



Princeton Economics

*International Think Tank*

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*Forecasting the World - Financial Markets - Politics - Economics*

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# The Precious Metal Outlook

## 2013 Edition

### (Part IV)



***The International Think Tank***

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## Russian 12 Ruble Platinum Coin

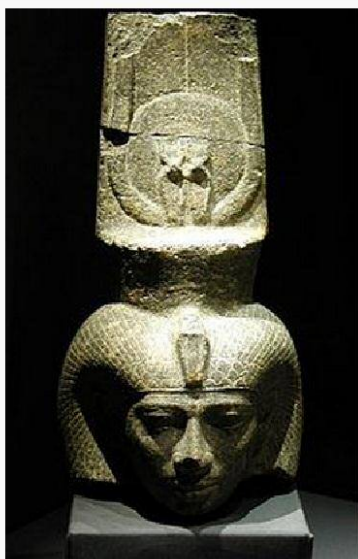
In 1819, there was a new Siberian metal known as platinum. At first, platinum was observed only as minor inclusions in rocks. It was interesting, but not yet ready for currency use. Eventually, richer deposits were discovered in 1824 and mining began in 1825. These discoveries prompted the search for platinum and it was revealed along the riverbeds. In 1826, P. G. Sobolevsky invented an easy way of processing platinum and the idea that platinum might serve as a resilient currency resistant to wear emerged. On April 24th, 1828, a decree was issued that stated ***"among the treasures of the Ural Mountains also occurs platinum, which priory was located almost exclusively in South America. For easy sale of this precious metal, it is desirable to introduce it in coins"*** and platinum coins were authorized. Minting began with 3-ruble coins in 1828 with 6-ruble coins being added in 1829 followed by a 12-ruble coin in 1830. The production was impressive with 1,371,691 3-ruble coins, 14,847 6-ruble coins, and 3,474 12-ruble coins.



About two billion years ago, when life on Earth was perhaps still only simple bacteria, a huge meteorite hit the Earth's North American parts. This was the earliest known meteorite impact on record. Meteorites are sometimes the product of a supernova, formed by a huge explosion of the planet, where it contains a wealth of platinum.



The earliest known use of platinum dates to an Egyptian funeral about 1200BC. The Egyptians imported gold from the Nubia (Gunubiya) kingdom, which is a region along the Nile River, located in northern Sudan and southern Egypt. There were traces of platinum contained within the gold. The Egyptians used a mixture of the metal containing some platinum in manufacturing jewelry and decorations. However, it is uncertain whether they were conscious of their use of platinum or was it merely incidental.



**Princess  
Shepenupet II  
(ca. 700-650BC)**



Shepenupet II was an Ancient Egyptian princess of the 25th dynasty and the Divine Wife (Adoratrice) of Amun from around 700 BC to 650 BC. She had been buried in a huge sarcophagus, adorned with gold and platinum hieroglyphics. Inside her grave was discovered a platinum jewelry box. A small strip of native platinum was set on the surface of a box among many hieroglyphic inscriptions, which were made of gold on one side and of silver on the other. This discovery about 1901 of platinum was submitted by the Keeper of Egyptian Antiquities in

the Louvre where the box is located. It was submitted for examination by the French scientist Marcelin Berthelot, who found that one of the characters on the side having hieroglyphics in silver differed considerably from the others. Upon close examination, what emerged was a metal that possessed **"a very singular resistance to attack"** (Academic des Sciences). Berthelot believed the metal was **"surpassing that of gold or of pure platinum"** viewing that it must have been a complex alloy containing several of the metals of the platinum group. Nevertheless, the metal had been hammered out in the same way as other metals, not melted and poured. Therefore, the existence of platinum in this context does not support the fact that it was knowingly used rather than perhaps just being mistaken for silver.



### Sources of Platinum Worldwide

Platinum appears in jewelry about 100 BC particularly in Ecuador. Artisans of the La Tolita culture, living in Ecuador region on the border between Colombia and Ecuador were near one of the platinum rich alluvial deposits in the world. They began using platinum alloys in their jewelry. This was quite an amazing accomplishment.

A number of artifacts are known such as masks, pendants, nose rings, and earrings all with platinum parts that were deliberately separated from other metals to create a form of white metal. This is truly an



Nose Ring  
Platinum/Gold



La Tolita (Ecuador) Gold mask  
with Platinum highlights



La Tolita (Ecuador) - Platinum and Gold object

intriguing accomplishment given that the melting point of platinum lies at 3221.6 °F (1772.0 °C). Clearly, they were able to master this task. Paul Bergsøe (1872-1963), a Danish engineer, conducted detailed experiments on Indian platinum objects in the 1930's and wrote in "The Metallurgy and Technology of Gold and platinum among the Pre-Columbian Indians" (American Antropologist volume 40, issue 1):

***"The small grains of platinum were mixed with a little gold dust and small portions placed upon a piece of wood-charcoal. When the gold runs it will coat the grains of platinum with gold. The grains are simply "soldered" together. If the piece is now further heated by means of the blow-pipe, let us say, the following will take place: a portion of the fused gold permeates the platinum and simultaneously a little of the latter is dissolved in the molten gold. This mixture of gold and platinum can now withstand a light blow of the hammer, especially when hot. By alternately forging and heating it is possible gradually to build up a homogeneous mixture. All the specimens found are small, which is natural, since they cannot be larger if they are to be exposed to the maximum degree of heat that can be produced from a bit of charcoal and a blowpipe."***

Obviously, the artisans could use this technique to create a platinum alloy for constructing small solid objects. However, they appear to have also used the sintered platinum alloy to create foils. The acquired thin sheets of platinum were then used to plate gold objects by hammering and heating them onto the pre-formed gold. Nonetheless, after this period, platinum seems to have vanished from human history for two thousand years until European explorers discovered the New World.

Spanish conquistador Navy Captain Anthony Garcia about 1590 saw no value in platinum and ordered it to be thrown back into the rivers of Ecuador so that it would "mature". It was then



believed that platinum was like a fruit growing from silver into gold and was thus in some intermediate state. By the end of the 17th century the Spanish had discovered the gold deposits of present day west Columbia and in doing so ran into the native platinum. Completely oblivious to the advances achieved by the Indians in the field of platinum alloy production/ The Spanish conquistadors labeled platinum *'little silver'*, which was a derogatory name "**platina**", diminutive of "**plata**", silver. The new metal was found in large placer deposits during the 16th-century Spanish conquest of South America and it was called "**platina del Pinto**" after the Rio Pinto, Columbia. At first, platinum was dismissed as being a valuable metal because it would not melt with any of their known methods. Records of mines closing due to the presence of *'platina di Pinto'* show that platinum was a nuisance to the Spanish gold miners who considered it a contamination they were unable to get rid of.

In 1741, an English ironmaster named Charles Wood (1702–1774) obtained some Columbian native platinum. He passed the samples on to his brother-in-law; William Brownrigg (1711–1800) was a doctor and scientist, in England. Brownrigg conducted some experiments and finally introduced the metal to the members of the Royal Society in 1750 where it was recognized as the eighth metal alongside the traditionally known metals: Gold, Silver, Copper, Iron, Tin, Lead and Mercury. Therefore, by the 18th century, platinum begins to resurface as alchemy began to experiment with platinum as it started to enter Europe. Soon, platinum became rather fanatical within alchemy for it was then viewed as an extremely important ingredient due to its special chemical properties.



**William Brownrigg**  
(1711–1800)

In 1751, the Swedish scientist Carl Fredrik Scheffer (1715–1786) classified platinum as a precious metal. Soon after, platinum emerged as the royal favorite.



**Pierre-Joseph Macquer**  
(1718–1784)

In 1758, the French Professor in Chemistry, Pierre-Joseph Macquer (1718–1784), who had an interest in solving unusual problems and was also involved in practical applications, to medicine and industry, as well as the French development of porcelain. Macquer had a huge burning mirror built in order to attempt the melting of platinum, which was successful yet not practical. Several attempts, with small buttons of malleable platinum as an outcome, took place over the next twenty years, almost



all in or around Paris by various scientists. None of these men were able to produce workable platinum in any significant quantities though.

Pierre Francois Chabaneau (1754-1842), a Frenchman who in 1781 was teaching physics in Spain at a seminary near San Sebastian. Shortly after 1783, Chabaneau took the chair of Chemistry and made the production of malleable platinum his main priority. In 1786, after just three years, he had developed a very successful method. The King of Spain ordered secrecy of the process and gave Chabaneau a laboratory devoted to the refinery of platinum. The output of Chabaneau's laboratory became so large that the period from 1786 until the French Invasion in 1808 is called the **Platinum Age in Spain**. In 1788, the Spanish King Carlos III (b 1716; 1759 to 1788) ordered the making of an ornate platinum chalice, that he then presented to Pope Pius VI (b 1717; 1775–1799).



**1788 Gift of King Carlos III  
Platinum Chalice Pope Pius VI**

During the 1780s, the French King Louis XVI (1754–1793; king 1774-1791) announced that platinum is the only metal fit for a king. We find that Louis XVI ordered made platinum objects of great beauty. The artisan was a French court jeweler, Marc Etienne Janety (c. 1750 - c. 1823), was also working with platinum. In 1786 he crafted a sugar bowl out of platinum for Louis XVI.



**Louis XVI (1754–1793; King 1774-1791)  
Declares Platinum the only metal for kings**

Janety used a different method than Chabaneau: the arsenic process. Platinum alloys with arsenic at low temperatures. From the molten platinum-arsenic mix a brittle, solid bar could be cast. Further heating in stages could then be applied to drive off the arsenic, producing a pure platinum bar, which he then could forge into shape.

The French Revolution (1789-1799), followed by the Napoleonic Wars (1803-1815) completely disrupted scientific advances in France and Spain. Only after the Napoleonic Wars do we see an

explosion in the demand for platinum. The mid-Late 1800's saw Platinum Mania spread across Europe & Russia, as kings, queens, tsars and maharajas all bedecked themselves to the point they even created platinum thread. The Spanish king Carlos IV (b 1748-1819; king 1788-1808) commissioned creation of a **"Platinum Room"** at the Royal Palace in Aranjuez. The room featured hardwood decoration encrusted with platinum. In Russia, Gustav Fabergé (1814–1893) crafted in platinum as well. Pictured here is a gift for Tsar Nicholas II's mother that was crafted in platinum and diamond-studded containing a statue of the tsar's father Alexander III.



The Alexander III Monument egg by Fabergé  
A gift for Tsar Nicholas II's mother. The platinum and diamond-studded egg holds a statue of the tsar's father Alexander III.



**Platinum-Diamond Imperial Presentation Pendant**  
Grand Duke Vladimir and his wife Grand Duchess Maria Pavlovna

platinum studded in diamonds, featuring the portraits of Grand Duke Vladimir and his wife Grand Duchess Maria Pavlovna that was made for their 30th year marriage anniversary in 1904.

Also pictured here is an amazing Fabergé Platinum necklace with emeralds and diamonds. The use of platinum in jewelry for royals at this time was simply decadent and widespread. We find platinum being used in jewelry even in India.

Platinum became the rage in Russia. The **Platinum Mania** that exploded during the mid-1800s was caused by the discovery of platinum in Russia. Before 1820, Colombia was the only known source of platinum. As production began to decline, deposits were by chance discovered in the Ural Mountains of Russia. Russia now emerged as the principal source of platinum for the next 100 years.

Pictured here is an imperial presentation pendant, in the form of a crowned heart made in



Fabergé Platinum emerald sugar loaf diamonds

In the 19th-century, scientific and technological progress was expanding further. The output of platinum was beginning to appear in sufficient quantity to make it a more viable commodity. Something that is so rare prevents the development of demand. It requires a rise in demand that inspires the expansion of supply. Whenever gold rises in value making it profitable to explore and mine, then a dramatic expansion in gold mines appear.

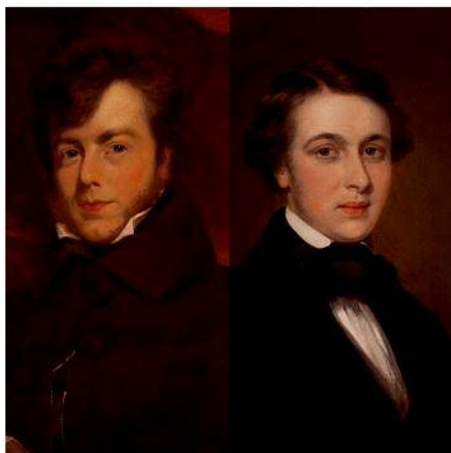
During 1802, William Hyde Wollaston (1766-1828) had developed refining of platinum and discovered palladium. In 1804, Wollaston then discovered the “platinum group” that also includes rhodium, iridium and osmium, which is also known as the noble metals (Ru Rh Pd Re Os Ir Pt Au). Meanwhile Wollaston perfected a method of producing malleable platinum.



**William Hyde Wollaston**  
(1766–1828)

Sir William Robert Grove (1811–1896) was a Welsh judge and physical scientist who anticipated the general theory of the conservation of energy. Grove was a pioneer of fuel cell technology. He studied the catalytic properties of platinum and in 1842 devised the very first fuel cell using platinum electrodes.

In England, Percival Norton Johnson (1792-1866) was one of the founders of Johnson Matthey, the United Kingdom's largest precious metals business. Johnson began work on refining the platinum group metals. He took as his apprentice in 1838 George Matthey (1825-1913), a stockbroker, and this collaboration gave birth to the partnership of Johnson and Matthey in

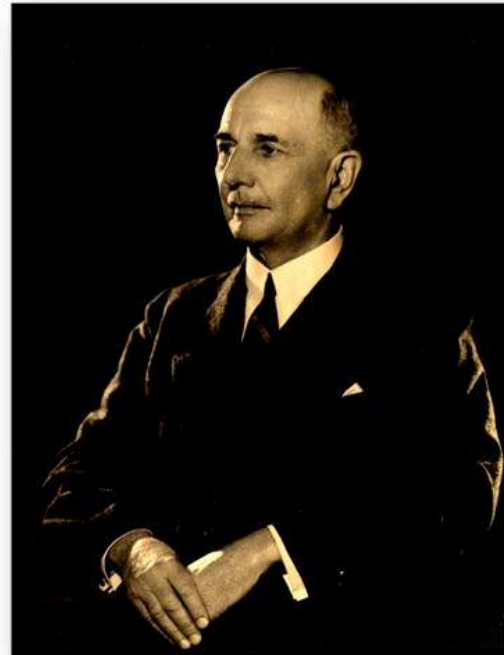


**Percival Norton Johnson**  
(1792-1866)

**George Matthey**  
(1825-1913)

1851. Johnson's expertise in refining earned his business the appointment of Assayer to the Bank of England in 1852. Johnson Matthey perfected the techniques of separation and refining of platinum group metals as well as the melting and casting of pure and homogeneous ingots. Matthey went on to create the standard metre in platinum and iridium. On April 3rd, 1879, Matthey, then the senior partner after the death of Johnson, read a paper on platinum refining was to the Royal Society. Johnson Matthey & Co. Limited emerged as the main refiner.

In Canada in 1888, platinum was discovered in the nickel-copper ores of Ontario. With the Russian Revolution in 1917, platinum supplies vanished. Fortunately, between the end of the First World War and the 1950s, Canada became the world's major source of platinum supply. In 1924, a farmer in the Transvaal province of South Africa discovered several nuggets of platinum in a riverbed. This led to the hunt for platinum in South Africa where Hans Merensky (1871-1952) a noted geologist, prospector, scientist, conservationist and philanthropist who discovered largest platinum mines in the world. Merensky also discovered the rich deposit of alluvial diamonds at Alexander Bay in Namaqualand, vast platinum and chrome reefs at Lydenburg, Rustenburg and Potgietersrus, which led to some of the phosphates and copper at Phalaborwa in the Transvaal lowveld. He also discovered gold in the Free State and the world's biggest chrome deposit at Jagdlust near Pietersburg. His platinum discoveries included two deposits each of around 100 kilometres in length. These became known as the Bushveld Igneous Complex and its mines today provide three quarters of the world's platinum output.



**Hans Merensky**  
**(1871-1952)**

Platinum mine production has grown continuously since the Second World War in response to the development of new applications for the metal. One of the principal new uses of platinum was in the petroleum industry, where platinum catalysts were introduced to increase the octane rating of gasoline and to manufacture important primary feedstocks for the growing plastics industry. The demand for platinum in jewelry had risen once again and China - today the world's biggest single market for platinum jewelry do far in the 21<sup>st</sup> century.

In 1974, with its new regulations on air quality, the United States inaugurated the era of the catalytic converter for automobiles, is a technology that uses platinum group metals to convert the noxious gases in vehicle exhausts into harmless substances. Use of catalytic converters has spread worldwide and since its introduction has prevented over 12 billion tons of pollution from entering the earth's atmosphere.

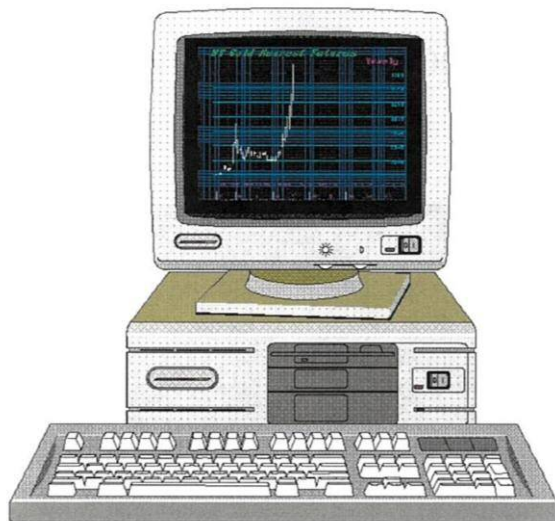


During the 1980s the rapid increase in the value of precious metals, including platinum, gave rise to the production of a variety of bars and coins, many of them collectable items, to meet demand for platinum as a new physical investment product.



Palladium has a history that is tied with that of platinum, with which it is found, and with which it is also associated as a member of the platinum metals group. "Native platinum" refers to the natively occurring platinum, which is not actually pure platinum at all, but rather a natively alloyed mix of platinum group metals that includes palladium. Palladium was not separated from platinum for quite some time after the discovery of native platinum, so the early history of palladium tends to be a shared one.

Palladium was discovered by the British chemist William Hyde Wollaston in 1804. It took nearly two centuries for palladium's significance to be recognized. Palladium has played an important role in the fight against global pollution. Nonetheless, Wollaston succeeded in isolating palladium from platinum by dissolving native platinum in *aqua regia* (a mixture of hydrochloric and nitric acid). He named it after "**Pallas**", the ancient Greek goddess of wisdom whose name had also been recently lent to the second asteroid ever discovered.



# **WARNING**

**THE FOLLOWING SECTIONS WERE WRITTEN BY THE  
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**ANY TRADING POSITIONS IT STATES HAS TAKEN ARE  
HYPOTHETICAL AND DO NOT REPRESENT ACTUAL  
TRADING.**

# A TECHNICAL OUTLOOK FOR NY PLATINUM



Our long-term view in Spot Platinum recognizes that the current broader trend remains bullish since this rally began from the 1971 low at 96.00. Platinum has yielded a very choppy pattern. The highest yearly closing first became 2007 and 2008 was a wild ride forming the intraday high and low. Platinum then regrouped and rally to score its highest yearly closing in 2010. Then 2011 produced an outside reversal to the downside even closing beneath the 2010 low.

Ideally, we have a turning point showing up in 2014 and if this produces a low, then a rally does appear to be on the horizon going into 2016. A low in 2014 would be implied by a year-end closing below 1454.00 for 2013. The 2015 target year will be a Directional Change so it is possible that this produces a reaction high if it failed to close at year-end at least above 1520 and preferable above 1780. A year-end closing for 2015 beneath 1520 would imply a resumption of the decline thereafter into 2016 followed by a reversal in trend into 2018.

We do have three Directional Changes due in 2013, 2014, and 2015 with our short-term models pointing to 2016 as a key turning point. Whether 2016 produces a high or a low is still not clear. It may require the early pattern development in 2014 before we can be certain about 2016. If it is a low, then the bulk of any decline will still be right here near-term going into 2014. If we elect Bullish Monthly Reversals coming out of 2014, then 2016 will produce a major industrial commodity high. The pivot point for 2014 will be the 134000 level. The Yearly Bearish Reversal lies at 83800 followed by the critical level at 75200. Clearly, it will require an annual closing beneath 75200 to reverse the bullish trend into a bear market long-term. This does not appear likely in the years ahead. Still, this defines where the extreme support lies.

# YEARLY LEVEL



Currently in **PLATINUM** on the Yearly level, short-term momentum indicators are neutral. Short-term trend, on the other hand, is in a bearish posture. As far as the Yearly, we find that the intermediate indicators are bullish. This suggests that the 84700 level is where intermediate support will be found this year. On the broader perspective, the Cyclical Strength Model is currently bullish. Everything on the long-term models, including momentum and trend, is still in the bullish mode on the Yearly level. Therefore, support appears to rest under the market at the 84700-83800, 75500, and 58900 levels. Resistance will be found residing above the market at 174150, 181300, and 210040 followed by the 2008 high at 230000.

## YEARLY REVERSAL SYSTEM

At this time, the Major Yearly Bearish Reversals are 83800, 75600 and 75400. As a result, only a yearly closing below 83800 will signal that an immediate downtrend could unfold leading to a renewed bear market ahead. It should be noted that one key reversal appears to be very



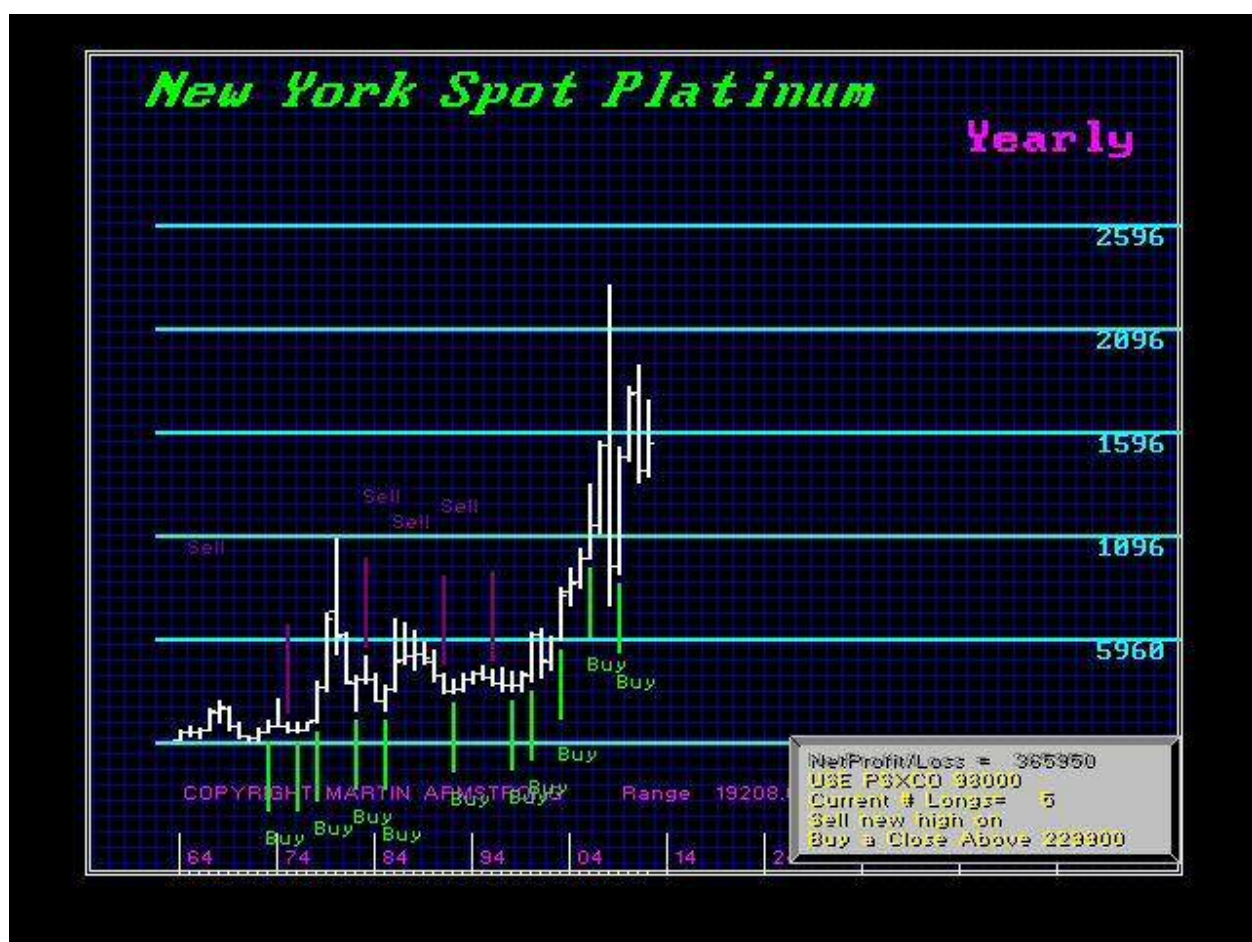
important. We see that a yearly closing beneath 75400 may signal that a serious sell-off is likely to follow thereafter.

Looking at our Reversal System, we show that the Major Yearly Bullish Reversals stands at 18128. Obviously, only a yearly closing above 18128 will signal that an immediate uptrend should unfold thereafter.

### Yearly Reversals

Major Bullish 18128

Major Bearish 83800 75600 75400



### YEARLY COMPUTER RECOMMENDATION

On the Yearly level of our model we remain LONG 5 positions. The last LONG position was taken on the close of 2009 at 147100. Our general target objective would be to hold current positions as long as the previous MAJOR LOW of 32950 is not penetrated intraday. We would look to

COVER all positions using an MIT just below the 229900 price level. We would reenter a long position by buying a Yearly close above 229900. We would use a PSXCO at 98000 on a Yearly closing basis. Reversing into a short position should be considered if 98000 is penetrated on a closing basis. From a timing perspective, you may want to consider taking profit if new highs are established during 2018, 2019, 2022 or 2025.



## YEARLY TIMING

On our empirical models, the ideal primary target for the next key cyclical turning point will be 2014 followed by 2016 with 2018 thereafter. With three Directional Change targets in 2013, 2014, and 2015, there is likely to be some confusing choppiness. Employing our long-range composite cycle analysis, the key years for a turning point in PLATINUM will be 2025 and 2037.

Our Directional Change models indicate that turning points are due the years of 2013, 2014 and 2015. Our Panic Cycle Models suggest that higher volatility is due the year of 2023. However, volatility should rise sharply come 2017 and then again in 2019-2020 lining up with the ECM.

**Yearly Turning Points:**

2014, 2016, 2018, (2021-2022), (2024)

**YEARLY TECHNICAL OUTLOOK**

**RESISTANCE: 153460**

**SUPPORT: 35872 11032**

**TABLE #1**

**Yearly Technical Projections**

|         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| 2013... | 78633  | 120188 | 166200 | 307955 | 365910 |
| 2014... | 81800  | 122500 | 153460 | 314040 | 376920 |
| 2015... | 94967  | 124812 | 140720 | 320125 | 387930 |
| 2016... | 88133  | 127125 | 127980 | 326210 | 398940 |
| 2017... | 91300  | 129438 | 115240 | 332295 | 409950 |
| 2018... | 94467  | 131750 | 102500 | 338380 | 420960 |
| 2019... | 97633  | 134062 | 89760  | 344465 | 431970 |
| 2020... | 100800 | 136375 | 77020  | 350550 | 442980 |

**Yearly Indicating Ranges**

**Date    Momentum    Trend    Long-Term**

|      |              |              |              |
|------|--------------|--------------|--------------|
| 2014 | 90800-40100  | 134760-44300 | 151500-63450 |
| 2015 | 137850-43800 | 145600-47050 | 174200-57100 |
| 2016 | 134760-38810 | 137460-54000 | 174400-58550 |

**2014 MOMENTUM INDICATORS HLC 180093 136690 148466**

# QUARTERLY LEVEL



## QUARTERLY REVERSAL SYSTEM

At this time, the Major Quarterly Bearish Reversal is 81050. Therefore, only a quarterly closing below 81050 will signal that an immediate downtrend could retest long-term support. Presently, the Minor Quarterly Bearish Reversals are found at 127150 and 76100. Thereupon, only a quarterly closing below 127150 will signal that continued downtrend should unfold thereafter.

Presently, our Reversal System indicates that the Major Quarterly Bullish Reversal is standing at 231910. Thus, only a quarterly closing above 231910 will signal that a immediate uptrend should unfold thereafter. Immediately, our Minor Quarterly Bullish Reversals exist at 168340 and 187320. Thereupon, only a quarterly closing above 168340 will signal that a immediate uptrend should unfold thereafter.



### **Quarterly Reversals**

Major Bullish 231910

Minor Bullish 168340 187320

Major Bearish 81050

Minor Bearish 127150 107930 99050 76100

### **QUARTERLY**

### **COMPUTER RECOMMENDATION**

On the Quarterly level of our model we remain LONG 1 position. The last LONG position was taken on the close of the 2nd Quarter '2013 at 133990. Our general target objective would be to Sell a rally at 165950. We would reenter a long position by buying a Quarterly close above 174350. We would use a PSXCO at 127100 on a Quarterly closing basis OCO with a IDPSX at 126950. Reversing into a short position should be considered if 127100 is penetrated on a closing basis. From a timing perspective, you may want to consider taking profit if new highs are

established during the 3rd Quarter '2013 or 1st Quarter '2014.



## QUARTERLY TIMING

According to our empirical models, the ideal primary target for the next turning point on the quarterly level remains 4<sup>th</sup> quarter 2013 followed by the 1<sup>st</sup> quarter 2014 and the 4<sup>th</sup> quarter 2014. Thereafter, we will see major turning points in the 3<sup>rd</sup> quarter 2015 and 2<sup>nd</sup> quarter 2016.

Our Directional Change models indicate that turning points are due the quarters of 4<sup>th</sup> quarter 2013, 3<sup>rd</sup> quarter 2014 and 1<sup>st</sup> quarter 2015. Our Panic Cycle Model targets the 1<sup>st</sup> quarter 2016 and higher volatility is due the 3<sup>rd</sup> quarter 2014, followed by the 3<sup>rd</sup> to 4<sup>th</sup> quarters of 2015.

## Quarterly Turning Points:

10/2013, (01/2014), 10/2014, (01/2015), 07/2015, (10/2015), 04/2016

## **QUARTERLY TECHNICAL OUTLOOK**

**RESISTANCE: 169289 256320**

**SUPPORT: 100383 83100 36032**

### **TABLE #2**

#### **Quarterly Technical Projections**

|            |       |       |       |       |       |
|------------|-------|-------|-------|-------|-------|
| 07/2013... | 36032 | 83100 | 10038 | 16928 | 25632 |
| 10/2013... | 36032 | 83490 | 10168 | 16644 | 25743 |
| 01/2014... | 36032 | 83880 | 10298 | 16359 | 25853 |
| 04/2014... | 36032 | 84270 | 10428 | 16074 | 25964 |
| 07/2014... | 36032 | 84660 | 10558 | 15790 | 26075 |
| 10/2014... | 36032 | 85050 | 10688 | 15505 | 26186 |
| 01/2015... | 36032 | 85440 | 10818 | 15221 | 26297 |

#### **Quarterly Indicating Ranges**

##### **Date    Momentum    Trend    Long-Term**

|         |               |               |               |
|---------|---------------|---------------|---------------|
| 07/2013 | 151910-111800 | 167550-127990 | 173850-138530 |
| 10/2013 | 154310-125220 | 166850-136350 | 172060-138260 |
| 01/2014 | 160720-123490 | 163300-129600 | 173850-140000 |

**3RD QUARTER '2013 MOMENTUM INDICATORS HLC 169810 145273 148563**

# MONTHLY LEVEL



## MONTHLY REVERSAL SYSTEM

On a long-term basis, our Reversal System indicates that our Major Monthly Bullish Reversals are 209650 and 223490. Hence, only a monthly closing above 209650 will signal that an immediate uptrend should unfold thereafter. Our model currently shows that the Minor Monthly Bullish Reversals are 154270, 157860, 161910 and 170680. Our model additionally provides Minor Monthly Bullish Reversals at 173900, 175340 and 185270. Consequently, only a monthly closing above 154270 will signal that an immediate uptrend should unfold thereafter.

At this time, the Major Monthly Bearish Reversals are 81410, 81050, 76050 and 57000. Thereupon, only a monthly closing below 81410 will signal that an immediate downtrend could become more serious in the near-term. On our near-term system models, the Minor Monthly Bearish Reversal resides at 116310, with additional reversals at 132300 and 103510 followed by



95670 and 90800. Therefore, only a monthly closing below 132300 will signal that an immediate downtrend should unfold thereafter whereas a monthly closing beneath 103510 will be the critical sell signal.

### **Monthly Reversals**

Major Bullish 209650 223490

Minor Bullish 154270 157860 161910 170680 173900 175340 185270

Major Bearish 81410 81050 76050 57000

Minor Bearish 132300 116310 103510 95670 90800



### **MONTHLY COMPUTER RECOMMENDATION**

On the Monthly level of our model we remain SHORT 2 positions. The last SHORT position was taken on the close of 04/2013 at 150940. Our general target objective would be to COVER between 135000-132000. We also see a technical objective for profit taking at the 103520 level. We would look to add another position by selling a Monthly close below 132300. We would

look to COVER all outstanding SHORT positions by buying a Monthly close above 154270 and REVERSING into a LONG position on a Monthly closing above 162000. From a timing perspective, you may want to consider taking profit if new lows are established during 07/2013, 08/2013, 12/2013 or 02/2014.



### MONTHLY TIMING

Looking at our empirical models, the ideal primary target for the next turning point will be 08-09/2013 followed by 11/2013, 01/2014, and then 03/2014. Using a composite of a variety of timing intervals long-term, the key months for a turning point in **PLATINUM** will be 12/2014 and 04/2015.

Our Directional Change models indicate that turning points are due the months of 11/2013, 12/2013, 02/2014 and 03/2014. Our Panic Cycle Models suggest that higher volatility is due the month of 03/2014. Higher volatility should be expected in 08/2013, 10/2013, 01/2014, 03/2014, and then 05-06/2014.

### **Monthly Turning Points:**

08/2013, (09/2013), 11/2013, 01/2014, 03/2014

### **MONTHLY TECHNICAL OUTLOOK**

RESISTANCE: 134777 169377

SUPPORT: 88704 51882

### **TABLE #2**

#### **Monthly Technical Projections**

|          |       |       |       |       |
|----------|-------|-------|-------|-------|
| 07/01... | 51882 | 88704 | 13477 | 16937 |
| 08/01... | 51882 | 86466 | 13477 | 16840 |
| 09/01... | 51882 | 84228 | 13477 | 16742 |
| 10/01... | 51882 | 81991 | 13478 | 16644 |
| 11/01... | 51882 | 79753 | 13478 | 16546 |
| 12/01... | 51882 | 77516 | 13478 | 16449 |
| 01/01... | 51882 | 75278 | 13478 | 16351 |

#### **Monthly Indicating Ranges**

##### **Date    Momentum    Trend    Long-Term**

|         |               |               |               |
|---------|---------------|---------------|---------------|
| 07/2013 | 160370-137460 | 174220-138530 | 174450-150930 |
| 08/2013 | 155390-137850 | 161910-143010 | 166900-149380 |
| 09/2013 | 156360-129600 | 160370-137460 | 170470-138270 |

**JULY MOMENTUM INDICATORS HLC 155513 136690 143630**

# WEEKLY LEVEL



## WEEKLY REVERSAL SYSTEM

At this time, the Major Weekly Bearish Reversal is 76500. Thereupon, only a weekly closing below 76500 will signal that a long-term downtrend could develop. Otherwise, the Minor Weekly Bearish Reversal resides at 133610, with additional reversals at 130510, 129970, 126640, 120530, 118500, 116150, 115250, 109200, 107110, 103700, and 78300. Thus, only a weekly closing below 133610 will signal that an immediate downtrend should unfold thereafter.

According to our Reversal System model, the Major Weekly Bullish Reversals stand at 138160, 149600, 153920 and 155400. Our model also highlights Weekly Bullish Reversals above the market at 175500, 182210, 184330 followed by 188820. Accordingly, only a weekly closing above 138160 will signal that an immediate uptrend should unfold thereafter. Such a closing would warn that traders should prepare for a potentially important change in trend. Eventually,



an election of our Monthly Reversals will be the final confirmation that such a major change in trend has developed.

### Weekly Reversals

Major Bullish 138160 149600 153920 155400 175500 182210 184330 188820

Major Bearish 76500

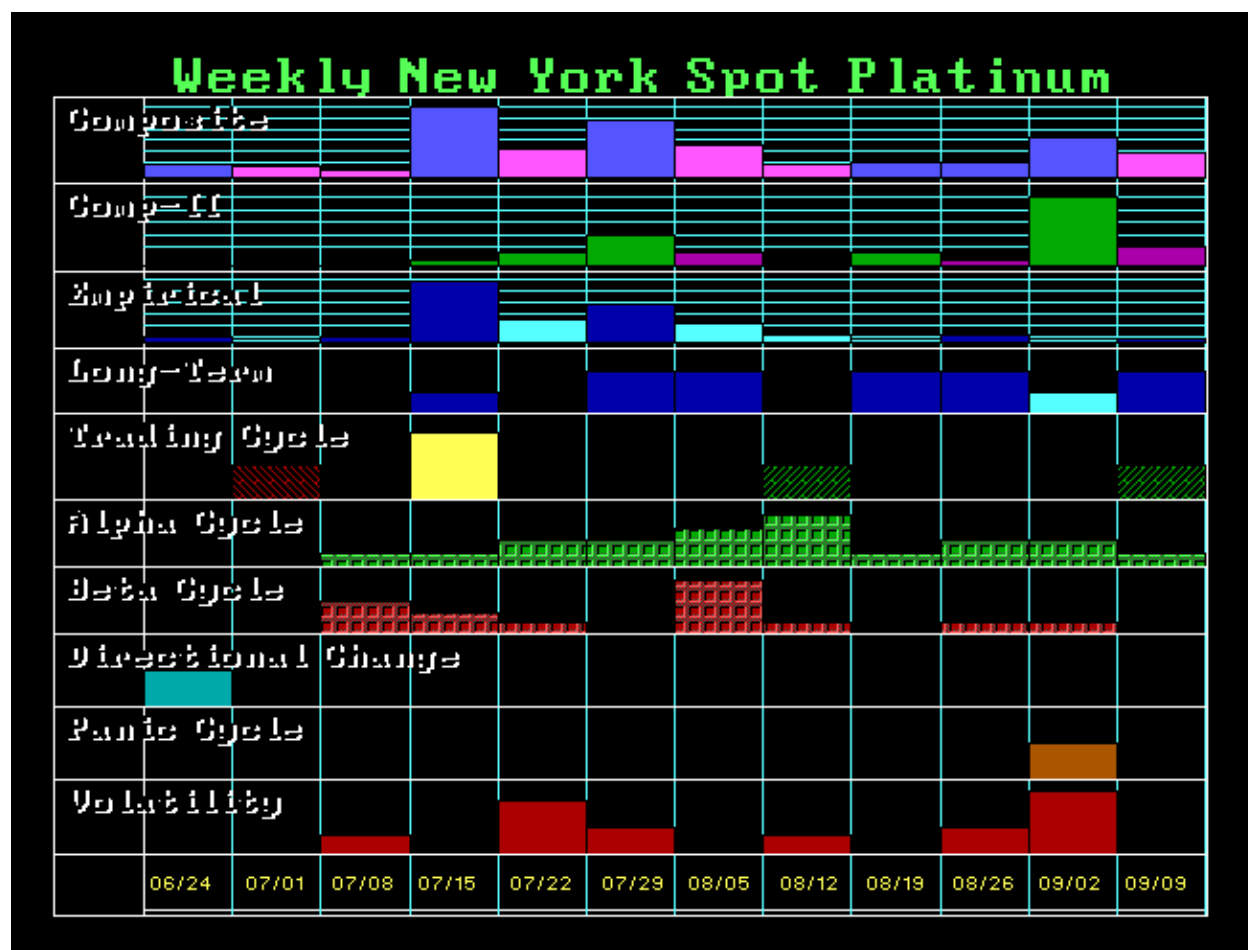
Minor Bearish 133610 130510 129970 126640 120530 118500 116150 115250 109200  
107110 103700 78300



### WEEKLY COMPUTER RECOMMENDATION

On the Weekly level of our model we remain SHORT 5 positions. The last SHORT position was taken on the close for the week of 06/17 at 136950. We would look to add another position by selling a Weekly close below 146800. We would look to COVER all outstanding SHORT positions by buying a Weekly close above 159340 and simultaneously REVERSING into a LONG position.

From a timing perspective, you may want to consider taking profit if new lows are established during the weeks of 07/15, 08/12 or 08/26.



### WEEKLY TIMING

The primary target on an empirical basis for the next major cycle turning point seems to be the week of 05/15 followed by the weeks of 07/29, 08/05-12, and 09/02. The key week for a turning point will be 09/02.

Our Directional Change models indicate that a turning point is due the week of 06/24 while our Panic Cycle targets the week of 08/05. We should see rising volatility starting the week of 07/22 and again during the week of 09/02.

### Weekly Turning Points:

07/22, 07/29, 08/05-12, 09/02

## **WEEKLY TECHNICAL OUTLOOK**

**RESISTANCE:** 169642 185240

**SUPPORT:** 127363 97412

### **TABLE #4**

#### **Weekly Technical Projections**

|          |       |       |       |       |
|----------|-------|-------|-------|-------|
| 07/01... | 97412 | 12736 | 16964 | 18524 |
| 07/08... | 96939 | 12669 | 16941 | 18540 |
| 07/15... | 96467 | 12603 | 16918 | 18556 |
| 07/22... | 95994 | 12536 | 16895 | 18572 |
| 07/29... | 95521 | 12470 | 16872 | 18588 |
| 08/05... | 95048 | 12403 | 16849 | 18605 |
| 08/12... | 94576 | 12337 | 16826 | 18621 |

#### **Weekly Indicating Ranges**

##### **Date    Momentum    Trend    Long-Term**

|       |               |               |               |
|-------|---------------|---------------|---------------|
| 07/01 | 151110-143900 | 151910-144520 | 158250-148460 |
| 07/08 | 153920-133230 | 155100-145420 | 156000-145660 |
| 07/15 | 148800-129600 | 151110-137460 | 162830-138160 |

**WEEK OF 07/01 MOMENTUM INDICATORS HLC 144896 135576 138560**

# A TECHNICAL OUTLOOK FOR PALLADIUM



**Norilsk Nickel - Largest Palladium Producer**  
*(RIA Novosti / Iliya Pitalev)*

Palladium is distinctly in a different trend than the other precious metals. Sales from Russian inventories, while a state secret, will slip perhaps nearly 70% to 250,000 ounces this year. This is likely to deplete most of the remaining reserves. Even when looking at recycling, here too we are likely to see a collapse to about 2.24 million ounces compared to 1.83 million ounces of platinum. This is demonstrating that prices for palladium are likely to advance countertrend to platinum, silver, and gold.

Norilsk Nickel, the world's largest palladium producer, has reported that it expects the shortage of palladium to increase by 25 percent in 2013. With the economy as it is, only higher prices will spark further exploration. We are likely to see an actual shortfall of at least 1 million ounces in 2013 with the economy in this depressed state. Norilsk itself has forecast a reduction in 2013 palladium production from between 2.63 and 2.64 million ounces from 2.73 million ounces last year. In 2012 the palladium shortage was approximately 0.8 million ounces, and in 2013 this should surpass 1 million ounces. The decline in industrial demand for platinum has been marginally offset by the about 10% increase in jewelry usage and purchases through investment products.





## Palladium

There has been a decline in Russian government's palladium reserves and a modest increase in investment demand. The Gokhran (Russian: Гокхран), the State Precious Metals and Gems Repository, is a state institution under the Russian Ministry of Finance. This agency is responsible for the State Fund of Precious Metals and Precious Stones of the Russian Federation. It was recently reform by a Government Resolution №1378 on November 21, 1996. It is responsible for the purchase, storage, sale, and use of precious metals, precious stones, jewelry, rocks, and minerals by the State Fund. However, the precise inventory remains a secret state. Gokhran currently operates under the Finance Ministry. It attempts to smooth-out the shortfall in supply. However, Gokhran's supplies on palladium are not that significant. Gokhran sold about 400,000 ounces of palladium last year. Palladium has been a gradually increasingly scarce metal that has been largely overlooked. This is separate and apart from the reserves of the Central Bank. Carmakers typically use more palladium for gasoline engines and more platinum for diesel types. Auto producers will increase the amount of palladium used in the devices this year by almost 8% to a record 6.48 million ounces. There is even a shortage developing of rhodium. Ruthenium consumption will decline by about 20% to a three-year low of 770,000 ounces as chemical purchases slow. Ruthenium is predominantly used for coating computer hard disks. Demand for iridium, typically used in spark plugs and for growing metal oxide crystals, should also decline by about 35% to a three-year low of 218,000 ounces. These declines are necessary in order to set up the commodities for a later bull run.



Our long-term view takes into account that in NY PALLADIUM we may have a completely different chart pattern from the precious metal group. The high is 2001 and palladium far surpassed even gold. At that time, gold would have needed to reach 1846 to match the percentage advance over the 1980 high. Likewise, the low after the 1980 high came in 1982 within the 2-year reaction rule. Unlike gold that declined for 19 years, palladium rallied from the 1982 low for 19 years into a major high. The highest yearly closing took place in 2000. Palladium then declined for the 3-year max reaction rule into 2003 and then rallied again for 7 years achieving the high yearly closing in 2010.

Looking ahead, we see 2014 and 2016 are key targets for turning points with 2015 presenting a directional change. This implies that 2014 and 2016 are more likely to produce opposite events rather than two highs or two lows. From 2016 into 2020, we see volatility rising with 2020 presenting a Panic Cycle year. Support lies at the 53500, 43100, 41000 and 31000 levels. Only a yearly closing beneath 38000 would imply a sharper decline becomes possible. However, only an annual closing beneath 17000 would signal a reversal in the broader uptrend.

# YEARLY LEVEL



This year in PALLADIUM, according to the system model, the immediate indications are bullish on the short-term momentum, while trend, however, is currently neutral on the Yearly level of activity. Intermediate indicators are yielding a neutral signal right now. This is strongly suggesting that we must keep an eye on 97500 which is the intermediate resistance area. If exceeded with short-term both positive, then we would expect some follow through to the upside depending upon the Reversals. Intermediate support this year lies at the 42100 area. On the broader perspective, the Cyclical Strength Model is currently bullish. Everything on the long-term models, including momentum and trend, is still in the bullish mode on the Yearly level. This tends to suggest that the market is still in a positive mode insofar as the long-term is concerned. This current bearishness may prove to be short lived if the long-term indicators withstand any decline. Therefore, support appears to rest under the market at the 60785, 38745, 16065, 16030, 12500, 10365, 6500, 2480 and 2350 levels. Resistance will be found residing above the market at, 80490.

## **YEARLY REVERSAL SYSTEM**

When we look at the Reversal System, we see that Minor Yearly Bearish Reversals are found at 17615, 16030, 11505 and 9000, with additional reversals at 4690 and 2550. Therefore, only a yearly closing below 9000 will signal that a sell-off is likely to follow. Nonetheless, only a close below 9000 will suggest a reversal in long-term trend.

According to our Reversal System model, the Major Yearly Bullish Reversal is standing at 109100. Therefore, only a yearly closing above 109100 will signal that an immediate uptrend should unfold thereafter.

### **Yearly Reversals**

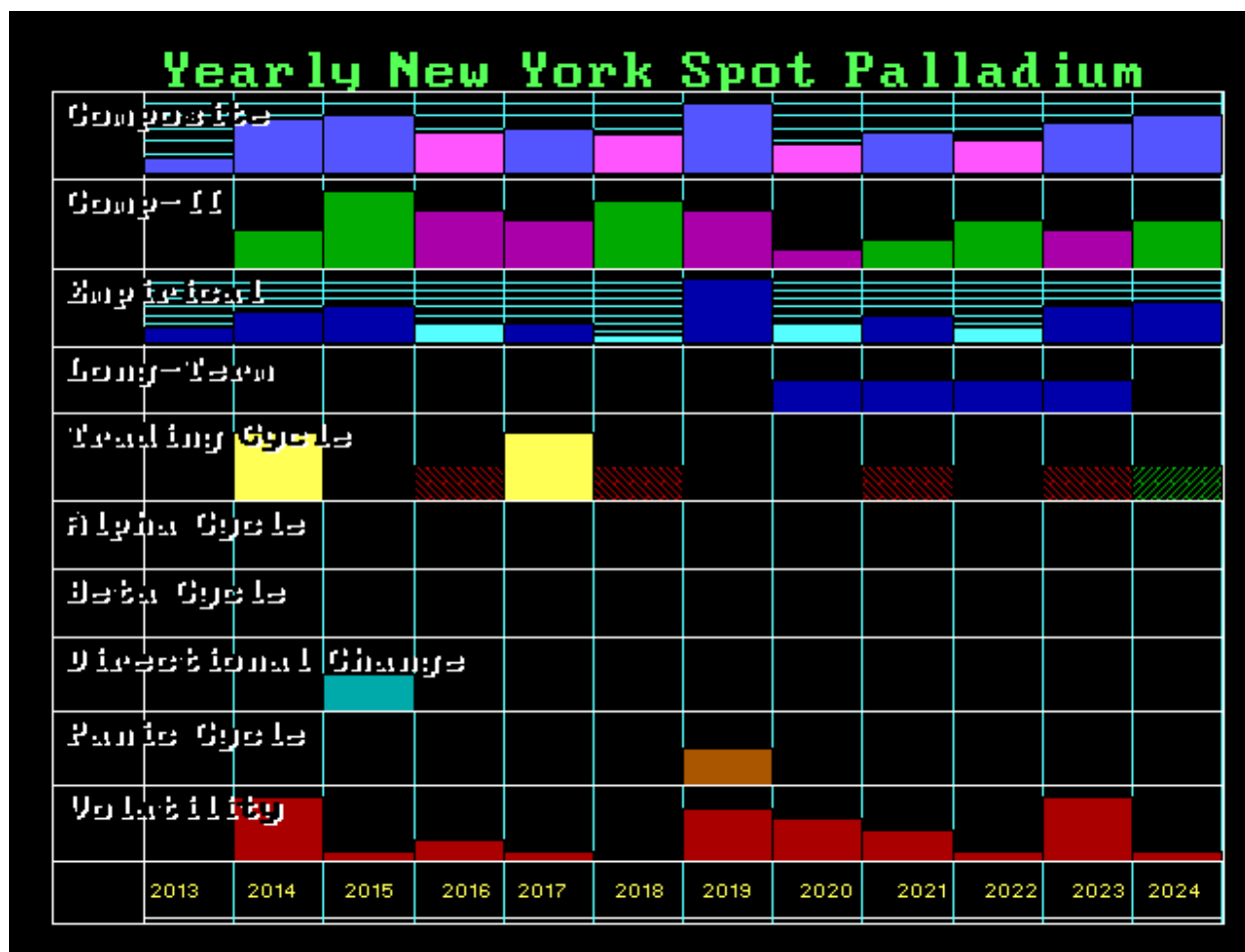
Major Bullish 109100

Major Bearish 17615 16030 11505 9000 4690 2550

## **YEARLY COMPUTER RECOMMENDATION**

On the Yearly level of our model we remain LONG 4 positions. The last LONG position was taken on the close of 2009 at 40885. We would look to COVER all positions using an MIT at the 107925 price level. We would reenter a short position selling at that level with an IDPBX at 108690. We would look to COVER all outstanding LONG positions by selling a Yearly close below 16030 and simultaneously REVERSING into a SHORT position. From a timing perspective, you may want to consider taking profit if new highs are established during 2015, 2016, 2017, 2018, 2021 or 2023.





#### YEARLY TIMING

On our empirical models, the ideal primary target for the next key cyclical turning point will be 2015 followed by 2017, 2019, 2021, and 2023-2024. Employing composite cycle analysis, the key years for a turning point in PALLADIUM will be 2028 and 2031.

Our Directional Change models indicate that a turning point is due the year of 2015. Our Panic Cycle Models suggest that higher volatility is due the year of 2019. We see high volatility in 2014 and 2019 and again in 2023.

#### Yearly Turning Points:

(2013-2014), 2015, 2017, 2019, 2021

## **YEARLY TECHNICAL OUTLOOK**

**RESISTANCE:** 76332 76332 82574 95368

**SUPPORT:** 29238

### **TABLE #1**

#### **Yearly Technical Projections**

|         |       |       |        |        |
|---------|-------|-------|--------|--------|
| 2013... | 29238 | 82574 | 95368  | 152274 |
| 2014... | 30275 | 80363 | 99555  | 155872 |
| 2015... | 31312 | 78153 | 103740 | 159470 |
| 2016... | 32350 | 75943 | 107920 | 163068 |
| 2017... | 33388 | 73732 | 112110 | 166666 |
| 2018... | 34425 | 71521 | 116300 | 170264 |
| 2019... | 35462 | 69311 | 120490 | 173861 |

#### **Yearly Indicating Ranges**

##### **Date    Momentum    Trend    Long-Term**

|      |             |             |             |
|------|-------------|-------------|-------------|
| 2013 | 42100-10365 | 60785-16030 | 80490-16065 |
| 2014 | 41000-10850 | 53745-14525 | 86995-18060 |
| 2015 | 44525-12445 | 55970-18295 | 73355-22400 |

## **YEARLY PATTERN RECOGNITION**

If this year closes below 72093, then the upward momentum has been lost which implies that a temporary top is in place and a near-term retest of support should begin.

**2013 MOMENTUM INDICATORS HLC 80280 49486 72093**

# QUARTERLY LEVEL



## QUARTERLY REVERSAL SYSTEM

Looking at the long-term level of our Reversal System, the Major Quarterly Bullish Reversals are 82800 and a Double at 108400. Accordingly, only a quarterly closing above 82800 will signal that an immediate uptrend should unfold thereafter. Our model also highlights Minor Quarterly Bullish Reversal at 86370.

Employing the Reversal System, our Minor Quarterly Bearish Reversals are found at 38200, 32000, 22645 and 20500, followed by resides at 17750. Hence, only a quarterly closing below 38200 will signal that a sell-off is likely to continue from here in the short-term. The Major Quarterly Bearish Reversals a 14250 and 13090 whereby only a quarterly closing beneath 14250 would signal a bear market change in trend.

## Quarterly Reversals

Major Bullish 82800 **108400**

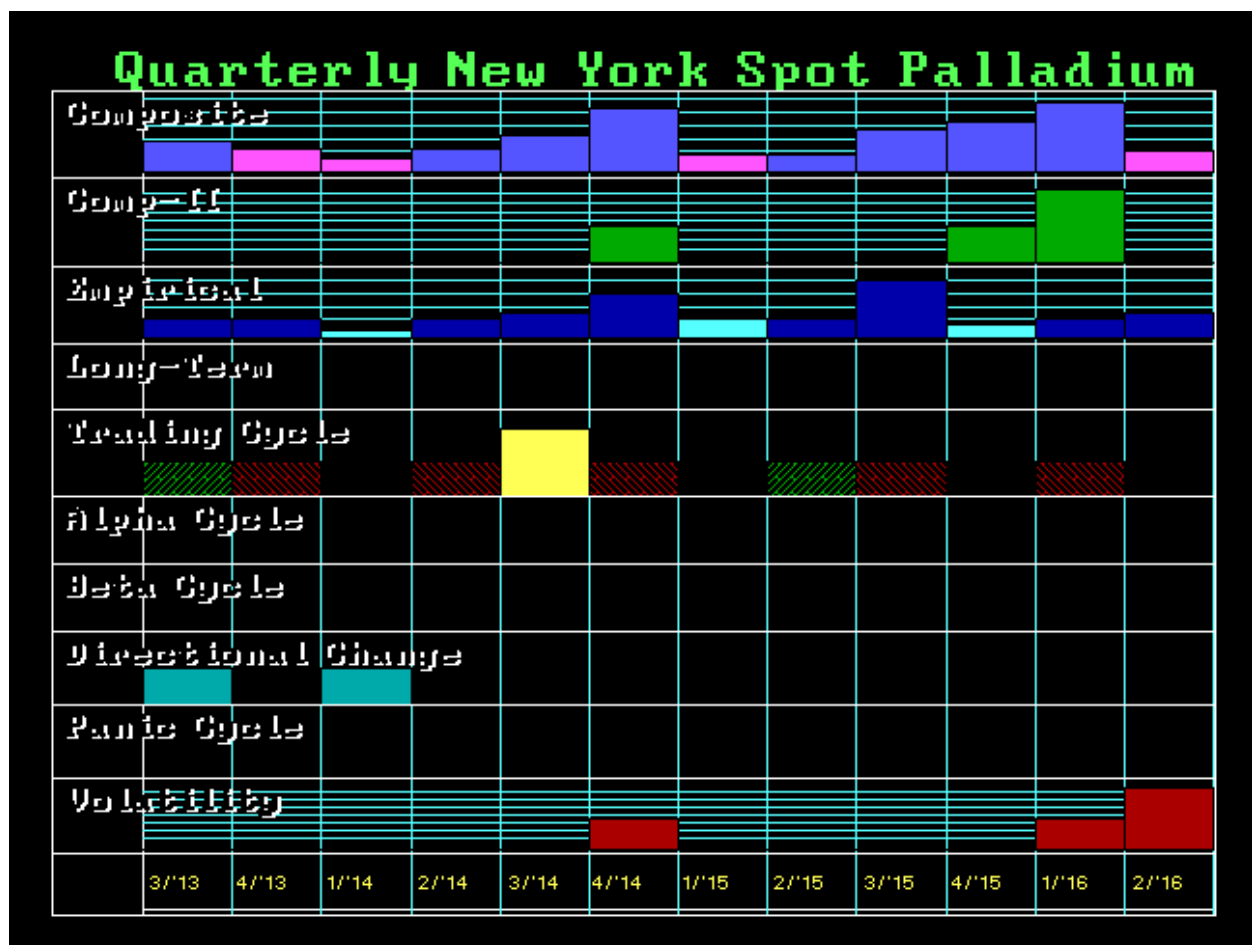
Minor Bullish 86370

Major Bearish 14250 13090

Minor Bearish 38200 32000 22645 20500 17750

## QUARTERLY COMPUTER RECOMMENDATION

On the Quarterly level of our model we remain LONG 2 positions. The last LONG position was taken on the close of the 1<sup>st</sup> Quarter 2009 at 21880. Our general target objective would be to sell new high at 123000 level. We would look to COVER all positions using an MIT just below the 123000 price level. We would use a PSXCO at 38150 on a Quarterly closing basis. Reversing into a short position should be considered if 38200 is penetrated on a closing basis.





## **QUARTERLY TIMING**

According to our empirical models, the ideal primary target for the next quarterly turning point will be the 3<sup>rd</sup> quarter 2013 07/2013 followed by 01/2014, 10/2014, 03/2015, and 01/2016. Using a composite of a variety of timing intervals, the key quarters for a turning point in PALLADIUM will be 02/2015 and 01/2022.

Our Directional Change models indicate that turning points are due the quarters of 07/2013 and 01/2014. We see high volatility 10/2014 and the first half 2016.

### **Quarterly Turning Points:**

07-10/2013, (01/2014), 10/2014, (01/2015), 07/2015, 01/2016

## **QUARTERLY TECHNICAL OUTLOOK**

**RESISTANCE: 83662**

**SUPPORT: 48156**

### **TABLE #2**

#### **Quarterly Technical Projections**

|            |       |       |       |        |
|------------|-------|-------|-------|--------|
| 07/2013... | 48156 | 80862 | 83662 | 105518 |
| 10/2013... | 48521 | 80312 | 84738 | 107433 |
| 01/2014... | 48886 | 79761 | 85813 | 109348 |
| 04/2014... | 49250 | 79210 | 86889 | 111263 |
| 07/2014... | 49614 | 78660 | 87964 | 113177 |
| 10/2014... | 49979 | 78109 | 89040 | 115092 |
| 01/2015... | 50344 | 77558 | 90116 | 117007 |

### **Quarterly Indicating Ranges**

#### **Date    Momentum    Trend    Long-Term**

|         |             |             |             |
|---------|-------------|-------------|-------------|
| 07/2013 | 57550-33060 | 58880-36455 | 68805-39310 |
| 10/2013 | 58265-35570 | 66565-39500 | 70580-42595 |
| 01/2014 | 62940-32000 | 71080-38055 | 78685-55770 |

**3RD QUARTER '2013 MOMENTUM INDICATORS HLC 76203 62795 71076**

# MONTHLY LEVEL



## MONTHLY REVERSAL SYSTEM

Looking at our Reversal System, we show that the Major Monthly Bullish Reversal is standing at 107800. As a result, only a monthly closing above 107800 will signal that an immediate uptrend should unfold thereafter. Our model currently shows that the Minor Monthly Bullish Reversals are 81975 and 84755. As a result, only a monthly closing above 81975 will signal that an immediate uptrend should unfold thereafter.

When we look at the Reversal System, we see that Minor Monthly Bearish Reversal resides at 58695, with an additional reversal at 56550. Unmistakably, only a monthly closing below 58695 will signal that an immediate downtrend should unfold thereafter. The Major Monthly Bearish

Reversals will be found at 55600, 46100 and 34600. A monthly closing below 34600 would be very bearish.

### Monthly Reversals

Major Bullish 107800

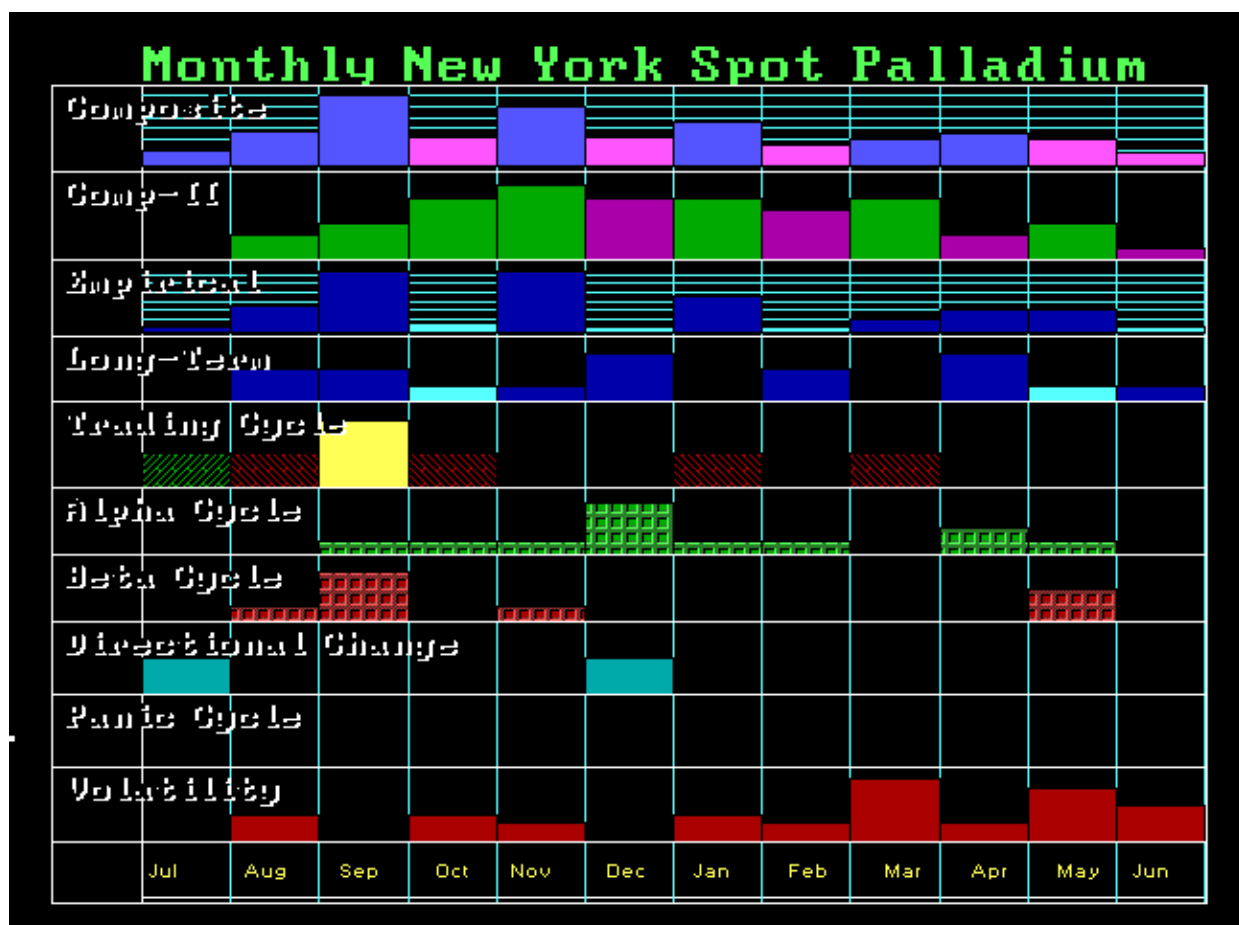
Minor Bullish 81975 84755

Major Bearish 55600 46100 34600

Minor Bearish 58695 56550

### MONTHLY COMPUTER RECOMMENDATION

On the Monthly level of our model we remain LONG 1 position. The last LONG position was taken on the close of 11/2012 at 68840. Our general target objective would be to sell new high on . We would look to COVER all positions using an MIT just below the 81900 price level. We would reenter a long position by buying a Monthly close above 84755. We would use a PSXCO at 61830 on a Monthly closing basis OCO with an IDPSX at 55805. Reversing into a short position should be considered if 58695 are penetrated on a closing basis.



## **MONTHLY TIMING**

Looking at our empirical models, the ideal primary target for the next turning point will be 09/2013 followed by 11/2013 where we also have a Directional Change. Thereafter, we see 01/2014, 03/2014, and 05/2014 as turning points. Employing long-term composite cycle analysis, the key months for a turning point in PALLADIUM will be 11/2014 and 02/2015.

Our Directional Change models indicate that turning points in 11/2013. We see high volatility 01/2014 and 03/2014.

### **Monthly Turning Points:**

09/2013, (11/2013), 01/2014, 03/2014, 05/2014

## **MONTHLY TECHNICAL OUTLOOK**

**RESISTANCE: 76643 88268 108096**

**SUPPORT: 48997**

### **TABLE #3**

#### **Monthly Technical Projections**

|          |       |       |       |       |
|----------|-------|-------|-------|-------|
| 07/01... | 48997 | 76643 | 88268 | 10809 |
| 08/01... | 48782 | 77745 | 89060 | 10884 |
| 09/01... | 48568 | 78847 | 89852 | 10959 |
| 10/01... | 48353 | 79949 | 24592 | 11034 |
| 11/01... | 48139 | 81051 | 24592 | 11109 |
| 12/01... | 47924 | 82154 | 24592 | 11184 |
| 01/01... | 47710 | 83256 | 24592 | 11259 |

### **Monthly Indicating Ranges**

#### **Date    Momentum    Trend    Long-Term**

|         |             |             |             |
|---------|-------------|-------------|-------------|
| 07/2013 | 71075-56060 | 78005-64190 | 78480-64750 |
| 08/2013 | 72110-55590 | 76740-60595 | 78845-67485 |
| 09/2013 | 74775-56430 | 77250-62940 | 78480-64750 |

**JULY MOMENTUM INDICATORS HLC 77490 65058 70405**

# WEEKLY LEVEL



## WEEKLY REVERSAL SYSTEM

When we look at the Reversal System, we see that Minor Weekly Bearish Reversal resides at 62820, followed by 58695, 56235, and 57370. Therefore, only a weekly closing below 62820 will signal that an immediate downtrend should unfold thereafter. The Major Weekly Bearish lies at 48800, 47300 and 42550.

On the Minor level, the Weekly Bullish Reversals stand at 67815, 71080, 75705 and 76475. Our model additionally provides Minor Weekly Bullish Reversals at 77545 and 78465. Our Major Weekly Bullish Reversals stand at 78890, 79500, 80400, 83950, and 86370.



## Weekly Reversals

Major Bullish 78890 79500 80400 83950 86370

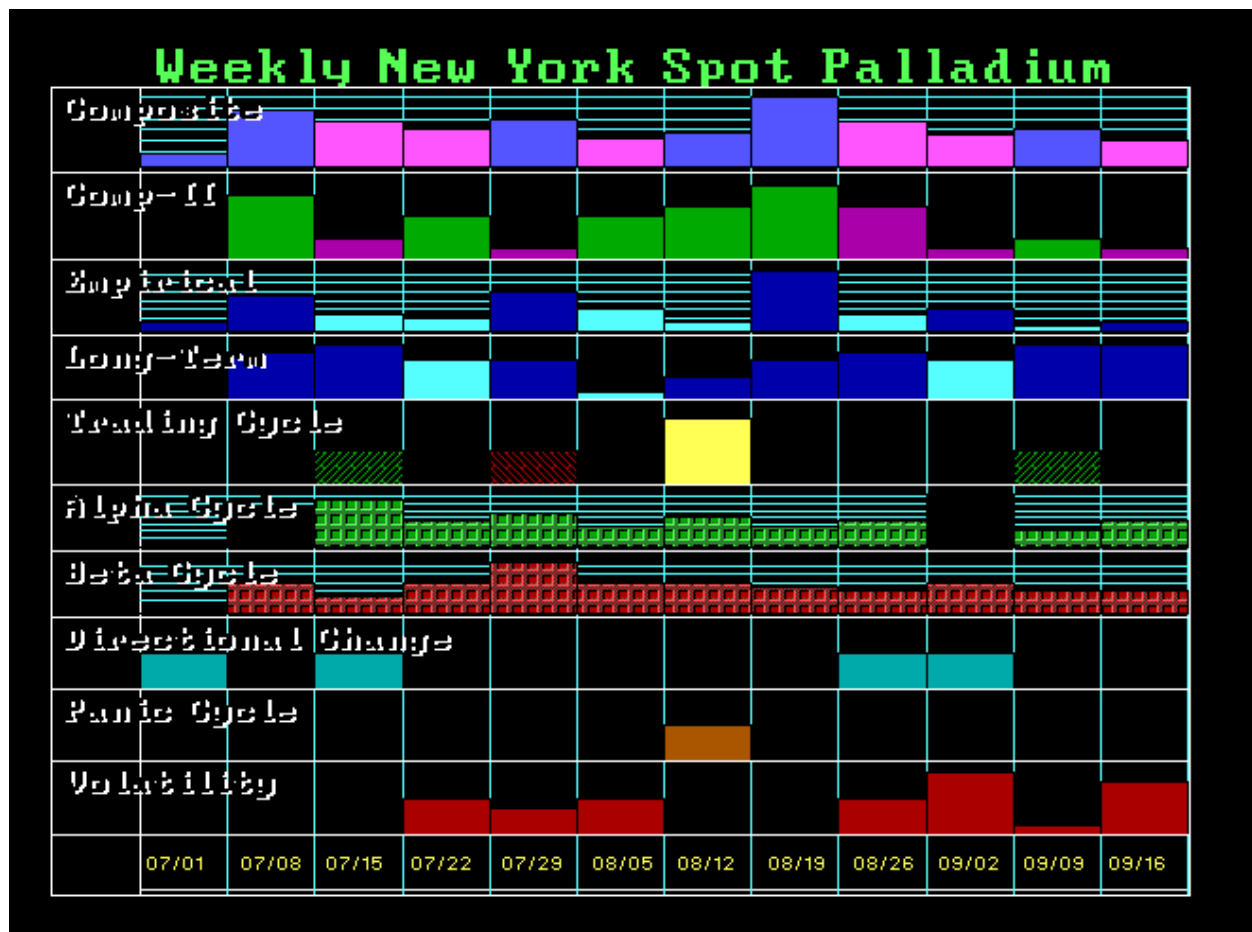
Minor Bullish 67815 71080 75705 76475 77545 78465

Major Bearish 48800 47300 42550

Minor Bearish 62820 57370

## WEEKLY COMPUTER RECOMMENDATION

On the Weekly level of our model we remain SHORT 3 positions. The last SHORT position was taken on the close for the week of 06/10 at 73170. Our general target objective would be to buy new low at 62820 level using an MIT just above. We would reenter a short position by selling a Weekly close below 62820. We would use a PBXCO at 76478 on a Weekly closing basis OCO with an IDPBX at 77260. Reversing into a long position should be considered if 76480 is penetrated on a closing basis.



## **WEEKLY TIMING**

The primary target on an empirical basis for the next turning point will be the week of 07/08 followed by 07/29, 08/05, 08/19, 09/02 and 09/09. Utilizing a composite structure in cyclical timing analysis, the key weeks for a turning point in PALLADIUM will be 09/16 and 12/09.

Our Directional Change models indicate that turning points are due the weeks of 07/01, 07/15, 08/26 and 09/02. Our Panic Cycle model targets the week of 08/12. We see high volatility shaping up for the weeks of 07/22, 08/05, 09/02, and 09/16.

### **Weekly Turning Points:**

(07/08), 07/29, (08/05), 08/19, (09/02), 09/09

## **WEEKLY TECHNICAL OUTLOOK**

**RESISTANCE: 77341 94910 98774**

**SUPPORT: 51236**

### **TABLE #4**

#### **Weekly Technical Projections**

|          |       |       |       |       |
|----------|-------|-------|-------|-------|
| 07/01... | 51236 | 77341 | 94910 | 98774 |
| 07/08... | 51311 | 77267 | 95136 | 99140 |
| 07/15... | 51385 | 77194 | 95362 | 99506 |
| 07/22... | 51459 | 77120 | 95588 | 99872 |
| 07/29... | 51534 | 77047 | 95815 | 10023 |
| 08/05... | 51608 | 76974 | 96041 | 10060 |
| 08/12... | 51682 | 76900 | 96267 | 10097 |

### **Weekly Indicating Ranges**

#### **Date    Momentum    Trend    Long-Term**

|       |             |             |             |
|-------|-------------|-------------|-------------|
| 07/01 | 72870-68100 | 76740-71630 | 77250-71885 |
| 07/08 | 73340-65530 | 74000-66320 | 74610-70400 |
| 07/15 | 70985-62940 | 72510-64750 | 73295-67815 |

## **WEEKLY PATTERN RECOGNITION**

If this week closes below 74551, then the upward momentum has been lost which implies that a temporary top is in place and a near-term retest of support should begin.

**WEEK OF 07/01 MOMENTUM INDICATORS HLC 72801 66993 68905**