The Behavior of Gold Under Deflation

The behavior of gold under deflation has received little serious study in recent years. As most investors consider gold a hedge against inflation, many extrapolate that since gold performed poorly under the 1980s disinflation: surely it must do even worse if we actually experienced an outright deflation. As we have discovered through a detailed review, the conventional wisdom ignores the lessons from history. It is the impact of deteriorating economic activity on credit quality - not whether we operate under a fixed or floating rate exchange system - which is the operative factor driving gold's behavior under deflation.

Executive Summary

· Deflation is defined as falling levels of both economic activity and falling price levels on an absolute basis. The contraction of economic activity is generally preceded by an unsustainable boom period and is usually kicked off by an event which causes economic confidence to be lost. Deteriorating credit quality, the shift from capital growth to capital preservation, and the hoarding of capital are characteristics of most deflationary periods. Deflations typically end after crisis conditions force policymakers to enact large-scale inflationary policies designed to counteract deflationary conditions.

· In historic US deflations, individuals had the choice between paper currency or gold as hoarding vehicles. The historical record demonstrates that loss of confidence in the issuer of paper currency is often a sufficient reason for individuals to choose gold over paper currency. We attach a detailed review of the behavior of gold under each US deflationary period since the Post-Jacksonian deflation of 1837-1843.

· In a prospective deflation, the existence of large foreign exchange reserves and a historic accumulation of financial assets means the magnitude of capital flowing to hoarding vehicles is large. With a limited pool of hoarding vehicles in today's marketplace, prices of scarce hoarding vehicles would be bid up.

· Compared to widely available cash-substitutes, gold's relative attractiveness boils down to relative credit quality. Competing against foreign currencies, the role of gold as a preferred hoarding vehicle will depend if deflation is limited to the US or spreads internationally. Under the global deflation scenario, foreign currencies would also be negatively impacted by deteriorating credit quality.

· Because of cultural conditioning, Americans may ignore gold as a currency alternative in the early stages of deflation. Considering the importance of Asian investors to gold demand and the favorable cultural conditioning Asian cultures have towards gold, this may be a mistake. Asian investors may gravitate towards gold much earlier in a deflationary spiral, leaving American investors behind.

Table of Contents

List of Tables

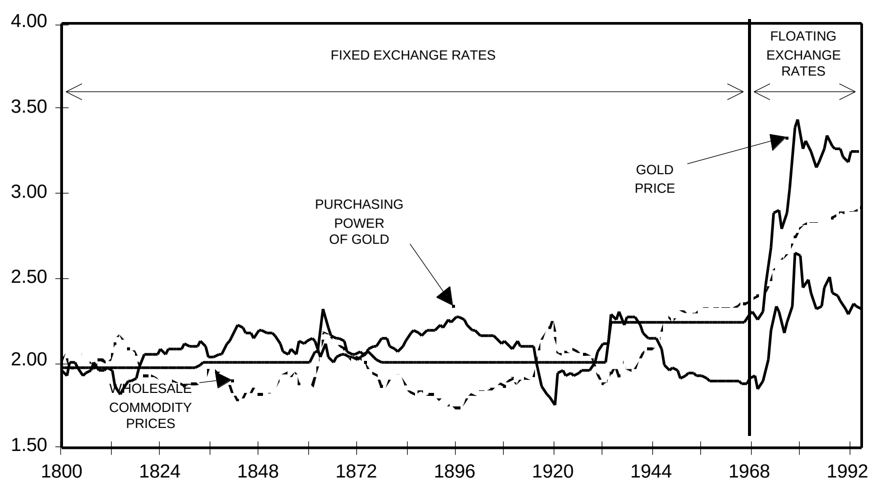
List of Figures

Introduction

Conventional wisdom regards gold as an inflation hedge. Gold's dramatic rise during the inflationary 1970s and its spectacular collapse during the disinflationary 1980s is responsible for this thinking. When considering the behavior of gold under deflation, many investors extrapolate that since gold performed poorly under disinflation, surely gold must perform even worse under an outright deflation. No longer formally linked to currency through a convertibility mechanism, gold is viewed as simply another asset to be sold in a deflationary spiral. After all - according to the conventional wisdom - gold only performed well under deflation when the convertibility mechanism was intact. Figure 1, developed by Roy Jastram in The Golden Constant[1], demonstrates this reasoning.

Figure 1. Purchasing Power of Gold - USA

Purchasing Power of Gold - USA
with Nominal Gold and Wholesale Commodity Prices
1800 - 1995; Logs of Annual Data



Note that prior to 1968 nearly every time wholesale commodity prices fell (which indicated deflationary conditions), gold's purchasing power rose. Since gold was linked to currency in a fixed ratio, as dollars purchased more and more goods in a falling price environment - so did gold. With the introduction of floating exchange rates in 1968, the relationship appears to have reversed. With gold performing poorly under the 1980s period of disinflation, a simple extrapolation would indicate an even inferior performance under deflation.

Paper Thesis

When carefully reviewing the historical record, we uncover several problems with this conventional reasoning. Most important is the use of "official convertibility prices" as the time series for the market price of gold. Our historical review clearly shows that whenever deteriorating credit conditions undermined the credit quality of issuers of paper currency, gold was preferred to paper currency as a hoarding vehicle. The black market price of gold traded at a premium to its official convertibility ratio during these periods. **It is the deteriorating credit quality of currency issuers, not whether we operate under a fixed or floating exchange rate system, which is the key to understanding gold's behavior under deflation.** Whenever deteriorating credit conditions negatively impact the issuers of paper currency, investors turned towards gold as the preferred hoarding vehicle. To predict the future behavior of gold under deflation, one must include the impact of deteriorating credit conditions on the issuers of competing cash-substitutes in today's market.

[1] Jastram's Wholesale Commodity Price series updated by with US Producer Price Index - All Commodities.

Paper Organization

This paper is divided into three sections. We begin with the presentation of the basic deflation model. Following a summary of the historical behavior of gold under deflation (detailed in the Appendix which begins with the Post-Jacksonian deflation episode of 1837-1843), we conclude with a discussion of factors which will influence the decision to hoard gold if and when a future deflation were to unfold.

I. The Deflation Model

Deflation Defined

We define deflation as declining price levels and economic activity both on an absolute basis**.** We prefer to use CPI instead of commodity prices as our inflation proxy, because commodity prices are more volatile and have significantly diverged from CPI since the early 1970s. These definitions are necessary to distinguish the deflation scenario from the early 1980s "disinflation" experience when commodity prices fell on an absolute basis but CPI increased at a decreasing rate.

The Mechanics of Deflation

Common to most US historic deflations is the unraveling of unsustainable debt levels, typically created through abnormal speculations in land, commodities, or financial assets. Debt bubbles are often punctured through reduced economic activity which impairs the ability of debtors to maintain interest payments. In other situations, the cessation of war or international capital movements plays a key role.

The Shattering of Confidence

Common to all deflations is a breakdown in confidence which shatters whatever beliefs helped to create the original debt bubble. What also distinguishes deflation from recessions (often "disinflationary") is that deflation begins only after an unusual series of events creates an abnormal level of economic activity. Compared to the textbook inventory liquidation cycle common to recessions, the pool of assets to be liquidated is at least an order of magnitude greater under deflation.

The Deflationary Spiral

After confidence is lost, availability of credit for marginal investments disappears and credit conditions frequently tighten for outstanding debts. As economic activity contracts, debtors begin to take steps to maintain their creditworthiness through the sale of assets. In order to meet debt service requirements, assets are sold in order to raise cash for debt servicing needs. At this juncture, reinforcing actions create a downward spiral which is difficult to halt. As assets are sold, collateral values decline, reducing the credit quality of outstanding debts.

The Rationing of Credit

Not only do asset prices decline, but interest rates rise in response to falling credit quality. Tiering, or the widening of interest rate differentials according to credit quality, is a symptom of declining credit quality. Higher interest rates increase real debt service requirements and create further incentives for asset sales in order to raise cash. Finally, debtors give up on debt service in favor of bankruptcy. A series of credit defaults accelerates the deflationary spiral as the evaporation of outstanding credits effectively reduces the nation's money supply and liquidity.

Hoarding of Cash

Because individual objectives change from capital growth to capital preservation in a deflationary spiral, currency hoarding begins. Hoarding simply reflects the manifestation of an increased desire for safety. This behavior becomes more pronounced in the later stages as deteriorating banking conditions increase the odds that one's financial assets will become inaccessible as banks are closed. In addition to domestic hoarding, currency of the country experiencing deflation may rise in the foreign exchange market as a secondary effect. Whenever deflation has affected multiple economies simultaneously, foreign exchange movements become more difficult to forecast, as slight changes in the perception of relative credit risks and deflation can create large directional currency swings.

Inflationary Policy Responses

At this final stage, the failure of financial institutions often induces financial panics. With potential for civil unrest, the government is forced to enter with an inflationary policy response. President Franklin Roosevelt's inflationary policies, enacted in 1934 during his first 100 days in office are a classic example of this behavior.

Testing the Deflation Model: Japan

Japan's recent deflationary episode is a modern example of deflation. As a reality check, let's examine how the unfolding of Japan's deflation compared to our model.

The Equity and Real Estate Bubble

During the 1980s rise of Japan's equity and real estate markets created an unsustainable speculative bubble. Gains in the equity market impacted credit expansion, in part, through direct ownership of equity shares by Japanese banks. High stock prices created strong bank balance sheets and an environment which allowed bankers to increase credit with a high level of confidence. Investment in overseas real estate investments (e.g., trophy properties like Rockefeller Center) marked a culmination in investor confidence.

Raising Rates hurts Confidence

Confidence was shaken when the Bank of Japan decided to raise interest rates in order to reduce speculative forces in the economy. Policymakers and investors initially thought the declining stock market in the first half of 1990 was merely a correction, and that the high real interest rate policy was working to curb unhealthy levels of speculation. However, the impact of Iran's Kuwait invasion on the financial markets proved just how shaky Japan's economy really was: the emperor had no clothes.

The Spiral Begins

Because the bubble had grown so large, the Bank of Japan's high real interest rate policy succeeded only too well. In accordance with the deflation model, it is not possible to engineer a "soft-landing" following the creation of a bubble. The misconception that the early stages of Japan's deflation was only disinflation allowed formation of the deflationary spiral. Once started, the spiral was difficult to stop.

Surging Yen and Policy Capitulation

An increasing demand for cash, weak domestic demand for imports, high real interest rates, and other factors, created a surge in the Japanese yen. These factors helped favor the yen over gold as a hoarding vehicle in the early stages of Japan's deflation. Gold was not sold for yen in this environment, as the World Gold Council's quarterly gold demand figures demonstrate.[2] It's just that since the yen performed so much better, there was no incentive to hoard gold.[3] Eventually, the higher yen created a deflationary feedback loop, as a decline in export competitiveness inflicted damage on Japan's internal export-producing sector. In early 1995 - at the height of the yen bubble - Japan's policymakers capitulated to inflationary policies designed to stimulate domestic demand and to devalue the yen. The situation's urgency was heightened by poor credit conditions of the nation's financial system. Against this concerted effort to devalue the yen, gold rose sharply in yen terms. As of 1996, it remains to be seen whether Japan's inflationary policies will be successful in halting the deflation.

Model Evaluation

Declining credit conditions, a crisis situation requiring immediate policy action, and a capitulation of policymakers to reflation all fit the pattern of the deflation model. Certainly, an investor riding the spiral didn't fall at an increasing rate for the entire period: from the disaster of 1990, the spiral's descent may have slowed in 1992 and 1993. We attribute this lengthy adjustment period to the fact that among the G7 countries, Japan experienced deflation alone. If more countries had undergone deflation during the same period, the 1930s example suggests the spiral would have traveled much faster because of the collapse in international trade.

[2] For the years 1991-1994, Japanese gold imports totaled 241.2, 203.1, 235.3, and 228.7 tonnes annually. Source: World Gold Council.

[3] When translating the US$ gold price to yen terms, a declining yen price of gold provided little incentive for Japanese investors to choose gold as a hoarding vehicle.

In addition, legal arrangements between debtors and creditors in Japan have provided barriers to the liquidation of bad debts held by financial institutions.

II. Gold's Historical Behavior under Deflation

We have reviewed each deflationary period in the United States beginning with the Post-Jacksonian deflation of 1837-1843. A detailed discussion of each episode is included in Appendix A. This section summarizes findings presented in the Appendix.

Deflation in the US

Since the early 1800s[4], there have been 7 principal deflationary episodes in the United States. With the agriculture sector as American's single largest industry prior to WWII[5], we define periods of deflation as periods of declining wholesale commodity prices. For each episode, Table 1 lists dates, events preceding each deflation, and dates of financial panics which precipitated each deflationary spiral.

Table 1. US Deflationary Periods

Time Period	Events Preceding each Deflation	Panics
1837-1843	Land Speculation	1837
1857-1861	Railroad Construction	1857
1864-1879	Civil War Finance - Greenback Issuance	1869
	Railroad Construction	1873
1893-1897	Free Silver Movement	1893
1920-1922	Post WWI Commodity Boom	1920
1929-1932	US Stock Speculation	1929
	European WWI Debt Finance	1931

Gold Linkage to Currency

An important factor driving gold's performance during many of these periods was the linkage of gold to the US dollar through the convertibility mechanism. Today, we refer to this type of monetary arrangement as a "fixed-rate exchange regime." Under deflation, since each dollar bought more goods as the price level fell - and gold was linked directly to the dollar - gold also purchased more goods.

Today's floating rate exchange system provides a different fundamental backdrop for gold price behavior. Since the US has not experienced deflation since the operation of floating exchange rates, we must carefully review the historical record for any analogs which may provide insights into gold's behavior during deflation.

The Shift from Capital Growth to Capital Preservation

Among the many deflationary episodes we have reviewed, currency hoarding is a common feature as individuals shift from the goal of capital growth to capital preservation. Deteriorating credit quality, rising investment uncertainty, and higher investor risk aversion (e.g., fear!) each contribute to the desire for capital preservation. Not only do these factors drive individuals to the hoarding of currency, but often to gold over paper currency as well.

Gold as a Hoarding Vehicle

Because gold does not represent the liability of any institution, gold is unique among currency alternatives. The historical record clearly shows that loss of confidence in the issuer of paper currency is often a sufficient reason for individuals to choose gold over paper currency.

Early 19th Century Panics

During the panics of 1837, 1857, and 1873, the combination of deteriorating credit quality of banknote issuers and the lack of FDIC insurance provided an institutional framework which favored gold over paper currency during the stresses of deflation.

---

[4] We exclude the first deflationary period following the Panic of 1818 because of limited data sources.

[5] In 1900, the agriculture sector provided 41% of US employment. This figure dropped to 3% by 1980. Source: Historical Statistics, cited in Armstrong (1986) , p. 542.

Civil War and Bimetallic Monetary Standard

Gold was favored over greenbacks during the early years of the Civil War both because both the inflationary impact of greenback issuance and the possibility of a Confederate victory undermined confidence in the Union as a currency issuer. Gold did not perform well in the immediate post-Civil War deflationary period because credit quality had not yet deteriorated[6]. Not until the railroad bubble was burst during the Panic of 1873 did the public again favor gold over paper currency. Late in the 19th century, the preference of gold over both paper currency and silver was driven by the erosion of the government's credit quality as a result of a bimetallic currency system.

Gold hoarding during the Great Depression

Finally, during the 1930s Great Depression, gold hoarding began in late 1931 after the public feared a US devaluation of the dollar. Although the public was eventually correct in its assessment, gold continued to be hoarded despite the dissipation of fears of an imminent devaluation. During 1932, the public perceived that Hoover's fiscal stimulus policies and budget deficits could eventually undermine the credit quality of the US government, in the same fashion that WWI sovereign debts destroyed the credit quality of most European nations. Gold hoarding increased dramatically following Roosevelt's election 1932 when rumors of dollar devaluation were inadvertently leaked to the public. In anticipation of the January 1934 devaluation, gold hoarding accelerated. Hoarding ceased following legislation outlawing individual ownership of gold.

The interaction between declining credit quality and currency hoarding is key to understanding the role of gold as a currency alternative. Each historical episode confirms that whenever confidence declined in the issuer of paper currency, gold was favored over paper currency as a capital preservation asset. The phenomenon can be explained independently of the presence of fixed or floating exchange rates.

[6] We consider the Panic of 1869 an isolated freak event which is only marginally relevant to our discussion. The involvement of Grant administration officials in Jay Gould's corner helped to undermine the public's confidence in government as an issuer - but only after the fact.

III. The Behavior of Gold in a Prospective U.S. Deflation

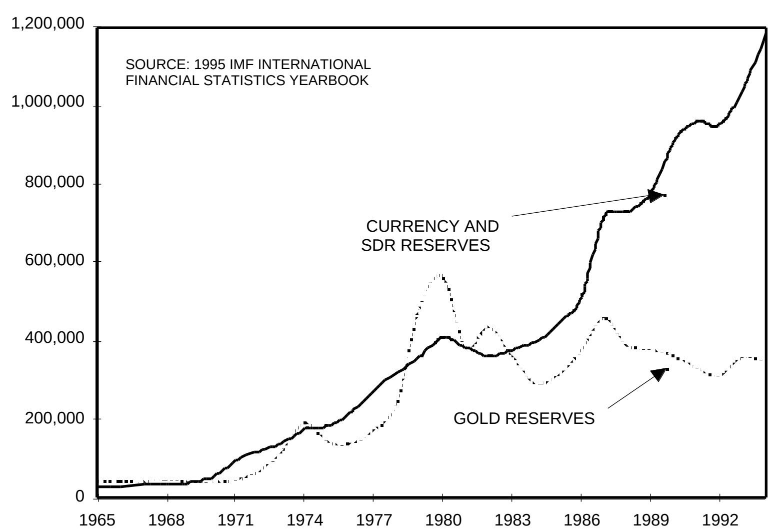
Financial Asset Mania best Bubble Candidate

Returning to the deflation model outlined in Part I: before deflation can begin, there must be an unsustainable bubble to deflate. The model indicated that deflations typically follow unsustainable levels of economic activity. The bubble is at least one order of magnitude greater than excess business inventories associated with more typical recessions. Bubbles can result from overcapacity in industries central to the workings of the economy (e.g., railroads) or can simply result from excess speculation in a particular class of financial assets (e.g., stocks, bonds, real estate). **Current evidence suggests that the current mania directed towards US financial assets is the best "unsustainable bubble" candidate**. Recent financial asset returns have far exceeded long-term historical returns. Although bubbles can grow much larger than individuals believe possible, there is a general recognition that the aftermath could be quite unsettling for investors in financial assets. A piercing of the financial asset bubble - or any other bubble candidate - would destroy confidence in the economy and create a fertile climate for the growing forces of deflation.

<u>The Shift from Capital Growth to Capital Preservation</u>

If deflation were to undermine financial creditworthiness and the public's confidence in economic conditions, investors would change their objectives from capital appreciation to capital preservation. An important difference between historical deflations we have reviewed and a prospective deflation is today's tremendous pool of currency reserves and financial assets. Figure 2 demonstrates the large growth in foreign currency reserves relative to gold reserves.

Figure 2. World Central Bank Reserves, 1965-1994, Millions US$



In addition, because of large financial asset returns since the early 1980s, the world 's current asset pool represents the largest accumulation of wealth ever recorded. **The combination of large foreign exchange reserves and a historic accumulation of financial assets means the magnitude of capital flowing to hoarding vehicles would likely swamp all prior records. With a limited pool of hoarding vehicles in today's marketplace, prices of scarce hoarding vehicles would be bid up in a prospective deflation.**

Would history repeat itself, and would gold play a role as the preferred hoarding vehicle? We analyze two factors which consider differences in today's marketplace :

(1) the availability of investment alternatives and (2) the impact of cultural conditioning on society's preference for choosing gold.

The Availability of Investment Alternatives

Cash Substitute Alternatives

Since the most recent US deflation, the Great Depression, the variety of investment alternatives has exploded. In the short-term money market alone, the existence of repurchase agreements, US Treasury Bills, US federal agency securities, eurodollar deposits, certificates of deposit, banker's acceptances, commercial paper, short-term municipal notes, short-dated CMO traunches, foreign currencies, money market mutual funds, and other instruments now all compete as "cash-substitutes." The choice is no longer between uninsured banknotes of the 19th century and gold.

Credit Quality of Cash Substitutes vs. Gold

Viewing cash-substitutes as short-term liability instruments, the choice of gold or cash-substitutes as hoarding vehicles again boils down to credit quality. If deteriorating credit conditions hurt the issuer's ability to service debt, then gold will benefit.[7] Translating the effects of poor private sector economic performance to government finances, we assume that the credit quality of the US government would also decline.[8] This has important implications for short-term government securities as hoarding vehicles, including US Treasury bills. Although investors can adjust their required rate of return during a relatively frequent auction process as compensation for increased credit risk, there may be a point in the deflationary cycle when no interest rate is high enough to satisfy investor demands. History demonstrates that whenever investors lose confidence in an issuer, there is no market-clearing rate of interest. [9]

Gold vs. Currencies

Foreign currencies are another class of hoarding vehicles. Focusing purely on credit quality, gold's performance relative to foreign currencies depends on whether deflation were limited to the United States or if it unfolded on a global basis. In the first scenario, gold would likely rise in US dollar terms, but foreign currencies would likely rise relative to the dollar as well. Attracting competition from foreign currency alternatives, gold would serve as one of many currency hoarding alternatives.

Foreign Currency Credit Quality in a Global Deflation

On the other hand, if deflation were to spread globally, then credit quality of other currencies would also decline. In this situation, gold may be preferred to both the US dollar and foreign currencies. What is the likelihood of a US deflation spreading to other nations? Foremost, linkages to the global economy through international trade suggest that declining levels of economic activity on an absolute basis would be translated overseas through reduced US imports. Second, the role of the US dollar as the world's reserve currency also provides a link between the US dollar and foreign currencies. Despite the increase in non-dollar reserves among the world's central banks (e.g., yen and marks), the US dollar remains the single largest foreign currency held by central banks. Deteriorating credit quality of the US dollar may indirectly hurt the credit quality of other currencies through US dollar holdings held

---

[7] Events during oil's early 1980s deflationary collapse support this relationship. Between July 2 and July 21, 1982, gold rose from $315 to $370 on the heels of the July 5 Penn Square failure. Penn Square's linkage to Continental Illinois and Chase Bank also focused attention on deteriorating credit quality in the money market. Gold traded as high as $501 on September 8 partly because of these concerns.

[8] Tax receipts to the US government would fall in a prospective deflation, but entitlement spending may not. The net effect would be a rising budget deficit and a deterioration in the credit quality of the US government.

[9] Three examples are notable. (1) During 1932 when the Federal Reserve raised the discount rate to defend the dollar, the American public continued to hoard non-interest bearing gold. (2) During autumn 1992 when the UK raised interest rates in order to defend the pound, investors continued to sell sterling given the high probabilities of devaluation. (3) Following the Mexican Peso's devaluation in December 1994, the Mexican government had difficulty in attracting investors for weekly debt auctions, despite interest rates exceeding 40%.

by central banks. Whether these two factors are sufficient for causing a US deflation to spread internationally is unclear. **What is clear is that a global deflation would undermine the credit quality of foreign currency hoarding alternatives and again favor gold as a hoarding vehicle.**

Non-Financial Hoarding Vehicles

In addition to cash-substitutes and currencies, many non-financial assets could be potential hoarding candidates depending on the exact characteristics of a future deflation. Real estate, collectibles, and certain food products (e.g., sugar, rice, and coffee) have been hoarded at one time. The scarcity of food and other factors cannot be predicted in advance and must be considered on a real-time basis as the deflationary spiral unfolds. If circumstances favored hoarding of these assets, we recognize that liquidity constraints would limit these hoarding vehicles to individual participation. We cannot imagine large pension funds stockpiling tins of sugar, grains, and other foodstuffs.

<u>The Impact of Cultural Conditioning on Society's Preference for Gold</u>

In addition to the sheer variety of available investment alternatives, cultural conditioning can impact the choice of hoarding vehicle. Microeconomists refer to these traits as consumer preferences. In reviewing cultural preferences among the principal gold buying markets: the United States, Europe, and Asia, we find a considerable diversity in how cultures view gold.

For United States investors accustomed to high total returns through mutual fund investing, the objective of capital preservation through gold ownership is simply not a part of the vocabulary. Ever since the late 1970s, Americans have been accustomed to high financial asset returns as compensation for risk-taking. In addition, between the presidencies of Roosevelt and Nixon - for two generations - gold was illegal to own. Importantly, the period of illegality occurred during America's greatest period of economic expansion and world leadership. No one associates the positive feelings of the post WWII boom with gold. Instead, once ownership was legalized in the mid 1970s, Americans have seen gold rise by over twenty-fold on the heels of the spectacular 1970s inflation - and crash during the 1980s. Given the illegalities of the Hunt Brothers silver corner, precious metals are also viewed with great suspicion. For many Americans, they remain the realm of speculators, doomsday cults, and now - the militias.

Because of this cultural conditioning, Americans could ignore gold as an investment during the early stages of deflation. However when one considers the sizable impact of Asian demand on the gold price, Americans' indifference towards gold may be a mistake. With positive cultural conditioning towards gold among Asian cultures, Asian investors are much more likely to view gold favorably when considering allocation of investment dollars across US dollar traded assets. In addition, any rise in the dollar - suggested by the deflation model in Part I - would compound the gains to overseas investors through currency translation. If Americans wait to purchase gold until the latest phases of deflation, it is plausible that they may be buying gold from Asian investors who previously purchased gold at much lower prices.

The Asian preference for gold stems from many sources. Compared to Americans, Asians have historically viewed gold as an important part of their culture - through jewelry, adornment, and as a store of value. And unlike Americans who could not invest in gold during boom years, Asians have invested surplus savings from their current economic boom directly into gold without a second thought. In some cases, gold purchases were made because the lack of other formalized institutions which could house savings in the form of bank deposits. However, this cannot explain the propensity of Asians living with more sophisticated financial alternatives to continue investing in gold - in some cases at their local supermarkets through monthly accumulation plans.

These factors help explain why Asians may view gold more favorably in deflation's early stages. The concentration of financial asset wealth, liquidity, and importance to today's overall gold demand indicate that actions of the Asian investor should be closely monitored in any prospective deflation.

Conclusions: Gold's Behavior in a prospective deflation

- Under deflationary conditions, capital preservation must take precedence over capital growth before investor psychology changes to a hoarding mentality. The combination of large foreign exchange reserves and a historic accumulation of financial assets means the magnitude of capital flowing to hoarding vehicles would likely swamp all prior records. With a limited pool of hoarding vehicles in today's marketplace, prices of scarce hoarding vehicles would be bid up.

- Compared to historic deflations reviewed, a greater number of hoarding alternatives now exist. Viewing cash-substitutes as short-term liability instruments, the choice of gold or cash-substitutes as hoarding vehicles again boils down to credit quality. If deteriorating credit quality negatively impacts the issuers of commercial paper, certificates of deposits, or any other cash-equivalent vehicle, gold will be preferred.

- Short-term government securities, especially US Treasury bills, are another potential hoarding vehicle. Translating the effects of poor private sector economic performance to government finances, we assume that the credit quality of the US government would also decline in a prospective deflation. Under this scenario, US Treasury bills may not be considered an acceptable store of value.

- Currencies may prove to be an acceptable hoarding vehicle, especially if deflation were limited to the United States. A global deflation would negatively impact the credit quality of foreign currencies and provide a strong foundation for gold as a preferred hoarding vehicle.

- Because of cultural conditioning, Americans may ignore gold as a currency alternative in the early stages of deflation. Considering the importance of Asian investors to gold demand and the favorable cultural conditioning Asian cultures have towards gold, this may be a mistake. Asian investors may gravitate towards gold much earlier in the deflationary spiral, leaving American investors behind.

Appendix: The Behavior of Gold during Historic US Deflationary Periods

Our historical conclusions presented in Section 2 are based on a detailed historical study which follows. When reviewing each period of deflation, attention is focused on three elements: (1) underlying economic forces driving each deflation, (2) the incidence of hoarding, and (3) factors which favored gold or paper currency as the preferred hoarding vehicle. Robert Sobel's Panic on Wall Street (New York: E.P. Dutton, 1988) and Martin Armstrong's Greatest Bull Market in History (Princeton, NJ: Princeton Economic Institute, 1986) are principal data sources for this study.

As a recap, the following deflationary periods are reviewed:

Table 1. US Deflationary Periods (Repeated)

Time Period	Events Preceding each Deflation	Panics
1837-1843	Land Speculation	1837
1857-1861	Railroad Construction	1857
1864-1879	Civil War Finance - Greenback Issuance	1869
	Railroad Construction	1873
1893-1897	Free Silver Movement	1893
1920-1922	Post WWI Commodity Boom	1920
1929-1932	US Stock Speculation	1929
	European WWI Debt Finance	1931

With a slightly different set of financial institutions common to each deflation, we divide our review into three parts: early 19th Century deflations, deflations from the Civil War to WWI, and the 1930s Great Depression.

A. Early 19th Century Deflations

Institutional Backdrop

During the 19th century, banks issued their own "banknotes." There was no nationally accepted currency. Banknote acceptability was directly tied to creditworthiness of the issuer. In addition, there was no FDIC insurance to protect bank depositors.

The Volatility of Agriculture

Besides these institutional differences, the volatility of the agricultural sector and international capital inflows increased the likelihood of financial disruptions. Seasonal money flows related to the harvesting season - the withdrawal of funds in early autumn for harvesting and the deposit of funds in late autumn following the sale of harvested crops - created tremendous strains on the banking system. In addition, the relative success of American versus European harvests was a frequent swing factor in international capital movements. Since payment for US grain exports was settled in gold, any sudden demand for US grain caused a large inflow of gold into the US banking system. Likewise, any large reduction in US grain exports reduced gold inflows and limited the growth of money supply.

The Volatility of International Capital Flows

Outside of agriculture, dependence on European capital created the potential for increased volatility in the domestic money supply. In addition to being frequent net buyers of American grain, Europeans often speculated in America's land and railroad booms. Any disruption in European financial affairs, often unrelated to the American economy, could reduce the flow of international capital. The consequences were often disastrous for the US economy. The phrase "When London sneezes, New York catches a cold" originated during this period.

US economy extremely susceptible to disruption

To summarize - because of institutional arrangements, agriculture's volatility, and the dependence of the US on foreign capital - the US economy was extremely susceptible to disruption. The fact that many of today's developing countries face similar problems reminds us that the US was itself a developing country in the 19th century.

The Great Western Real Estate Boom and the Deflation of 1837-1843

Real Estate Speculation during the Great Western Land Sale

These problems are easily seen when examining the details of both early 19th century deflations. The period leading up to the 1837-1843 deflation was marked by rampant land speculation, as the United States government sold off western public lands to private individuals. Because the government accepted payment for public lands in banknotes which were issued with abandon by private banks, a speculative real estate bubble developed. Quite often, if any bank customer wished to purchase land, the bank simply printed the required amount of banknotes, loaned the banknotes to the customer, who then redeposited them in the same bank when the customer paid the government. Banks frequently lent additional funds for speculation, using the value of previous lands purchased as collateral. Rampant creation of banknotes, excessive loan-to-reserve ratios, and high leverage created a house of cards which would ultimately collapse in a deflationary spiral.

Specie Circular removes monetary prop underlying speculation

Frustrated by the exploits of land speculators, hard-money President Andrew Jackson signed the Specie Circular of July 11, 1836, which required payment for federal lands in hard currency (e.g., gold, silver) instead of banknotes. This action removed the monetary prop underlying the real estate bubble.

Impact of US inflation on trade balance

Two other actions also helped trigger the deflationary spiral. The period of higher inflation leading up to 1837 - created by the rampant issuance of banknotes - increased the price of US goods on the world export market. Lower export sales meant that foreign inflows of gold bullion declined, with a corresponding decrease in the nation's money supply. Declining cotton prices were also an important contributor to the deflationary trend.

Transfer of federal surplus to states triggered a credit collapse among eastern banks

Finally because of tariff policies, the US government was running federal budget surpluses during the mid-1830s. President Jackson approved the transfers of federal cash back to individual states as a way to redistribute the federal surplus. Without a US Treasury, the federal surplus was held in a variety of bank accounts concentrated in the eastern United States. The surplus transfer required the movement of funds from eastern banks to state bank accounts, primarily in the western US. The transfers effectively reduced eastern banks' reserves and a coincident pool of loanable funds. Many eastern banks had to call in loans, regardless of creditworthiness, as their reserves were reduced. The impact on the eastern economy was severe and was a principle trigger to the Panic of 1837.

Following the Panic of 1837, gold convertibility was suspended from May 1837 to May 1838. During this period, gold was the preferred hoarding vehicle over banknote currency and traded at a black market premium to the official convertibility ratio.

The California Gold Rush, the First Railroad Boom, and the Deflation of 1857-1861

The period 1857-1861 was the first of several deflations to unfold following railroad construction booms. The period following the California Gold Rush, begun at Sutter's Mill in 1848, was marked by an increase in the nation's gold supply and had a stimulative effect on money supply and economic activity. Table 2 documents this increase in gold production.

Table 2. Gold Production, 1847-1856

Year	Production (1,000 fine troy ounces)
1847	43
1848	484
1849	1935
1850	2419
1851	2661
1852	2902
1853	3144
1854	2902
1855	2661
1856	2661

Source: Historical Statistics cited in Robert Sobel, Panic on Wall Street, New York: E.P. Dutton, 1988, p.79.

The Gold Rush and the Railroad Boom

The California Gold Rush provided an impetus for expanded transcontinental railroad connections as well as a convenient destination for large immigrant populations arriving on the eastern seaboard. It is estimated that between 1846 and 1860, total railroad construction increased from 8,000 to 30,000 miles of track. In time, an overcapacity developed in the railroad industry. The growth of interregional trade between the east and west also placed stresses on the nation's financial system which still operated under a patchwork system of small banks.

Higher European Grain Production and Interest Rates Deflect Capital from the United States

Two events triggered the ensuing deflation. First, European grain production recovered following the Crimean War. As a result, fewer grain shipments were made by rail from the west to the eastern seaboard. This hurt railroad profits and hampered the growth of money supply via reduced gold inflows as settlement for grain exports. Second, Europe's interest rates began to rise, as investors discounted government obligations following higher deficits generated to fund the Crimean War and other hostilities. Higher interest rates provided an incentive for European capital to stay at home, rather than travel to the United States seeking lucrative returns from railroad stock speculation. These two factors helped trigger the Panic of 1857, during which gold convertibility was suspended between October and December of 1857. As in the Panic of 1837, the black market price of gold traded at a premium to its official convertibility value.

Conclusions: Gold's Behavior during 19th century deflations

- Both the 1837-1843 and 1857-1861 deflationary episodes were kicked off by the collapse of speculative bubbles primarily associated with western lands or railroad development. As debts were liquidated, bank credit quality deteriorated. Bank runs frequently developed as depositors were concerned about the safety of their funds.

- Once gold reserves were exhausted, banks failed. With no FDIC insurance and banknotes whose value depended solely on the creditworthiness of the issuing bank, the public had incentives to withdraw gold, not cash, during a bank run. If a bank failed, its banknotes became worthless.

· If failures were widespread, then a nationwide suspension of gold convertibility occurred. Gold rose in value on the black market above official convertibility ratios which were no longer honored.

In contrast to the deflation model presented earlier which suggested a deterioration of financial institutions toward the end of the deflation spiral, many of these financial panics occurred at the early stages of deflation. Following these panics, the spiral continued its downward trend - albeit at a slower pace. Gold continued to benefit in the latter stages of deflation following the initial financial panic. Not only did gold's purchasing power increase during the remaining period of falling prices, but its black market price remained above official convertibility prices as deteriorating credit conditions created credit tiering.

B. Deflations from the Civil War to World War I

The Post-Civil War Deflation of 1864-1879

In contrast to the early 19th century, deflationary episodes between the Civil War and World War I varied greatly. Their causes and impact on gold movements were unique to each episode. The period begins with the Civil War, which contained some of the wildest swings in gold volatility in America's entire history.

The victor of Civil War battles drove the relationship between greenbacks and gold

The Union's efforts to battle Confederate forces were financed by the floatation of "greenbacks" - a currency with no convertibility privileges. Price levels initially rose in response to currency inflation and the potential of a Confederate victory, peaking in 1864. During this period, confidence in government - measured by the Union's standing in battlefield victories - played a key swing role in the performance of gold. Via Union and Confederate spies, gold speculators were among the best-informed individuals on the war's status - much to the disgust of President Lincoln who considered speculative activities on par with evil itself. Any Confederate victory sent gold prices soaring; with any Union victory, the price of gold plummeted. Table 3 presents gold price ranges during the war years.

Table 3. Highest and Lowest Prices of Gold, 1862-1868

Year	High	Low
1862	134	__
1863	172.50	122.125
1864	287.00	151.5
1865	233.75	128.625
1866	167.75	125
1867	145.625	132
1868	150	133.25

Source: Francis Eames, The New York Stock Exchange, New York, 1894 cited in Robert Sobel, Panic on Wall Street, New York: E.P. Dutton, 1988, p. 137.

With the positive reversal of the Union's fate, gold prices began to decline in terms of greenbacks as confidence in the Union grew as the post-war deflation trend was established. In addition, the physical withdrawal of greenbacks by the Union created a contracting money supply. Not tied to greenbacks by the convertibility mechanism, gold's purchasing power declined. During these early stages of deflation, credit conditions had not yet deteriorated sufficiently to create financial panics and a rush to gold.

The Gold Panic of 1869: the original "Black Friday"

A gold corner engineered to aid agricultural interests and Jay Gould's railroad

The gold corner of 1869, instigated by Jay Gould, Jim Fisk, and others, was an unusual event which helped undermine confidence in financial markets during subsequent years. Like many railroad owners, Jay Gould's fortunes - which controlled the Wabash Railroad - depended on revenues from grain transportation for financial survival. Since foreign purchases of US grain exports were still settled in gold, any rise in gold prices allowed foreign grain buyers to exchange gold for more dollars and to buy more grain. In cornering the gold market, Gould would profit directly through gold speculations and indirectly through increased tonnages hauled by his Wabash Railroad. Gould's scheme included the involvement of members of the Grant administration in order to prevent any sale of US gold which could easily destroy the corner. The affair culminated on Friday, September 24, 1869 when Gould and Fisk drove the gold price from $143.50 to $161.375. When President Grant finally announced the sale of US gold, Gould was quickly able to reverse positions, making a fortune on the short side as well. Gold ended the day at $131.25, which became known as the original "Black Friday." The effects of this event caused dislocations in the financial markets which lasted into 1870. In addition, the role of administration officials in Gould's gold corner created an air of distrust towards the government.

Deflation and Depression between 1873 and 1879

Unsustainable railroad development provided the seeds for the Panic of 1873

The Gold Panic of 1869 occurred during a backdrop of continued deflation which exacted the most pain from the agricultural and railroad industries. Farmers' activities contributed to the deflationary spiral. In order to maintain revenues, farmers increased grain production in reaction to falling prices. These actions simply drove grain prices even lower. The overexpansion of railroads, the dependence of foreign capital, the fragile state of confidence in financial markets and government, and seasonal stresses on the banking system were all factors which made the US extremely susceptible to another leg of deflation. The failure of prominent investment banker Jay Cooke, a principal financier of the Union's victory and owner of the Northern Pacific railroad, provided the catalyst for the Panic of 1873. The sequence of deteriorating bank credit, hoarding of gold, and a financial panic followed precisely according to the paths established by earlier 19th century panics. Gold convertibility was suspended during September 1873 and traded above official convertibility ratios in the black market. The resulting depression, lasting from 1873 to 1879 was the most severe in the 19th century.

Formation of the Free Silver Movement

A fundamental problem facing the economy during the 19th century was a stagnant money supply. With no Federal Reserve System in place until 1913, the nation's money supply was subject to swings based on the import and export of gold between trading partners. In addition, discovery of new gold deposits injected fresh supplies of "high-powered money" into the nation's banking system. Such was the case between 1848 and 1860 following the California gold rush. Economic expansion was aided by the increase in money supply. During this boom, increases in railroad capacity reached unsustainable levels and eventually ushered in the Panic of 1857.

Government purchase of silver solves stagnant money supply

Following the California gold rush, there were a number of minor gold discoveries in Montana and the Black Hills of South Dakota. However, these gold finds were not significant enough to generate an economic recovery with any staying power. As a result, swings in agricultural exports to overseas markets - and their associated gold flows - influenced the nation's gold supply and overall economic activity. This backdrop provided fertile ground for the formation of the "free silver" movement. The silver movement consisted of agriculture and mining interests who argued that coinage of silver would not only increase the nation's money supply, but guarantee miners a market for their silver and raise agriculture prices through resulting inflation. The free silver movement gained momentum during the end of the 1880s when the federal government generated budget surpluses from large tariff revenues. Since federal surpluses were held in an Independent Treasury System - outside the nation's banking system - surpluses effectively contracted money supply and hampered economic expansion.

The Flight from Silver and the Deflation of 1893-1897

Passage of the Sherman Silver Purchase Act on July 14, 1890 required the US government to purchase 4.5 million ounces of silver per month, valued at a gold/silver ratio of 16 to 1. In addition, passage of the McKinley Tariff raised the average rate of duties to 48% which helped to reduce exports and corresponding tariff revenues. However correct the silverites were in the assessment of the nation's lackluster money supply, new silver coinage was not the answer. On an international basis, silver was simply not an acceptable substitute for gold. Soon after the federal government started to purchase silver, overseas investors began to lose confidence in the US dollar: they feared the US would either devalue the dollar in terms of gold, replace gold convertibility with silver convertibility, or simply default altogether. As a result, overseas investors began to sell securities, exchange their dollars for gold, and remove gold from the country. Historians estimate that between 1892 and 1897, between $100 and $250 million in gold left the United States as Americans joined European investors in the flight from the US dollar.

After the Sherman Act passed, the gold drain began

Passage of the Sherman Act effectively placed the United States on a bimetallic currency standard. As the value of silver cheapened relative to gold, Americans exchanged their silver for dollars and in turn demanded gold for their dollars. This activity - a riskless arbitrage - continued to drain gold from the US monetary system. Finally, gold withdrawals caused the government's gold supply to fall below its $100 million legal limit on April 21, 1893 which ushered in the Panic of 1893. By May, the silver dollar was worth less than 55 cents in gold. And to add insult to injury, India announced on June 26 that it would no longer purchase silver for its own coinage program. The silver game was over.

Not until major gold discoveries occur after 1896 did deflation end

Newly-elected President Grover Clevelend organized a special session of Congress on August 7,1893 which quickly repealed the Sherman Act. Despite this effort, the decline in confidence directed towards the government had reached such proportions that the repeal of the Sherman Act had little effect. Even two successful deals engineered by Clevelend and J.P. Morgan in 1895 - which raised capital in Europe in order to replenish the government's gold supply - only temporarily halted the gold drain. Following McKinley's 1896 election, the crisis ended with the occurrence of several outside events. Major gold discoveries in the Klondike, South Africa, and Australia provided a large boost to money supply. In addition, European and Indian crop failures created large gold imports in exchange for American grain exports. These factors provided a way out of the 1890s deflation.

The Post-WWI Commodity Price Deflation: 1920-1922

Removal of Price Controls Triggers Commodity Speculation, Fed Tightening, and Deflation

The combination of commodity prices held artificially low during WWI by government decree and the destruction of many producing regions in Europe created a severe supply/demand imbalance. When price controls were removed after the war, commodity prices surged. Speculation during this period was rampant. As an example, silver rose from 45 cents to $1.40 between 1915 and 1920. In response, the Federal Reserve raised the discount rate from 4% to 7% between 1917 and 1920. The US high interest rate policy effectively forced deflation onto the markets. The stock market plummeted 40%, matching a rise in the US dollar. Instead of rising because of a demand for cash under the deflation model, the dollar rose more in response to European currency problems. The United Kingdom's attempts to maintain sterling at its pre-WWI £4.86 gold parity proved fruitless and sterling declined to £3.20 by 1920. In addition, many other European nations resorted to debt monetization through currency inflation. Both factors caused a flight to quality which benefited the US dollar. Undoubtedly, these international capital inflows helped stem an even deeper collapse in US money supply. As it was, the M1 money measure declined from 23.7 billion to 21.3 billion from 1920 to 1921. The panic was brief enough to prevent any serious financial dislocation; as a result, there were no widespread banking panics which drove the public towards gold. Although the deflation seriously affected the agriculture sector, the emerging automobile industry was relatively unscathed. The US economy was in a transition stage between agriculture activity and industrial development. Innovative practices, such as mass production, helped industries like the autos quickly pull the US economy out of the early 1920s deflation.

Conclusions: Gold's Behavior during Deflations from the Civil War to World War I

- The Panic of 1873 followed closely the deflation patterns experienced in the early 19th century. Rampant overbuilding in the railroad industry created one of the largest speculative bubbles of the entire century. When deteriorating credit quality forced many banks to suspend currency convertibility, gold's black market price rose. With no substantial gold discoveries and no corresponding increases in the nation's money supply, the severity of the depression was accentuated.

- Gold's behavior during the Civil War provided an entirely different deflationary model. In this case, deflation spurred by the recall of greenbacks was accompanied by a rising level of confidence in the Union following battlefield victories. Both factors caused gold to decline relative to greenbacks. In the early stages of deflation, credit conditions had not deteriorated significantly enough to induce banking panics and a flight to gold.

- Events surrounding the Panic of 1893 were unusual because the period's deflation did not follow an identifiable debt bubble built on the shoulders of land or railroad speculation. Instead, the lack of any meaningful gold discoveries since the mid-1850s created a backdrop of stagnant monetary growth. The flight to gold was induced by the introduction of a bimetallic currency standard which seriously undermined investors' confidence in government finances. Without the existence of a central bank, the US economy's recovery had to wait until major gold discoveries and a surge in grain exports provided a genuine inflationary stimulus.

- The sharp deflation of 1920-1921 was precipitated by aggressive monetary tightening by the US Federal Reserve in response to rampant commodity speculation following the end of WWI. The panic's swiftness, European capital inflows, and the gathering strength of the emerging automobile sector helped prevent this period of deflation from causing severe dislocations. There was no significant flight to quality towards gold during this panic.

C. The 1930s Great Depression

<u>The Great Deflation of 1929-1932</u>

European WWI Debts and Protectionist Trade Policies Accelerate the Deflationary Spiral

While many financial historians have focused on the speculative rise and collapse of the US stock market as the catalyst behind the deflation of the 1930s, the stock market's decline could not independently create such an economic contraction. It was the unsustainable level of European war debts whose defaults ultimately ushered in the catharsis of 1932-1933. Following the end of WWI, most European countries - notably Germany - retained sovereign debts which could only be serviced by the generation of balance of payment surpluses. Unfortunately, many European countries were still importing goods from the United States and Latin America and were unable to generate any trade surpluses. The imposition of tariffs, designed to improve each country's trade balance by discouraging imports, was ultimately self-defeating. The spread of protectionist tariff policies on a global basis created a collapse of international trade which destroyed nearly every nation's export sector. The decline in international trade greatly contributed to the 1930s deflationary spiral.

The European Debt Crisis and the 1931 Sterling Devaluation

UK leaves Gold Standard during September 1921

By the early 1930s, credit conditions of European soverign debt had deteriorated so badly that proceeds of many new bond issues simply went to pay interest on other outstanding debts. In this situation, the creditor was often the American individual investor. With interest rates so low in the United States, U.S. investors purchased European debt issues which offered yield pickups of 300-500 basis points. Unfortunately, no one realized that the vast majority of their bond investments were directed toward interest payments of outstanding debts. In reality, this was a shell game which came to the surface in 1931 as Austria and Germany requested a debt moratorium. With this announcement, capital flows from America to Europe halted and the next downleg in the deflationary spiral began. The turbulence which began during the summer of 1931 culminated in the United Kingdom's suspension of sterling/gold convertibility on September 21, 1931.

Devaluation fears spread to the US dollar

Whatever level of confidence remained in the American mind evaporated in the wake of the sterling devaluation. Speculation now focused on the potential for a US dollar devaluation. As Herbert Hoover stated in his memoirs:

At this time foreigners concluded that the United States would be the next bulwark of international stability to collapse. They began to withdraw their deposits from our banks in gold. By the end of October, we were to lose about $700,000,000 from our gold supply. This cramped our volume of credit and increased our bank demands on their borrowers. To add to our troubles, domestic hoarding of gold and currency by our citizens began. Our exports to the world dropped to about one third of the 1929 rate. Worse still, our exports or principal farm products to Europe had now dropped to almost zero, further demoralizing commodity prices. Our unemployment swelled (Armstrong, p. 374).

Note that Hoover stated that "domestic hoarding of gold and currency by our citizens began" - not just gold. The US faced its first large-scale financial panic since the creation of the Federal Reserve System. No longer were banknotes - and their associated credit risks - a motive to hoard gold instead of currency. One could withdraw one's currency and deposit it at another bank. Or one could exercise the convertibility option and convert currency to gold. In reality, people did both. Still without FDIC deposit insurance, individuals still had a motive to hoard currency. Any bank failure would still wipe out any depositor's money.

Foreign Investor fears increase following creation of the National Credit Corporation

It was with this backdrop that President Hoover discussed the formation of a National Credit Corporation which would lend money to banks against good collateral. This policy was designed to prevent banks from unnecessarily foreclosing on high-quality loans. Because of currency hoarding, banks were so strapped for cash that they actually called loans whose terms were current and which had little default risk. These policies needlessly created economic dislocations and added additional fuel to the deflationary spiral. Hoover's proposal was first greeted negatively by foreign investors; they believed that the National Credit Corporation would be funded by the government - and that the US government's credit quality would decline by acting as guarantor for potentially risky debt. When it was later understood that the National Credit Corporation would be privately funded, the immediate attack on US gold reserves ended.

Gold Hoarding Begins in Earnest During 1932

The 1932 Dollar Rally

After immediate fears of a US devaluation/convertibility suspension subsided, the dollar continued to strengthen, peaking in late 1932 against a basket of world currencies (Armstrong p. 558). Even though the US dollar rose substantially during 1932, it rose on the heels of relative attractiveness across world currencies - not on the basis of absolute attractiveness. 1932 marked the first year of a large federal budget deficit. With European economic conditions in a shambles following their own debt crisis, European investors feared that the US could follow the same path. France was typical of this belief; she withdrew her last gold on deposit at the Federal Reserve on June 14, 1932.

Gold Hoarding Accelerates in France and in the US

In early 1932, France and the U.S. were the only two international powers which maintained the gold standard. Despite no perception of an immediate devaluation by either country, citizens began to hoard gold instead of currency during this period. In France, this behavior stemmed from a ruling which restricted franc/gold convertibility to a minimum currency amount of 8000 francs. This stimulated the use of smaller denominated gold coins for everyday use. American $20 gold eagle coins reached as much as $30 on the street, a 50% black market premium (Armstrong p. 399). As a result, many American eagles were shipped to France in 1932. Increased gold hoarding spread to the US during 1932; in addition, financial contracts often specified settlement in gold coin. The preference of gold over other commodities was notable at this juncture:

On the streets, U.S. gold coin began to command a premium over and above paper currency. While gold was rising in street value, other commodities continued to decline. Sugar fell to 1 cent per pound, a record low. Copper was bringing 6 7/8 cents per pound for export and 6 1/4 cents for domestic delivery . . . Rubber fell through its old historic low, dropping to 4 cents in February. (Armstrong, p. 399)

We can't attribute this behavior to fears of an immediate devaluation/convertibility suspension. We must assume that the new federal budget deficit created fears that a future devaluation/convertibility suspension was only more likely. By no means was the theory of Keynesian fiscal deficit spending firmly embedded in America at this time. There was genuine disagreement about whether deficit spending would improve the economy or cause it to collapse through federal debt default.

Roosevelt's 1933 Election Victory Brings Inflationist Policies to Center Stage

Fears of Devaluation Spark Gold Withdrawals

With President Roosevelt's election in 1933, there was no longer any doubt about whether the US would devalue - it became only a question of time. Roosevelt was sloppy in his handling of a proposed devaluation. News leaked out during Hoover's lame duck period and created a massive foreign withdrawal of gold. Between February 8 and March 4, the US lost $300 million in gold, with $110 million on March 4 alone. On Saturday March 5, banks closed when $700 million was demanded. Curiously, the beginning of the bank holiday was also Roosevelt's Inauguration day.

Government Intervention and Devaluation

On April 20, 1933, Roosevelt banned any gold exports, effectively causing the dollar to freely float against foreign currencies. This executive order ended the practice of settling international trading transactions in physical gold. In addition, gold held by individuals was required to be turned over to the Federal Reserve by May 1. These actions renewed fears of an imminent devaluation. But May's announcement to eliminate the gold clause from public and private contracts in lieu of a devaluation temporarily forestalled devaluation fears. As time passed, continuing difficulties in the agricultural sector - now compounded by the Dustbowl - made devaluation a more attractive alternative. Just as Jay Gould reasoned a higher gold price would benefit US grain exports in 1869, Roosevelt saw higher gold prices necessary in order to restore farm incomes and economic health. Roosevelt finally devalued the US dollar during January 1934 from $20.67 to $35.00. The dollar continued to trade lower until April 1934, a level not reached since that date. In addition to gold's devaluation on the international currency markets, gold convertibility was eliminated domestically through the outlaw of gold ownership.

Return of Inflation Restores Public's Confidence

Roosevelt's primary contribution during 1933-1934 was the restoration of confidence to the American public. Policies enacted during the Hundred Days and the January 1934 dollar devaluation both halted the deflationary spiral through vigorous government intervention. Higher prices restored the public's confidence. Investors could again choose capital growth over capital preservation.

Conclusions: Gold's Behavior during the 1930s Great Depression

- Despite the collapse of the US stock market in 1929, gold or currency was not hoarded in significant quantities until after the 1931 sterling convertibility suspension.

- Despite fears of an imminent devaluation subsiding in 1932, gold hoarding continued in an uncertain environment which included: (1) France's suspension of gold convertibility for smaller currency units, (2) the new US fiscal budget deficit, and (3) a continuation of deteriorating credit quality. A preference for gold hoarding over currency hoarding surfaced during 1932.

- With the increasing odds of a dollar devaluation following Roosevelt's 1932 election, gold hoarding accelerated. The preference for hoarding gold over currency continued until 1934 when private ownership of gold was outlawed.

References

Armstrong, Martin. 1986. The Greatest Bull Market in History, Princeton, New Jersey: Princeton Economic Institute.

Fraser, James. 1965. Crises and Panics, Vermont: Fraser Publishing Company.

Jastram, Roy. 1977. The Golden Constant: The English and American Experience, 1560-1976. New York: John Wiley.

Sobel, Robert. 1988. Panic on Wall Street, New York: E.P. Dutton.

Wigmore, Barrie. 1985. The Crash and Its Aftermath, Westport, Connecticut: Greenwood Press.