CPM Group

Silver Investment Demand

A comprehensive study of the global silver investment market
for the Silver Institute.

October 2014

NOT FOR REPRODUCTION, DISTRIBUTION, OR RETRANSMISSION WITHOUT WRITTEN CPM GROUP OR SILVER INSTITUTE CONSENT. INFORMATION IN THIS REPORT MAY BE REFERENCED AT WILL WITH PROPER ATTRIBUTION TO THE SOURCE.

This report has been produced to print two-sided with proper pagination.

CPM Group
30 Broad Street
37th Floor
New York, NY 10004
USA

Telephone: 212-785-8320
Telefax: 212-785-8325
E-mail: silver@cpmgroup.com
Website: http://www.cpmgroup.com

Jeffrey M. Christian, Managing Director
Doug Sherrod, Managing Director, Investment Banking
Carlos Sanchez, Director of Risk Management
Melissa Rivera, Administrator
Elliot Kalson, Chief Operating Officer
Catherine Virga, Director
Rohit Savant, Director of Research, Senior Research Analyst
Mu Li, Director of Base and Specialty Metals Research, Senior Research Analyst
Madhusudan Daga, Consultant
Bhargava Vaidya, Consultant

October 2014

Copyright The Silver Institute 2014.

This report has been produced by CPM Group for distribution by the Silver Institute. The rights to distribution and reproduction of this report are ceded to the Silver Institute by CPM Group. The intellectual content and property remain the property of CPM Group, and they are not for reproduction or retransmission without written consent of CPM Group. Opinions expressed here represent those of CPM Group at the time of publication. Any statements non-factual in nature constitute only current CPM Group opinions, which are subject to change. The information contained here has been obtained from sources CPM Group believes to be reliable, but CPM Group does not guarantee its accuracy or completeness. While every effort has been made to ensure that the accuracy of the material contained in the reports is correct, CPM Group and the Silver Institute cannot be held liable for errors or omissions. This material is for private use of readers only. CPM Group and the Silver Institute are not soliciting any action based on it. Information contained here should not be relied on as specific investment or market timing advice. At times the principals and associates of CPM Group may have long or short positions in some of the markets mentioned here.

TABLE OF CONTENTS

Prologue 5

Investment Demand and Silver Prices 8

The Relationship of Investment Demand to Silver Prices Historically 10

The Outlook For Silver Investment Demand 14

The Demographic and Geographic Dispersion of Silver Investors 16

Why Invest In Silver 19

Silver As A Financial Asset 20
Silver and Inflation 20
Silver and the Dollar 22

Silver As An Industrial Commodity 25

Silver and Gold 28

Silver and Interest Rates 31
Silver as a Portfolio Diversifier 32

Silver Investment Vehicles 37

Bullion and Coins 37

Futures and Options 40

Exchange Traded Products 42

Silver Mining Equities 43

Silver Investment Holdings 45

Prologue

Clients around the world sometimes have us discuss the long history of silver as a financial asset and investment. In such presentations and discussions we sometimes find ourselves pointing out that when the Communist Party took control of mainland China in 1949 the main currencies used in everyday life in China were Spanish, U.S., and Cuban silver coins. China had been wracked by internal turmoil and external attacks for the better part of the previous four centuries. During that time there often were no strong central governments clearly in control and often no central currency as readily accepted to settle transactions as silver. During this period hundreds of million if not billions of ounces of silver were imported into China, including a great volume of Spanish silver coins minted in Mexico.

When people express surprise at silver's role as the de facto Chinese currency of choice for such a long period of time, we turn the discussion to the U.S. experience. Prior to the creation of the 'greenback' national currency during the Civil War, and even after that until the establishment of a stronger national banking system under the Federal Reserve System after 1913, most of the currency circulating in the United States were bank notes printed by private banks, mostly privately owned local banks. Most of these banks, and there were tens of thousands of them, were state chartered banks, and most states did not have any real capacity to regulate and supervise the banks in their jurisdictions, including auditing the banks to make sure they were functioning safely and actually had reserves to back the private bank notes they were issuing. Banks regularly printed money, bank notes, far in excess of any deposits of gold, silver, or other currencies (bank notes from other banks, U.S. greenbacks). This led to frequent bank panics and runs on banks, as depositors realized their money had been squandered, which led to frequent recessions and depressions. Few people who hark back to the good old days of U.S. finance prior to the establishment of the Fed realize that the U.S. experienced three depressions over three decades, in 1873 - 1879, 1882 - 1885, and 1893 (a series of three recessions that lasted until 1900), all precipitated by private bank malfeasance in the system that existed prior to the Fed. The Fed's creation owes itself to the Bank Panic of 1907, which led to a period in which the U.S. economy experienced a series of severe recessions for 60 of the 90 months from May 1907 until December 1914.

During this time, America was growing rapidly. People were migrating to the United States from all over the world, and internal migration within the country was enormous. People would arrive at ports around the country with foreign currencies, gold, and silver, to start their new lives in America. The most useful and most readily accepted forms of currencies were gold and silver, and silver constituted the bulk of what people carried. Silver was more able to be saved, and was in more useful denominations for everyday transactions.

The same was even more true regarding migration within the United States. A family moving from Pennsylvania, Ohio, or Minnesota to start a new life in Kansas, Nebraska, or California could carry with it bank notes issued by private local banks that were unknown in the new territories or anywhere else, or they could carry gold and silver. Again, silver was the more useful of the two precious metals for carrying one's wealth and undertaking everyday transactions. Spanish "Pieces of Eight" perhaps were the most common currency used in the Middle West and western parts of the United States.

The alternative to silver and gold was that a person moving from one place to another carrying private bank notes faced the prospect of his currency not being accepted anywhere but at his old home. Bankers, shopkeepers, feed stores, realtors, and others had enormous books with hand-printed drawings of the tens of thousands of private bank notes being issued throughout the country. They would have to compare the bank notes being presented to them by would-be buyers of their goods and services to the drawings in the book to make a judgment as to whether the bank notes were genuine or not. Bank note designs also changed regularly at the time, and local banks closed down all the time, so the books were quickly out of date. Even if the notes appeared genuine, and not forged, the sellers or bankers had to take the chance that a private, almost entirely unregulated bank somewhere far away was being run honestly and would honor its notes when they were turned in for greenbacks, gold, or silver.

These two examples set the stage for this report, exploring and explaining why savers and investors love silver.

Stacking Is Investing

A third story helps further clarify and expand the subject. In late 2013 I became engaged in a discussion on a chat-room entitled silverstackers.com. Over a period of several days we had a very lively and interesting discussion of silver market trends and conditions. At one point one participant made a comment that hit home and stuck with me. I had written something about investing in silver, and the respondent said, in essence, 'with due respect Mr. Christian, you need to know that we do not invest in silver, we stack it.' He meant that they did not see silver as an investment, but as a store of wealth, an alternative to holding one's wealth in a nationally issued currency such as the U.S. dollar. That comment contains profound wisdom, even as it also misses a key point.

Many people confuse investing with trading these days. Investing is not limited to shorter term buying, holding, and later selling assets. That is one form of investing, but the concept of investing is much broader and bigger, much more significant than merely such short-term transactions. Indeed, by most definitions and certainly in my mind, investing is much more a buying and holding activity, stacking silver if you wish, than it is the shorter term activities. Those shorter term activities sometimes are called speculating, and sometimes that is all they are. More often these transactions are taken by longer term investors seeking to earn a slightly higher return on his or her investments by switching among assets frequently – like the frenetic driver con-

Investors Stack Silver High, In Coin and Bar Forms

A total of 60 million ounces of silver, in the form of 60,000 1,000-ounce bullion bars, were held at a depository by the Wilmington Trust in 1995, when this photo was taken.

stantly shifting lanes on a highway in the hopes of getting there a little bit faster. Investing is, primarily, a long-term activity, and it includes, or should for astute investors, considerations of the currencies in which one denominates one's long-term asset holdings, including silver.

Investors sometimes do not see themselves as investors. We have seen mining companies hold some of their excess returns in gold, silver, copper, aluminum… inventories of their products. They are in essence investing in these metals. They often do not see themselves as investors, but in effect that is what they are doing: Investing in their own products in the expectation of higher prices later, rather than exchanging their output for cash immediately on outturn. This activity of producers and other commercial intermediaries holding metal in inventories for any of a number of reasons is something that confounds casual market observers, who often inaccurately assume that any surplus of newly refined metal over fabrication demand is by definition investment demand. It is, in a way, but some of those investors may be miners, smelters, refiners, warehouse managers, industrial users, or others who are not investing based on common investment principles, but rather based on commercial considerations particular to their company's financial and operational situation and market conditions at the time. Also, market makers, banks and merchants who stand to buy or sell in the market for purposes of providing liquid two-way markets to commercial and investment entities, often find themselves holding inventories during periods of time when others simply do not want all the metal that is on offer for sale in a given metal or commodity.

These nuances aside, the silver stacker's comment was very profound and telling of the role of silver investing. Many investors buy and hold silver not as an investment in any short-term or speculative sense of the word, but as a core part of their long-term assets, the base in some cases of the individual's wealth. In this way their silver holdings, investments if you will grant us permission to use this word in its broadest sense, are something much more meaningful and visceral to the owners than shares in a stock or a series of bonds they may hold for a period of time.

CPM Group is pleased the Silver Institute has worked with our firm to produce a comprehensive report on the subject of silver investment markets.

Jeffrey M. Christian
Managing Partner
CPM Group LLC
October 2014

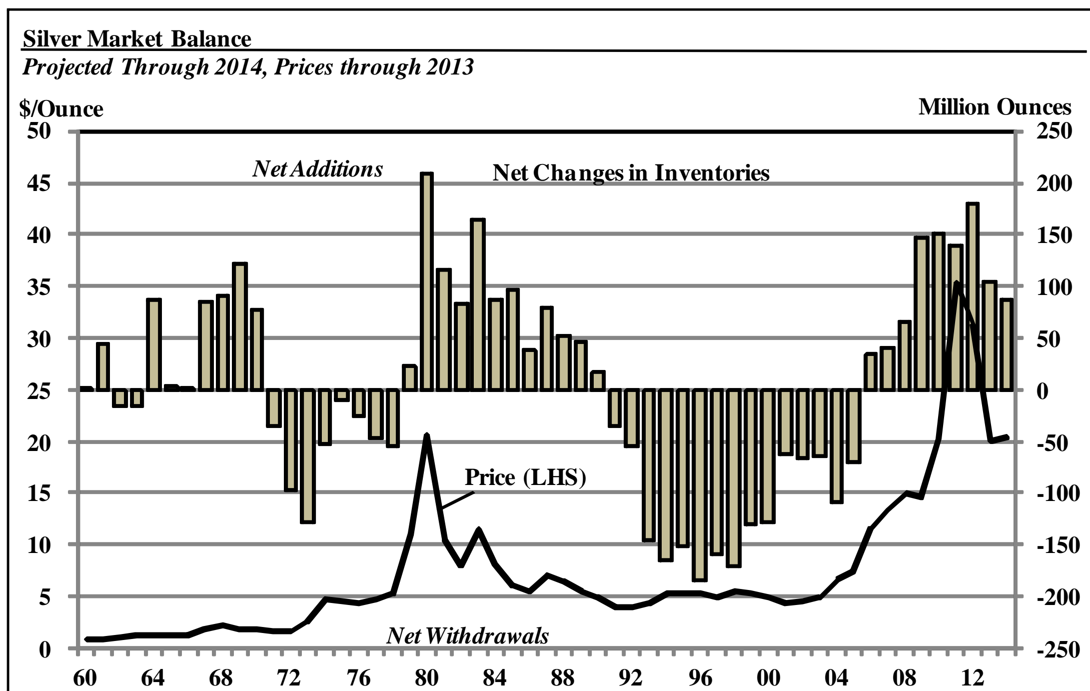
Investment Demand and Silver Prices

Investment demand is the single most important driver of prices in the silver market.

Historically, investors have not always been net buyers of the metal, as they are now and have been since 2006. Over the years they have bought or sold silver on a net basis, taking into account a range of economic, financial, political, and silver market fundamentals in deciding when to be adding silver to their holdings, and when to be divesting. There have been periods when investors sold enormous amounts of silver into a market that had supply shortfalls, keeping prices at stable or even low levels. There also have been periods when investors have massively increased their holdings of the metal, bidding prices sharply higher in order to attract metal that otherwise would have either gone into fabricated products or been stacked up by market-making dealers. The amount of silver that is being added to or released from investor inventories has had a crucial impact on the silver market, moving prices dramatically in either direction.

The current period of investor buying, which began in 2006, is the third time that investors have shifted into this role of net accumulators of silver in modern market history. This shift has been and continues to have profound effects on silver prices. It is the key to understanding why prices have risen sharply since 2006, reached a cyclical peak of $49.82 in April 2011, and why they have remained at historically elevated levels since then. The driving force behind such strong price momentum has been persistently strong investor buying, on top of higher trending fabrication demand for silver. During the eight years between 2006 and 2013, investors have bought about 862.1 million ounces of silver on a net basis, compared to net sales of 1,701.0 million ounces of silver during the previous period between 1991 and 2005.

The fluctuations of silver prices, in turn, also affect levels of investment demand. It was easy for many investors to be bullish about silver's price prospects when prices languished below $5.00 in 2001 – 2003. It was easy for some of those investors to decide to capitalize their gains after the price spiked sharply higher in April 2011 and then came off sharply.

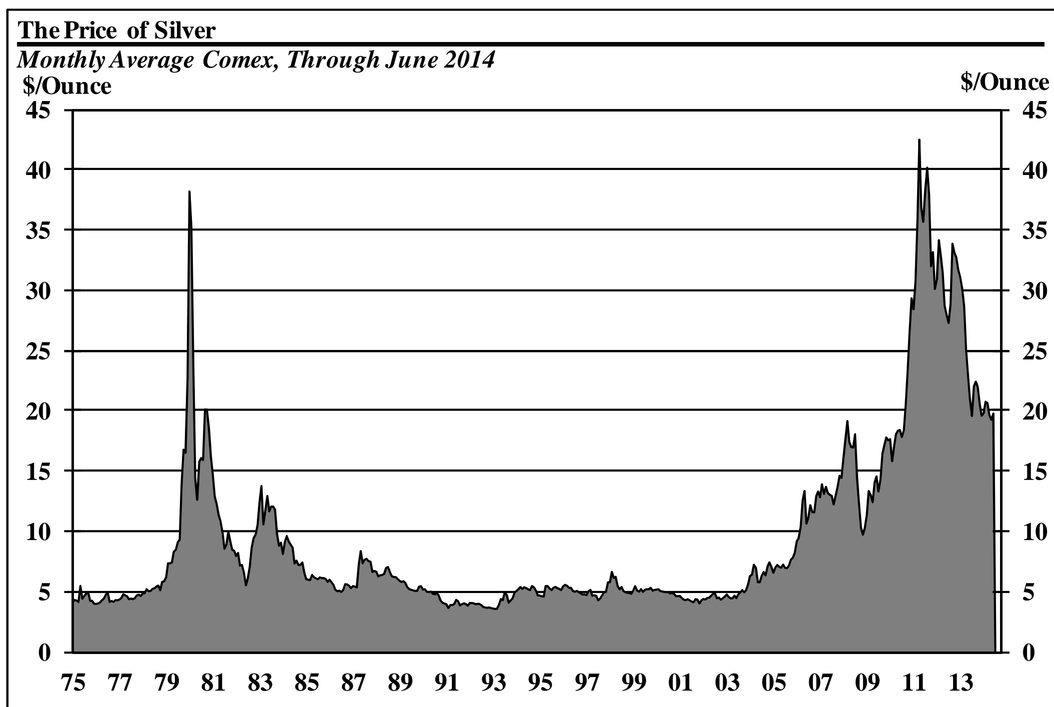


One key factor in the silver market, as with all precious metals markets, is the role of inventory holders, their price expectations, and the effects of their price expectations and consequent market actions on supply, demand, and price. If inventory holders expect silver prices to rise, they will continue to add to their existing holdings, other things being equal, pushing prices higher. If, however, they expect prices to decline, they most likely would unload their metal holdings, pushing prices lower.

Over the years investors in silver have demonstrated a strong level of sensitivity toward short and long term price trends. Changes in investor expectations of silver prices often trigger short and long term buying and selling activities, bringing profound effects on silver prices.

The most recent example was the selloff in the silver market during between late 2011 and 2013. While investors remained net buyers in the silver market and have bought historically elevated levels of silver during this period, there were increased selloffs of silver by stale-bull investors, which pushed down net investment to 105.3 million ounces in 2013, down 42% from 2012. This was the lowest level of investment demand since 2008, when investors stacked up another 64.8 million ounces of silver. This sharp decline yet relatively high level of investment demand was reflected in the price of silver, which was down around 24% (on an annual average basis) from 2012 but was the third highest annual average price of the metal ever.

These bouts of investor selloffs were due to a combination of investors becoming disenchanted with the inability of silver prices to break past the highs reached in early 2011 and a recovery in the equity and real estate markets. Some of the selloffs were by short-term trend followers, who had been buying silver because the price had been rising, and began selling in earnest in 2013, after seeing the downward and sideways movements of silver prices. There also were shorter term opportunistic investors who were cycling out of silver into U.S. stocks, which were rising at the time. Still other investors were selling silver because they had had over-blown expectations for silver's upward price potential. They had bought into stories that the global financial system was going to collapse, that the dollar would be worth-



less, that inflation rates would skyrocket, and that banks would be collapsing by the hundreds. When none of these financially apocalyptic trends emerged over the past few years, these investors became disappointed that silver did not achieve the over-promised heights of $50, $100, $200, or other equally unattainable levels.

Over the long term, investment demand and silver prices are generally positively correlated. There is a strong 59.1% correlation between annual investment demand and real silver prices overall between 1960 and 2013. Historically, during periods in which investors are net buyers in the silver market, this positive correlation becomes even stronger. In this current period of net investor buying since 2006, annual investment demand and real silver prices have had an even stronger correlation of 68.6%. This compares to the correlation of 68.4% between 1979 and 1990, and 63% between 1960 and 1970, two previous periods of net investor accumulation of silver.

In contrast to the high positive correlation between silver price changes and investment demand levels during times when investors are net buyers, the relationship can become negative during periods when investors are selling. For example, between 1991 and 2005 investment demand had a negative correlation with silver prices. The reason was that investors generally did not wish to hold silver or buy more during this period and were net sellers of silver in response, reflecting this disinterest in the metal. Silver prices during this period generally fluctuated in line with the strength in fabrication demand as well as global economic conditions. Because of this lack in investor interest in holding silver, however, prices remained low in this period. Annual price volatility was also low during this period.

Silver Investment Demand and Price Correlations

	Correlation	Total Net Investor Buying / Selling (Moz)	Average Prices	
			Nominal	Real
1960-1970	63%	479.7	$1.42	$10.50
1971-1978	45% -	450.5	$3.67	$17.21
1979-1990	68.4%	1,013.2	$8.78	$23.08
1991-2005	-50.56% -	1,701.0	$5.11	$7.02
2006-2013	68.62%	862.1	$20.65	$21.74
1960-2013	59.12%	203.5	$7.26	$14.99

The Relationship of Investment Demand to Silver Prices Historically

Once a standard in world monetary systems, silver plays important roles both as a financial asset and industrial material. Historically investors have always been buying and selling silver, taking into perspectives of changing economic, financial, and political conditions, as well as supply and demand fundamentals of the silver market.

Broadly speaking, the silver market has evolved through five different phases over the past 50 years.

1960-1970: The Beginnings of a Free Silver Investment Market

The U.S. government had operated silver purchase acts since 1878, and bought metal from then into the 1960s under a series of laws. The U.S. Treasury had been a buyer of silver between 1930s and 1950s, and the U.S. reserves peaked in 1959, when the Treasury had 2.06 billion ounces of silver on hand and another 1.331 billion ounces were outside the Treasury in circulating coinage, for a total of 3.391 billion ounces. The Treasury had a policy of buying domestically mined silver at a nominal 90.5 cents per ounce and selling silver at a nominal 91 cents. In hindsight this looks as if the Treasury was effectively putting a cap on the U.S. market price of silver. It was, but when the Congress mandated that the Treasury use these prices, these levels were far above actual market prices, forcing the Treasury to buy silver at above-market prices for the benefit of U.S. mining interests. The legislation had the effect of pulling silver into the country, as silver producers and holders elsewhere sought to take advantage of the U.S. government's largesse in this matter. By 1960 the U.S. Treasury had become a net seller. In 1961 it began to take measures to phase silver out of its circulating currency and ordered silver certificates out of circulation, freeing silver reserves held against these bills and reducing the public's call on Treasury silver. In November 1961, the government also suspended silver bullion sales by the Treasury at the formerly fixed price of 91 cents. In late 1963, the Treasury resumed its silver bullion sales. From 1960 through November 1970, it sold a total of 1,016 million ounces of silver bullion. These sales by the U.S. government kept total silver supplies at high levels throughout this period in an effort to restrain silver prices while the Treasury moved to severe all ties between its currency and silver.

Government steps to remove silver from currency led investors to conclude that the price of silver would rise sharply once the Treasury was no longer supplying the market with such large volumes of metal. Much of this silver sold by the Treasury, especially the bulk of it used in coins, found its way quickly into the hands of investors.

Investors were keenly interested in silver in the early 1960s, having bought 46.4 million ounces of silver between 1960 and 1961. They sold 32.6 million ounces of silver in 1962 and 1963, and became net buyers of silver again from 1964 through 1970, absorbing around 465.9 ounces of silver during this period.

The price of silver rose from $1.29 to a peak of $2.57 in 1968, before falling back. The rise and fall in silver prices was coincidental with the volume of these investor purchases. As investors increased their demand for silver from 1964 through 1968, prices rose; as investor demand decreased over the next three years, prices softened commensurately.

The weighted-average price paid in these investor acquisitions, using annual average prices, was $1.88 per ounce. This figure will be important in understanding the next phase of the silver market, from 1971 into 1978, when the new supply of silver fell short of fabrication requirements and investor selling accommodated the resulting deficit.

1971 to 1978: Years of Silver Shortage

Throughout the 1970s, total new silver supplies fell far short of meeting fabrication demand requirements, as mine production remained rather static for most of this period. From 1971 through 1978 there was a cumulative deficit of new supply over demand of 450.5 million ounces. The silver that filled this gap came from the 620.5 million ounces of silver inventories – much held by investors – built up during the previous decade.

Investors became net sellers of silver, replacing the U.S. Treasury as the source of silver to make up for a major, ongoing shortage of newly refined silver compared to fabrication requirements. The difference

was that in the early 1960s the U.S. Treasury had sold at a fixed price, because it was acting to restrain silver prices. In contrast, investors wanted increasingly higher prices for the service of acting as inventory holders warehousing silver at a time when more silver was entering the market than was being used in fabricated products. The weighted average price of the investor silver sales from 1971 through 1978 was $3.21, 71% higher than the price they had paid for this metal in the late 1960s. The average nominal price of silver was $1.54 in 1971. The annual average price rose to $4.69 in 1974, and then spent the next four years between $4.35 and $5.40.

1979-1990: Renewed Surplus; Silver Prices Rebound and Decline

Investors became net buyers of silver from 1979 to 1990. During this time they purchased one billion ounces of silver. Nominal prices averaged $8.78 cents while real prices (in 2012 dollar terms) averaged $23.08.

This transition from investor net selling to net buying was stimulated by major global economic and political events in the late 1970s, most notably in the form of a major cyclical upward surge in inflation throughout the industrialized world. By 1979, investors and other market participants had come to the realization that the silver market was facing a severe shortage of metal, and that the nominal prices of $4.00 and $5.50, which had prevailed during most of the late 1970s, were too low, and that prices are likely to rise sharply. They ceased selling their existing silver holdings, and instead began adding to their holdings.

Simplistic retrospectives of the silver market in late 1979 have tended to focus on the high profile purchases of large amounts of silver and silver futures by various wealthy individuals. In reality, there was a tremendously broad-based rush to buy silver by investors worldwide at the time. The Hunt brothers, Nelson (Bunker) and Herbert, were among the investors. They were not seeking to corner the silver market, but seeing the tight supplies sought to ride the same wave that millions of other investors also were positioning themselves to ride. By the final quarter of 1979, silver prices had risen to levels between $15.00 and $25.00 per ounce.

A series of political events, including the continuing U.S. hostage crisis in Iran and the Soviet invasion of Afghanistan, motivated investment demand, and kept silver prices high and volatile into the first part of 1980. Prices peaked at $48.70 on a daily settlement basis in January 1980, with a monthly average price of $38.28. Prices fell sharply in April. The largest daily move in history in silver prices came the day in April that the Hunt brothers were hit by a margin call they failed to make, for logistical reasons more than financial problems, prompting automatically required liquidation of their position by their brokers. It was the only recorded instance we have ever found of a commodity losing half of its value in a single day. High inflation, high nominal interest rates, a deep global recession, and ongoing international political problems further stimulated investor interest in silver and other tangible assets, keeping silver prices high by historical standards for the rest of 1980. Prices dropped as low as $10.80 in May, but rose back to $25.00 in September, as the Iran-Iraq war erupted. By the end of 1980, silver prices had subsided once more, to around $16.00.

By the beginning of 1981, the silver market was straining to adjust after the traumatic events of 1980. Industrial silver demand was declining, both because of the worldwide recession that had set in, and because of thrifting and substitution in reaction to higher silver prices. Investment demand for silver also fell sharply. Investors were aware of the reduced fabrication demand for silver and of the amount of silver in scrapped jewelry, silverware and coins sold when prices were higher in early January, backed up at refineries. Other investors had lost money in 1979 and 1980, and were wary of returning to the market. Still others were distracted from silver by more attractive financial markets.

The worldwide recession persisted until late 1982, continuing to restrain fabrication demand and discouraging investment buying. Nominal silver prices reached a cyclical base of $4.98 in June 1982, 10% of the $48 peak just 30 months earlier. June 1982 also proved to be the trough of the recession in the United States. During 1982 serious problems erupted in the international debt market, in particular relating to the debt repayment problems of certain countries in Eastern Europe and Latin America.

In late 1982 investor interest in silver was rekindled by several forces, all of which emerged at roughly the same time. The international financial market panic led some investors to turn to silver. Others were attracted by what they saw as unsustainably low prices. Investment demand also was encouraged by a rapid easing of credit market conditions by monetary authorities in most industrialized nations; this easing led to an immediate revival of inflation fears. As a result of all of these forces coming to bear at once, investment demand picked up during the second half of 1982 and the first quarter of 1983. This influx of investor buying helped take silver prices from the June 1982 low of $4.98 to a peak of $14.72 in March 1983.

In March 1983, several trends came into play in reversing the rise in silver prices. First the price had nearly tripled in nine months. Such a fast ascent led to profit-taking by investors; it also constricted industrial use. On the supply side, secondary recovery of silver from scrap and coinage increased in response to the higher prices. OPEC lowered its official benchmark oil price for the first time in the cartel's history. The sudden decline in petroleum prices quickly reduced inflation expectations, as did monetary policy actions by the U.S. Federal Reserve Board and other major central banks in Europe and Japan. Silver prices had averaged $13.96 in February 1983. In March they averaged $10.62.

Prices recovered slightly during the summer months, but from 1983 until 1990 the trend in prices was downward. This downward trend significantly affected the physical market: It discouraged new developments of primary silver mines, except where high ore grades or other factors made for extremely efficient plants; it also led to a reduction in the secondary recovery of silver. On the demand side of the market, relatively low silver prices removed the incentive to use less silver or to substitute away from silver in products.

1991-2005: Deficits Widen

From 1991 through 1993, the silver market experienced extremely rapid fabrication demand growth, sluggish supply, and weakening prices. Investors again became net sellers, pushing prices down to a nominal trough of $3.52 in February 1993. Total supply continued to expand after 1993, but did not keep pace with demand. The deficit in the silver market widened from 28.9 million ounces in 1990, the first year of deficits since 1978, to a peak shortfall of 214.3 million ounces in 1997. Strong economic growth fueled demand during the late 1990s in particular, while silver supplies could not keep pace. Investor selling filled these gaps between annual newly refined metal supplies and fabrication demand.

The silver market was relatively weak, except for a few brief periods, from 1998 to 2003. One of these occurred in early 1998, when futures prices surged to a high of $7.50 per ounce and spot prices hit $8 on *news* that Warren Buffett's Berkshire Hathaway had purchased 129.7 million ounces between 25 July 1997 and 12 January 1998. In a statement released on 3 February 1998, the company said it had accepted delivery at that time of 87.5 million ounces of silver bullion in London, and the remaining 42.2 million ounces were due for delivery by 6 March of that year. The transactions were all made through Phibro for London delivery, in the over-the-counter forwards market. Prices remained relatively subdued from the end of that incidence until the end of 2003.

Between 1990 and 2005, the imbalance between fabrication demand and available supplies resulted in a cumulative deficit of 2.04 billion ounces. This shortfall was met by the drawdown of readily available investor bullion inventories accumulated by the end of 1990.

2006-Present: A Surge in Investment Demand, and Historically Elevated Prices

One of the most important events to have occurred in the silver market over the past decade was the shift from investor net selling to net buying. This shift occurred in 2006, when the market balance for silver reversed sharply from a deficit to a surplus, as investors began to add silver to their holdings on a net basis once again. The market has remained in surplus since then, signifying that investors continue to buy silver for addition to their holdings, in essence bidding the metal up to prices at which they will buy while fabricators pull back from purchases and suppliers increase their output.

This shift toward investor net buying was a combination of declines in the gross sales of silver from long -term investors and increased demand for silver from new investors. Many investors, who had sold most of the silver that they held during the previous 15 years of silver market deficit, began to purchase silver again. There also were investors new to the silver market that began to purchase silver. The launch of silver exchange traded funds with the first having started in 2006, opened up the silver market to a much wider array of investors than ever before. Because silver also is seen as a financial asset, especially in recent years concerns over fiscal deficits, political uncertainty, and a weak global economic environment, many investors have sought to hold silver as a hedge and safe haven.

Prices registered strong gains as investors began the shift toward net buying. In 2004 prices started to rise sharply as net selling subsided from earlier higher volumes toward the shift over to net buying. On average nominal silver prices gained 36.8% to $6.70 that year. What had supported this rally in silver prices was a sharp decline in investor inventories. While investors were still net sellers of silver in 2004, their inventories had declined to low levels and the amount of investor destocking was around one half of what it had been in 2000, just four years prior.

This marked the beginning of strong price gains over the next several years. Between 2006 and 2013 investors added 862 million ounces of silver to their holdings on a net basis. During these seven years nominal silver prices averaged $20.65, and real prices averaged $21.74. Prices have risen at a double digit pace between 2006 and 2011, with the exception of a 2.0% drop in 2009. By 2011, prices touched an cyclical peak of $49.82 in April of that year. Since then silver prices have trended lower, but remained at historically elevated levels.

The Outlook For Silver Investment Demand

The extent to which investors will be buying silver will determine the direction of future silver prices. There is a very large amount of silver held in reported and unreported inventories in the market. There also is a large amount of newly refined silver from miners and scrap recyclers slated to enter the market in the next few years. The silver market is expected to be well supplied over the next few years. Given likely market trends, the silver market could see reduced amounts of silver surpluses over the next couple of years, but then increasing supply flows beyond 2016.

Investor net buying is projected to continue in the foreseeable future, but the volumes that investors will collectively want to buy and hold can only be guessed. The intensity of investor demand for silver will depend on how investors view the world around them.

Investors could buy less silver in the coming few years, which could result in further declines in silver

prices. If global economic growth is much weaker than previously expected and inflation remains low in major economies, investors may lose some interest in silver due to concerns about slower consumption of the metal in many of its industrial end use sectors and a diminished concern over inflation. This is not to say that investors would sharply reduce their silver purchases, but there could be a reduction in net purchases.

More likely, however, in a weak economic growth scenario it is likely that some investors would pick up more silver as a safe haven asset, for fears of growing risks in the global economic, financial, and economic imbalances. The reality is that inflation has not been a threat throughout the sharp rise in investor demand for silver and silver prices from 2004 until now. Inflation fears may have driven some investors to buy silver, but clearly the bulk of the purchases were from investors motivated by other trends, such as the economic chaos and destruction of wealth since 2007, increased political concerns, volatile and uncertain currency markets, and worries about the stability of the banking system.

Beyond the next couple of years, however, silver investment buying trends may well reverse course. Many of the root economic, political, and financial problems remain unresolved. Some have gotten better, and some are worse than they were in 2008. Overall economic growth is improving, but the pace of expansion remains slow in many parts of the world, heightening the vulnerability of major national economies and the global economy to future economic or financial shocks. In this environment, investors may begin to increase their net silver purchases in the years ahead. Current trends suggest investors may accumulate as much as one billion ounces of silver over the next decade. This would be expected to push annual average silver prices to a fresh record high further out in the horizon.

The Demographic and Geographic Dispersion of Silver Investors

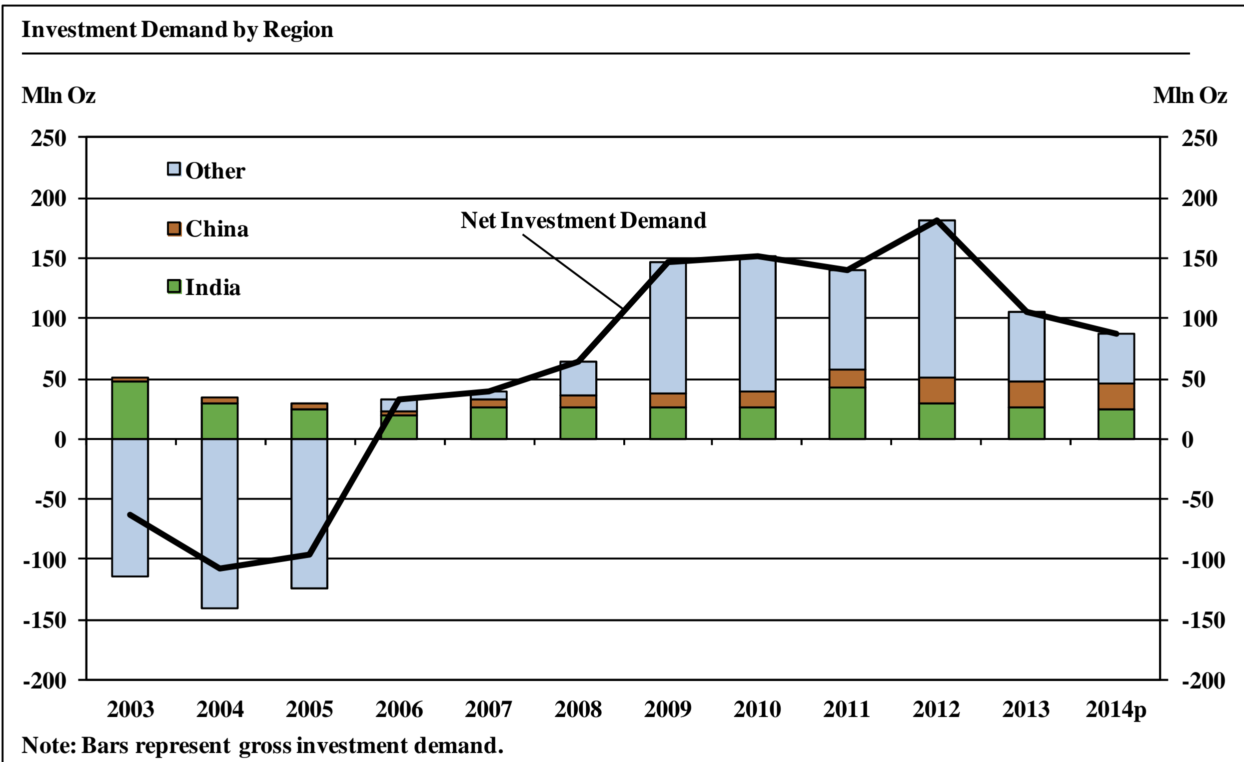
One of the questions people commonly have is who actually invests in silver. Silver investors run a full range of people, both in terms of the regions of the world in which they live and their socio-economic positions in the world. Silver investors include some of the wealthiest people in the world, as will be discussed shortly. Other silver investors include farmers and urban laborers in India and many other countries throughout Asia, Latin America, and the Middle East.

The Prologue to this report discussed how silver coins from other countries had been the major currency in China prior to the takeover by the Chinese Communist Party in 1949. While the new government called for citizens to turn in their silver, and proclaimed that all of the silver had been surrendered to the government by the middle of the 1950s, the reality was that old silver coins, bars, and jewelry used as forms of savings were being sold throughout the country by individuals well into the 1990s. Investing in silver is far more prevalent than many people believe. In North America silver investors range from some of the wealthiest people in the world to ordinary people. Silver investing also is common throughout Asia and Latin America. Investing in silver is a bit less common in Europe than is gold investing, but even in Europe there are strong traditions of silver investing across social and economic strata.

One common misperception is that silver is 'poor man's gold,' that a great portion of the investors who buy silver choose this metal because it has a lower unit price than gold. There clearly are some investors for who this is true, but it is clear that this is not the rationale for silver among the vast majority of investors buying this metal.

In the United States the largest volumes of silver bars, coins, and medallions (rounds produced by non-governmental mints that are not official coins of any country) appear to be purchased by upper income, college educated professionals between the ages of 40 and 65. This demographic group accounts for the bulk of silver investment purchases in the United States, and roughly 90% of the gold demand. The same is true in other countries.

Investment Demand by Region



Note: Bars represent gross investment demand.

As just mentioned, some of the wealthiest people in the world are active or have been active silver investors. There is a strain of thought among extremely wealthy people who made their money in computers, software, and other high technology industries that natural resource investments are the perfect complement and portfolio diversifier for them, since so much of their fortunes are tied up in industries seemingly at the other end of the spectrum. Within the natural resource sector, gold and silver tend to be the key focal points for these investors. In reality, their interest in precious metals and natural resources is more nuanced. Many of them are keenly aware of the roles gold, silver, and other metals play in the technology industries and in modern, technology-intense living; they find society's on-going need for gold and silver, as well as some strategic and critical metals, as compelling additional reasons to invest in silver and other metals.

One of the most famous wealth investor groups to have become involved in silver was the Hunt brothers, Nelson (Bunker) and William Herbert Hunt. These two brothers bought around 65 million ounces of physical silver and larger positions of silver futures and options in the late 1970s. Contrary to popular mythology, again, they were not trying to corner or manipulate the silver price. The Hunt brothers had begun to realize that there were fundamental imbalances in the silver market's supply and demand as early as the middle of the 1970s. (They were not alone. As the earlier section on the historical relationship of investment demand and silver prices discussed, a great many investors saw these trends emerging starting in the early 1960s and began hoarding silver.) The Hunts did their silver investing large, and when they had their positions largely in place they gladly shared their wisdom and insights with other wealthy investors and others who would listen. The Hunts' view was that a wave of supply and demand imbalances would drive silver prices higher. They wanted to ride that wave. If in their enthusiasm they encouraged others to see the value of silver and buy, it might add to the size of the wave, and that would be fine with them.

The Hunts' silver buying program came undone for some mechanical reasons. They became insolvent, and in their negotiations with their banks in early 1980 they had to agree to turn their physical silver holdings over to Citibank, to be liquidated when the bank saw fit. (This history is being reduced to the minimum, to allow us to focus on the key point we wish to make here: That very wealthy and savvy individual investors get involved in silver. For the brevity we apologize, and trust that critics will not try to pick nits over seeming oversights in our abbreviated discussion here.)

The Hunts' silver was sold in 1985. Some of it went to two industrial users of the metal. Some was sold by a dealer that did not divulge to CPM's analysts their outlets. More than half of it was sold to one prominent, extremely wealthy family. Secrecy was demanded of all involved in the transaction. That family held the silver from 1985 into the early 1990s, when it sold it to a commodities dealer. That commodities dealer sold the majority of that position to a wealthy high-tech billionaire. He held it for several years, before deciding that he would rather buy shares in an emerging silver mining company for his silver price exposure than hold physical bullion. So he sold the metal back to the dealer, which held it for a time on its own proprietary account. After a couple of years that dealer's new management decided it should cease to trade silver and other non-energy commodities on a proprietary basis for its own account, and directed the trading staff to sell the silver. The silver was purchased by an investment firm run by another billionaire who had decided to buy silver. His company held the metal for several years, until silver prices rose to the high end of its target range. It then sold its silver. Some of that was repurchased by the high-tech investor, who was repositioning himself out of the mining shares, where he had done very well, back into physical silver among other assets. Thus, much of the silver held by the Hunts in 1979 and 1980 has passed from hand to hand among some of the wealthiest people on earth in the ensuing third of a century.

These sorts of legacies are part of the allure of silver, the idea that hoards of silver can pass from one prominent historical figure to others over time. The fact that much of the silver plundered in South America and Mexico by the Spanish and Portuguese during the age of conquest passed to Europe, where it threatened to destroy the gold-based currency systems of continental Europe and the bimetallic gold-silver monetary system in England, and then was used to finance trade with India, China, and other Asian countries similarly helps investors to understand the timeless aspect of silver investments.

In recent times, in 1997 and 1998 Warren Buffett's Berkshire Hathaway purchased 127.9 million ounces of silver, at prices below $5.00 per ounce. When silver rose to $9 to $10 per ounce it sold that position.

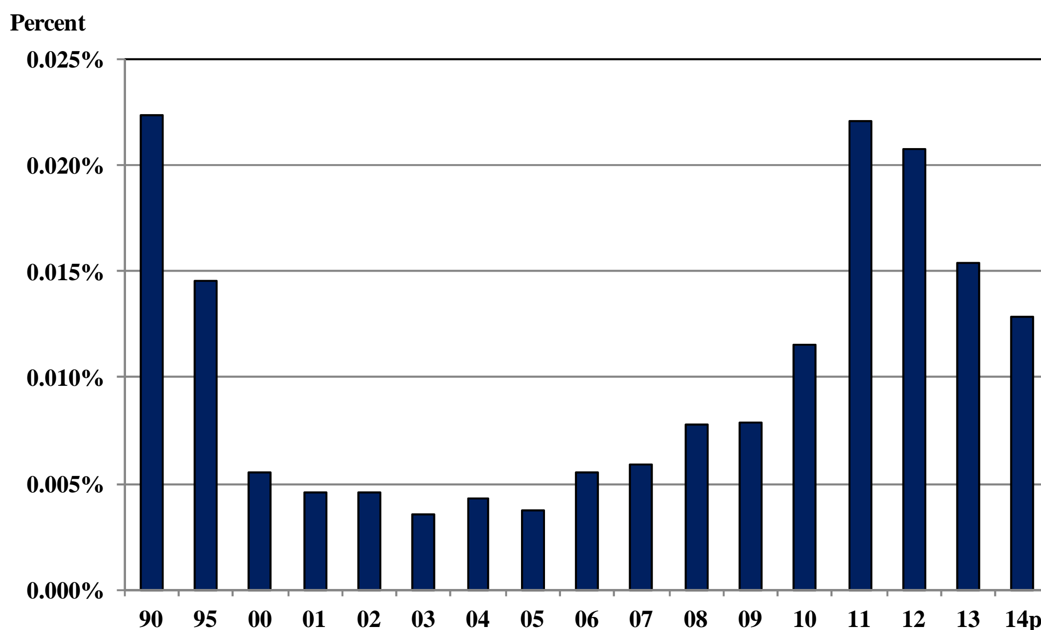
Wealthy investors, along with less famous and less financially endowed individuals around the world, continue to see value in silver. Most buy silver for a variety of reasons. They see silver either as an investment or, like the silver stackers mentioned in the Prologue, as an alternate form of money and store of value.

Why Invest In Silver

Macroeconomic, financial, political, and silver market fundamental factors driving and conditioning silver investment demand

There are various reasons why investors buy silver. Simply put, they look to silver as an asset that serves the purposes of capital preservation and potential capital appreciation. That's too simplistic to really give meaning to why investors buy silver, since most investors in reality should turn to all of their investments for one or both of those reasons. Silver serves the purpose of preserving invested capital, particularly in developing countries where income is converted to silver jewelry and objects. The metal offers **a hedge against inflation and currency market volatility** and in times of heightened political and economic risks is a safe haven asset. These very factors that affected the prices of gold also influence the prices of silver. The historically strong correlation between silver and gold prices allows investors to buy silver as an alternative to gold.

Additionally silver holds some interesting characteristics in its own right, because it is **a hybrid metal, having both financial and industrial traits**. This duality of silver as a commodity has provided some protection against the vagaries of the financial markets that hit gold at times, even though silver prices historically are more volatile than those of gold. Some people believe that there is a stable price relationship between silver and gold, but the reality is far more complex. Since silver and gold prices were freed from government price determinations in the 1960s, the gold/silver price ratio has varied widely, reflecting the changing relative fortunes of each metal. The recent downward corrections in silver prices have offered investors a unique opportunity for longer term capital appreciation. The metal's role as **a portfolio diversifier** is different to that of gold, in that silver has a different risk-reward profile. Its historically low correlation with stocks, bonds and other assets makes it an important alternative asset.



Silver as a Financial Asset

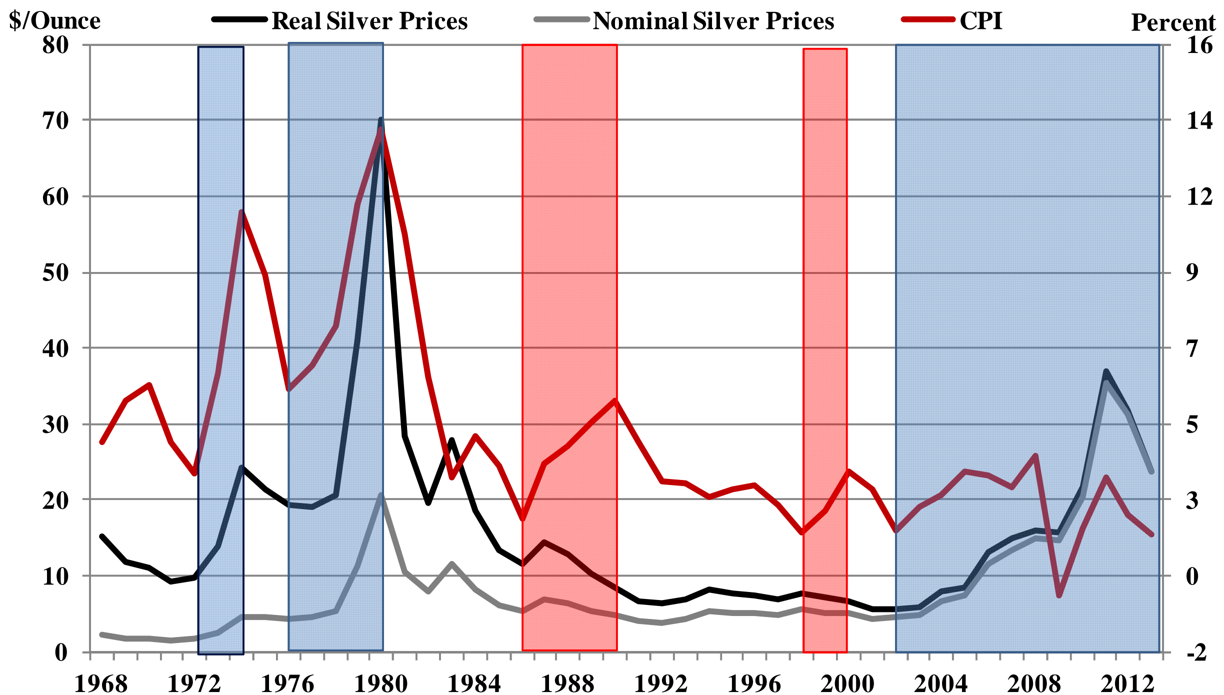
Silver and Inflation

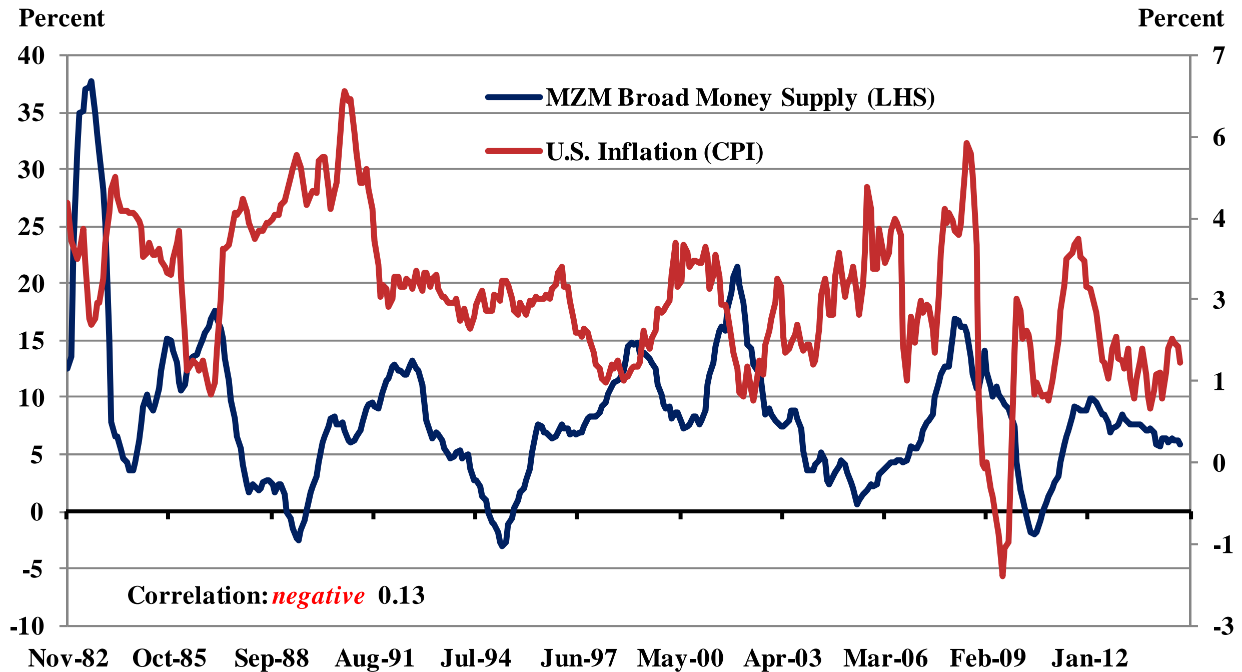
Silver is regarded as an inflation hedge. Comparing increases in silver prices and increases in U.S. inflation historically, silver has acted as a hedge against inflation during certain periods but has not performed well as a hedge against inflation during other times.

Silver was an exceptional inflation edge during periods including 1972 – 1974, 1976 – 1980, 2002 – 2013, when the U.S. inflation is moderate or high, and silver prices have generally kept pace with or exceeded the increase in inflation.

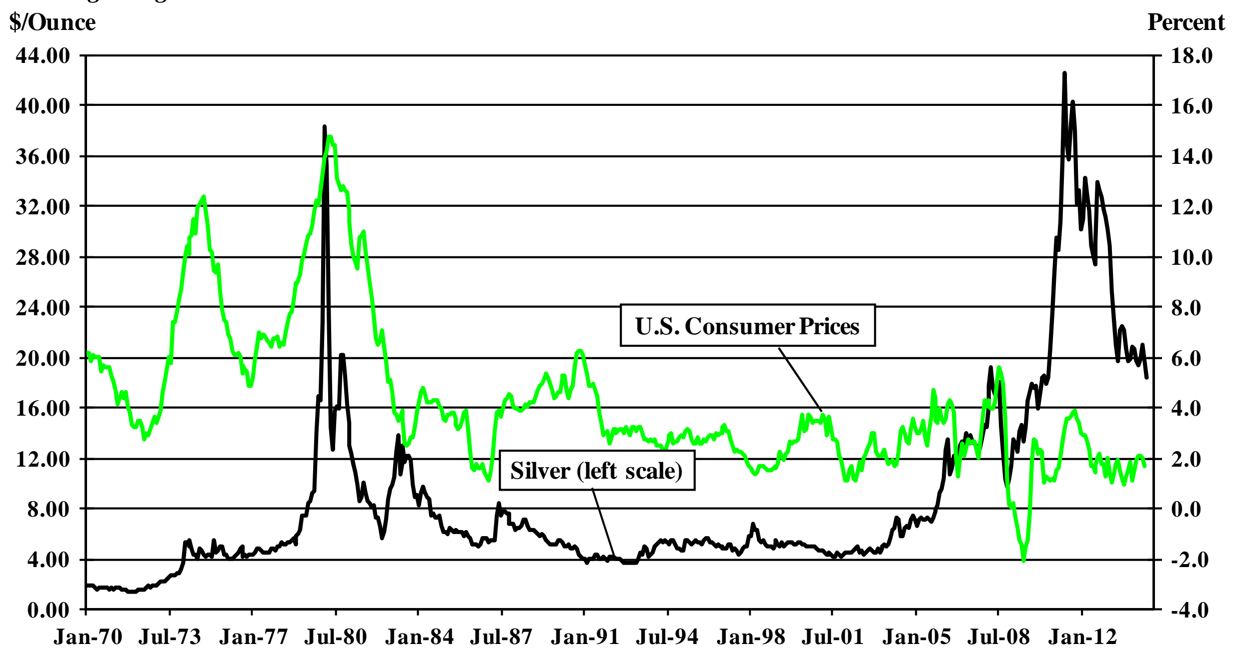
There are also periods when the price of silver has not kept pace with inflation or has declined during a period of economic inflation, and silver is considered a poor hedge against inflation in that period. Such periods include 1986 – 1990 and 1998 – 2000.

While silver has many industrial uses, which tends to be strongly influenced by economic trends, silver prices do not always correlate to the inflationary condition under those economic circumstances. There are multiple reasons. Fist, economic growth does not always result in inflation. There are various other factors related to raw material inputs and productivity within the economy that contributes to or weigh on the level of inflation. Secondly, silver prices tend to respond to the collective buying and selling activities by investors, who have various time horizons for holding the metal. During periods of rapid economic growth, such as early to mid-1990s, inflation remained low. Investors did not wish to hold silver and had been liquidating their silver inventories that had been built decades earlier. But for the strong and growing industrial demand for silver, prices would have dropped to even lower levels than they have





Footnote: MZM is the measure of broad money supply, including demand deposits, produced by the Federal Reserve Bank of St. Louis to replace M3. It is M2 less small-denomination time deposits plus institutional money funds.



been. In this case, silver prices had little to do with inflation, but more to do with the net selling by investors and net buying by fabricators.

That said, when investors have developed strong convictions about inflationary conditions in their economic environment, they tend to trade silver on the basis of these convictions. Thus, investors' inflationary expectations tend to have a stronger impact on the levels of silver prices. Silver's role in hedging against in inflation is more complicated, when investors take into account their exposures to inflationary pressures in developed and developing economies.

Inflation has remained subdued in the developed world despite the large amount of paper currency being printed. The surplus of labor in these countries has weighed on inflation. Industrial capacity utilization in developed counties also has not reached levels which would promote inflation. Seeing little impact of monetary accommodation on inflation resulted in many gold investors backing away from making fresh purchases based on the expectation of higher inflation, beginning in 2012 and accelerating in 2013 as they grew disenchanted with their investment thesis not materializing in the real economy.

In the developing economies that are facing stronger inflationary pressures, investors have more incentives in utilizing silver, among other financial instruments, as an inflation hedge. This was the case following the global financial crisis in 2008. As monetary expansions and increased input costs raised the level of inflation in many major developing economies, China and India included, investors in these countries began buying silver heavily.

As silver prices headed lower, on an annual average basis, in 2012 and 2013, many investors in the developing countries who were seeking protection from inflation found silver to be less important at that time as an inflation hedge. While many of them remain concerned about longer term inflation, expectations of an imminent spike in inflation moderated. Given that shift in attitudes, investors were less likely to buy silver in a rush on the grounds of hedging inflation, and instead waited for lower prices.

Buying silver on the grounds of hedging against inflation is expected to have little influence on silver investment demand, at least over the next couple of years, primarily because CPM Group's economic view does not have inflation rising sharply to alarming levels in the industrialized economies during this time, as well as much moderated levels of inflation in major developing economies.

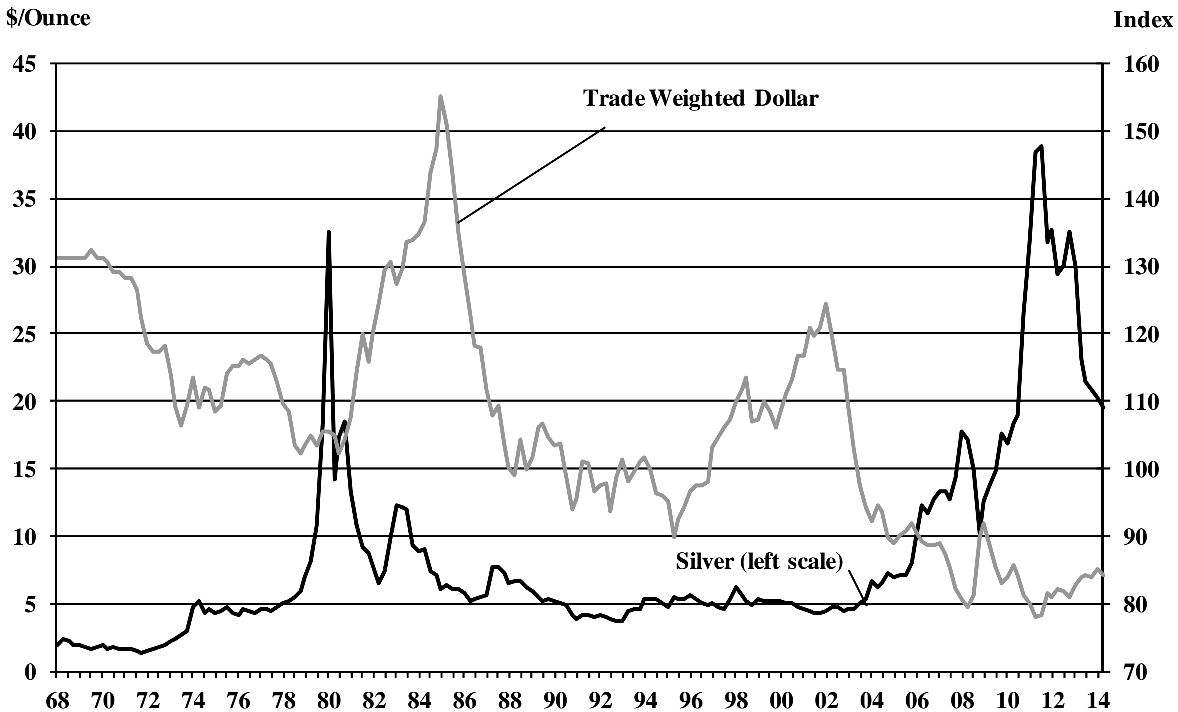
Inflation could regain some importance as a driving force of gold investment demand and prices over a longer period, but only to a limited extent. CPM Group does not expect or project that the global monetary accommodation of recent years is likely to have hyperinflationary consequences. Our concern is more that deflation is a greater risk than worrisomely high inflation.

Silver and the Dollar

Over the long term, silver has held a negative annual correlation to the U.S. dollar. Between 1970 and 2013, this annual correlation stood at -0.21. For much of the past decade, this negative correlation of silver to the U.S. dollar has strengthened, particularly after 2006. This has taken the correlation of -0.21 from 2000 through 2005 to -0.51 from 2006 through December 2013.

This stronger negative correlation is due to further weakness in the dollar, which has been trending lower on a long term basis and declining at a fast pace after the recession in early 2000s. Since the 2008 financial crisis, the surge in the supply of dollars to help stimulate the U.S. economy amid recessionary conditions extended further downward pressure in the dollar. Investors have been increasingly keen on buying silver as a currency hedge since the introduction of massive monetary easing.

Silver and the U.S. Dollar
Quarterly, Through Second Quarter 2014



Additionally, there was an increase in currency hedging by institutionally managed investment funds focusing on commodities, which have grown sharply in size since 2006. Many of these funds have been trading their commodities portfolios based on a simplistic view that commodities trade against the dollar. They buy commodities, including silver, when the dollar falls and they sell commodities when the dollar is rising. This has had the effect of increasing the negative correlation between commodities prices and the dollar exchange rate. Silver has been a major focus of some of these commodities funds.

Seen from a shorter term perspective, the monthly correlation between silver prices and the U.S. dollar has fluctuated widely, between extremely positive and extremely negative. Between the end of 2010 and September 2013, silver prices and the U.S. dollar held a very strong negative correlation, which varied between -0.79 and -0.96. Since October 2013, however, this negative correlation began to weaken, down to roughly -0.45 in June, as fewer funds are trading silver against the dollar, and instead are trading silver based on other factors, including silver's fundamentals and its relative value against U.S. equities.

These shifts in the correlation between silver prices and the U.S. dollar reveal several important market factors: First, market participants have been focused on silver's role as a financial asset between the end of 2010 and September 2013. While fabrication demand for silver has grown strongly during this period, there is a sharper increase in investment demand, which had helped push silver prices to its cyclical peak in April 2011. There is firm interest from shorter focused investors, most of which trade silver in the paper market, particularly through futures and options markets. From 2011 to 2013 the silver market has registered historically record high trading volumes of silver futures and options in global exchanges.

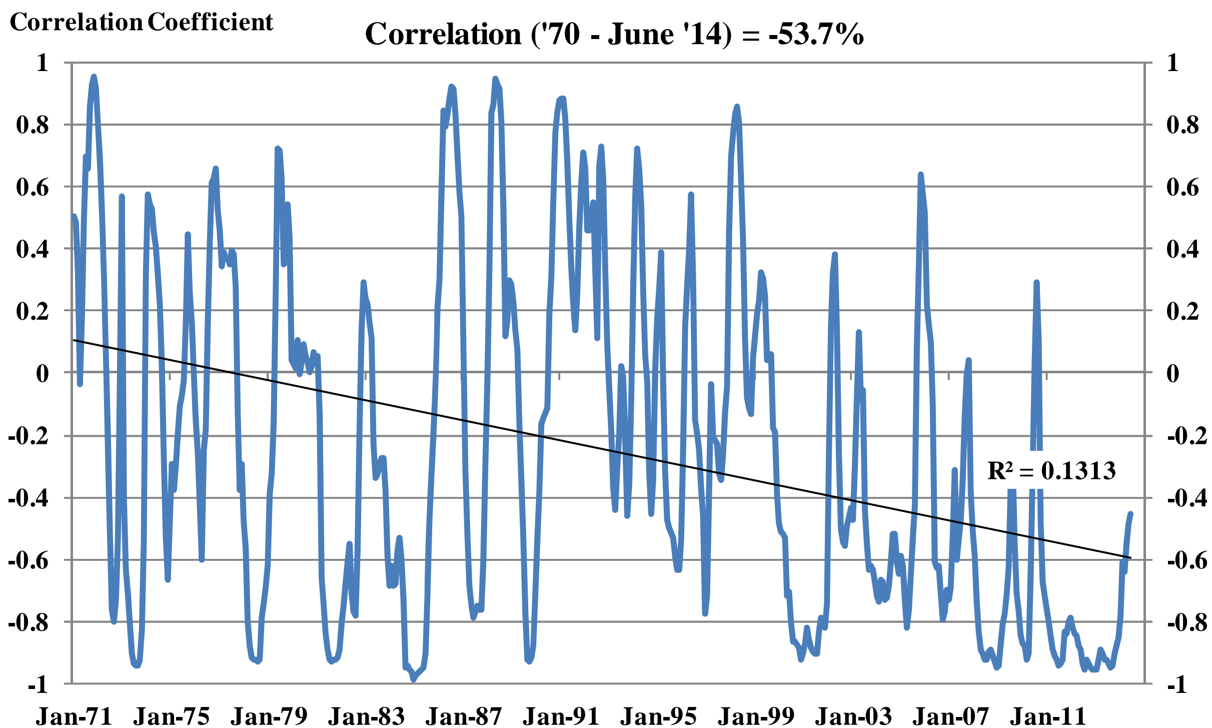
Secondly, as the global market copes with a diverse array of macroeconomic, financial, and geopolitical upheavals, the currency market became very volatile, with investors getting in and out of dollar-denominated assets, and hence silver was increasingly relied upon to hedge currency risks.

The recent weakening correlation between silver and the U.S. dollar reflects some interesting changes in the way investors trade silver. The driver behind this is the increased focus on the supply and demand fundamentals of silver among many market participants, who were previously trading silver as a part of the precious metals or broad commodities basket. These investors realigned their commodity trading strategies to reflect more heavily on their expectations of silver as an individual commodity with both industrial and financial traits, in line with their macroeconomic expectations and their risk exposures to the silver market. The result of such realignment of trading strategies is a historically elevated amount of longs and shorts being built into the silver futures market in late 2013 and early 2014, due to the dichotomy of investor opinions toward the near and long term silver market fundamentals. Silver prices have moved more in line with the changing mix of positive and negative views among investors, and to a lesser extent with the fluctuation of the dollar.

Currency markets are expected to remain volatile going forward. Uncertainties related to economic and political conditions in various economies will continue to result in this currency market volatility. Investors are expected to continue using silver as a currency hedge, and this factor is expected to remain a strong influence on investor demand for silver.

Rolling 1-yr Correlation Coefficient Between Silver Prices and Trade-weighted Dollar

Computed using monthly data, through June 2014

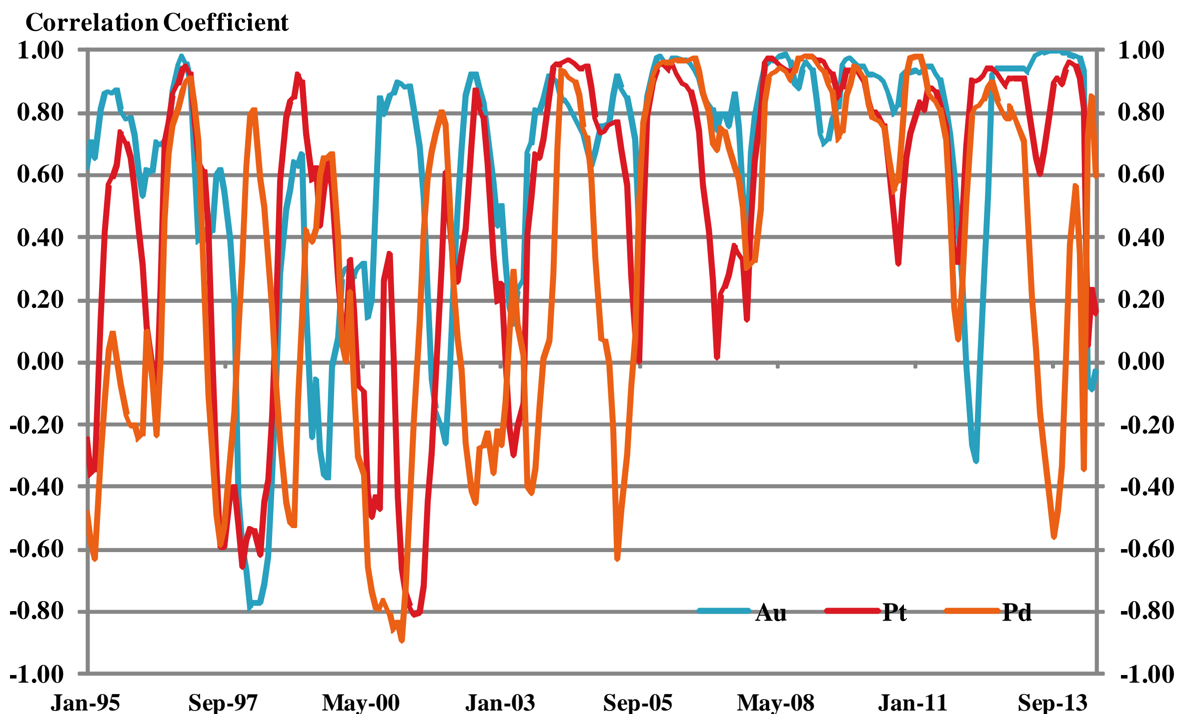


Silver as an Industrial Commodity

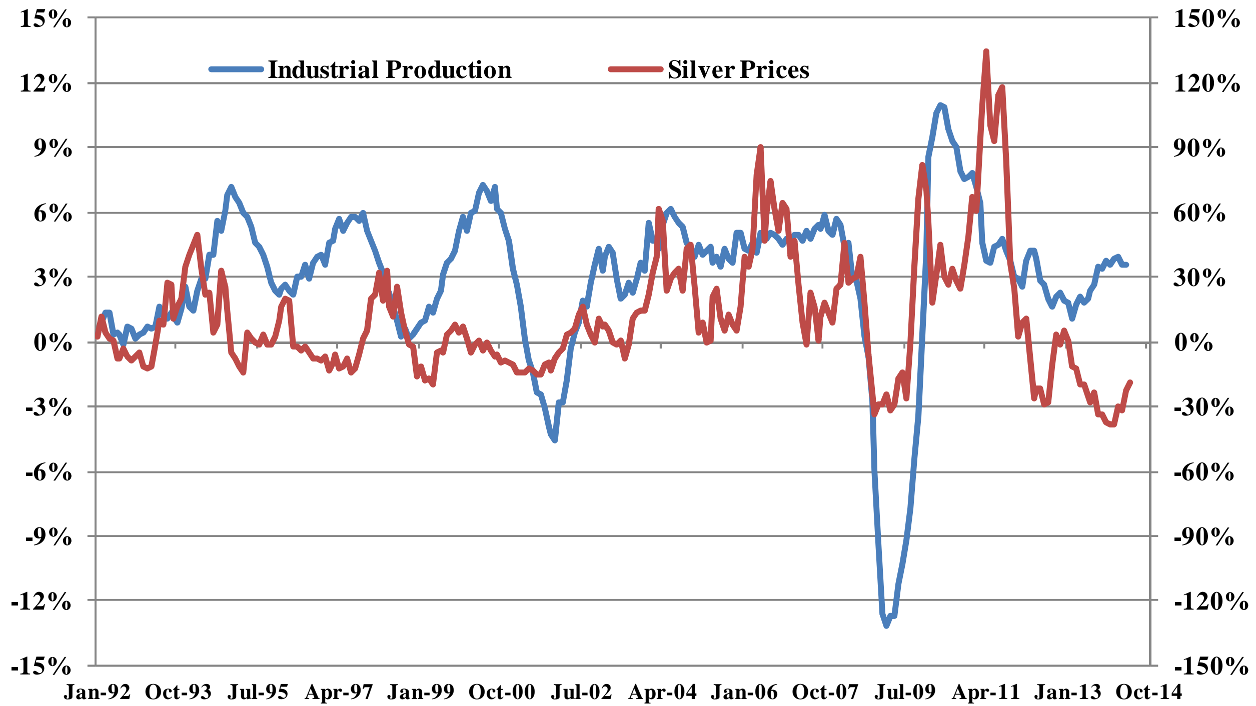
Unlike gold, silver is a commodity is that it has **both a financial and industrial role**. The factors that influence the investor perceptions of either or both roles of silver could often result in price movements dissimilar to those of gold, which is considered more of a financial asset.

This duality of silver investing may be illustrated by silver's correlation with global industrial production. In general, silver fabrication demand tends to remain strong during periods of rising global industrial production. Because silver is often traded as a financial commodity similar to gold, silver prices do not always correlate with trends in global industrial production. Like gold, it tends to show a weaker or negative correlation to industrial production during periods of political and economic instability. There are periods, such as January-September 1992, May-November 1999, September-December 2011, when silver maintained its positive correlations with industrial production, even as gold prices was affected by financial market volatility. There are also periods, including February-June 2003 and May 2007, when silver was more affected by financial market volatility compared to gold. Silver price movements, to a large extent, is dependent on the level of investor focus on either or both roles of silver as a financial and industrial commodity.

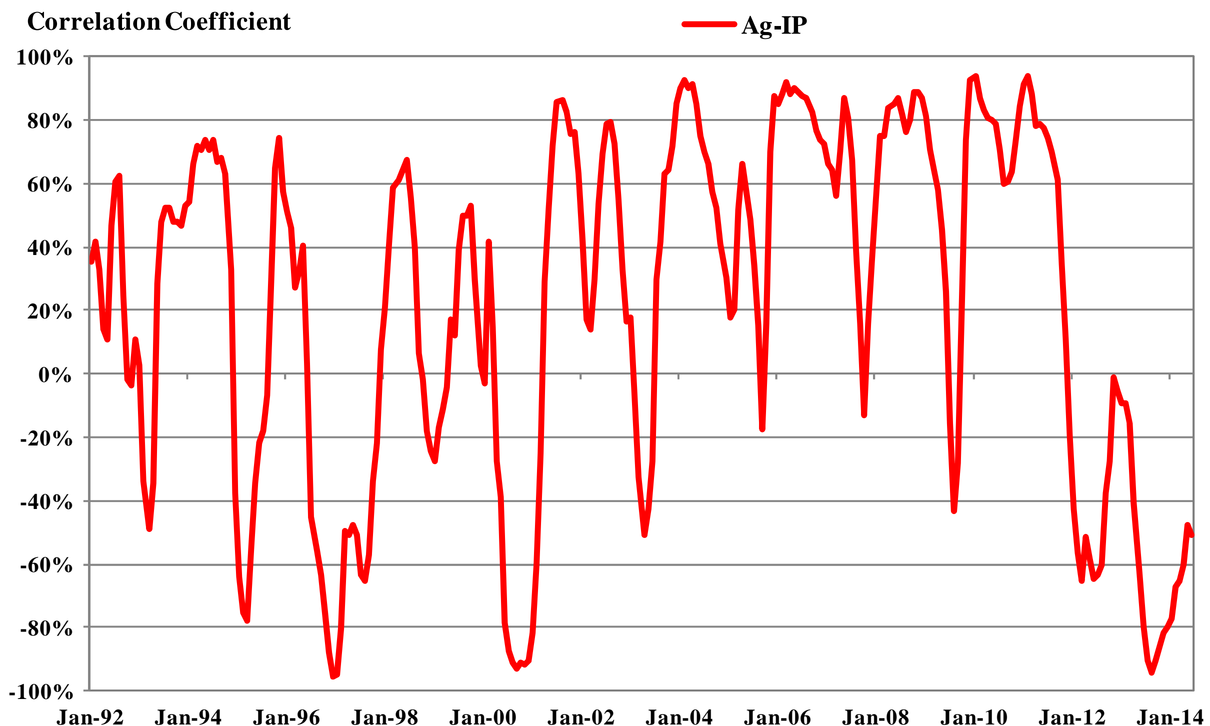
Since early 2012, however, the prices of silver have entered into a negative correlation with global industrial production, as investors began to book profits from record high prices of the metal, even though industrial demand for the metal continued to grow. The silver market again was affected by broader financial market volatility, as investors have increasingly treated it as a financial commodity.



Monthly World Industrial Production and Silver Prices
YoY Change, IP Data through April 2014, Price Changes Through May 2014



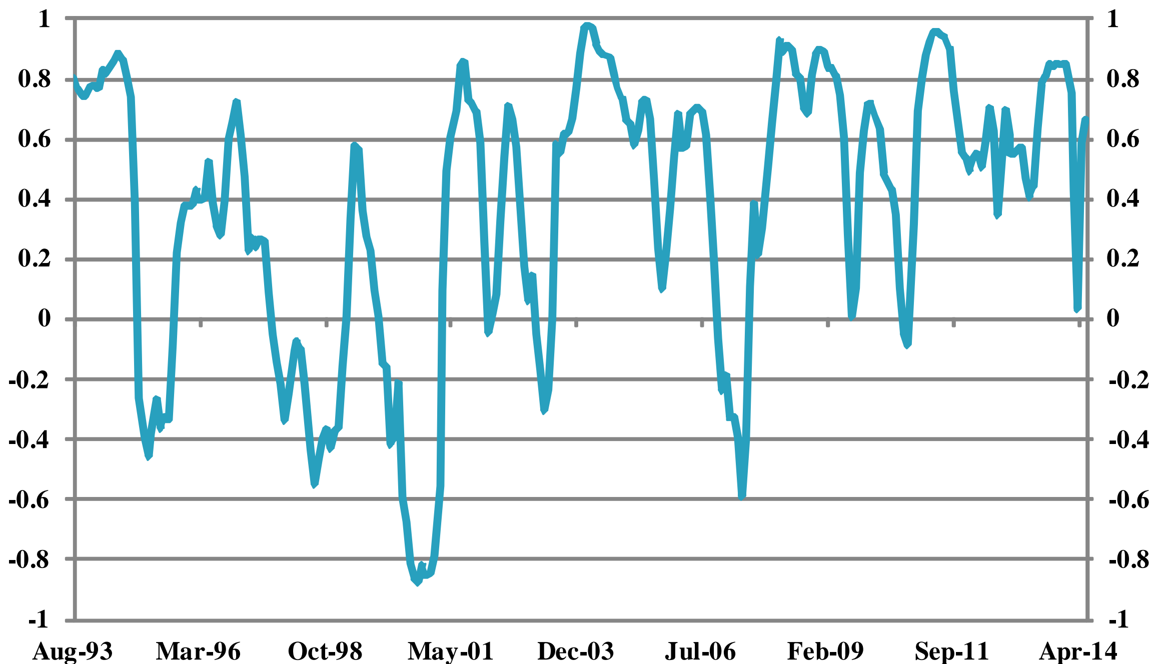
Rolling 1-yr Correlation Between Global Industrial Production and Silver
Computed using monthly data, through June 2014



Compared to a broader range of commodities, the unique nature of silver clearly has provided it with even greater upside or downside price exposures for investors participating in the market. A broad measure of commodity prices, the Commodity Research Bureau's (CRB) index keeps track of 19 commodity futures encompassing energy, agriculture, precious and base metals. Because commodity prices are generally a barometer of overall demand for raw materials, silver prices have, over the long term, a strong positive correlation with this commodity price index. Examining the time frame between January 1993 and June 2014, there was a 62% correlation between this index and the price of silver.

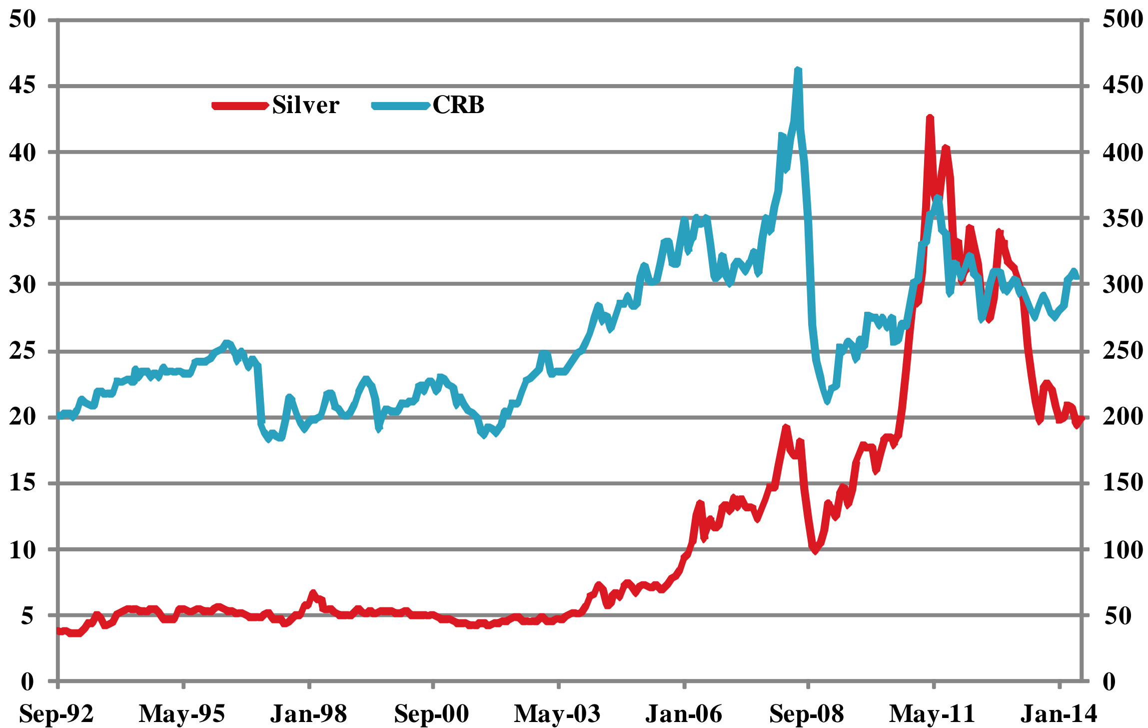
Shortening the time frame to the nine months between October 2013 and June 2014, however, silver's correlation with the index has dropped sharply to a negative -33% in June 2014, suggesting that investors have been trading the metal with increased focus on silver's individual market fundamentals. In fact, this breakdown in silver's correlation with gold, as well as other commodities suggests a major shift in the way commodities are traded by investors in recent months. Reduced investment and trading in some of these commodity index funds, partially due to lower returns, have not just reduced the correlations of prices of individual commodities, but also those between commodities and exchange rate, stocks, bonds, and each other that characterized commodities trading and prices from 2006 until just recently.

This breakdown in the price correlations between silver and other commodities, in the near term, bodes well for investors who are focused on the demand fundamentals for silver, as well as those investors who value silver as an alternative asset and portfolio diversifier. Silver is likely to see more trading activities from these two types of investors, and as a result, prices could become more volatile.



Silver and the CRB

Monthly Data, through June 2014



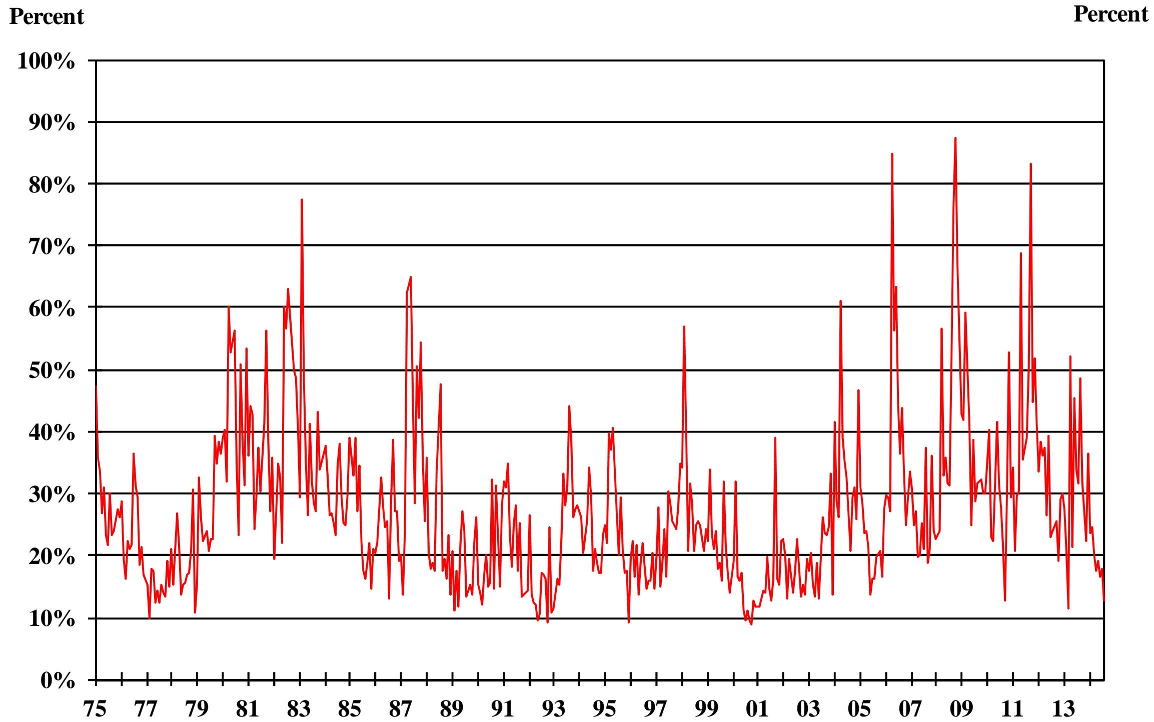
Silver and Gold

Investors buy silver for a variety of reasons similar to gold. Investors often turn to silver as a surrogate investment when there are restrictions in buying or holding gold. From 1933 through 1974 U.S. investors could not own gold. In other countries restrictions varied. Over the next 30 years or so, these countries have liberalized their laws and allowed gold ownership. Before gold was more widely allowed to be owned, investors have been buying silver in its stead. A more recent example relates to the Indian government's restrictions and heavy duties on the import of gold over the past few years. Indian investors have, as a result, bought more silver to replace their investments for gold.

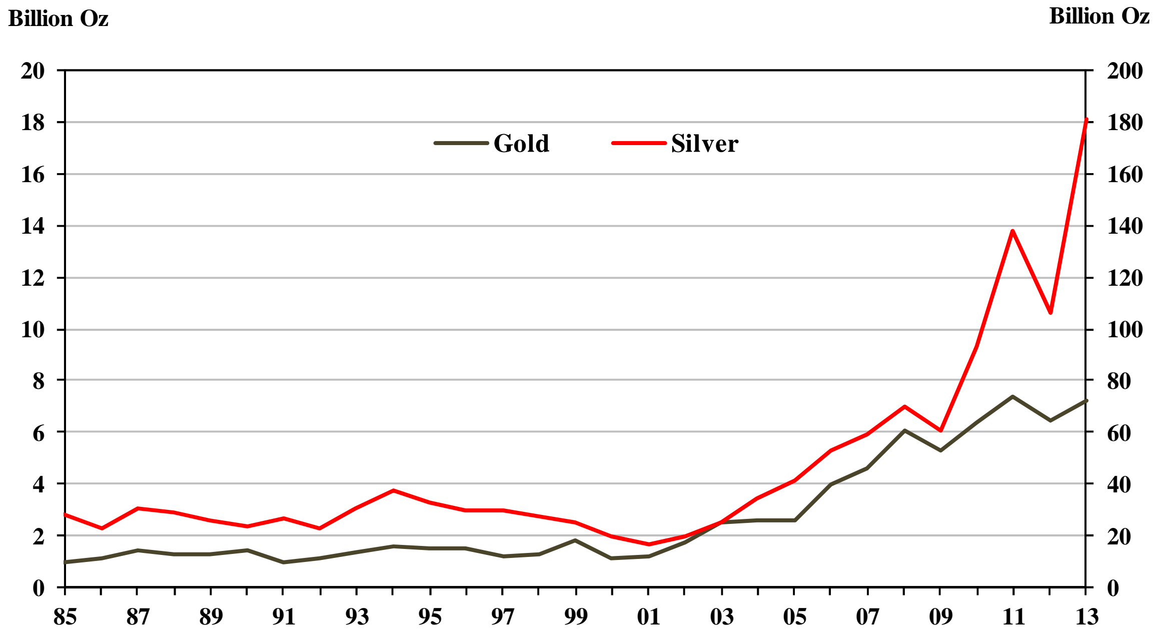
The silver market is the second largest of the precious metals markets behind gold in terms of the value of metal flowing through the market on an annual basis. It is, however, considerable smaller in size compared to the gold market. The dollar value of the silver market, which includes trading volumes on the major futures and options exchanges, clearing volumes of the London over the counter bullion market, as reported by the London Bullion Market Association (LBMA), and newly refined silver supply stood at $5,133 billion in 2013. In comparison, the dollar value of the gold market stood at $18,172 billion during the year, more than 3.5 times the size of the silver market. The silver market has typically accounted for around 10% to 20% of the dollar value of the major precious metals markets (gold, silver, platinum, palladium, and rhodium) in recent years, compared to the 70% to 80% market share held by gold.

The relatively small size of the silver market both attracts and detracts capital investment in silver as a commodity. On one hand, the larger directional movements in silver prices provide more potential for

Monthly Silver Price Volatility
Through August 2014



Trading Volume of Gold and Silver Futures and Options
Annual totals, through 2013



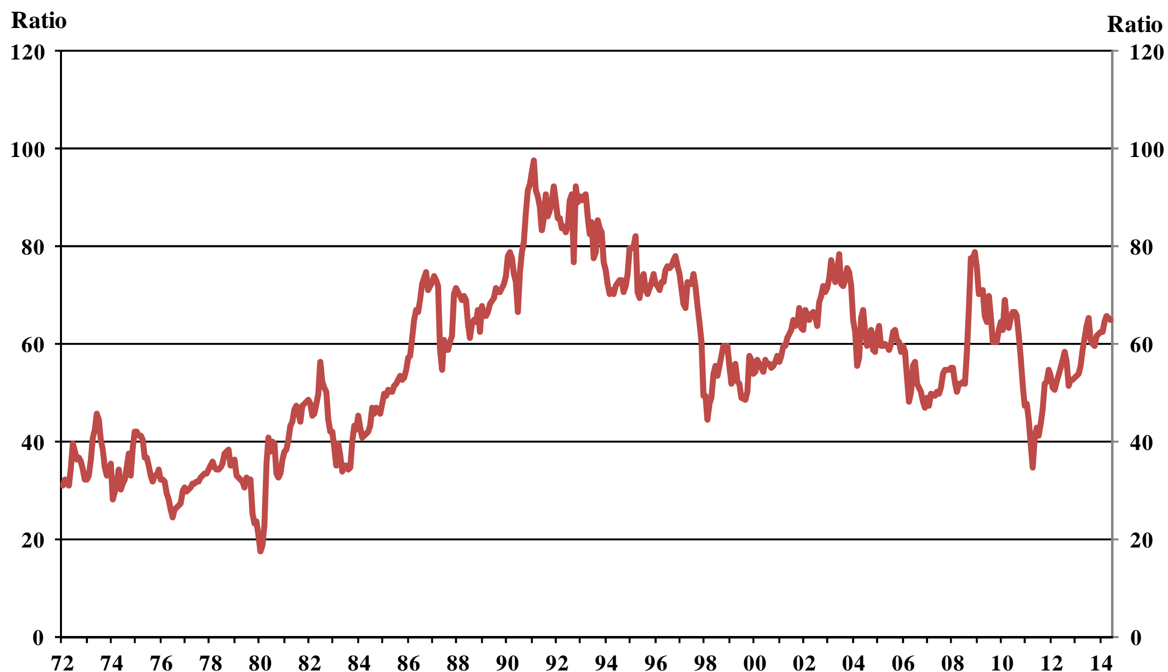
Note: Trading volumes are compiled from major exchanges offering gold and silver futures and options contracts. Gold data is sourced from Comex, NYSE Liffe, Tocom, MCX, SHFE, and 19 other exchanges. Silver data is sourced from Comex, NYSE Liffe, Tocom, MCX, and SHFE.

returns on the invested capital. In the times when silver price volatility is high, investors with a shorter time horizon can often find promising opportunities to profit from directional or spread trades. This, coupled with the low threshold of investing in silver on a per ounce basis as well as the wide array of investment products available in the market, makes it much more feasible, and potentially lucrative, for investors to buy and sell silver, particularly on a retail level. As a result, the silver market often experiences large amounts of capital inflows and outflows. On the other hand, the constraints in the size of silver investment market also limit the size of investments by large, institutional investors. Many of the larger funds reject the opportunity of gaining direct exposures in this commodity market, for the concern that their investment, which would constitute a nonetheless insignificant portion of their portfolio, could disproportionally sway the silver prices.

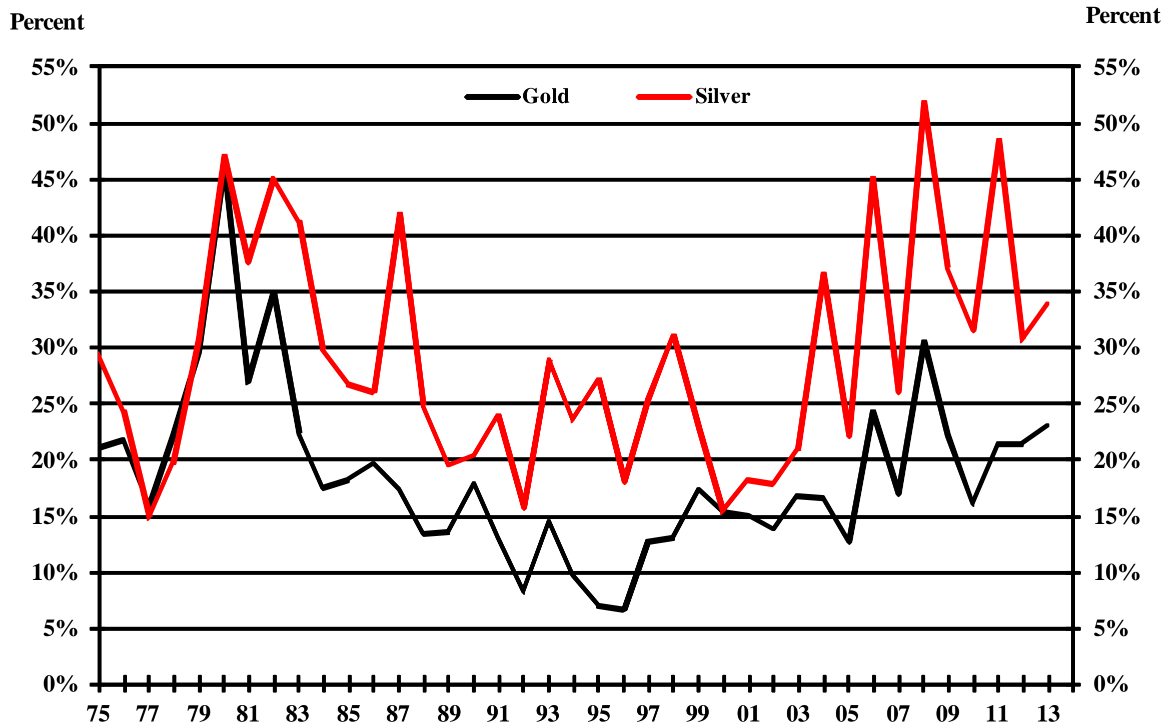
An often misunderstood fact about the silver market is that, contrary to what conspiracy theorists like to believe, big banks and investment firms have little to no interest in artificially driving silver prices up or down. In fact, for most of the 1990s and early 200s, institutional investors shunned the silver market expressly because the market was too small for them to invest in the size they required, and they did not want to be in markets where their buying and selling activities would affect the market price. .

The difference in market sizes is important in the understanding of the differences in the way the two metals are being traded by investors, as well as the price potential for the two metals.

Because the silver market is much smaller and less liquid than that of gold, silver prices are likely to rise and fall more in percentage terms than are gold prices. This means that, in the dollar terms, investors are able to receive a much bigger response in the prices of silver than that of gold, for their invested capital. A study of the annual volatility in both markets suggests that, of the 39 years between 1975 and 2013,



Annual Gold and Silver Price Volatility
Through 2013



the prices of silver were more volatile than gold in 37 years – with the exception of 1977 and 1978. On a monthly basis, the volatility of silver prices was even more striking compared to that of gold. Interestingly, of the four times when monthly silver price volatility were close to or exceeded 80% over the past 39 years, three of those instances had occurred over the past decade.

In the near term, silver has undergone a far larger downward correction compared to gold. As of July 2014, silver prices, on a monthly average basis, have fallen as much as 58% from its intraday peak of $49.82 on April 2011, compared to the 32% drop in gold prices from the intraday peak of $1,921 in September 2011. This means that, based on the silver market fundamentals, it seems that the metal holds greater potential for price appreciation in percentage terms. In nominal terms, a 50% rise in silver prices could take the metal to around $31.50, a level last seen in February 2013. In contrast, a 50% rise in gold prices would require gold to rise toward $1,950, which is 2% above its recent peak in September 2011. At any percentage increase, the probability for silver to rise is much greater than it is for gold to rise the same percent.

Silver and Interest Rates

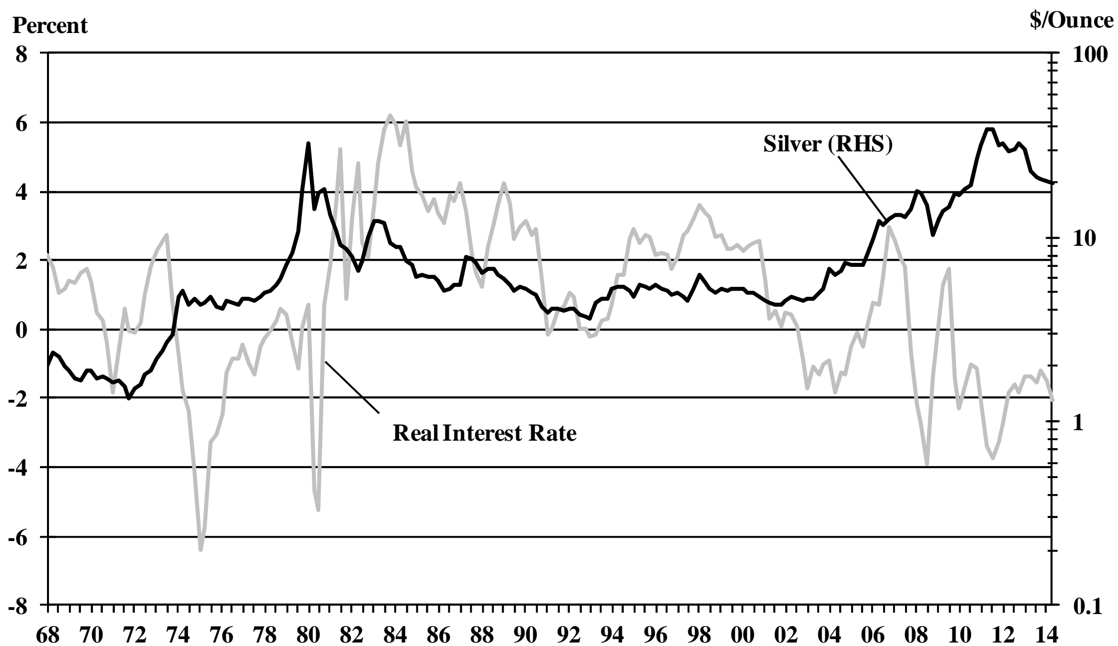
Contrary to what is commonly believed in the silver market, there is virtually no correlation between silver and real interest rates over the long term. Silver prices have risen strongly in periods of both negative and positive real interest rates. They also have declined just as strongly when real interest rates were negative and when they were positive.

There clearly are many connections between interest rates and silver prices, but the relationship is very complex and does not lead to any simple, steadfast inverse relationship. Market participants who make the connection between silver prices and real interest rates believe that silver prices are likely to rise in a negative real interest rate environment, because there is reduced opportunity cost to hold this non-interest bearing metal in such a rate environment. As there is no income stream from silver, investors in the metal make their money from capital appreciation. This argument is far too simplified, however.

In fact, given changes in interest rates can sometimes have a measurable effect on silver price levels, directions and changes, but at other times they are not important to the silver market. The reasons behind any interest rate increases, and the level of interest rates in real terms, are the more crucial factors to examine.

If interest rates in fact start rising, in late 2014, 2015, or in later years, the initial rate changes will be from basically zero short-term nominal rates and negative real rates. A rise to nominal interest rates of 1.5% - 2.0% over the next two or three years would take real rates close to zero. Such a move hardly seems strong enough to cause investors to rush out of silver and into interest bearing assets. The same is true for longer term rates. It will take much higher rates to stimulate such an exodus, and much higher rates seem further away on the horizon.

Furthermore, the economic environment in which interest rates start to rise will heavily influence how investors and other financial market participants interpret the rise in rates. If rates are seen rising because inflation is becoming problematic, investors could become buyers of silver in spite of an increase in real interest rates. More importantly, if this increase in rates is based on higher levels of economic growth, fabrication demand for silver also is likely to improve, further extending support for silver prices.



Interest rates may not rise significantly for at least another 15 months, and possibly much longer. Real economic conditions remain weak compared to where they need to be to justify higher interest rates, and frankly are not likely to be strong enough to compel sharply higher interest rates even by the middle of 2015, as the worried crowd now seems to believe is likely.

When changes in real interest rate do affect silver prices, however, the impact on the price of silver tend to be limited to the short term, instead of the long term. After a brief price reaction to the changed interest rate environment, silver prices are likely to eventually stop responding to the interest rate changes and be influenced by other market factors. In the initial stages of an increase in interest rates in the United States, silver prices could see some positive momentum as investors sell out of the stock and bond markets, moving some of those funds to silver. This impact would likely be temporary, with investors eventually reducing their new purchases of silver for addition to their cumulative holdings in silver and migrating to higher yielding interest-bearing assets.

Silver as a Portfolio Diversifier

When combined with a mixture of stocks, bonds, and currencies, silver is an advantageous investment because it has historically had a very low correlation to these competing assets or investments. This is exactly the quality of an alternative asset that investors should seek when constructing a portfolio.

Contrary to what is often misunderstood, an ideal portfolio diversifier is not necessarily one that holds a high negative correlation with the other assets in the portfolio. A counter-cyclical asset that rises in value when other assets decline in value, or falls back as they recover, is often not the best choice for optimizing a diversified portfolio. A better way to diversify a portfolio is to include an asset that has little to no statistical relationship with other assets in the portfolio. There is extensive quantitative statistical analysis showing that such a portfolio shows superior returns over the long run. In such a portfolio, the value of alternative assets will follow divergent trends for most of the time, rising or falling irrespective of the price direction taken by other assets.

Long - Term Correlations
Monthly Data

Silver	Inflation	TWD	DJIA	S&P	T-Bill	T-Bond	Gold
1970 - 2013	4.05%	-20.85%	4.22%	4.27%	-5.77%	-7.40%	69.61%
1970 - 1990	9.19%	-18.81%	8.96%	9.21%	-10.15%	-13.04%	71.28%
1978 - 1982	-0.02%	-0.02%	23.53%	14.60%	-30.78%	-28.26%	85.31%
1990 - 2013	-14.90%	-23.40%	-2.00%	-2.70%	-8.49%	-7.28%	65.38%
2000 - 2013	-13.62%	-38.33%	-2.82%	0.02%	-0.89%	4.32%	74.53%
2006 - 2013	-12.82%	-50.50%	-0.70%	2.47%	8.07%	14.78%	75.40%

Note: TWD - JP Morgan Trade-Weighted Dollar.
Source: CPM Group

Annual Correlations

Monthly Data

Silver	Inflation	TWD	DJIA	S&P	T-Bill	T-Bond	Gold
1990	-48%	7%	-9%	-2%	8%	38%	48%
1991	8%	64%	-33%	-53%	51%	81%	62%
1992	-77%	22%	78%	-25%	7%	28%	-35%
1993	12%	20%	5%	-9%	13%	37%	93%
1994	-2%	-52%	-20%	23%	0%	42%	72%
1995	3%	-25%	12%	0%	-31%	3%	56%
1996	-26%	34%	23%	4%	-74%	3%	80%
1997	-30%	19%	-39%	-48%	-22%	9%	1%
1998	-21%	-25%	45%	36%	4%	50%	59%
1999	-22%	-29%	-44%	-44%	-6%	42%	22%
2000	-37%	-4%	-48%	-33%	-23%	44%	61%
2001	-12%	-34%	-34%	-18%	-28%	29%	59%
2002	-23%	-56%	-26%	-28%	-1%	12%	43%
2003	-49%	31%	11%	-1%	30%	-2%	55%
2004	-29%	-44%	-21%	-25%	-27%	-29%	65%
2005	29%	-15%	27%	5%	-6%	37%	72%
2006	0%	-50%	17%	11%	23%	32%	85%
2007	38%	-53%	-19%	-17%	-1%	-66%	92%
2008	-17%	-81%	17%	23%	-9%	-9%	88%
2009	-3%	18%	-67%	-63%	32%	8%	80%
2010	-35%	-36%	26%	28%	-61%	48%	68%
2011	-22%	-56%	-8%	-16%	18%	-12%	58%
2012	27%	-85%	53%	55%	13%	54%	94%
2013	0%	-38%	-48%	-37%	4%	-11%	98%

Source: CPM Group
July, 2014

Silver's merit as a portfolio diversifier can be realized across a variety of time horizons, both on a long term and a short term basis. Over a longer period of time, silver serves as an asset that enhances returns and reduces risks over the overall portfolio. Investors who adopted a longer term approach are able to profit from having silver in their portfolio over time, despite shorter term price volatility of this asset.

Silver's statistical correlation to stocks and bonds has been very low on a long term basis. Between 1970 and 2013, silver's correlation to the Dow Jones Industrial Average was a mere 4.22%, while its correlation to the S&P 500 was only 4.27%. Similarly, very little statistical correlation exists between silver and Treasury bills and bonds over the long run, which stood at -5.77% and -7.40% over the last 43 years.

There are also investors who try to achieve better results by investing in silver within a short time, which has worked in many cases. An important characteristics of silver as a portfolio diversifier is that silver prices traditionally are much more volatile than prices of gold and other assets. This offers a more aggressive, short-term investment opportunity for portfolio managers who are looking at profiting from price volatility. The potential returns and losses in silver investments tend to be larger compared to gold and other assets. Frequent short-term trading of the metal comes with higher transaction costs, greater risks and volatile returns, with the possibility of eroding the full benefits of silver as a portfolio diversifier.

Viewed from a relatively shorter time frame, silver sometimes exhibits high correlations with stocks and bonds. On an annual basis, over the 24 years between 1990 and 2013, there are three years – 1991, 2009, 2012 – in which silver held strong over 50% positive correlation or below -50% negative correlations to stocks and bonds.

Many short term factors can enhance the short term relationship between silver and other assets. The year 2009 is an example of a strong negative correlation between silver and equities. Investors were overweighting silver as a safe haven asset when the value of stocks had dropped sharply. Silver indeed fulfilled its role in this case, as its prices trended upward for most of the year. By December 2009, silver prices were up 70% from the same time a year earlier to a monthly average of $17.63. In this case, and in similar situations, investors could find silver a desirable portfolio diversifier as well as a safe haven asset.

Comparative Returns

		Percent Change			
	30-Jun-14	1 month	1 year	5 year	10 year
Silver	$21.01	12.4%	8.0%	54.8%	263.7%
Gold	$1,322.00	6.1%	8.0%	42.5%	236.4%
Oil	$105.37	2.6%	9.1%	50.8%	184.4%
S&P 500	1,960.23	1.9%	22.0%	113.2%	72.9%
FTSE	6743.94	-1.5%	8.5%	58.7%	51.1%
Nikkei	15162.10	3.6%	10.9%	52.3%	27.9%
MSCI World Index	1743.42	1.6%	18.4%	79.7%	64.1%
$/Euro	$1.37	0.4%	5.2%	-2.4%	12.2%
13 Week T-Bill	0.20%	0.20%	0.43%	0.75%	1.79%
10 Year T-Note	2.53%	2.53%	2.55%	2.61%	3.45%
30 Year T-Bond	3.36%	3.36%	3.38%	3.66%	4.18%

Notes: T-bill, T-note, and T-bond are average rates of return.

Silver can be incorporated in various degrees in a diversified portfolio. Depending on the investment mandates and objectives of the managed portfolio, investors can allocate a varying part of their portfolio to physical silver or financial instruments that track silver prices. The timing of the silver market as well as the investment horizon could provide an infinite number of outcomes for investments in silver.

For the purpose of studying the effect of having silver in diversified portfolios, a mixture of stocks, measured by the S&P 500, 30-year Treasury Bonds, 3-month Treasury Bills, physical gold and physical silver has been used to construct hypothetical portfolios. Financial instruments of gold and silver are not considered, given their differences in tracking physical metal and varying transaction costs. To control the problem of time, this study viewed the data over a long term horizon, including periods of 1968 - 2013, 1984 – 2013, 1991 – 2013, and 2000 – 2013. The average returns of the portfolios were calculated on a 12-month moving average basis, to avoid picking highs and lows as starting points (which can skew the results) and the average risk is defined as the first-order standard deviation of the return over any given 12-month period.

As exhibited in the *Comparative Portfolios*, against benchmarks of Portfolio 1 (60% S&P; 40% Treasury Bills) and Portfolio 2 (60% S&P; 40% T Bonds), portfolios that each incorporated only 5% silver or only 5% gold, labeled Portfolio 3 - 6, saw their overall risks and returns increased during the above-mentioned periods. Those portfolios that only included 5% silver (Portfolio 5 – 6) showed better returns and higher risks compared to those that only included 5% gold (Portfolio 3 – 4). However the best result was delivered by portfolio that included both gold and silver, each at 5% asset allocation (Portfolio 7), with better returns as well as marginal increase or even declines in risks.

Comparative Portfolios

	1968 - 2013		1984 - 2013		1991 - 2013		2000 - 2013	
	Average Return	Average Risk	Average Return	Average Risk	Average Return	Average Risk	Average Return	Average Risk
Portfolio 1 Stocks and Treasury Bills 60% SP; 40% TBills	6.85%	5.66%	7.36%	5.60%	6.52%	5.30%	2.84%	5.75%
Portfolio 2 Stocks and Treasury Bonds 60% SP; 40% TBonds	7.53%	5.70%	8.34%	5.61%	7.51%	5.29%	3.86%	5.70%
Portfolio 3 Stocks, Bills, and Gold 60% SP; 35% TBills, 5% Gold	7.16%	5.72%	7.42%	5.61%	6.71%	5.31%	3.40%	5.78%
Portfolio 4 Stocks, Bonds, and Gold 60% SP; 35% TBonds, 5% Gold	7.75%	5.76%	8.27%	5.62%	7.58%	5.30%	4.30%	5.73%
Portfolio 5 Stocks, Bills, and Silver 60% SP; 35% TBills, 5% Silver	7.18%	6.04%	7.45%	5.86%	6.88%	5.56%	3.52%	6.15%
Portfolio 6 Stocks, Bonds, and Silver 60% SP; 35% TBonds, 5% Silver	7.77%	6.07%	8.30%	5.87%	7.75%	5.56%	4.42%	6.10%
Portfolio 7 Stocks, Bonds, Gold, and Silver 55% SP; 35% TBonds, 5% Gold, 5% Silver	7.94%	5.76%	8.09%	5.47%	7.66%	5.18%	4.92%	5.72%

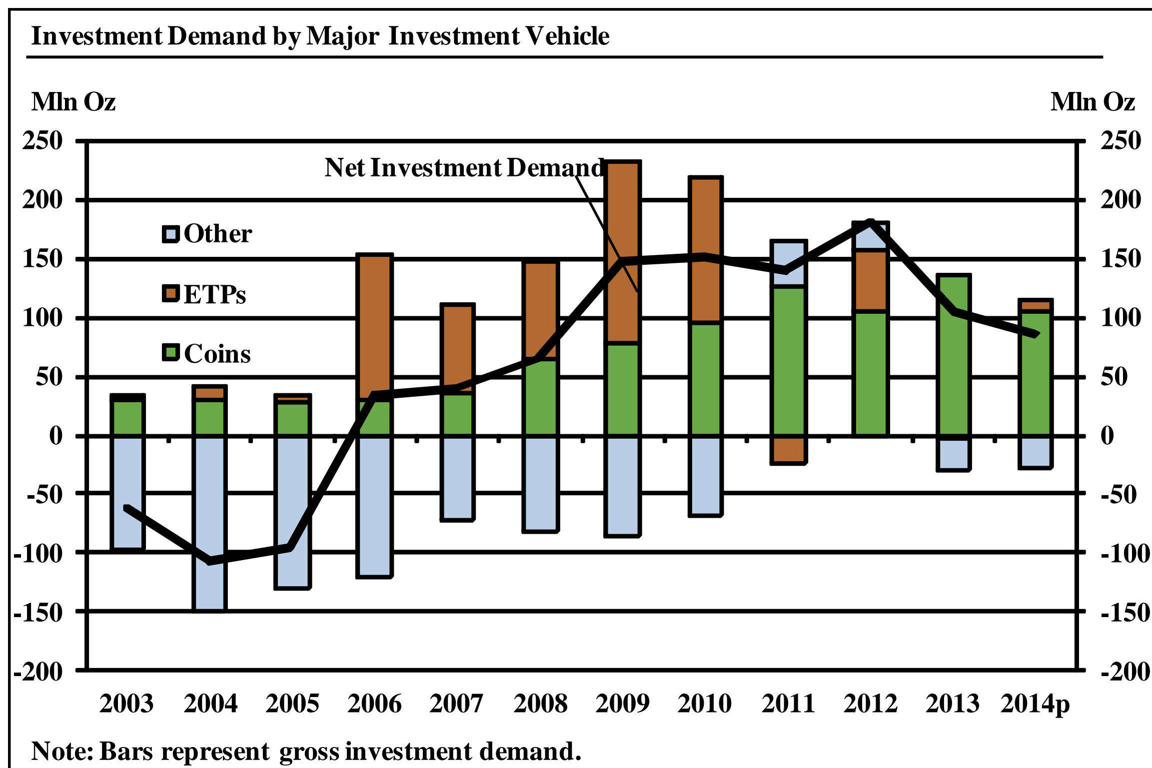
Note: Calculated on a 12-month moving basis. Risk is defined as the first-order standard deviation of the return over any given 12-month period. Returns based on capital appreciation only.
Source: CPM Group
Aug, 2014

Silver Investment Vehicles

There are many types of silver investment products, mainly falling under two categories: physical metal and silver financial products. Physical silver investment products typically include bullion bars of various shapes and sizes, and coins, although in many developing countries jewelry, silverware and other ceremonial or religious objects made of silver are also considered products for investments. Financial products of silver include futures, forwards, options, structured notes and accounts. Investors also gain indirect exposure to silver prices by investing in and trading stocks issued by silver mining companies. Exchange Traded Products (ETPs) have been developed in the past decade that provide additional ways for investors to buy exposure to silver prices. Initially these were Exchange Traded Funds (ETFs), but in recent years some of these products have been developed that are notes and other forms of investments, as opposed to funds, leading to the use of the term Exchange Traded Products in order to accurately capture the full range of these investment vehicles. Most ETPs are backed by physical silver held in allocated accounts, although a growing number of ETPs increasingly are backed by silver financial derivatives and even silver mining equities, rather than physical metal.

Bullion and Coins

Silver bullion and coins are among the oldest investment vehicles and stores of value known to mankind. Silver bullion is the largest segment of physical silver investment products by volume. Bullion bars can be made in varying sizes, with the most common 10 ounce bars, 1 kilogram bars, 100 ounce bars, and 1,000 ounce bars. Bullion demand comes from a full range of investors. The 1,000 ounce bars, the industrial standard for wholesale silver, mostly are purchased by high net worth individuals and institu-



tional investors, since a single 1,000 bar currently is valued around $18,000. Their large size makes them suitable for buy and hold investments. Many retail investors buy and sell small-sized bullion bars.

Silver coins are being minted around the world by governments and monetary authorities. North America currently accounts for more than half of the silver coin market. The Silver Eagle, minted by the U.S. Mint, and the Maple Leaf, minted by the Royal Canadian Mint, are the coins most commonly acquired and held in this regional market. The silver coin market is largely dominated by retail investors. Individual purchase volumes are typically small, but the aggregate volume is large and oftentimes surpasses that of other products. These types of investors typically have long-term investment horizons. Coins will be kept and eventually inherited, remaining in a single family for multiple generations.

Coin demand is a particularly powerful component of investment demand because of the dynamic disposition of its investor base. Some coin investors will buy only during rising price environments while others only buy when prices are declining and they perceive silver's value as a bargain opportunity. This means that coin demand is not necessarily a key determinant of prices, nor that silver coin demand always directly correlates to changes in silver prices. Because of how large a portion coin demand occupies of total investment demand, it sometimes can act as a buffer in years when there are large annual surpluses not being purchased by bullion investors. In this type of environment, coin demand can provide some support to prices on the downside.

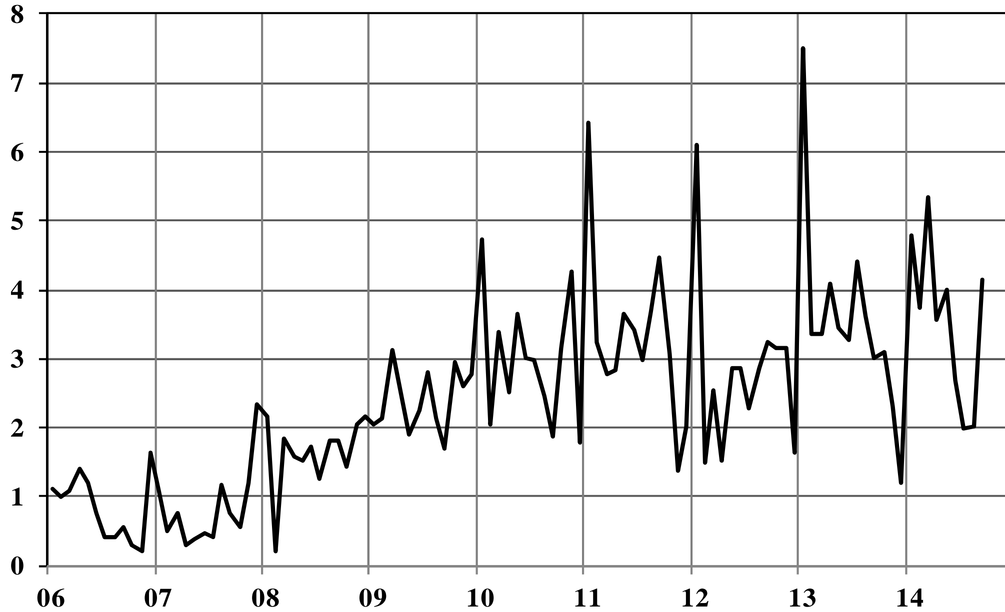
This was particularly the case during 2013. While other investors in bullion bars and ETPs were selling silver, global demand for silver coins rose to a record high 136 million ounces during the year, up strongly from 105.9 million ounces in 2012. The sharp declines in silver prices during 2013 were largely responsible for this increase in demand, as retail investors seized this as a great buying opportunity. The level of investor demand in response to declines in prices was reflected in the sharply higher premiums on U.S. Mint coins. Premiums on these coins during 2013 rose in months when prices declined and declined in months when prices rose. The decline in silver prices in April 2013 resulted in a sharp increase in the premiums of one ounce American Eagle coins, which rose to around 25%. This increase was a combination of an increase in demand and a temporary shortfall in supply. Premiums on these coins slipped lower in early May, as prices stopped declining. Premiums fell further in August as prices began to rise. Renewed weakness in prices during the fourth quarter helped push premiums higher during that period.

As investors adjust to the lower silver price environment, however, they also may remain on the sidelines when it comes to purchasing silver coins. In 2014 investment demand for U.S. Eagle silver coins during the first nine months dropped 10.6% from the same period last year, to roughly 32.3 million ounces. This is still an elevated level by historical standards, however, but it reflects the limits of prices affecting investor buying habits for silver coins.

Another interesting development emerged in 2013. Investors were swapping ETF holdings and 1,000-ounce bars for large volumes of silver coins. While silver coins are often the preferred medium for investing by less wealthy retail investors, as mentioned above, it is not true that only retail investors are interested in coins. For various reasons some wealthy investors were exchanging their silver bars and ETF positions for boxes of silver coins. One of the reasons often cited was the usefulness of smaller denomination silver coins in daily commerce, should such a method of payments become required. A handful of U.S. states have passed laws in recent years allowing gold and silver coins to be used to pay bills in day-to-day commerce, laws that were unnecessary since using such coins for settling payments has always been legal between mutually consenting parties. Regardless of the legal necessity, such laws

Monthly U.S. Mint Sales of Silver Bullion One-Ounce Coins
Through September 2014

Mln Oz



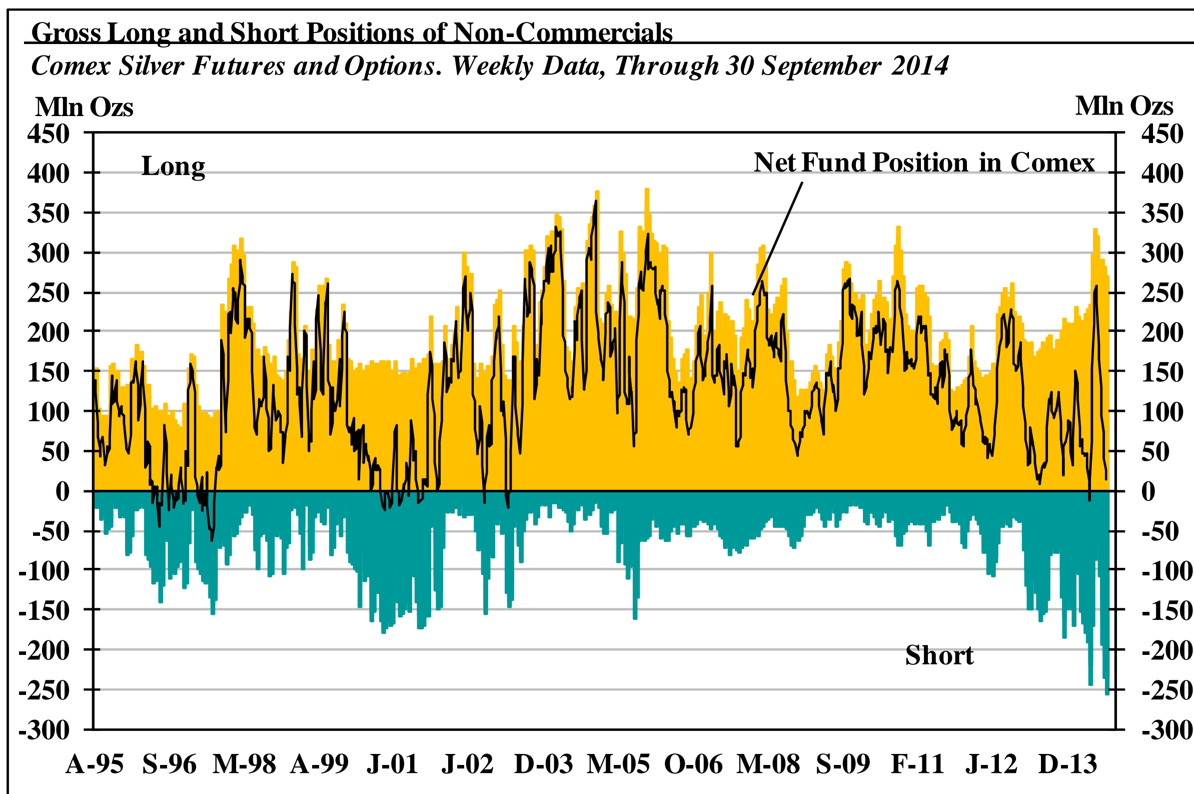
Premia on U.S. Mint Silver American Eagle Coins
Daily Data, through 6 October 2014

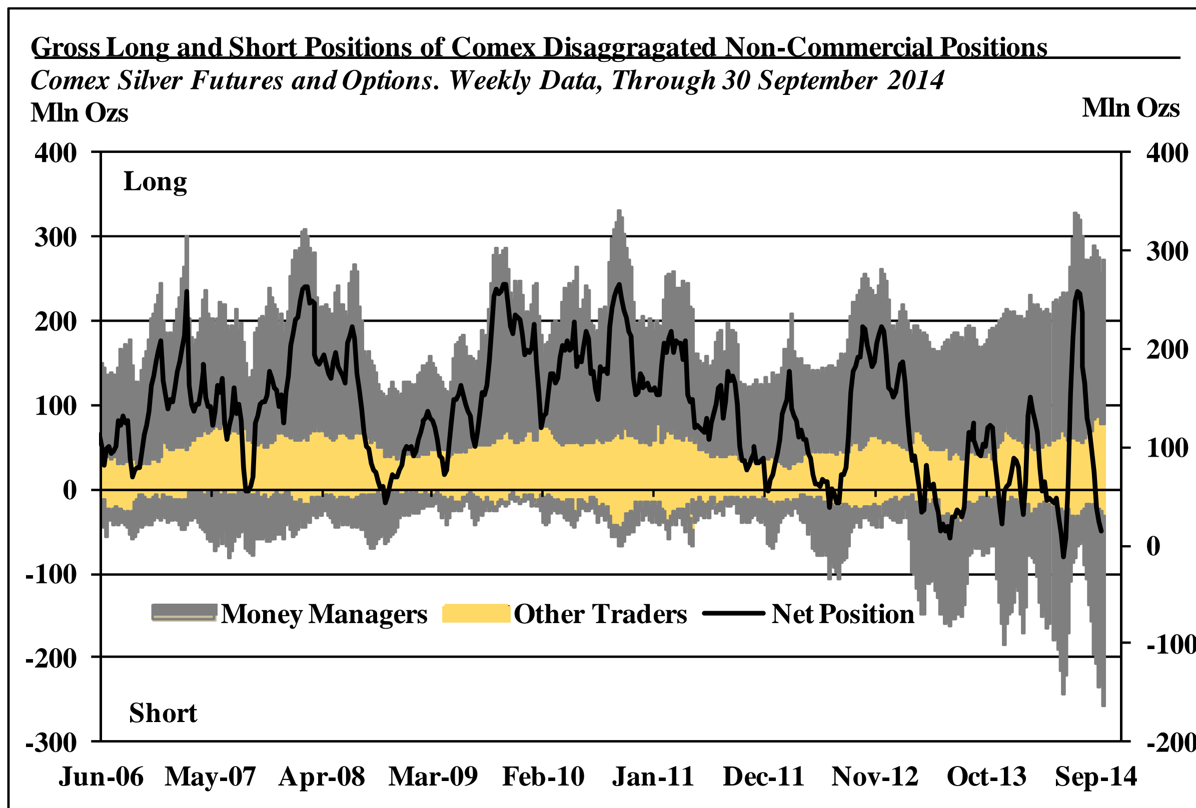
were passed in recent years. Reportedly very little gold and silver actually is used in those states that have passed such laws, and the move to exchange larger 100-ounce and 1,000-ounce bars for one-ounce coins appears to have had little or nothing to do with such legal moves.

Futures and Options

Silver futures and options are financial derivatives that are frequently traded by investors in silver. The participants in silver futures and options markets are investors who predominantly seek to acquire exposure to silver price changes without the mechanical issues related to taking physical of metal. It is a misperception that investors in futures care to stand for delivery. While some do, roughly 99% of the investors who buy silver futures or options do not take delivery and are not interested in doing so. They simply want the exposure to silver price changes. Also, because one only has to put up a small percentage of the value of the silver theoretically underlying the futures and options, using these derivative products gives investors a leveraged exposure to silver prices that they typically do not have with physical silver.

Investors in silver futures and options markets range from institutional investors and high net worth individuals to smaller futures oriented investors. The increase in the futures and options exchanges' total trading volume surged an impressive 70% in 2013, despite – or perhaps because of – weakness in prices. The strong expansion of futures trading volume suggests still firm investor interest from shorter term investors, most of which trade through futures markets. Many of these investors were attracted to silver in 2013 expressly by the decline in prices, which shifted the risk/reward ratio of going long silver in the favor of long investors.





Silver futures are traded at the five major silver futures exchanges — the Shanghai Futures Exchange, the New York Comex, the Multi Commodity Exchange of India (MCX), NYSE Liffe, and the Tokyo Commodity Exchange (Tocom). Total futures trading volume amounted to 171.8 billion ounces in 2013. The SHFE accounted for 48.6% of the total futures trading volume in 2013, after experiencing a more than eight-fold volume increase in 2013 from 2012, the year it began to trade silver futures. The SHFE in 2013 overtook the Comex to become the largest exchange in terms of silver futures trading volume. Comex still accounted for 42.6% of total futures trading volume and dominated the silver options trading area. Silver options are not traded in China yet. Silver options trading volume surged to 8,819.4 million ounces in 2013, breaking the record 8,504.4 million ounces trading volume in 2008.

A peculiar investment environment has emerged in the Comex futures and options market since late 2013. There has been a radical split of investor sentiment toward silver, exhibited by the massive buildup of both long and short non-commercial (investor) positions. By 3 June 2014 non-commercial gross short positions climbed to a historical record high of 244.9 million ounces. As some of these gross shorts were being liquidated over the following five weeks non-commercial gross long positions also reached a recent peak of 329.3 million ounces on 8 July, a level not seen since September 2010. Long-term investors were still buying silver, particularly when prices were weaker, while shorter term stale bull investors were selling silver. This continuing duel between bulls and bears will largely determine the course of silver prices for the rest of 2014 and in 2015.

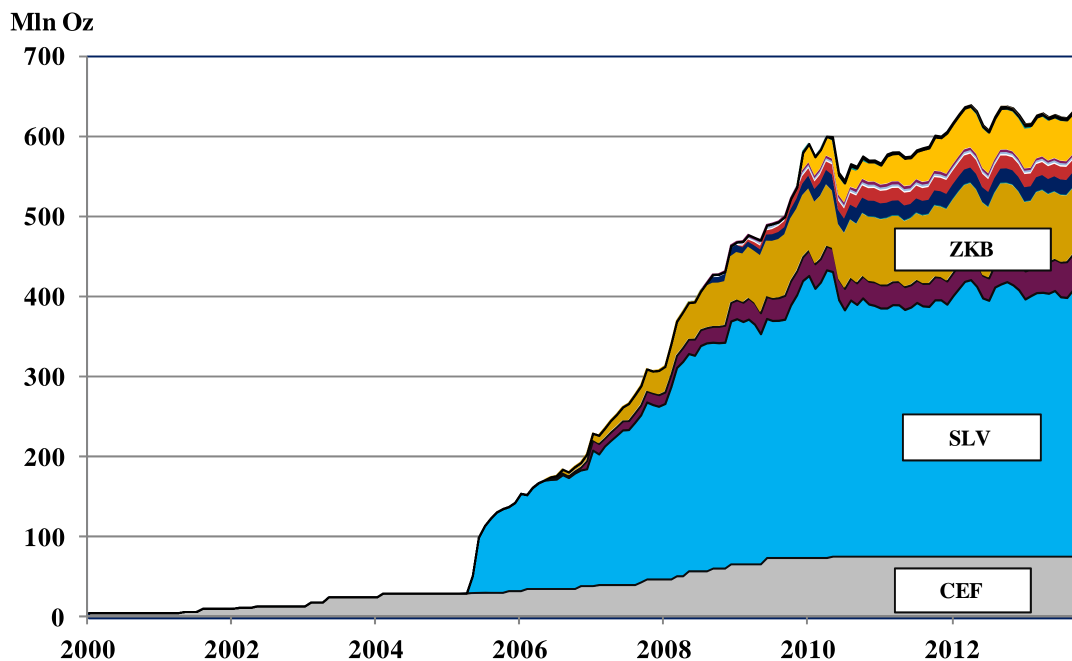
Exchange Traded Products

There are a variety of silver exchange traded products, including exchange-traded funds (ETFs), exchange-traded notes (ETNs) and closed-end funds (CEFs) that are designed to track the price of silver. These ETPs typically are backed by physical silver, silver financial derivatives, or even silver mining equities, and can be bought and sold at several major stock exchanges around the world.

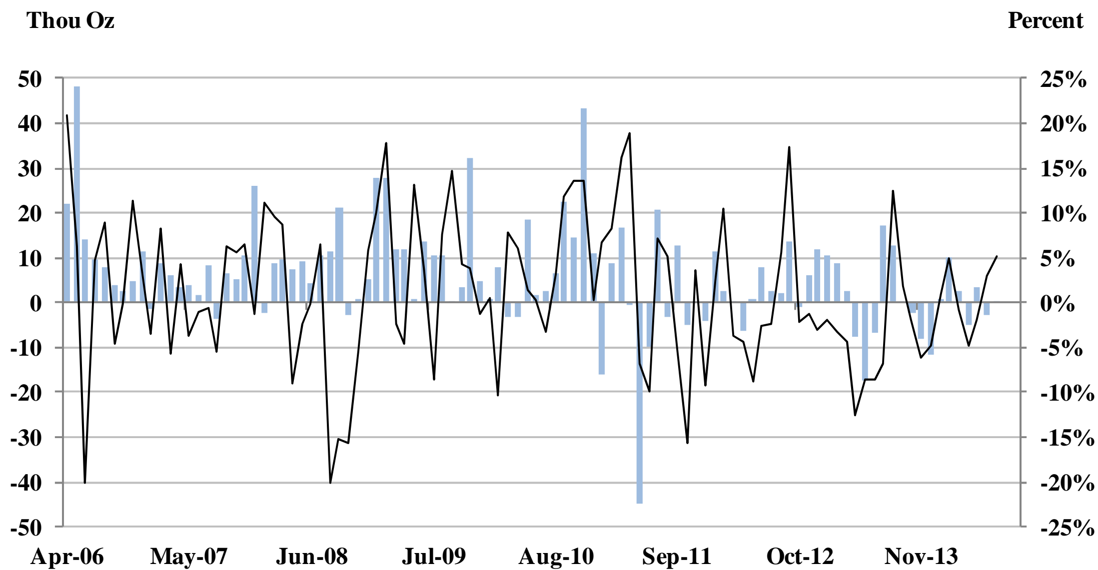
Silver ETP demand comes from institutional investors, high net worth individuals, and retail investors. Institutional investors, for the most part, have short to medium term investment horizons, holding a position for one economic cycle, and sometimes trading in and out of a position to take advantage of shorter term price moves. High net worth individuals can have any combination of investment horizons, depending on their portfolio objectives and risk appetites.

Investment demand for physically backed silver ETFs took off in April 2006, when the iShares Silver Trust (NYSE Arca: SLV) was launched by iShares. Prior to that investors were able to trade silver through vehicles such as the Central Fund of Canada as early as 2000, although the volume of silver held in these vehicles was small. Increased investor asset allocations to physically backed silver ETPs coupled with additional ETP product offerings since 2006 fueled a sharp rise in the amount of silver held in ETPs. Between 2006 and 2010, between 75 million ounces and 155 million ounces of silver were added to ETP holdings on an annual basis, which accounted for 8% - 16% of total annual silver supplies during this period. As of July 2014, iShares Silver Trust still is the largest silver ETP in the market, holding around 332 million ounces of silver, or roughly 51% of total ETP silver holdings.

Silver held by ETPs stood at 616.6 million ounces by the end of 2013, down 2.5 million ounces from 2012. (Some market commentators only look at a handful of the largest ETPs, and quote lower figures.) Even with this decline, cumulative silver ETP holdings remained extremely high, and the decline of 2.5



Monthly Changes in Silver ETP Holdings and Prices
From April 2006 Through July 2014



million ounces represented only 0.4% of total silver ETP holdings. Investors again were net buyers in the silver ETP market during the first seven months of 2014, adding more than 9.5 million ounces of silver to their ETP holdings. This pushed silver ETP holdings to a historical record high of 626.5 million ounces by end of July 2014.

ETP trading activities can influence prices to a great extent, not only by having large volumes of metal flowing in and out of these vehicles, but also by having an impact on the sentiment of the rest of the silver investment community. Net additions or reductions to silver ETPs are reported regularly if not daily, and thus are rather transparent. Due to this transparency, even small net purchases can and do result in an increase in demand from other investors watching ETP holdings as an indication of investor interest in silver, which can potentially boost the price and increase investment demand further. The reverse also can happen in a bearish market scenario. Since 2006 there have been periods when the price of silver and the net purchases and sales of silver held in ETPs showed strong positive correlations. At some other times, however, bargain buying would typically have created an inverse correlation between the price and ETP holdings.

Silver Mining Equities

Silver mining equities also allow investors to gain exposure to silver prices. There are a number of silver mining companies that are large, primary producers of the metal. There also are companies at various stages of exploration and development of silver-producing mines. The risks and returns involved in investing in the actual commodity and the equity of silver mining companies are very different. With a commodity such as silver, investors are mainly exposed to price risks. With mining company stock, investors assume risks related to management issues, reserves, production, location, natural disasters that

might disrupt production, exploration, or nationalization (country risk), and other factors far from whether the price of the companies' product will rise or fall.

After ten years of generally higher prices between 2002 and 2011 silver prices declined sharply in 2012 and 2013, and yet primary mine output of silver has continue to rise to record high levels. This increase in primary silver mine output to a large extent reflected elevated growth levels of capital expenditure in mine development and expansion during the prior years of rising prices, which was leading to operations then under development now coming on stream and ramping up to full production.

Meanwhile profit margins of primary silver mining companies have been squeezed significantly since 2012 and 2013. Even though on the whole primary silver miners are able to absorb such a squeeze over the short term, a reorganization of mining operations is underway to enhance their longer term profitability. Industry-wide efforts to control costs of production, which include cutbacks on capital expenditures, focuses in mining higher grade portions of their deposits, as well as improvements in metal recovery, resulted in an average reduction in production-weighted cash costs for silver during 2013. This was the first annual reduction in cash costs for silver production since 2002.

Reductions in mining costs, and more importantly the structural reorganization of silver mining companies, can have differing effects on the value of silver and silver equities. A reduction in capital and exploration expenditures for both new and existing operations will eventually weigh on future silver mine supply. The loss in mine supply can be supportive of silver prices in the medium term, but it does not necessarily push silver prices higher, as the primary driver of silver prices is investment demand. If investors sell their silver into an over-supplied market, silver prices could remain weighed down. On the other hand, if investors are buying silver on the expectation of tighter silver mine supplies, prices could see some upward momentum, which would be supportive of silver prices in the longer term.

A reduction in cash costs would be expected to have a more positive impact on silver mining stocks than it would on the price of silver. Reducing cash costs does not necessarily hurt mine supply; it does benefit the mining companies' financial performance. Over the long term the loss in new mine output could potentially support higher silver prices, but mining stocks could suffer. This is because mining companies might not have the capacity to grow ounces or revenues when the silver price is high. Conversely, if producers improve their profitability, equity investors may re-invest in the sector, boosting share prices.

It is CPM Group's expectation that silver mining companies will continue to scale back on costs, at least over the next few quarters. An extended period of relatively weak silver prices is typically a more compelling reason for mining companies to tweak operating plans and scale back on expansions.

While silver prices could see additional downward pressure from the stale bull investor selling for the remainder of 2014 and 2015, prices are not expected to decline significantly from current levels between $18 and $19. Relatively flat silver prices, even if they consolidate at moderately lower levels compared to recent highs, could potentially be offset by cost reductions by primary silver mining companies, potentially benefiting silver equities in the near term. Based on the assumptions of silver prices consolidating at these historically elevated levels, mining costs declining, and low valuation of silver mining equities, there are strong reasons to expect silver mining stock prices to rise in the near term, from levels in early 2014. Over the long term, investors are likely to benefit from buying either silver or silver equities.

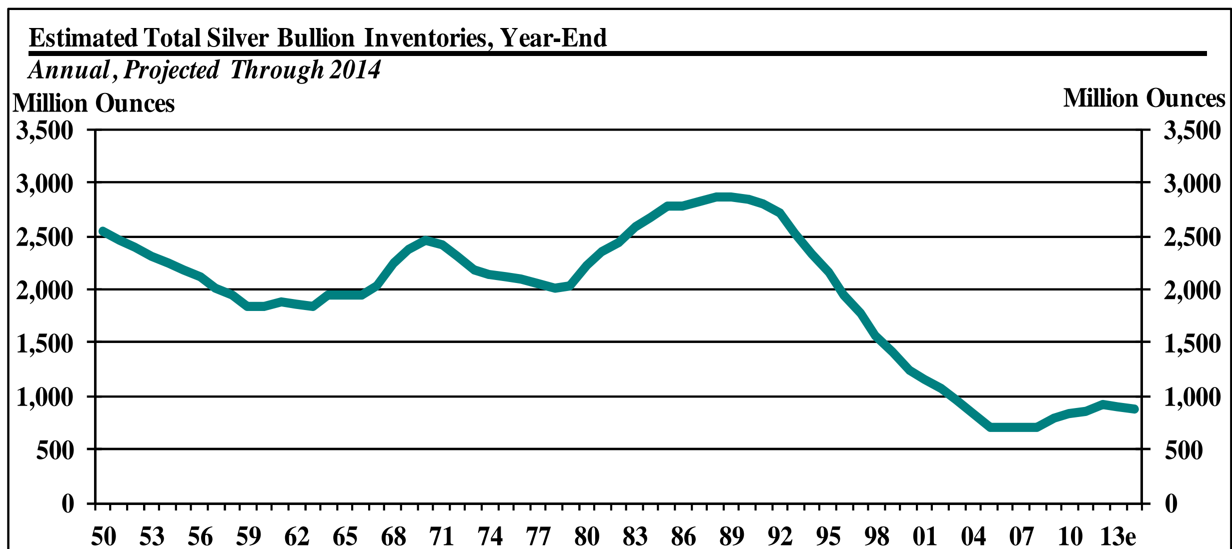
Silver Investment Holdings

Silver exists in various forms in above-ground inventories. Strictly speaking, silver held in bullion bars, coins, and medallion forms represent real or actual silver inventories. This is metal that is in the form of refined silver, in contrast to being contained in a fabricated product such as jewelry, silverware, or some decorative object. Silver in bullion bar and coin form can be sold at a moment's notice as silver.

At the end of 2013, the best estimate is that at least 2.3 billion ounces of silver was held in bars and coins around the world. The figure could be higher, given the long, long history of silver investment demand and the secrecy that has surrounded silver ownership for centuries, but this is the best estimate of the minimum amount held in these forms. Of this total, perhaps 1.3 billion ounces was being held in coin form, with around 970 million ounces in bars. The bar figure could be much higher than this, shrouded as it is in secrecy, but again this appears to be the best estimate of the minimum amount of silver held in refined bullion form.

For most metals, the metal that is held in fabricated product form is not counted as metal inventories. The copper wound around billions of electric motors or in plumbing is not really readily available to the market. It does not exist in refined metal form. Yes, this metal could be recovered and refined into deliverable metal, but there are costs and logistical issues related to that. For gold and silver, however, the concept of what constitutes 'inventories' of metal is more complex. There are billions of ounces of both precious metals in the form of jewelry, statues, decorative objects of all manner, and religious objects. Many of these objects are 91% pure silver. Much of this metal is held as quasi-investments, or in some cases as outright investments. It is not exactly accurate to call them silver inventories, but it also is naïve to exclude them from one's calculations.

At the end of 2013 CPM Group estimated there were more than 24 billions ounces of silver in jewelry, decorative, and religious objects that has been accumulated over many centuries. Cumulative production of silver since the beginning of mankind is put at around 51.9 billion ounces, roughly four-fifths of it mined since 1900. Silver market research begun in the 19th century has been added to ever since, arriving at these figures. Most of these statues, objects, silverware, and jewelry never will be sold for their silver content, and most of the silver they contain will not come back into the silver bullion market. Some does, however, every year, and it will continue to do so for as long as mankind is around. It is important to note that this silver is there, but it is not an immediate issue for the silver bullion market.



Inventories are price neutral if they are at rest: When there is no net change in inventory levels, there is no effect on silver bullion prices. Net changes do however often have profound effects on silver prices. Conversely, the level of silver prices affects the volume of the metal flowing in and out of the inventories. Historically, investors and consumers are very price sensitive. When silver prices exceed or fall below their expected price levels, large flows of silver in and out of above-ground inventories can and do occur.

Unlike copper or other industrial metals but like gold, there is a lot more silver stored in bank vaults and private safes, equivalent to years' worth of fabrication demand. The effect of large inventories is visible in other markets, but the period of time that could be sustained by these inventories is shorter because the inventory levels are smaller. Gold and silver are different because of the large inventories accumulated over the centuries. The silver market is known to be able to sustain a deficit of newly refined metal entering the market from new mine production and secondary recovery from scrap relative to fabrication demand for long periods of time, without seeing a noticeably dramatic price response. For 14 years between 1991 and 2005 the market was able to remain in a deficit before prices showed any major response.

The volumes and the flows of most of the silver inventories are not publically reported. There is a large amount of silver stored at banks, on an allocated or unallocated basis, being held by private investors in both coin or bar form, and stored in non-bank depositories, bank deposit boxes, and all sorts of other locations. These unreported private investor inventories combined with silver stockpiles held by refiners, fabricators, and importers make up the total unreported silver inventories. Unreported inventories are estimated based on silver's historical market balance and its inferred impact on prices. These estimates are structured based on the shadow that these silver volumes leave on the market. Price movements that cannot be justified by known supply and demand forces sometimes are the result of the mobilization of unreported silver inventories into or out of the market.

As mentioned above, by the end of 2013 cumulative investor silver holdings are estimated to have reached a minimum of 2.26 billion ounces in bullion bars and coins. To put this in perspective, global fabrication demand for silver stood at around 858.6 million ounces in 2013. This means that if all of these investor inventories were immediately sold they could meet fabrication demand for 2.7 years.

Since the early 2000s the amount of silver accumulated by exchange traded funds has taken up an increasing share of reported and estimated total market inventories, rising from less than 5% of reported inventories in 2000 to 75.5% of total reported silver bullion stocks in 2013. Investor silver holdings at ETFs declined in 2013 for the first time since 2011, during which year investors took profits at a time of historically record high silver prices. The silver sell-off in 2013 was mainly from disenchanted investors discouraged by silver prices lower than they had expected.

Prior to the development of the physical ETP market, investors largely relied on data from futures exchanges to gather information on trading activities and price trends. These indicators in no way identified the amount of physical metal that was bought and sold, but the transparent and regulated nature of futures exchanges led them to provide at least some data on the otherwise opaque and unregulated silver market. These indicators were more suggestive of trends in the silver derivatives market, of course, which can only provide insights about the paper markets and not physical demand trends. Instead of drawing entirely from the supplies of newly refined silver, part of this rapid increase in silver ETP holdings was a result of a shift from unreported silver inventories to inventories reported by ETPs. The rise of silver ETPs has been beneficial in increasing the transparency of the silver market inventories at least to some extent.

Reported and Unreported Silver Holdings
Million Troy Ounces

	Reported Stock Levels					Year-to-Year Changes		
		Market				Reported	Unreported	
	Government	Exchange	ETPs	Dealer	Total	Stocks	Stocks	Total
1970	359.0	135.0	-	82.2	217.2	NA	NA	NA
1971	311.9	135.7	-	57.1	192.8	-24.4	-11.6	-36.0
1972	333.6	107.9	-	70.9	178.8	-14.0	-82.6	-96.6
1973	277.2	108.0	-	56.4	164.4	-14.4	-114.6	-129.0
1974	319.2	99.5	-	66.3	165.8	1.4	-53.4	-52.0
			-					
1975	250.8	142.0	-	54.6	196.6	30.8	-40.9	-10.1
1976	257.0	144.3	-	49.8	194.1	-2.5	-23.2	-25.7
1977	319.0	149.8	-	56.1	205.9	11.8	-58.2	-46.4
1978	318.8	141.1	-	47.3	188.4	-17.5	-37.2	-54.7
1979	314.6	146.2	-	35.4	181.6	-6.8	30.3	23.5
			-					
1980	327.8	148.1	-	36.6	184.7	3.1	206.1	209.2
1981	323.8	128.7	-	39.0	167.7	-17.0	132.2	115.2
1982	322.8	141.4	-	39.6	181.0	13.3	69.8	83.1
1983	311.7	196.6	-	37.9	234.5	53.5	110.7	164.2
1984	307.0	189.2	-	42.3	231.5	-3.0	90.2	87.2
			-					
1985	294.0	227.0	-	44.1	271.1	39.6	57.3	96.9
1986	280.0	189.2	-	36.8	226.0	-45.1	48.9	3.8
1987	267.8	193.4	-	35.5	228.9	2.9	44.0	46.9
1988	251.6	209.4	-	34.3	243.7	14.8	11.0	25.8
1989	240.9	261.1	-	41.4	302.5	58.8	-41.3	17.5
			-					
1990	229.9	291.9	-	47.8	339.7	37.2	-57.5	-20.3
1991	218.4	294.9	-	50.9	345.8	6.1	-68.3	-62.2
1992	210.3	367.8 *	-	51.0	418.8	72.9	-157.1 *	-84.2
1993	204.6	373.3	-	50.8	424.1	5.3	-188.9	-183.6
1994	189.7	347.4	-	46.0	393.4	-30.7	-167.0	-197.7
1995	177.8	233.2	-	39.0	272.2	-121.2	-52.4	-173.7
1996	172.8	213.1	-	32.7	245.8	-26.3	-176.5	-202.9
1997	167.5	116.8	-	23.0	139.8	-106.0	-73.2	-179.2
1998	161.5	81.8	-	21.0	102.8	-37.0	-163.5	-200.5
1999	149.4	81.4	-	32.0	113.4	10.6	-171.0	-160.4
2000	126.3	99.7	6.6	34.1	140.4	27.1	-194.3	-167.3
2001	112.2	109.7	6.6	30.6	146.9	6.4	-96.2	-89.8
2002	111.6	113.1	11.9	23.2	148.2	1.3	-98.7	-97.4
2003	111.6	124.9	14.8	16.2	156.0	7.8	-103.3	-95.5
2004	111.1	104.8	26.2	18.4	149.4	-6.6	-133.3	-139.9
2005	76.1	122.7	31.0	18.8	172.5	23.1	-121.4	-98.3
2006	52.1	113.8	155.1	19.6	288.5	116.0	-112.6	3.4
2007	44.1	135.1	230.4	18.5	384.0	95.5	-91.8	3.7
2008	44.1	130.3	313.9	18.5	462.7	78.6	-77.8	0.8
2009	53.0	112.7	469.2	13.2	595.1	132.5	-62.9	69.5
2010	49.2	105.0	591.8	11.3	708.2	113.1	-58.4	54.7
2011	46.8	117.5	567.4	12.2	697.1	-11.1	27.9	16.8
2012	46.8	179.7	619.1	11.9	810.7	113.5	-36.0	77.6
2013	46.8	188.4	617.0	11.6	817.0	6.4	-29.9	-23.5

Notes: Changes in total stocks represents the change in the supply/demand balance of new metal. Coinage is included in demand. stocks include reported U.S. dealer inventories, exchange registered stocks, and exchange traded product (ETP) holdings. New York Commodity Exchange stocks also include eligible stocks. Changes in market stocks are end-year; 2004 change is through end-December. Changes in unreported stocks is the change in the supply/demand balance of new metal, adjusted for changes in reported inventories. End of year data. *Adjusted to include Wilmington Trust stocks that would have been eligible for Comex delivery. Wilmington Trust became a licensed Comex silver depository on January 1, 1997.

Sources: U.S. Bureau of the Mint; U.S. Bureau of Mines; New York Commodity Exchange; London Metal Exchange; NYSE Liffe (formerly Chicago Board of Trade); Tokyo Commodity Exchange; ETP websites, SHFE, Bloomberg, CPM Group.

Reported and Estimated Silver Inventories
Million Troy Ounces, Year-End Data

	1996	1997	1998	1999	2000	2001	2002	2003
Reported *								
Comex *	203.5	109.8	75.8	76.0	94.0	104.5	107.4	124.3
Tocom	3.6	2.2	1.6	1.4	1.7	1.4	1.7	0.7
NYSE Liffe	6.1	4.8	4.4	4.0	4.0	3.7	3.9	-
SHFE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
U.S. and Japanese Industry	32.7	23.0	21.0	32.0	34.1	30.6	23.2	16.2
Exchange Traded Products	-				6.6	6.6	11.9	14.8
Total Market	245.8	139.8	102.8	113.4	140.4	146.9	148.2	156.0
Inferred, Unreported								
Other U.S. depositories and private holdings	706.1	683.7	532.4	406.0	343.0	310.0	260.4	217.8
European depositories * and private holdings	621.2	599.4	732.3	698.3	607.8	578.1	554.8	495.7
Asia, Latin America	379.0	350.0	205.0	194.4	157.0	125.0	100.0	100.0
Subtotal, Inferred	1,706.3	1,633.1	1,469.7	1,298.7	1,107.8	1,013.1	915.2	813.5
Subtotal, Bullion	1,957.2	1,778.0	1,577.4	1,417.0	1,249.8	1,160.0	1,062.6	967.1
Unreported Coins*								
Bullion	349.0	368.9	398.2	427.8	466.4	493.1	523.3	554.1
Bags of U.S. monetized coin	20.0	20.0	18.0	2.0	2.0	2.0	2.0	2.0
Subtotal, Coins	369.0	388.9	416.2	429.8	468.4	495.1	525.3	556.1
Total, Bullion and Coins	2,326.2	2,166.9	1,993.7	1,846.8	1,718.2	1,655.1	1,587.9	1,523.2
Government Stocks	172.8	167.5	161.5	149.4	126.3	112.2	111.6	111.6
Total, with Government	2,499.0	2,334.4	2,155.2	1,996.2	1,844.4	1,767.3	1,699.5	1,634.7

Notes: The total reported and unreported inventory figures cited in this table represent CPM Group's mid-point estimate of silver stocks, based on discussions with industry sources. CPM Group also derives low-end and high-end estimates from this information. It must be emphasized that these figures represent CPM Group's best estimates. There are no official data regarding unreported silver inventories, and there is a wide range between our high, low, and mid-point estimates. These figures exclude estimated silver held in bullion, coin, and medallion forms in China and India. Chinese data are not available. Enormous amounts of silver are held in these two countries. Much of the metal held in India appears to be held in the form of statue, silver decorative objects, and jewelry, as opposed to bullion and coins. Some is in bullion coin form, but the amount has not been estimated. Large volumes of silver coins and bars were imported into China over several hundred years prior to the take over in 1949 by the Chinese Communist Party. The disposition of this silver is unknown, although there was a steady stream of such silver exported from the 1960s into the 2000s. * Reported stocks data include silver reported by respective exchanges, funds, and industry. Comex includes registered and eligible stocks. European estimates include London and Zurich bullion banks. NYSE Liffe formerly Chicago Board of Trade. Coin bags exclude private holdings of old coins, which are included in private holdings.

Source: CPM Group
19 March, 2014

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
103.6	120.0	111.1	132.6	127.7	112.4	104.6	117.3	148.2	173.9
1.2	0.6	0.4	0.2	0.3	0.3	0.5	0.2	0.2	0.1
-	2.2	2.3	2.3	2.3	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31.2	14.4
18.4	18.8	19.6	18.5	18.5	13.2	11.3	12.2	11.9	11.6
26.2	31.0	155.1	230.4	313.9	469.2	591.8	567.4	619.1	617.0
149.4	172.5	288.5	384.0	462.7	595.1	708.2	697.1	810.7	817.0
140.2	75.0	70.0	81.0	103.1	74.3	43.1	62.5	48.1	43.2
446.7	401.2	281.4	155.6	46.9	27.9	30.0	27.3	20.1	17.0
95.0	58.0	69.6	92.7	100.0	84.8	57.0	61.2	78.0	63.3
681.9	534.2	421.0	329.2	250.0	187.0	130.1	151.0	146.2	123.5
827.2	728.9	732.3	736.1	736.9	806.4	861.1	877.9	986.7	969.8
584.9	613.9	644.0	680.3	744.3	822.0	918.3	1,045.2	1,151.1	1,287.1
2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
586.9	615.9	646.0	681.3	745.3	823.0	919.3	1,046.2	1,152.1	1,288.1
1,414.1	1,344.8	1,378.4	1,417.4	1,482.2	1,629.5	1,780.4	1,924.1	2,138.8	2,257.9
111.1	76.1	52.1	44.1	44.1	53.0	49.2	46.8	46.8	46.8
1,525.2	1,420.8	1,430.5	1,461.4	1,526.3	1,682.5	1,829.6	1,970.8	2,185.5	2,304.7

The Global Source

THE SILVER INSTITUTE