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Gold Supply Potentially Gigantic: In and Above Ground Gold Reserves

Sources used in researching this article include reports of the World Gold Council (WGC) and the U.S. Geological Survey (USGS). WGC is a consortium of large gold mining companies with the explicit mission statement "to stimulate and sustain the demand for gold and to create enduring value for its stakeholders." I therefore tend to favor the USGS reports as an organization with no particular bias for gold promotion. Both WGC and USGS prepare gold reports drawing data from GFMS, the authoritative source for worldwide gold sector data.

The Gold Supply is Enormous

The gold miners possess known ore "Reserves" (ore that is profitable to mine at the current gold price/mining cost) as well as broader ore "Reserve Base" which is *"Reserves proper, plus marginally economic reserves and a discretionary percentage of subeconomic resources."* USGS calculated global gold Reserves and Reserve Base at 47,000 tons and 100,000 tons respectively in 2009. In 2001 they were 48,000 and 77,000 tons respectively, so Reserve Base *expanded* rather than shrank over those 8 years despite some 20,000 tons having been mined during that period. It has been the norm for the last half century for in-ground Reserve Base to expand rather than shrink over time, despite continual mining depletion. This is because (a) improving technology has made lower grade ores profitable to mine; (b) gold's rise from $35 an ounce has gradually converted more and more previously subeconomic ore into profitable Reserves and potentially profitable Reserve Base; and (c) miners have spent over $40 *billion* exploring and locating new ore bodies.

Considering that the grand total of gold mined throughout human history is estimated to be around 170,000 tons, the 2009 100,000 tons of in-ground Reserve Base to satisfy future demand is something to think about. This figure is an estimate of known ore deposits in such quantity that, if all mined, would satisfy 2009's total global gold demand 28 times over, even without recycling any scrap gold or reselling any existing gold coin or bar.(1) And this does not even count much of the known lower grade ore bodies that have already become economic at higher-than-2009 gold prices. Additionally, many more known lower grade deposits will become included in "Reserve Base" should gold rise further. In-ground gold reserves can thus grow dramatically with no new discoveries whatsoever, simply from the price of gold rising.

The miners also own rights to sizable areas of likely deposits they haven't even thoroughly explored yet. At gold $2,000 or higher, you can bet they'd start blocking out and mining areas they are not bothering with now. Of course it takes a lot of money and time to establish new operations, and there can be political and environmental roadblocks. Still, even a relatively small portion of 2009's conservative(2) 100,000 ton Reserve Base coming to market over a period of years could quench an astonishing amount of demand.

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In-Ground Low Grade Ore Supply is Staggering

If a gold salesman tells you that gold is getting scarcer in the ground, don't you believe it. USGS estimates that of all the gold in the earth's crust, 99.9998% is too dispersed to have ever been profitably mined, gold prices and extraction costs being what they've been thus far throughout history. Thus, the great majority of all the gold ever mined has so far been confined to the most concentrated .0002% of the earth's gold. (The exception is roughly 15% of gold production which is recovered as a byproduct of other minerals' mining.) Of course if the price of gold continues to rise to say $2,000 and beyond, miners will not be confined to just .0002% of the crustal gold. Lower grades of ore becoming profitable for the very first time might raise their opportunity, very conservatively, to say, .0005%. Even such a tiny change would suggest potentially increasing miners' in-ground gold Reserve Base by a stunning additional 150%. That works out to an extra 150,000 tons—an amount nearly equal to all of the gold ever mined.

In short, as the price of gold continues to reach new records, some portion of that other 99.9998% becomes increasingly available to miners. Thus, there is more than ample gold in the ground to keep a lid on the price of gold in the longer term, especially when you consider that gold's price rising in and of itself can transform already located poor grade worthless ore into profitable Reserves.

Recall that all the gold ever mined would fit in a cube roughly 65 feet to a side. Many, many, many times that amount remain in the earth's crust, and if humans want more badly enough, we can get it.

Flat Gold Mine Production Poised to Grow

Though global gold mine production has been pretty flat for the last several years, it could very easily ramp up sharply in the not so distant future. With gold's stellar rise and much de-hedging activity recently on the part of the miners, a fat profit motive is now in place for miners that was not before. In places like South Africa, where high grade veins are followed kilometers deep into the earth, new mines are expensive and difficult to build and operate, but in most of the gold producing areas of the world, mines are of the surface variety. These are much less problematic. Once the permits are obtained, the open pit surface mining and heap leaching pits are not nearly so difficult to establish as deep tunnels. True, it can take years from the time of discovery to get these mines up and producing, but the processes in many cases are already underway. Remember that mine production soared not so much during, but *after* the gold price boom of the 1970's (from $35 to $850 an ounce at gold's 1980 peak). United States gold mine production, for example, increased twelve-fold between 1980 and 1998, even as the price of gold drifted back below $400. WGC reports for Q2, 2010 that already "a raft of new [gold mining] operations either came online or ramped up production."

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For over a century, miners have been locating ores which turn out to assay below profitability. Naturally these ores are more abundant and thus found more frequently than "pay dirt". Some of these have probably been forgotten but many are recorded in detail. Imagine the supply potential as much of this in-ground inventory accumulated since the 19th century is turning profitable for the very first time with record gold prices. This should give pause to investors dreaming of $5,000/oz. gold. Last, the potential wild card for mine supply is that there's always the chance of finding sizable lodes of higher grade ore that are more easily and profitably mined, or can be brought to market much sooner. The digging frenzy has now begun so the chances of big strikes are increasing.

Above-Ground Gold Supply

Unlike nearly all other commodities, no use of gold ever actually consumes it. Gold's supply thus simply accumulates over the ages. A small portion, though, ends up lost or landfilled, primarily in electronics and thinly plated items. USGS uses an estimate of 5% losses while other experts range in estimates from 1% to 15% of the 170,000 tons mined thus far. Because of its precious nature and careful safekeeping, a majority of all the gold ever mined is locatable and potentially available to re-supply the gold market. This "above-ground" gold supply is comprised of previously-mined gold found in old jewelry, electronics, industrial, and dental scrap, and in coins and bars. From 2007 through 2009, 'old gold scrap' satisfied 37% of the total global demand for gold.

Additionally, a single gold coin, bar, or piece of jewelry can return to the gold supply stream to satisfy demand time and time again. For example, if a 1 ounce gold coin is sold 3 times in a year, in the gold market that counts as 3 ounces of supply toward satisfying the demand for that year. Given these unique re-supply dynamics, should a panic occur in the gold market, there is the possibility of the never-consumed supply radically overwhelming demand. The ever-accumulated above ground supply can apply heavy downward pressure to the price of gold, and sooner or later it surely will.

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Conclusion

This article is an expansion of my original article, Why Gold is a Bubble. In it, I argue my thesis that: Gold is already much too high based on;

- The runaway inflation/currency crisis theory being incorrect;
- Gold's lack of income or growth; and
- The immense gold supply overhang that will increasingly be available to the gold market the further the price of gold may rise.

While there are popular reasons circulating to support the claim that gold is still underpriced at nearly $1400 an ounce, I have examined them and I am sure they ultimately will be proven untrue by gold's fall. Eventually, when fundamentals rather than fears drive the gold market, gold will be priced much lower than it is today. I recommend selling physical gold that you may own at today's record prices. If you do dare to jump on the gold bull as a buyer, limit your exposure. Perform due diligence rather than blindly accepting the popular stories. This article is a start. Much of the statistical data here is from the 72 page USGS mineral report for gold, which I recommend.

(1) Recycled gold scrap (jewelry, industrial, electronics, dental, etc.) is no small source of additional supply. From 2007-2009, it supplied 37% of the global demand for gold.

(2) Conservatively based on approximately $1000/oz. gold compared to $1394/oz. today

Note: In this article "ounce" means troy ounce and "tons" means metric tons, the standard units for precious metals.