golden Fetters* is most commonly associated with the view that the gold standard was the key factor in the origins and transmission of the Great Depression around the world.[56]

The piece of evidence most often cited for this view is "[t]he fact that countries not on the gold standard managed to avoid the Great Depression, while countries on the gold standard did not begin to recover until they left it."[57]

This section addresses the "factor in the origins" charge. The next section addresses the "transmission" charge.

James D. Hamilton argues that "between 1929 and 1933, the U.S. and much of the rest of the world *were* on a gold standard. That did not prevent (indeed, I have argued it was an important cause of) a big increase in the real value of gold over that period. Because the price of gold was fixed at a dollar price of $20/ounce, the increase in the real value of gold required a huge drop in U.S. nominal wages over those years."[58] Because wages were sticky downward, the drop in nominal demand for labor created a massive loss of employment.

To understand the deflation of 1930–32, we need to review the deflation of the interwar period as a whole. And to understand the interwar deflation as a whole, we need to review the monetary events of World War I. During the war, the major combatant nations suspended the gold standard in order to print copious amounts of money to finance war expenditures. At war's end they were left with price levels in local currency units much higher than before the war, and much higher than postwar price levels measured in gold units. As Robert Mundell noted in his Nobel lecture, large volumes of European gold flowed to the United States, which continuously remained on gold (although the federal government embargoed gold exports in 1917–19).[59] The gold inflow substantially raised the U.S. dollar price level during the war. Despite a major correction in 1920–21, "the dollar (and gold) price level" remained 40 percent above "the prewar equilibrium, a level at which the Federal Reserve kept it until 1929."[60] For the United States, this meant that the price level would eventually have to fall.

Meanwhile in Europe, wartime money printing had pushed the price levels in the United Kingdom, France, and other countries much higher than 40 percent above their prewar levels. For the United Kingdom and France to return to the gold standard (that is, to reinstitute convertibility at a defined parity between the domestic monetary unit and gold), even without further U.S. deflation, would require some combination of devaluation and deflation. Mundell points out that some notable staunch defenders of the gold standard, such as Charles Rist and Ludwig von Mises, saw devaluation as a more prudent option than a painfully large deflation. Mises is reported to have criticized the recommendation that a deflation should be undertaken to reverse the effects of wartime inflation by remarking that, once you have run a man over with a truck, you do him no favor by putting the truck in reverse and driving over him in the other direction.

France chose to adjust the franc's gold content downward (to devalue) fully in proportion to its lost purchasing power, which enabled them to keep the postwar franc price level. The United Kingdom and most other countries chose to restore the prewar gold content to the monetary unit, which forced a major downward adjustment in the price level to reverse most of the wartime inflation. As Mundell put it, "The deflation of the 1930s was the mirror image of the war-

To understand the deflation of 1930–32, we need to review the deflation of the interwar period as a whole.

The global deflation of the interwar period was not due to the world's *being on* the gold standard.

time rise in the price level that had not been reversed in the 1920–21 recession."[61] Mazumder and Wood detail the economic logic of this reversal in an important recent paper, and show how the movement of prices parallels the pattern seen in resumptions of the gold standard at the old parity following previous wartime inflations.[62]

The global deflation of the interwar period, in other words, was not due to the world's *being on* the gold standard. It was due to many countries leaving the gold standard, inflating massively while *off* the gold standard, and then resuming the gold standard *at the old parity* (not devaluing to accommodate the inflated price level).

Attempts to reduce the demand for monetary gold through international coordination among central banks came to naught. The Federal Reserve System, and especially the Bank of France, absorbed large amounts of gold by sterilizing inflows to block the rise in prices that otherwise makes a region's inflow self-limiting.[63] They were not acting in accordance with the gold standard. Rather, as Ben Bernanke puts it, "in defiance of the so-called rules of the game of the international gold standard, neither country allowed the higher gold reserves to feed through to their domestic money supplies and price levels."[64]

The U.S. recession that became the Great Depression, according to the National Bureau of Economic Research business-cycle chronology, began once the previous business expansion ended in August 1929. Prices began to fall three months later. Monthly data show the consumer price index rising up until November 1929, with December the first month of decline. The arrival of deflation cannot then have been the *initiating* cause for the expansion turning into recession. Better explanations for why the boom did not continue are beyond our subject matter here, but some contemporary observers, such as F. A. Hayek, argued that the Fed had amplified the boom to an unsustainable degree by deliberately expanding credit to keep wholesale prices from falling.[65] In Hayek's view, a milder downturn would have occurred sooner had the Fed not increased its expansionary efforts from June 1927 to December 1928. The Fed finally tightened credit in early 1929 to moderate the rapid rise in stock market share prices.

In the view famously spelled out by Milton Friedman and Anna J. Schwartz in their *A Monetary History of the United States*,[66] what "might have been a garden-variety recession, though perhaps a fairly severe one," became the Great Depression when bank runs were allowed to shrink the broader money supply dramatically.[67] The Fed stood idly by, not trying to counter the shrinkage, while "the stock of money fell by over a third" between August 1929 and March 1933.[68] The resulting inflation rates in 1930, 1931, and 1932 were deeply negative: –6.4, –9.3, and –10.3 percent, respectively.

In *Golden Fetters*, Eichengreen charges that "the gold standard was responsible for the failure of monetary and fiscal authorities to take offsetting action once the Depression was underway."[69] More specifically, he claims that the gold standard "was the binding constraint preventing policymakers from averting the failures of banks and containing the spread of financial panic."[70] Friedman and Schwartz, however, had already provided some evidence to the contrary. They showed that the Fed during this period was not obeying the dictates of the gold standard, but was in fact violating them by sterilizing gold inflows.[71] The U.S. gold stock rose in 1931 and again in 1932, but the Fed prevented bank reserves and the money supply from expanding and thereby prevented a moderation of the downward pressure on prices and output. If not the gold standard, what stopped the Fed from expanding? Most plausibly, to judge by its own pronouncements at the time, we can blame the Federal Reserve Board's adherence to a now-discarded credit policy doctrine known as the Real Bills Doctrine, which held that the issuance of short-term, self-liquidating loans would ensure that the created money would go to real goods, and thus the lending would be non-inflationary.[72]

Eichengreen acknowledges that the Fed had "extensive gold reserves," but nonetheless maintains that it "had very limited room to maneuver."[73] A more recent study coauthored by Anna J. Schwartz, Michael D. Bordo, and Ehsan U. Choudhri provides additional evidence that, in fact, the Fed had more than enough spare gold reserves (in excess of its legally mandated gold cover requirements) to offset the contraction of the broad money supply and thereby offset the downward pressure on real output.[74] They summarize their findings as follows:[75]

> [T]he United States, . . . holding massive gold reserves . . . , was not constrained from using expansionary policy to offset banking panics, deflation, and declining economic activity. Simulations, based on a model of a large open economy, indicate that expansionary open market operations by the Federal Reserve at two critical junctures (October 1930 to February 1931; September 1931 through January 1932) would have been successful in averting the banking panics that occurred, without endangering convertibility [through losses of gold reserves]. Indeed had expansionary open market purchases been conducted in 1930, the contraction would not have led to the international crises that followed.

Specifically they find that, under a simulated program of large open-market purchases to offset the contraction of the broader money supply, "U.S. gold reserves would have declined significantly but not sufficiently to reduce the gold ratio below the statutory minimum requirement."

Claim 8: The Gold Standard Was Responsible for Spreading the Great Depression from the United States to the Rest of the World

The second part of the "Golden Fetters" indictment, to quote a recent statement of it by Michael Bordo, is that "The Great Depression spread across the world via the fixed exchange rate gold standard."[76] In Eichengreen's earlier words, the international gold standard "transmitted the destabilizing impulse from the United States to the rest of the world."[77] This description of events has some truth to it, but is misleadingly incomplete. The destabilizing impulse, as emphasized in the previous section, came from the Federal Reserve and Bank of France sterilizing gold inflows and thereby absorbing ever-greater amounts of gold. "These policies," as Bernanke has noted, and not the gold standard as such, "created deflationary pressures in deficit countries that were losing gold."[78] Even more important, as discussed above, counties such as the United Kingdom were already headed for deflation once they decided to return to the gold standard at their prewar parities while their price levels were well above their prewar (and equilibrium) levels.

The interwar period shows us a case where central banks—not the gold standard—ran the show. To put it mildly, they failed to run it as well as the classical gold standard. As Richard H. Timberlake has emphasized, it is illogical to blame the international gold standard for the interwar disaster.[79] The international gold standard worked well in the prewar period, when central banks were *less* active in trying to manage gold flows (and in many countries, such as the United States and Canada, did not yet exist). Blame for the unfortunate results of the interwar system rests instead on decisions to resume the gold standard at the old parity and on the discretionary policies of central bankers. The illogic is compounded when the failure of the discretionary interwar central banking system is taken to provide evidence in support of giving central banks more discretion than they have under an automatic international gold standard.

The interwar experience does carry a lesson for advocates of reinstating an international gold standard. It indicates that the international gold standard works best when it works most automatically. A valid point is therefore made by Bernanke's lecture

The interwar period shows us a case where central banks—not the gold standard—ran the show.

slide that reads, "The effects of bad policies in one country can be transmitted to other countries if both are on the gold standard."[80] Bad monetary policies can come from discretionary central banks in other countries. It would therefore be better for all if a treaty reinstating an international gold standard could also institute enforceable constraints against central banks disturbing the peace. The most thorough constraint is to eliminate central banking in favor of free banking. Among other reforms, free banking decentralizes currency issue and gold reserve holding, subjecting it to competitive interbank clearing discipline, and thereby all but eliminates the risk of large or persistent money-supply errors.

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Claim 9: A Gold Standard, Like any Fixed Exchange-rate System, Is Vulnerable to Speculative Attacks

George Selgin finds it "more doubtful [today] than ever before that any government-sponsored and administered gold standard will be sufficiently credible to either be spared from or to withstand redemption runs."[81] He quotes Hamilton to similar effect: given that central banks and treasuries on the gold standard can, and often have, left it, and given "that speculators know this," it follows "that any currency adhering to a gold standard will . . . be subject to a speculative attack."[82] Selgin adds, "The breakdown in the credibility of central bank exchange rate commitments since World War I cannot be easily repaired, if it can be repaired at all."

Hamilton's "*any* currency" is too sweeping, but the lesson Selgin draws is persuasive. As he notes, the noncredibility of a government central bank's promises to stay on the gold standard is not a case against the gold standard but a case against weakening commitment to the gold standard by combining it with central banking. Because a typical central bank has a legal monopoly of currency notes denominated in the local monetary unit, it has the power to devalue or to take the economy entirely off the gold standard by ending gold redemption of its liabilities. The devaluation or departure from gold can be coordinated with the treasury, which has a legal monopoly on coins.

A more durable and credible approach to sustaining the gold standard is to let the private sector competitively issue currency. Private firms in a competitive market are more strongly committed to gold redemption for two reasons: they can be legally held to their promises (unlike central banks, which enjoy sovereign immunity from lawsuits over devaluation or nonredemption), and they need to compete for customers who can go elsewhere by avoiding practices that raise their risk of not being able to redeem. In the event that any single bank among dozens fails or suspends payment as a result of its poor management, the gold standard survives. Free banking thus delivers a more robust gold standard,[83] and the combination of gold and free banking is even an "antifragile" monetary system.[84]

In an attack on a fixed exchange rate, say on the pound sterling when it is pegged to the deutsche mark, speculators borrow in pounds, redeem them for marks, and hold marks until the Bank of England runs out of marks and must devalue the pound. They make a profit if and when devaluation occurs, because they now get more pounds for each mark they hold and can repay their pound-denominated loans with plenty of marks left over. A similar path to profit exists under a gold-dollar standard in which the Federal Reserve is empowered to devalue the dollar against gold. There was, in fact, a run on the dollar in anticipation of Franklin D. Roosevelt's devaluation in 1933. But no such path is available with decentralized private issue of gold-redeemable currency entirely by commercial banks, because no commercial bank can devalue the dollar. If a commercial bank fails, whether because of a run or otherwise, those who have borrowed from it must still pay back their loans in undiminished dollars. Hence there is no profit in borrowing, running for reserve money, and repaying later, even if the run brings down the bank.

Claim 10: Fiat Money Is Necessary to Have a Lender of Last Resort Able to Meet the Liquidity Needs of the Banking System

Barry Eichengreen writes:

> Under a true gold standard, moreover, the Fed would have little ability to act as a lender of last resort to the banking and financial system. The kind of liquidity injections it made to prevent the financial system from collapsing in the autumn of 2008 would become impossible because it could provide additional credit only if it somehow came into possession of additional gold. Given the fragility of banks and financial markets, this would seem a recipe for disaster. Its proponents paint the gold standard as a guarantee of financial stability; in practice, it would be precisely the opposite.[85]

The classical conception of the "lender of last resort," as spelled out by the English journalist and banking historian Walter Bagehot during the classical international gold standard era, is an institution that lends reserves to illiquid-but-solvent commercial banks in a period of peak demand for currency or bank reserves, in the extreme during a period of bank runs.[86] Its aims are to prevent regrettable bank insolvencies that result from hasty asset liquidations, and to satisfy the public's demand for currency or reserve money so that the runs cease and the market calms. This appears to be the notion that Eichengreen has in mind.

Assuming that a central bank such as the Federal Reserve is assigned the role of lender of last resort, Eichengreen takes a true gold standard to imply that the central bank "could provide additional credit only if it somehow came into possession of additional gold." That is, the gold standard is not "true" unless it imposes a 100 percent gold marginal reserve requirement on central bank liabilities. This is a highly idiosyncratic understanding of a true gold standard. Peel's Act of 1844 did impose a 100 percent marginal gold reserve requirement on expansion of the Bank of England's banknote circulation, but the Bank could still provide additional credit by expanding its deposit liabilities. Indeed, the Bank is generally understood to have first acted as a lender of last resort during the Baring Crisis in 1890, while Peel's Act was still in place.

It is true that a 100 percent gold marginal reserve requirement on all central bank liabilities would constrain last-resort lending. But imposing such a rule on the central bank is not required in order to have a true gold standard, and indeed having a central bank is not even required. A gold standard, again, is generically defined by gold serving as the medium of redemption and medium of account, not by any reserve requirement imposed on a central bank. The United States was on the classical gold standard without a central bank from 1879 to 1914. During that period, private clearinghouse associations acted as lenders of last resort to their member banks.[87] So a central bank is not even necessary to have a lender of last resort.

Eichengreen argues that "confidence problems are intrinsic to fractional-reserve banking and why an economy with a modern banking system needs a lender of last resort."[88] But as noted under Claim 6 above, historical evidence indicates that confidence problems are minimal if no legal restrictions prevent banks from adequately capitalizing and diversifying themselves.

Claim 11: Setting the New Gold Parity Is Too Hard

The danger of setting the new gold parity too low (too few dollars per ounce of gold) is exemplified, as Selgin notes, by Great Britain's choice in 1925 to restore the old parity to the pound sterling.[89] Because the price level had risen sharply, a return to the old parity required a sharp deflation to return to the old price level. The danger of setting the parity too high is, conversely, a transitional inflation to reach the new equilibrium price level. Eichengreen summarizes the problem

The United States was on the classical gold standard without a central bank from 1879 to 1914.

this way:

> Envisioning a statute requiring the Federal Reserve to redeem its notes for fixed amounts of specie is easy, but deciding what that fixed amount should be is hard. Set the price too high and there will be large amounts of gold-backed currency chasing limited supplies of goods and services. The new gold standard will then become an engine of precisely the inflation that its proponents abhor. But set the price too low, and the result will be deflation, which is not exactly a healthy state for an economy.[90]

To avoid transitional inflation or deflation, the new parity must equate monetary gold supply and demand at the *current* price level.

To avoid transitional inflation or deflation, the new parity must equate monetary gold supply and demand at the *current* price level. If we could assume that the supply and demand for monetary gold were unaffected by the reinstatement of the gold standard, the solution would be easy: choose the current price of gold. But that is unlikely to work in today's financial world. The demand for gold stocks today includes an inflation-hedging demand that would be absent under a gold standard. On the other hand, because a gold standard lowers the mean and medium-term variance of the inflation rate, the demand to hold currency and demand deposits for transaction purposes, against which banks would hold gold reserves, would rise. As Selgin notes:

> The problem here is, not that there is no new gold parity such as would allow for a smooth transition, but that the correct parity cannot be determined with any precision, but must instead be discovered by trial and error. Consequently the transition could involve either costly inflation or its opposite. . . .[91]

Tyler Cowen cites the same problem: "One five or ten percent deflation is enough to crush the economy and indeed the whole gold standard idea.[92] Given the socialist calculation debate, can we really know the right transition price?"

Choosing a new parity is indeed a problem. There are at least two approaches to estimating the new parity that would avoid transitional inflation or deflation. Note that new parities need to be chosen simultaneously by all participating currency areas in order to agree to return to the gold standard simultaneously so as to create the broadest possible international gold standard. The more conventional approach is to use econometric studies of recent inflation-hedging demand for gold, and of transactions demand for zero-yielding bank reserves at gold-standard-type expected inflation rates. The less conventional approach, which calls for further study, is to derive guidance from market signals, in particular from the gold futures market or some new kinds of prediction markets. Under such a regime, market players would put money on their own estimates of what the real purchasing power of gold will be following a return to the international gold standard.

In the current world where prices and wages exhibit greater downward than upward stickiness, playing it safe in the choice of a new parity means erring on the side of a small transitional inflation rather than a deflation.

So as not to overstate the relative size of the problem, however, we should note that the same problem attends any significant change in the inflation path, or significant change in other policy (such as the rate of interest on reserves) under a fiat standard. The switch to a lower inflation rate target, for example, will cause the path of transactions demand to hold money relative to the volume of spending to jump upward (shifting the velocity-of-money path downward). Underestimating the increased demand, and failing to offset it with a one-time increase in the stock of money, will cause the policy to create an excess demand for money and will thus create a recession with unsold inventories of goods and unemployed labor

services. The Bernanke Fed's switch from zero to positive interest on bank reserves in October 2008 sharply increased the banking system's demand to hold reserves, swamping the money-supply-expanding effect of the accompanying "Quantitative Easing I" expansion of reserves. The result was seven months in 2009 (March through September) in which the year-over-year inflation rate was negative. The downturn in real output already underway was amplified. Curiously, this "bad" deflation—and the first deflation of either kind in more than five decades—occurred on the watch of an expressly deflation-averse Fed chairman.

Claim 12: Inflation Is so Low Today that We Don't Need a Gold Standard

Ezra Klein comments:

> In 1981, the country really was facing an inflation problem. It made sense that people would be looking for radical alternatives that would help control inflation. Today, inflation is about as low as it's ever been, and if you look at market expectations—you do believe in the market, don't you?—it's expected to stay low.[93]

It is, of course, true that the urgency of adopting a gold standard to fight inflation is lower when the inflation rate is lower. If inflation were our *exclusive* concern, and we could trust the central bank to keep inflation as low under a fiat standard as it was under the classical gold standard, then it would be foolish to bear any cost to reinstitute a gold standard. Inflation today is certainly lower than it was in the 1970s and 1980s, but it is not true that inflation is as low today as it was under the classical gold standard. Recall that the inflation rate was only 0.1 percent over Britain's 93 years on the classical gold standard. Over the most recent 10 years (August 2002 to August 2012) in the United States, the CPI for urban consumers rose 27.5 percent, for an annualized inflation rate of 2.5 percent. Over the last 40 years (since August 1972, shortly after President Nixon closed the gold window), the rise has been 449.2 percent, for an annualized rate of 4.4 percent. There remains a case for the gold standard based on inflation alone.

How low are market expectations of the inflation rate to come? According to the *Financial Times* (September 17, 2012), the announcement of the Fed's latest round of quantitative easing, QE3, pushed the market's expectation of the U.S. inflation rate over the next 10 years (derived from prices on the inflation-indexed bond market) to 2.73 percent per annum. Inflation expectations are not as low today as they were under the classical gold standard, and they are certainly more volatile. There is no tangible institutional assurance that the U.S. inflation rate will never again return north of 5 percent or even 10 percent.

Of course, consumer price inflation is not our exclusive concern. The past decade has reminded us that, even with consumer inflation rates around 2.5 percent or lower, we face the serious danger of asset price bubbles and unsustainable credit booms under a central bank policy of artificially low interest rates. The ultralow Fed Funds rate policy of 1.25 percent or less from November 2002 through June 2004 helped fuel the housing bubble.[94] Today's rate policy has been holding the Fed Funds rate at 0.25 percent or less since December 2008, with the announced prospect of another three years of ultralow rates. Time will tell where a new bubble is now forming. More generally, the Fed's track record for real economic stability under fiat money does not weigh in favor of fiat money.[95]

Claim 13: A Gold Standard Needs to Be International, and the Rest of the World Won't Come Along

Selgin makes an important point when he notes that

> the historical gold standard that . . . performed so well was an *international* gold standard, and [its] advantages . . .

The Fed's track record for real economic stability under fiat money does not weigh in favor of fiat money.

Compared to a fiat money standard, a gold standard is a source of stability in the purchasing power of money.

> were to a large extent advantages due to belonging to a very large monetary network. Consequently, a gold standard that is limited to a single country, and even to a very large country, cannot be expected to offer the same advantages as a multi-country gold standard or set of gold standards.[96]

The strongest case for reinstating the gold standard is for an international gold standard. Getting other nations to join in the reinstatement is therefore a genuine problem.[97] But this is not a reason for rejecting the case for an international gold standard. It is, rather, a reason for taking the case for reinstating the international gold standard to other countries while developing it at home. China and much of Latin America already link to or shadow the U.S. dollar. So the most important places to take the argument are the Eurozone, Japan, and Great Britain.

Representatives of the leading nations came together to reconstruct the international monetary system in 1944, at the famous conference in Bretton Woods, New Hampshire. Such a gathering can happen again once dissatisfaction with the post–Bretton Woods system of completely unanchored currencies becomes deep and widespread enough. The influential leader of the United Kingdom delegation at Bretton Woods was John Maynard Keynes, who famously considered the gold standard "a barbarous relic" and was determined to minimize its role to widen the scope for discretionary central bank policymaking.[98] The challenge for those who favor restoration of an international gold standard will be to insure that the delegates to the new conference have a better understanding.

Conclusion

Assuming that the federal government has the gold it says it has, there is enough gold in the United States to operate a gold standard today with a free banking system, without requiring a transitional inflation or deflation if the reentry dollar-gold parity is set near the current market price. The gold standard is not an example of price fixing by government, but a system in which a unit of gold defines the unit of account, and pieces of gold serve as the ultimate medium of redemption. The volatility of the dollar price of gold since gold was demonetized in 1971 does not show that gold is an unstable monetary standard. The dollar price of gold rises and falls these days largely because of swings in the demand for gold as an inflation hedge—swings driven by the instability of fiat currencies.

Compared to a fiat money standard, a gold standard is a source of stability in the purchasing power of money. It is a source of mild secular deflation if the output of goods grows more rapidly than the gradually growing stock of gold, but that is a benign kind of deflation. A gold standard does tie the government's hands against printing money to cover its expenses, but that is a desirable feature of the system and not a flaw. It does not prevent a government from borrowing in the international financial market, provided that it credibly commits to repay, which means that it credibly commits to balancing its budget in present-value terms. The lack of a constraint on printing-press finance under a fiat standard is one of its greatest weaknesses. Because a fiat money supply is not automatically determined by market forces, but instead by the discretion of a committee, it can change in ways that are inappropriate to changing economic conditions.

An automatic gold standard does not amplify business cycles as compared with a managed fiat money system. If free banking on a gold standard were to render the banking system prone to bank runs and panics, creating unanswerable spikes in the demand for monetary gold, which would, of course, be a serious problem. But such is not the historical record. Runs and panics are not inherent to free banking on a gold standard, but only to a banking system weakened by legal

restrictions. The pre-1933 banking panics in the United States therefore do not indict the gold standard, but rather indict the legal restrictions that weakened banks. The monetary instability of the interwar period that ushered in the global Great Depression was not due to what remained of the gold standard—nothing of the sort happened under the classical gold standard—but ultimately can be traced to the inflationary policies of central banks during the First World War while they were off the gold standard and to their subsequent decisions to return to gold only intermittently, insincerely, and at parities inconsistent with the high domestic price levels they had created.

There are at least two genuine problems to be faced in planning a transition from a discretionary fiat standard to an automatic gold standard. The first is choosing the new gold-dollar parity so as to minimize disruptive inflation or deflation in the transition. Prediction markets could help to estimate the sustainable parity. Staying with the status quo fiat standard does not avoid the problem of transitional changes in the demand for base money, it should be noted, because such changes accompany every major swing in projected inflation. The Fed's track record for real economic stability under fiat money does not weigh in favor of fiat money being the path of least disruption. The second problem is getting as much of the rest of world as possible to opt into the transition at the same time, so that the benefits of an international gold standard are maximized. This is not a reason for embracing the status quo, but for reviving appreciation for the international gold standard around the globe as well as at home.

Notes

I thank Vipin Veetil for research assistance.

1. See Ralph Benko, "The Gold Standard: A Litmus Test for GOP Candidates," *Forbes.com*, July 5, 2011, http://www.forbes.com/sites/ralphbenko/2011/07/05/gold-standard-litmus-test-gop-candidates/; and Chris Isidore, "Gingrich: U.S. Should Reconsider Gold Standard," January 18, 2012, http://money.cnn.com/2012/01/18/news/economy/gingrich_gold_standard/index.htm; Republican Platform (2012), p. 4, http://www.gop.com/wp-content/uploads/2012/08/2012GOPPlatform.pdf.

2. Matthew O'Brien, "Why the Gold Standard Is the World's Worst Economic Idea, In 2 Charts," *The Atlantic*, August 26, 2012, http://www.theatlantic.com/business/archive/2012/08/why-the-gold-standard-is-the-worlds-worst-economic-idea-in-2-charts/261552/.

3. Ezra Klein, "The GOP has Picked the Wrong Time to Rediscover Gold," *Wonkblog*, August 26, 2012, http://www.washingtonpost.com/blogs/ezra-klein/wp/2012/08/24/the-gop-has-picked-the-wrong-time-to-rediscover-gold/.

4. Binyamin Appelbaum, "Bernanke, as Professor, Tries to Buff Fed's Image," *New York Times*, March 20, 2012, p. B3.

5. Barry Eichengreen, "A Critique of Pure Gold," *The National Interest* (September–October), http://nationalinterest.org/article/critique-pure-gold-5741.

6. Lawrence H. White, "Is the Gold Standard Still the Gold Standard Among Monetary Systems?" Cato Institute Briefing Paper no. 100, February 8, 2008, http://www.cato.org/pubs/bp/bp100.pdf.

7. Ben Bernanke, "The Federal Reserve and the Financial Crisis" [slides for lecture at George Washington University], March 20, 2012, www.federalreserve.gov/newsevents/files/bernanke-lecture-one-20120320.pdf.

8. As humorist Dave Barry jokingly puts it, "Over the years, all the governments in the world, having discovered that gold is, like, rare, decided that it would be more convenient to back their money with something that is easier to come by, namely: nothing." *Dave Barry's Money Secrets: Like: Why Is There a Giant Eyeball on the Dollar?* (New York: Three Rivers Press, 2006), p. 10.

9. John Waggoner, "Should We Return to the Gold Standard?" *USA Today*, May 23, 2012, http://www.usatoday.com/money/markets/story/2012-04-23/return-to-the-gold-standard/54493710/1.

10. United States Department of the Treasury, "Status Report of U.S. Treasury-Owned Gold," (August 31, 2012), https://www.fms.treas.gov/gold/backissues.html.

11. At $1,600 per ounce, the ratio of government

gold to current M1 is 17.3 percent. Numbers are from the Federal Reserve Economic Data, Federal Reserve Bank of St. Louis, data series "Required Reserves, Not Adjusted for Changes in Reserve Requirements" (REQRESNS), http://research.stlouisfed.org/fred2/series/REQRESNS?cid=123; and series M1 Money Stock (M1), http://research.stlouisfed.org/fred2/series/M1?cid=25. The ratios reported here update, but are very close to, those in Lawrence H. White, "Making the Transition to a New Gold Standard," Cato Journal 32 (Spring/Summer 2012), pp. 411–21, http://www.cato.org/pubs/journal/cj32n2/v32n2-14.pdf.

12. Kurt Schuler, "The World History of Free Banking: An Overview," in *The Experience of Free Banking*, Kevin Dowd, ed. (London: Routledge, 1992), pp. 4–47.

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Stable Money Fixes the Bike's Broken Chain

The Gold Standard Working Group

September 1, 2016

"The administration faces a choice, but hopefully it is an easy one: hop on the bike and pedal, or fix its broken chain first. As long as the Federal Reserve deems wage growth to be undesirable, robust, across-the-board income growth will be elusive. It is vital for each member of the Transition Team to ponder whether it is possible to end income stagnation if the very thing that ends it –income growth— is the same thing the Fed is committed to combating."

Rich Lowrie, Co-Founder

Put Growth First

Bad economic policy produces all sorts of collateral problems. This makes it seem as though we have so many problems that numerous corrective policies are necessary in the initial 100-day agenda. There is no doubt that the Transition Team will be inundated with policy proposals from the congress (the House of Representative's *Better Way* initiative), various Washington-based think tanks, or other channels.

The economy is about as close to recessionary levels as it could be without officially being in one. On one hand, the low baseline of growth represents huge upside potential if the right policy mix is enacted. On the other hand, with the economy being vulnerable to even the slightest shock, there is no margin for delay. The right priorities must be pursued immediately.

It is a priority of the Gold Standard Group to point out that while the numerous forthcoming policy proposals may all seem necessary, none are sufficient. While a range of policy proposals for cutting taxes, ending the regulatory jihad, rescinding executive orders, limiting spending, reforming immigration, leveling the trade playing field, etc. will treat a similarly wide range of symptoms, none represent the cure. These policies merely "pedal the bike," but the chain is broken.

The only policy that repairs the broken chain, which makes it the only one that's both necessary *and* sufficient, is stable money. To illustrate, assume all of the above policies (*except* stable money) are enacted in the first 100 days. This would be an historic achievement, given that most administrations tend to get one major goal accomplished not many.

Here is exactly what would unfold: First, we would indeed get a couple to a few years of the most outstanding growth any living being has witnessed. Those policies will no doubt do that. However, as soon as growth begins lifting wages, alarm bells will sound inside the Federal Reserve because they believe, wrongly, that wage growth is the "cause" of inflation. Academic doctrines such as the Phillips Curve, the Augmented Phillips Curve, and the Non-Accelerating Inflation Rate of Unemployment (NAIRU) will tell the Fed that unless wage growth is arrested, a "wage-price spiral" will ignite a new cycle of inflation. They will hike interest rates as many times as it takes to "restore slack in labor markets" (i.e., extinguish the wage growth) and, in doing so, put us in the next recession, reversing any prior wage gains. At this point, critics of the administration will exclaim, "We did every single thing you wanted, and median income is right back down to where it was on your first day in office. Hence, your policies didn't really work." With our political capital exhausted, the pendulum of power will shift back to Democrats.

Our confidence in this outcome is buttressed by history. It's been this way for several decades and, unless the broken chain is repaired, merely pedaling the bike will not yield different results.

Reagan's policies pedaled the bike. Real income for the bottom 90% increased nearly 7% from 1982 to 1988[1] (on top of a rapidly expanding labor market) then in 1988 the Fed initiated the first of 10 consecutive rate hikes, putting us in a recession by 1990, reversing most of the income gains for the bottom 90%. President Bush failed to revive income growth for the bottom 90% and power shifted to the Democrats.

[1] World Top Incomes Database

Democrats failed to deliver income growth and Republicans swept the House in 1995. The Contract With America "pedaled the bike" and by 2000 real income for the bottom 90% had increased 16% from the 1993 trough set by President Clinton, making them the most prosperous ever[2]. However, the Fed, concerned by what they misinterpreted as a threatening "wage-price spiral," proceeded to hike interest rates 6 consecutive times beginning in 1999, despite every dollar-sensitive, market-based indicator signaling, not inflation but, deflationary pressure. Rate hikes on top of deflationary dollar strength put us in the next recession, where half of the prior wage gains were reversed.

The Fed does not attempt to conceal their disdain for wage growth. As the attached appendix reveals, their sole concern centered on tight labor markets which, according to textbook orthodoxy, require rate hikes. In other words, to prevent a wage-price spiral from ending the expansion, they significantly tightened policy, ending the expansion. This reversed most of the wage gains but restored their beloved "slack" in labor markets.

The 2003 tax cuts lifted income of the bottom 90% by 4%[3] and faced a headwind of 17 consecutive rate hikes from the Fed. The Fed, by neglecting the dollar's real time market value, provided the spark that ignited the financial crisis of 2008[4] and, in the ensuing recession, real income of the bottom 90% reversed back to 1982 levels. Republican policies took the blame for this decline and power shifted to Democrats. Because Republicans have yet to identify the broken chain, they have been unable to repair their tarnished brand, setting the stage for Mr. Trump's opportunity.

This may seem like ancient history and a bit disconnected to our present situation, but it is not. There is a well-established pattern, grounded in false academic models, carried out in Fed policy, and documented in official statements, indicating the Fed deems wage growth to be undesirable. Every period of decent wage growth has triggered Fed tightening, regardless of what true market-based signals were saying. They continue to use economic models in which a low official unemployment rate requires interest-rate increases to avoid wage gains that only the Fed considers inflationary. This puts the central bank at odds with workers, all of whom believe wage growth is good.

This brings us to the present. The entire basis for raising interest rates in December 2015 centered on "tight labor markets", despite non-confirmation from any market based signals, just as before. Notwithstanding that real income for the bottom 90% is at the lowest level in a generation, it has ticked up in the last year. This occurred within the context of an unemployment rate that breached the Fed's theoretical "natural rate" of unemployment or NAIRU. The textbook tells them that inflation will accelerate, so the Fed acted accordingly. They are following in the exact same predictable footsteps. Despite the sound and fury usually coming from the Fed, there is basically only one thing that has actually moved them from talk to action: wage growth. Given labor force participation of 62.8% today[5], there remains considerable slack in labor markets. Even if labor markets were as tight as the Fed thinks, workers never have and never can "cause" inflation.

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[2] Ibid
[3] Ibid
[4] "The Fed and the Financial Crisis," Rich Lowrie, Put Growth First
[5] Bureau of Labor Statistics

How convenient, but truly tragic, for the Fed to change the very definition of inflation from a monetary phenomenon characterized by too much money chasing too few goods to a labor market phenomenon characterized by too many people working and prospering. And some people wonder why not enough people are working and prospering, and why we have wage stagnation. There is zero accountability in a Fed that blames workers for "causing" inflation.

In total, $1.00 of real income for the bottom 90% indexed to 1982 reached a peak of $1.15 in 2000 and labor force participation climbed from 63.7% to 67.3%. Not coincidentally, this period featured a dollar with a stable market value. Since 2000, real income for the bottom 90% is right back down to the same $1.00 and labor force participation has plummeted to 62.8%. Not coincidentally, this period featured a dollar with a volatile market value.

In short, supply-side policies have worked every time. It is the Fed that doesn't. Supply-side policies have generated the only growth in income for the bottom 90% over this span and, in every case, the Fed has stamped it out.

This much stagnation, for this many people, for this long, is the force undermining confidence in free enterprise and inviting the onslaught of big government. Until a solution is put in place to prevent the Fed from attacking wage growth, it seems unreasonable to expect sustained wage growth.

The administration faces a choice, but hopefully it is an easy one: hop on the bike and pedal, or fix its broken chain first. As long as the Federal Reserve deems wage growth to be undesirable, robust, across-the-board income growth will be elusive. History suggests that the Fed can be expected to eventually counteract any pro-growth policies that lift wages. So while it's likely that Mr. Trump's first-100-days policies will increase growth and boost wages, it is just as likely the Fed will once again prove to be a formidable countervailing force.

There is only one proven method for reforming the Fed in a way that prevents them from acting on their apparent disdain for wage growth: require them to stabilize the dollar's market value. This forces them to totally disregard "tight labor markets," "rising unit labor costs," and "wage pressures", and removes all labor market variables from its dashboard. Instead, they would set policy exclusively to provide the world with a stable unit of measure, in this case a stable unit of market value, much in the same way the Office of Weights and Measures provides us with a stable foot, hour and pound. While novel theories for improving Fed policy abound inside Washington[6], none are proven. It is not the intent here to provide a comprehensive critique, other than to say none of them will result in a stable monetary unit, and none will totally eliminate the potential for the Fed to continue treating wage growth as if it is somehow bad. Both continue to utilize a lagging price index as a primary input to their models which makes it impossible to achieve a stable market value for the dollar. Moreover, to keep the price index below its target, the Fed has demonstrated that they seek to limit what they deem to be the largest input cost to the goods/services that comprise the index: labor costs.

[6] The Taylor Rule and Nominal GDP Level Targeting

The last time the Fed was required to stabilize the dollar's market value was during the post war period of roughly 1948 to 1971. It is no coincidence that this period featured rising incomes for all. By some measures, real income for the bottom 90% increased more than 85%[7]. During this period, when wages rose, nobody looked to the Fed to "contain" it, nor to maintain any kind of "slack in labor markets." Instead, it was up to business to invest so that productivity kept pace with wage growth. A stable unit of measure facilitated such investment. A dollar anchored by gold provided an anchor to all commodity prices and consumer prices. Because there was no need to hedge against the chaos caused by a volatile dollar, risk premiums were low, and Wall St. was a fraction of its present influence.

Had we come even remotely close to this level of growth since 1971, incomes today would be substantially larger[8] and many of our fiscal problems wouldn't be problems. The prospect for widespread prosperity is remarkable once the Fed goes back to stabilizing the dollar.

It is vital for each member of the Transition Team to ponder whether it is possible to end income stagnation if the very thing that ends it –income growth— is the same thing the Fed is committed to combating. This should properly frame the policy priorities. Regardless of the policies chosen by the administration to pedal the bike, the broken chain must be fixed.

Ending income stagnation is only one of many benefits of stable money. No other policy has so many benefits simply because money denominates every single economic decision. Unstable money disrupts the balance between debtors and creditors, producers and consumers, and a government and its people. A volatile dollar repeatedly shifts these balances back and forth, creating the appearance of a "rigged system."

Unstable money causes faulty price signals to reverberate throughout the price galaxy, resulting in a misallocation of resources, distorting markets, and ultimately retarding growth. In the 102 years covering 1913 through 2015, there have been 3 periods totaling 50 years in which the dollar was stable in terms of both gold and commodities (1922-1929, 1947-1970, and 1982-1999) and 4 periods totaling 52 years in which the dollar was volatile in terms of gold and/or commodities (1913-1921, 1930-1946, 1971-1981, and 2000-2015)[9]. Given the importance of a stable monetary unit, the results are startling, but not surprising. During stable money periods growth averaged 3.93%[10]. During volatile money periods it averaged only 1.92%. The volatile dollar of 2000 to 2015 has produced growth of 1.93%, which is exactly the historical norm under monetary instability.

The distinction of defining stability in terms of gold *and* commodities is an important one. From 1913 to 1921 the dollar may have been stable against gold but was highly volatile against commodities, a sure sign the Fed and/or Treasury badly mismanaged the version of the gold standard with which they were entrusted to sustain. Likewise, although we were not on a gold standard from 1982 to 1999, the dollar was stable against both gold and commodities because a critical mass of governors understood the

[7] Ibid
[8] A range of 2x-2.5x depending on the calculation.
[9] CRB Index, and the historical reconstruction of it prior to 1957 by Bianco Research LLC.
[10] www.measuringworth.com

importance of stable money and acted accordingly. The ultimate in monetary stability is a dollar defined in terms of gold, and the ultimate sign of whether the system is not being mismanaged is whether it results in stable commodity prices.

A stable dollar should end, or at least substantially limit, the boom/bust/bailout cycles that have become somewhat regular occurrences since 1971. Nobel Laureate Robert Mundell notes[11] that not a single crisis took place under the Bretton Woods system, but four major crises have happened since then (S&L in the 80's, international debt crises in 1982, IMF-Asian currency crisis of 1997-8, and the most recent crisis in 2008). Each of the four major crises was precipitated by sharp swings in the dollar's foreign exchange value, and in the dollar's intrinsic value in terms of gold and commodities. Demand for dollars is determined globally yet the monopoly supplier of dollars (the Fed) relies primarily on lagging domestic labor market indicators to base policy, resulting in frequent mismatches that can be expected to continue until the Fed is explicitly required to stabilize the dollar. This won't change under a Taylor Rule or NGDP targeting.

The reason the dollar must be stabilized by legislation is that the Fed already thinks it is stable! This raises the question of "stable against what?" They define price stability in terms of a lagging price index of consumer goods that represent only 70% of GDP. Moreover, consumer goods are among the last to adjust to inflation/deflation. By the time a mismatch between the supply and demand for dollars noted above filters through to a lagging price index, the damage has been done. By contrast, a dollar defined in terms of gold will anchor the market prices for the inputs of *all* of GDP. Without having to hedge volatile exchange rates or commodity prices, capital will flow out of such hedges and have no other place to go but to fund productive investment.

Stripping away the veneer of sophisticated academic models, mainstream economics rests on one fatal false premise that says consumption drives the economy. It is impossible to consume something *before* it has been produced. We have to produce first, to get paid second, to exchange third, to consume last. Production pulls consumption the way an engine pulls the caboose. There is no way the caboose can push the train, despite how many PhD economists say so. Saying the dollar should be stable against a lagging consumer price index is an admission in their belief the caboose pushes the train. But this is exactly what Ben Bernanke admitted when he said in congressional testimony[12] said *"My definition of the dollar is what it can buy. Consumers don't want to buy gold; they want to buy food, and gasoline, and clothes and all the other things that are in the consumer basket. It is the buying power of the dollar in terms of those goods and services that is what is important, and that's what I call price stability."*

Since production drives the economy it should be stable against the production inputs to GDP, not the outputs, and it should be stable real time, not with a "considerable lag." To do so, it should be backed with intrinsic value, not empty promises. A dollar with a stable market value should be of paramount importance, not dismissed by the Federal Reserve as a "transitory factor." As economist Arthur Laffer has stressed, if regulatory policy is important by a factor of 1, then tax policy is important by a factor of 10, and monetary stability is important by a factor of 100.

[11] Robert Mundell, "Financial Crises and the International Monetary System", Columbia University, March 3, 2009.
[12] House Financial Services Committee hearing, Feb. 2011