

## Silver Demand Creates Small-Cap Opportunities

Last year, we examined the investment case for gold and gold-mining companies, and in the piece that follows, David Nadel, with help from Dana Serman and Dilip Badlani, does the same for silver, another precious metal in which we have long had a keen interest.

This piece looks at:

- The pricing of silver and the silver-to-gold ratio
- How silver could shine in the current economic climate, which we see as "biflationary"
- How silver's demand is keyed by growing industrial uses

### **Silver Demand Creates Small-Cap Opportunities**

*None of The Royce Funds may invest directly in silver bullion. Investments in silver mining and other precious metals companies can be significantly affected by international economic, monetary and political developments, inflation, and other factors. In recent years, certain series of The Royce Fund have had relatively significant levels of investment in the securities of precious metals and mining companies, including silver mining companies.*

The silver-to-gold ratio held at around 15:1 for roughly 1,300 years, up to the 1880's, meaning that 15 troy ounces of silver were worth one troy ounce of gold. As of December 7, 2011, the silver-to-gold ratio was 54:1, implying that the fair-value price for silver is \$120 per ounce.<sup>4</sup>

### **Facts About Silver**

- Silver's historical role has largely been as a store of value and as a hedge against inflation and currency devaluation. Consider that gasoline cost roughly \$0.25 a gallon in 1964<sup>1</sup>, the last year in which U.S. quarters were minted with silver; today, the silver content from that same quarter would buy approximately 1.8 gallons at \$3.50 per gallon!
- Among silver's other historical uses were as a natural bactericide. Silverware has been used for thousands of years both in the West and in Asia, originally not so much because it looked great when polished, but because of its ability to destroy pathogens. Some of these historic uses survive today, such as the tradition of giving a silver spoon or rattle to infants.<sup>2</sup> Newer bactericide applications include wall-paint for hospitals, water purification, sports-sock fibers, washing-machine linings, etc.<sup>3</sup>
- The silver price appears historically cheap to us. It's worth noting that the silver-to-gold ratio held at around 15:1 for roughly 1,300 years, up to the 1880's, meaning that 15 troy ounces of silver were worth one troy ounce of gold. As of December 7, 2011, the silver-to-gold ratio was 54:1, implying that the fair-value price for silver is \$120 per ounce.<sup>4</sup> Although the ratio has been considerably more volatile in the 20th century, we expect a combination of industrial and investment demand for silver to help drive the silver price upward and the ratio back toward the 15:1 range.

- A perennial skeptic on gold, Warren Buffett held a massive investment in silver for nearly a decade. Beginning in 1997, Buffett's Berkshire Hathaway accumulated 130 million ounces of silver, or roughly 37% of the world's known silver supply at the time. Buffett finished selling his investment by May 2006.<sup>5</sup>
- Supply and demand for silver are both essentially inelastic to price. About 70% of silver production is a by-product of other metals, so production volume does not adjust quickly to pricing. Meanwhile, about 65% of demand is industrial, and the silver value of such applications is inconsequential as a portion of total value, so industrial demand likewise does not adjust quickly to price. The relative inelasticity of silver's supply and demand can contribute to heightened volatility in its price, because there is no automatic demand-supply balancing, or reversion-to-the-mean dynamics, which tend to somewhat stabilize the pricing of many other assets.
- The silver market is small, with above-ground silver bullion totaling about one billion ounces—barely a quarter that of gold ounces.<sup>6</sup> The total current 'market cap' of silver, i.e. current supply in ounces times the price per ounce, is just 1/246th the market cap of gold: approximately \$35 billion for silver vs. \$8.6 trillion gold. By 2015, industrial demand for silver is expected to increase by 37% to 666 million ounces.<sup>7</sup>
- Due to silver's use as an industrial metal, it has actually become more scarce over the past century. Many industrial products using silver have been discarded, or have silver content that is not economically-recoverable. Of the approximately 12 billion ounces that existed in 1900, about 92% have been, in effect, 'used up.' That 1 billion ounces available today represents just 2% of all the silver mined in history, which has been estimated to be 46 billion ounces.<sup>8</sup>

### **Valuing Silver: A Brief History of the Silver-to-Gold Ratio**

While gold continues to grab the headlines amidst the economic clouds and currency devaluation in the developed world, arguably becoming the "world's fourth currency" (after the U.S. Dollar, euro and Japanese Yen), silver has received far less attention. Many members of our investment team, however, remain bullish on silver via our investments in silver-mining companies. We also retain our long-term bullishness on gold-mining companies, although we can see how silver-mining companies may have even more upside potential.

The silver-to-gold ratio is an important gauge for evaluating silver mining companies and valuing silver itself. For 1,300 years, until about 1880, this ratio held around 15:1, and in 1792 America actually mandated the ratio be set at that level.<sup>9</sup> As depicted below, the ratio became more volatile after the U.S. Civil War, briefly spiking near 100:1 in the early 1990's, when digitization gutted silver demand in photography. While the ratio has shown considerable volatility over the last two decades in particular, we believe that it is more likely to move closer to 15:1 in the coming years, driven by rising silver prices. We expect the silver price to have an upward bias, based both on investment demand (i.e. as a hedge against biflation), and even more so from industrial demand keyed by growing teletronic, medical and chemical applications.

## 219-YEAR HISTORY OF THE SILVER/GOLD RATIO 1 oz of Gold/1 oz of Silver



Source: Mike Churchill, Churchill Economics

Several factors in the late 19th century contributed to the volatility of the ratio. First, central banks began to accumulate gold to back their currencies and maintain gold standards. During the late 1800s, a series of financial panics made it necessary for many banks to acquire gold, which was viewed as the best asset to help financial institutions survive such crises.

Moving into the 20th Century, we find that the U.S. stopped minting most silver coins in 1964, as did other governments throughout the 1960s and early 1970s. When the U.S. and other countries started to feel the effects of inflation, the value of the silver used in coinage began to exceed the nominal value of the coins themselves, which led governments to begin using cheaper metals in coins. This had the effect of both tarnishing silver's prestige and substantially curtailing demand. In 1959 the U.S. Treasury held more than 2 billion ounces of silver, while today it holds none.<sup>10</sup>

In terms of naturally occurring new supply, there is approximately 15 times more silver in the earth's crust than there is gold, a fact that dovetails with that historic pricing relationship of 15:1.<sup>11</sup> The recent silver-to-gold ratio of 54:1 implies that silver is quite cheap not only versus gold, but also versus its natural incidence in the earth. So while we do not think that gold is over-valued in an absolute sense, we do see silver as under-valued in both absolute and relative terms.

Just as silver appears "under-valued" to us versus gold, it also appears under-owned, in part because industrial consumption has removed so much of the previously mined silver from circulation. Whereas most of the 5.3 billion ounces of gold historically mined<sup>12</sup> is held in vaults or in circulation, the 12 billion ounces of silver available globally in 1900 has declined to only about 1 billion ounces in 2010<sup>13</sup>, with the remainder being consumed or discarded due to uses such as photographs, electronics, and various other uses.

As the table below illustrates, while the global per capita value of gold has increased 95-fold since 1900 to \$1,229 from \$13, the per capita value of silver is still the same \$5 it was 110 years ago.

VALUES OF GOLD AND SILVER RELATIVE TO THE GLOBAL POPULATION					
Year	World Population (billions)	Gold Market Cap (billions)	Silver Market Cap (billions)	Gold Per Capita	Silver Per Capita
1900	1.6	\$20	\$8	\$13	\$5
1950	2.5	70	8	28	3
1975	4	450	20	113	5
2010	7	8,600	35	1,229	5

Source: <http://news.silverseek.com/TedButler/1161705933.php>

The effect of silver's increasing scarcity is dramatic. Had silver's per capita value of 1900 grown at the same rate as gold's, silver's current price would be \$475/ounce, i.e. 95 times 1900's silver-value per capita). Looked at another way, if the ratio of per-capita silver value to per-capital gold value had remained the same as it was in 1900 (i.e., with the 1900 ratio being 38%, or \$5/\$13), then the current price of silver would be over \$3,000/ounce.<sup>14</sup> In a sense, these dramatic numbers underscore the impact of the disappearance of the majority of the mined silver in the past 110 years.

#### The "Silver Bullet" for Biflation?



A 1963 quarter. The melt value of these coins today would be about \$6.25.<sup>15</sup> History offers some hints about how the silver price might behave in today's economic environment, which we believe has strong elements in the developed Western world of stagflation and even biflation (when stagnation, inflation and deflation occur simultaneously). In the late-1970s era of stagflation in America, new investment demand for silver markedly outweighed declining industrial demand, a dynamic which was made extreme by the small size of the silver market. In one of the higher profile stories of that era in financial markets, the Hunt brothers attempted to corner the silver market from 1973 to 1979, helping to drive the price to \$48.70 per ounce before their market-cornering collapsed.<sup>16</sup>

In this context of a "race to the bottom" between the world's two leading currencies, we tend to think the silver price will have an upward bias, in part because there is no "Quantitative Easing" for silver; on the contrary, it has finite supply which has actually declined over history.

Silver is, of course, also regarded as "the poor man's gold," so in a stagflationary or biflationary environment when gold is priced beyond the reach of most people, we believe they may seek to protect themselves

against currency debasement and declining purchasing power by buying silver instead, as it is far less expensive. There is certainly historical precedent for this behavior, and in many societies today (India among them), many people rely on silver for this purpose. Meanwhile, we believe an increasing number of Western consumers are becoming aware that currency debasement lies at the root of their weakened purchasing power. When the Obama Administration laid out its plans last year to double exports in the next five years, we think the unstated lever behind this policy was and is the debasement of the U.S. dollar—such a doubling would be impossible, in our view, without a markedly weaker Greenback. The story is similar for the euro, as we believe that money-printing and debasement are among the few tools Europe's authorities still have to "save" this currency over the intermediate term. In this context of a "race to the bottom" between the world's two leading currencies, we tend to think the silver price will have an upward bias, in part because there is no "Quantitative Easing" for silver; on the contrary, it has finite supply which has actually declined over history. We find today's economic environment in the Western developed world to be closer to biflation than 1970's style stagflation. In other words, along with economic stagnation, prices have an upward bias for essential consumer items such as food and gasoline, but conversely, the value of credit-based assets such as homes and cars have a downward bias because they are victimized by deleveraging. The challenge of biflation has been exacerbated, in our opinion, by the policies of the Federal Reserve in the U.S. and the ECB in Europe. Specifically, in addition to massively increasing the money supply, these central banks have directed this money to benefit creditor banks, not debtor consumers.

Biflation is admittedly not yet as well recognized a phenomenon as stagflation, which may beg the question of how exactly silver will behave amidst biflation. But Americans and Europeans are being forced to confront biflation, just as Americans did stagflation 35 years ago. In our view, it is issues such as biflation that are driving the grievances of the "Occupy Wall Street" movement, as well as those of similar protests across America and Europe. Amidst zero-percent interest rates and structurally high unemployment, saving effectively has become difficult if not pointless, and purchasing power continually erodes, leaving the middle-class to feel increasingly powerless and frustrated. In this biflationary environment, we expect the silver price to continue to benefit from the need for a haven against evaporating purchasing power.

### **Silver's Industrial Demand**

According to the Silver Institute, industrial demand for silver, including electronics, photovoltaic materials, photography, medicine and silverware, totaled 610 million ounces in 2010, eating up roughly 64% of primary production.

Not only has the demand for products using silver risen over the past couple of decades, but the number of new applications for the metal has expanded as well. These developments have kept industrial demand high in spite of silver's declining use in photography, where the technology is increasingly digital—silver demand for photo prints is down about 68% from its level in 2000, to 70 million ounces.<sup>17</sup>

Over the last 10 years, growth in industrial demand alone (+39%) has far outpaced growth in production from mining (+21%).<sup>18</sup> Of course, industrial demand is cyclical, as evidenced by the downturn in 2009, when silver use fell 18% from 493 million ounces in 2008 to 404 million ounces in 2009. Similarly, as the economy slowed between 2000 and 2001, industrial demand fell by almost 10%.

<b>Table 1 - World Silver Supply and Demand (million ounces)</b>										
© GFMS Ltd / The Silver Institute										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Supply</b>										
Mine Production	606.2	593.9	596.6	613.0	637.3	641.7	665.4	681.9	718.3	735.9
Net Government Sales	63.0	59.2	88.7	61.9	65.9	78.5	42.5	28.9	15.5	44.8
Old Silver Scrap	189.0	196.3	194.0	195.2	198.6	203.3	199.0	193.7	188.4	215.0
Producer Hedging	18.9	-	-	9.6	27.6	-	-	-	-	61.1
Implied Net Disinvestment	-	18.9	1.6	-	-	-	-	-	-	-
<b>Total Supply</b>	<b>877.1</b>	<b>868.3</b>	<b>881.0</b>	<b>879.7</b>	<b>929.5</b>	<b>923.5</b>	<b>907.0</b>	<b>904.5</b>	<b>922.2</b>	<b>1,056.8</b>
<b>Demand</b>										
Fabrication										
Industrial Applications	349.7	355.3	368.4	387.4	431.8	454.2	491.1	492.7	403.8	487.4
Photography	213.1	204.3	192.9	178.8	160.3	142.2	117.6	101.3	79.3	72.7
Jewelry	174.3	168.9	179.2	174.8	173.8	166.3	163.5	158.3	158.9	167.0
Silverware	106.1	83.5	83.9	67.2	67.6	61.0	58.5	57.1	58.2	50.3
Coins & Medals	30.5	31.6	35.7	42.4	40.0	39.8	39.7	65.4	79.0	101.3
Total Fabrication	873.6	843.5	860.1	850.6	873.6	863.5	870.3	874.7	779.2	878.8
Producer De-Hedging	-	24.8	20.9	-	-	6.8	24.2	11.6	22.3	-
Implied Net Investment	3.6	-	-	29.1	55.9	53.2	12.5	18.2	120.7	178.0
<b>Total Demand</b>	<b>877.1</b>	<b>868.3</b>	<b>881.0</b>	<b>879.7</b>	<b>929.5</b>	<b>923.5</b>	<b>907.0</b>	<b>904.5</b>	<b>922.2</b>	<b>1,056.8</b>
Silver Price										
(Average London US\$/oz)	4.370	4.599	4.879	6.658	7.312	11.549	13.384	14.989	14.674	20.193

Source: GFMS, Ltd / The Silver Institute

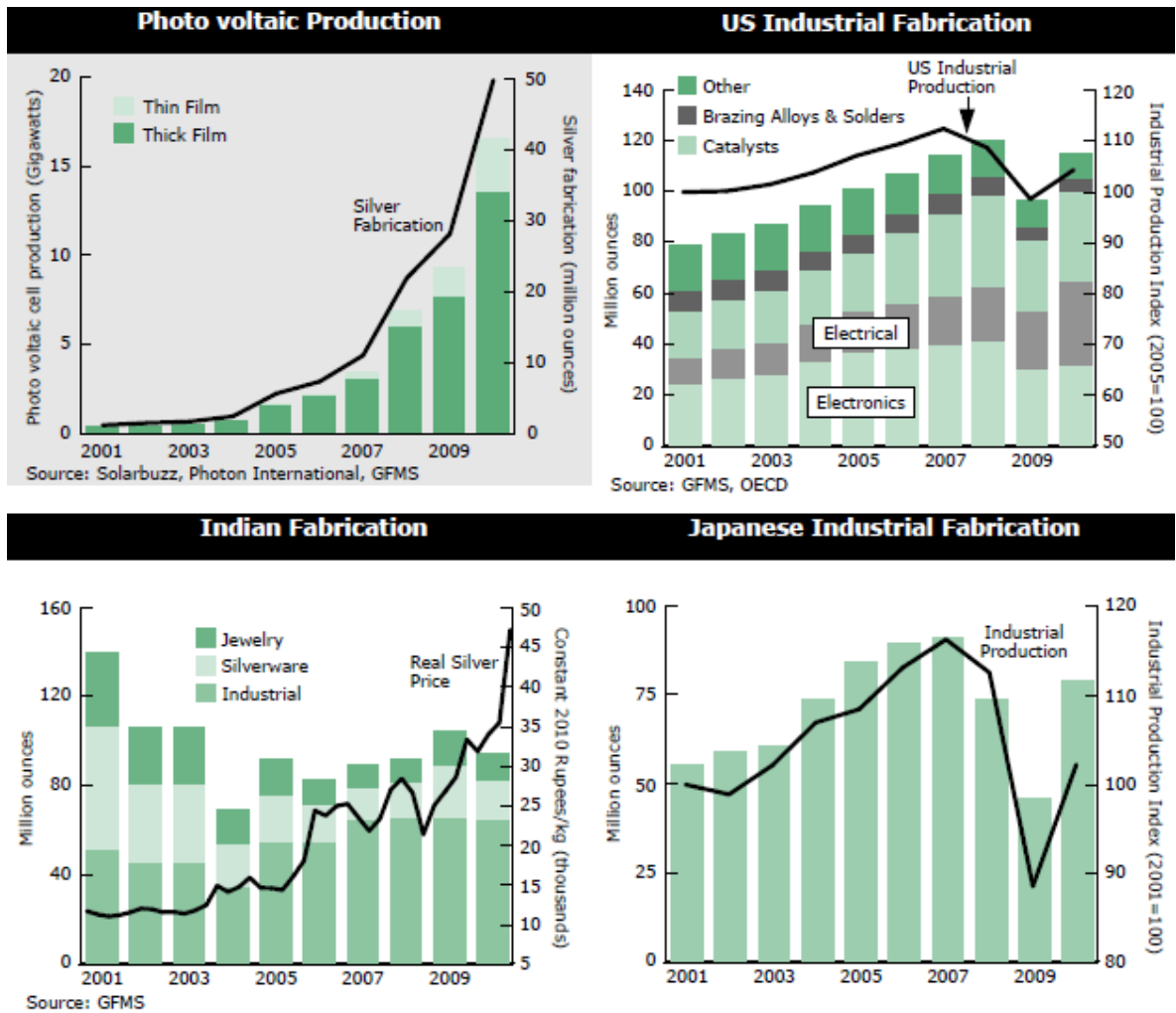
The past decade has seen explosive growth in a broad range of electronics that require silver. In total, cell phones, PCs and notebooks, autos, plasma displays, and button batteries collectively used approximately 82 million ounces in 2010. These applications continued to account for almost one third of all silver's industrial demand—243 million ounces—in 2010.

GFMS, a global consulting firm specializing in precious metals, projects that world industrial demand for silver will rise 37% by 2015, from 487 million ounces to 666 million ounces.<sup>19</sup> For us, it's not difficult to see why. Silver has several unusual or even unique properties that make it effective for a broad range of industrial uses:

- Thermal and electrical conductor well-suited for electrical contacts and switches
- Power-to-weight ratio greater than that of most other metals
- Alloy uses (typically silver-zinc) for battery cathodes
- Optical reflectivity used for mirrors and in glass coatings
- Catalyst in chemical reactions including the production of formaldehyde and ethylene oxide<sup>20</sup>
- Strength and fluidity makes it effective for brazing alloys and solders<sup>21</sup>
- Bactericide and algacide

Two applications which GFMS expects to use increasing amounts of silver are electrical contacts in automobiles and 'conductive paste' in photovoltaic (PV) cells.<sup>22</sup>

- New automobiles contain a growing range of electronic systems requiring silver, including those used for windshield wipers, navigation mapping, seat adjustments, and even in-car networking
- GFMS projects that PV cells will see a 40% year-over-year increase in silver consumption by the end of 2011 in order to produce panels that generate 25 gigawatts of power. Increasing demands for green energy, combined with government subsidies in many countries, have caused a spike in demand for PV cells, with 3 million ounces of silver used for the application in 2004 expanding to 50 million ounces by 2010. According to GFMS, this figure could double again by 2015<sup>23</sup>



Source: GFMS, Ltd / The Silver Institute

In addition to these established industrial uses for silver, GFMS estimates an additional 40 million ounces of industrial demand by 2015 from a range of as-yet-unproven applications, including:

- Electrodes for solid state lighting
- RFID tags

- Supercapacitors
- Superconductors
- Food packaging
- Hygiene
- Wood preservatives
- Electric vehicle batteries
- Autocatalysts
- Nano-silver

**Investing in Silver Mining Companies**

Overall silver demand is expected to increase 6.5% per year through 2015.<sup>24</sup> By contrast, production growth has been very modest; aggregate production in 2010 from the mining industry—736 million ounces—represented an increase of just 2.5% over 2009.<sup>25</sup> Furthermore, the annual supply of silver has recently been only about 7 times that of gold in troy ounces, despite the fact that silver is 15 times more prevalent in the earth's crust than gold.<sup>26</sup> When combined with the silver-to-gold ratio and the under-owned status of silver as discussed above, we believe these factors imply that silver-mining companies may be even more attractive investments than gold-mining firms.

Only about 30% of the total silver supply comes from "primary" silver producers, with the majority coming from non-silver mines, typically lead, zinc, copper and gold. Given both silver's price appreciation and the substantial growth in profits for silver-mining companies, market capitalizations for the primary silver producers have grown to meaningful size. Fresnillo, the world's leading primary-silver producer, commanded a \$19.3 billion market value as of November 30, 2011, while Silver Wheaton, which buys silver byproduct from companies mining other metals, sports a \$11.9 billion market cap. Below is a list of the world leading primary-silver producers, ranked by market cap:

TOP SILVER PRODUCERS BY MARKET CAP As of November 30, 2011	
Producer	Market Cap (in millions)
Fresnillo plc	19,313
Silver Wheaton Corp	11,870
Pan American Silver Corp	2,792
Coeur D'alene Mines Corp	2,624
Tahoe Resources Inc	2,610
Hochschild Mining Plc	2,354
Hecla Mining Co	1,731
First Majestic Silver Corp	1,713
Silvercorp Metals Inc	1,325
Silver Standard Resources	1,186
Bear Creek Mining Corp	416

Source: Bloomberg



When we examine silver-mining companies for investment, we first like to see they satisfy most or all of the basic questions below:

- Is the business managed for returns on capital, and not just for pure production volume?
- Is management making efficiency a high priority (e.g. cost per ounce of silver, cost per ton of earth moved, etc.)
- Is the company meeting operational goals in mine exploration and development?
- Are its labor relations functional and productive?
- Has the company avoided problematic regulatory and/or environmental situations?
- Does it eschew dilutive secondary offerings and undisciplined M&A activities?

We believe the better silver-mining companies are at an inflection point where they are increasingly perceived as being similar to industrial companies, i.e. as businesses producing a desired product that also offer investors reliable earnings, free cash flow and strong dividend yields. In this way, one could say that these silver-mining companies might offer the "silver lining" to today's cloudy investment environment.

Today, geography, regulations and politics are increasingly important in mining. Parts of Africa continue to face civil strife, unscheduled regime change, and violence; the nationalization of mines remains a hot-button issue in Zimbabwe, and even in South Africa the former head of the African National Congress youth league was sabre-rattling about nationalization before recently being stripped of his responsibilities for a five-year period. In other cases, the bark has also been worse than the bite. For example, in Peru the election of Ollanta Humala stirred fear that the new president might take over mines, yet in the end his administration chose instead to modestly increase the taxes levied on mining companies. Australia proposed increasing taxes on base-metal producers, although precious-metal companies were unaffected. Meanwhile, Canada, Mexico and the U.S. are among the major nations that have not seen, and we believe are less likely to see, changes in tax and royalty structures.



Top 20 Silver Producing Countries in 2010 (millions of ounces)		
1.	Mexico	128.6
2.	Peru	116.1
3.	China	99.2
4.	Australia	59.9
5.	Chile	41.0
6.	Bolivia	41.0
7.	United States	38.6
8.	Poland	37.7
9.	Russia	36.8
10.	Argentina	20.6
11.	Canada	18.0
12.	Kazakhstan	17.6
13.	Turkey	12.3
14.	Morocco	9.7
15.	India	9.7
16.	Sweden	9.2
17.	Indonesia	6.9
18.	Guatemala	6.3
19.	Iran	3.4
20.	South Africa	2.8

Source: <http://www.silverinstitute.org>

As with any investment at Royce, our take on silver mining businesses, and the metal itself, is focused on the long term. For the reasons we have detailed above, we see potential for the following:

- The silver-to-gold ratio to move towards 15:1, driven by a higher silver price
- An upward bias in the silver price amidst money-printing and the Western world's biflationary economic climate
- Growth in current industrial applications for silver, as well as in new applications
- The better-managed silver-mining companies benefiting from this small market with very modest above-ground supply and inelastic demand/supply dynamics

<sup>1</sup>[http://www1.eere.energy.gov/vehiclesandfuels/facts/2005/fcvt\\_fotw364.html](http://www1.eere.energy.gov/vehiclesandfuels/facts/2005/fcvt_fotw364.html)

<sup>2</sup><http://en.wikipedia.org/wiki/Bactericide>;

[http://www.wellnessresources.com/studies/entry/how\\_silver\\_kills\\_bacteria](http://www.wellnessresources.com/studies/entry/how_silver_kills_bacteria)

<sup>3</sup>[http://news.bbc.co.uk/2/hi/uk\\_news/england/leicestershire/8683426.stm](http://news.bbc.co.uk/2/hi/uk_news/england/leicestershire/8683426.stm);

[http://www.sciencedaily.com/videos/2005/0910-killing\\_germs.htm](http://www.sciencedaily.com/videos/2005/0910-killing_germs.htm)

<sup>4</sup><http://www.prudentinvestor.com/2009/07/goldsilver-ratio-from-1300-to-1900and.html> - As of November 15, 2011, the gold spot price was \$1,784, silver's spot was \$34.61:  $\$1,784 / 15 = \$120$ . See also

[http://www.gold-eagle.com/editorials\\_99/mbutler101899.html](http://www.gold-eagle.com/editorials_99/mbutler101899.html), "A Case for Silver," by Marion Butler, October 18, 1999, which states, "Given the extreme volatility in the [gold-to-silver] ratio during the 20th century, it is

worth noting that the 16:1 ratio had been relatively stable for many centuries previously." Butler's piece goes on to note that "[i]n the first bull market for silver, during the Civil War, the POG:POS [price of gold to price of silver] ratio remained constant at 16:1 as gold and silver moved up (and back down) in concert. At the 1864 POS peak of \$3.33, POG was 16 times higher at \$53.35. By 1879 POG had returned to \$20.67, where it remained until the Great Depression. Therefore, the volatility during the early decades of this century are due to silver declining while gold remained constant. During the '40s, '50s and '60s the volatility is due to silver increasing with inflation while gold was locked into the official price of \$35 established by FDR. During the 1970s, both silver and gold experienced bull markets, with silver increasing more than gold. The bear market of the 1980s and 1990s was steeper for silver than gold." Finally, <http://www.rapidtrends.com/silver-to-gold-ratio/> reports that "throughout history silver has sold for about 16 ounces for each ounce of gold."

<sup>5</sup><http://www.berkshirehathaway.com/news/feb03981.html>;

[http://en.wikipedia.org/wiki/Silver\\_as\\_an\\_investment](http://en.wikipedia.org/wiki/Silver_as_an_investment); [http://www.gold-eagle.com/gold\\_digest\\_98/milhouse020998.html](http://www.gold-eagle.com/gold_digest_98/milhouse020998.html)

<sup>6</sup>[http://silverstockreport.com/essays/Silver\\_vs\\_Gold.html](http://silverstockreport.com/essays/Silver_vs_Gold.html);

<http://news.silverseek.com/TedButler/1161705933.php>

<sup>7</sup>[http://en.wikipedia.org/wiki/Silver\\_as\\_an\\_investment](http://en.wikipedia.org/wiki/Silver_as_an_investment)

<sup>8</sup>[Silverbearcafe.com](http://Silverbearcafe.com), "The Silver Lining," Eric Sprott & David Franklin, December 2010

<sup>9</sup>[http://en.wikipedia.org/wiki/Silver\\_as\\_an\\_investment](http://en.wikipedia.org/wiki/Silver_as_an_investment)

<sup>10</sup>Mike Churchill, Churchill Economics

<sup>11</sup>[http://en.wikipedia.org/wiki/Silver\\_as\\_an\\_investment](http://en.wikipedia.org/wiki/Silver_as_an_investment)

<sup>12</sup>CPM Group

<sup>13</sup>Ibid; The Silver Institute

<sup>14</sup>Multiplying \$8.6 trillion for gold by the 38% historic ratio mentioned above, divided by 1.056 billion silver ounces currently in circulation.

<sup>15</sup><http://www.coinflation.com/coins/1932-1964-Silver-Washington-Quarter-Value.html>

<sup>16</sup>Interestingly, the estimated 100 million ounces the Hunt Brothers held at the peak of their attempt to corner the market was about 25% less than what Warren Buffett's Berkshire Hathaway accumulated (with far less fanfare) some 20 years later

<sup>17</sup>It is important to note, however, that 75% of the silver used in photography is recycled, so the falloff in demand was arguably not as dramatic as the numbers at first might suggest.

<sup>18</sup>The Silver Institute

<sup>19</sup>GFMS, World Silver Survey, April 2011

<sup>20</sup>The GFMS World Silver Survey reports that the ethylene oxide industry has seen significant expansion over the last several decades, with increased demand for a range of polyester derivatives. Where there were fewer than 70 facilities in 1970, currently there are more than 100 across the globe. Capacity for the average plant has also doubled, to more than 200,000 tons of EO per year. Finally, the silver content in use has grown from approximately 10% to about 25% over the same period. All this implies an annual demand in the range of 150 million ounces by the EO industry.

<sup>21</sup>Brazing and soldering used approximately 61 million ounces of silver in 2010, an increase of 50% since 2000. Brazing is the combining of two different metals with a third alloy at high temperatures, generally above 450° C, while soldering is effectively the same process conducted at lower temperatures. The HVAC, plumbing and automotive industries make the most use of brazed and soldered products.

<sup>22</sup>GFMS, World Silver Survey, April 2011

<sup>23</sup>Ibid

<sup>24</sup>Ibid

<sup>25</sup>The Silver Institute

<sup>26</sup>In 2010, 951 million ounces of silver and 139 million ounces of gold, including recycling, were added to supply.

#### **Important Disclosure Information**

*The thoughts expressed in this piece are solely those of David Nadel and may differ from those of other Royce investment professionals or the firm as a whole. Mr. Nadel's thoughts and opinions are given rendered as of the date of each posting and may change without notice. This material is not authorized for distribution unless preceded or accompanied by a current prospectus. Please read the prospectus carefully before investing or sending money.*

*None of The Royce Funds may invest directly in silver bullion. Investments in silver mining and other precious metals companies can be significantly affected by international economic, monetary and political developments, inflation, and other factors. In recent years, certain series of The Royce Fund have had relatively significant levels of investment in the securities of precious metals and mining companies, including silver mining companies.*

*As of September 30, 2011, the following Funds had relatively significant investments in companies with sizable revenues from silver mining activities, as follows: Royce Low-Priced Stock Fund (RLP), 9.9%; Royce SMid-Cap Value Fund (RSV), 9.6%; Royce Focus Trust (RFT), 7.9%; Royce Focus Value Fund (RFV), 7.8%; Royce Global Value Fund (RGV), 7.7%; Royce Value Fund (RVV), 7.6%; Royce Value Plus Fund (RVP), 6.3%; Royce Premier Fund (RPR), 4.2%; Royce Micro-Cap Fund (RMC), 3.9%; Royce Capital Fund - Micro-Cap Portfolio (RCM), 3.9%; Royce International Premier Fund (RIP), 3.7%; Royce Global Select Fund (RGS),*

3.5%; Royce International Micro-Cap Fund (RIM), 3.3%; Royce International Smaller-Companies Fund (RIS), 3.1%.

Royce Mid-Cap Fund (RMM), 13.3%; Royce Opportunity Select Fund (ROS), 10.5%; Royce Select Fund II (RS2), 9.3%; Royce Select Fund I (RS1), 8.0%; Royce 100 Fund (ROH), 7.6%; Royce Heritage Fund (RHF), 7.0%; Royce European Smaller-Companies Fund (RES), 6.9%; Royce Discovery Fund (RDF), 6.8%; Royce Value Trust (RVT), 6.5%; and Royce Global Dividend Value Fund (RGD), 5.3%.

As of September 30, 2011, Fresnillo represented 1.20% of RFV, 1.04% of RFT, 0.66% of RIP, Pan American Silver represented 1.56% of RLP, 2.67% of RSV, 1.92% of RFT, 2.62% of RFV, 2.43% of RGV, 2.37% of RVV, 0.77% of RVP, 2.11% of RPR, 1.67% of RGS, 0.93% of RIS; Hochschild Mining represented 0.96% of RLP, 1.29% of RSV, 1.85% of RGV, 0.71% of RVV, 0.49% of RVP, 1.85% of RGS, 1.91% of RIP, 1.10% of RIS; Hecla Mining represented 0.37% of RLP; Coeur d'Alene Mines represented 0.64% of RIS; Silvercorp Metals represented 0.78% of RLP, 0.64% of RMC, and 0.63% of RCM; Silver Standard Resources represented 1.26% of RLP, 1.38% of RSV, 1.45% of RVV, 1.23 of RVP, and 1.39% of RPR, Tahoe Resources represented 0.36% of RLP and 0.31% of RVP; and Bear Creek Mining represented 0.23% of RMC, and 0.22% of RCM.

Fuente: The Royce Funds, diciembre 2011.

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Para continuar investigando y ampliar sus conocimientos, puede obtener más información sobre estos temas consultando en:

- **Gustavo Ibáñez Padilla.** *Manual de Economía Personal. Cómo potenciar sus ingresos e inversiones.* Buenos Aires: Dunken, 2011. 8<sup>va</sup> ed.
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