

## GOLD MARKET STUDY

Tuvshintugs Batdelger<sup>1</sup>, Munkh-Ireedui Bayarjargal<sup>2</sup>, Delgermaa Begz<sup>3</sup>

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*JEL classifications:* *Abstract:*

Q02 In Mongolia, gold is one of the major export commodities and an  
Q31 important source for Central bank's accumulation of international  
reserves as well as for government budget revenue. This study aims

*Keywords:*

Gold demand, gold demand and supply and developments in prices of this commodity  
supply, gold price, for the period since 2010. This study also contains discussion about  
Bank of Mongolia, Mongolian gold production and its exports. Since Mongolia is a  
Oyu Tolgoi price taker, we extensively discussed what factors determine the  
production of gold in the country and how the Bank of Mongolia  
makes its purchases. We also noted Oyu Tolgoi will be a major  
producer of gold, but it will not play a major role in accumulating  
international reserves. Furthermore, it is estimated that Mongolian  
gold production will significantly increase.

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### 1. World Gold Demand

Global gold demand consists of four major usages of gold: jewelry, technology, investment and reserve asset management. Although the total demand for gold in the past 10 years was on an increasing trend, it fluctuated quite significantly in the past 5 years. In particular, the demand for gold increased significantly between 2010 and 2012 from 4,141 tons to 4,707 tons. For the period after 2013, the demand for gold started to decrease and as of the end of 2016, it stood at 4,309 tons. As of 2016, the composition of the total demand for gold is as follows:

Jewelry	2,041 tons
Technology	322 tons
Investment	1,561 tons
Reserve asset management	384 tons.

Roughly half of the total demand is for jewelry and it stayed that way for the last ten years. However, other components of the total demand such as investment and central bank's activities of purchasing and selling gold has been volatile. It is notable that usage of gold for technology has been stable as a share of total demand.

In the past years, economic slowdown in China, which represent together

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<sup>1</sup> Economic Research Institute. Email: [tuvshintugs@eri.mn](mailto:tuvshintugs@eri.mn)

<sup>2</sup> Economic Research Institute. Email: [ireedui@eri.mn](mailto:ireedui@eri.mn)

<sup>3</sup> Economic Research Institute. Email: [delgermaa@eri.mn](mailto:delgermaa@eri.mn)

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with India 60% of total jewelry usage, led to decrease in gold jewelry demand. The dynamics in the jewelry demand is still driving the total gold demand. Lately, the total demand was boosted by increase in exchange traded products (ETP), which was largely driven by strategic decisions of investors and long term positions they took in gold. In terms of geographical area, China is the biggest user of gold closely followed by India.

### 1.1. World demand outlook to 2017

For this year, following issues are important in terms how the total demand of gold will be determined:

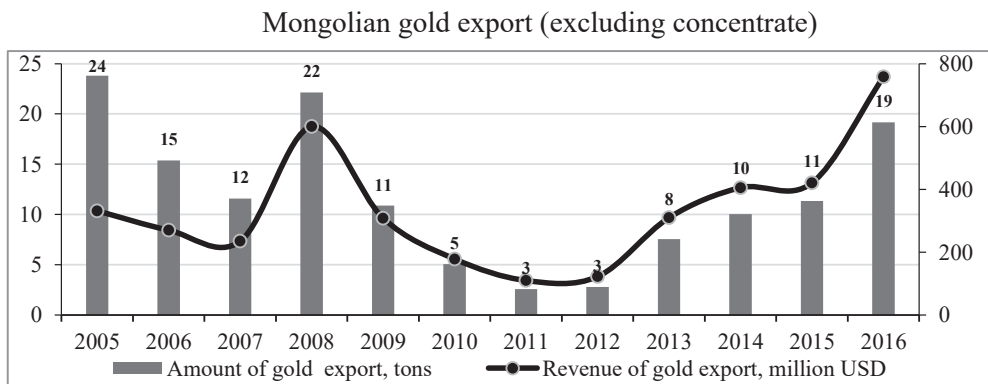
- ETPs were not attractive to investors, but in the last quarter of 2016 it increased
- Jewelry demand from rural India are expected to increase, but overall jewelry demand is sluggish
- Technology sector is finding cheaper alternatives to gold, thus demand is sluggish
- Central bank purchase is hard to predict, but central banks of China and Russia determine the demand.

Overall, total demand of gold in the world market is expected to be sluggish for 2017. In particular, demand for gold jewelry and usage of gold in the technology sector are expected to be sluggish, whereas demand for investment and central bank purchase for asset management purposes are harder to predict.

## 2. Mongolian gold demand

Mongolian gold is exported in 2 types of forms, namely pure gold and gold concentrate. Figure 1 shows amount of pure gold export and its revenue (excluding gold concentrate export).

Figure 1



Source: Mongolian Customs.

Historically, Mongolia exported only 2.8 tons of gold in 2012, which has been

the lowest point since 2005. Notably, gold export revenue was 420.6 mln USD and 758 mln USD in 2015 and 2016, respectively (Mongolian Customs, 2016).

However, gold export rebounded since 2011, and Mongolia exported 11 tons of gold to the international market in 2015 because of favorable changes in regulations and improvements in the world gold market.

Canada was the major destination of Mongolian gold during the period between 2010 and 2013. This is related to the fact that the Boroo Gold Company sends its production directly to refineries in Canada. Since 2013, Mongolia has exported its gold to other countries such as Great Britain and Switzerland. In particular, Mongolia exported 21.8 tons of gold to Great Britain for the last three years, which accounted for 75 percent of the total amount of gold export.

Oyu Tolgoi is the sole exporter of gold concentrate whose main destination is China. It is indeed one of the largest copper-gold mine projects in the world and the company's gold export was 11.9 tons of gold in 2016. In 2015, the amount of gold exports was the most massive at 737,000 ounces.

The Bank of Mongolia (BoM) purchases the gold for its foreign reserve purposes and it carries out following activities with regards to selling the gold onwards. In the past six years, gold purchase by the BoM dramatically increased. In 2014, with the approval of amendment to “the Minerals Law”, gold submission to the BoM intensified and it purchased 12.7 tons of gold from domestic gold producers, more than double increase. In 2016, the BoM spent 650 mln USD for the purchase 17.6 tons of gold of which 10.6 tons was purchased from 2,973 private citizens (Munkhzul B., 2016) towards the end of 2016. In comparison, the BoM was purchasing only from 87 entities and 141 citizens in 2014 [20]. Gold accounted for 65 percent of the foreign reserve as a direct result of further amendments in the Minerals Law, which reduced royalty to 2.5% on gold proceeds from the Bank of Mongolia and commercial banks.

### **2.1. Gold impact on the budget revenue**

Most government revenues from the mineral and oil sectors are centralized. Gold mining contribution to the central government budget peaked at 13.8% of total budget revenue in 2013 or 151.2 bln Togrog. Of which, gold companies paid 102.5bln Togrog in royalty (67.8%), 32.2 bln Togrog for corporate income taxes (21.3%), 5.9 bln Togrog for personal income taxes and 10.6 bln Togrog in other fees. However, these numbers greatly declined afterwards. In 2016, gold companies contributed only 32.2 bln Togrog to the budget.

Royalties are the major source for budget revenue. The reason why royalty revenue in the gold sector dramatically decreased was that the government reduced the royalty fee from 10 to 2.5 percent. This reduction in royalties led to substantial support for the gold production, gold submission to the BoM as well as gold exports.

It should be noted that Oyu Tolgoi alone paid US\$315mln in taxes, fees and other payments to the Government of Mongolia in 2015, an increase of about

US\$248mln paid in 2014 [18]. In the first quarter of 2016, Oyu Tolgoi paid 126 mln USD in taxes and fees and spent 136 mln USD for purchases.

## 2.2. Outlook of Mongolian gold demand

From the central budget projection for 2017, the Ministry of Mining planned to collect 1 trillion Togrog from major minerals, including gold, coal, copper, zinc and iron ore. In particular, it is estimated that gold sector's contribution will reach 56 bln Togrog (about 7 percent) of which 8.4 bln Togrog from entity's income tax, 28.5 bln Togrog from royalties and 19.2 bln Togrog from other fees. Moreover, according to the MRAM, gold production will steadily increase and reach 40 tons by 2025, and proceeds from the gold export will reach 1.6 bln USD.

## 3. World gold supply

There are three major supplies of gold: gold mine production, recycled gold and net producer hedging. As of the end of 2016, the composition of gold supply was as shown in Table 1.

*Table 1*

	2010	2011	2012	2013	2014	2015	2016
Mine Production	2765.0	2849.0	2938.0	3073.7	3152.6	3221.4	3236.0
Net Producer Hedging	-118.4	32.3	-47.3	-25.6	104.5	13.5	26.3
Recycled Gold	1531.7	1674.0	1658.9	1266.3	1202.1	1123.2	1308.5

*Source: Bloomberg*

Although gold mine production is the major source of supply, recycled gold supply plays crucial role in the supply for the past 6 years.

In 2016, several big projects are maintaining the level of production of gold. For example, increase in production of projects in Guyana are expected to intensify whereas gold project in Grasberg, Indonesia is expected to raise the production level. "Merian project" in Surinam is one of the new projects developed and is reaching its commercial production level. On the other hand, there are delays in other projects, slowing down the supply of gold. For instance, after multiple delays Mongolia's OyuTolgoi project is dealing with lower grade ore which led to dramatic reduction in gold production. However, it should be noted that the major development in the mining production is the cost cutting measures, undertaken by mining companies. Moreover, gold companies are increasingly concentrating their attention towards developing their existing mines further rather than developing new projects and are becoming increasingly hesitant to spend.

## 4. Mongolian gold supply

Currently, Mongolian total quartz vein gold reserves are accounted for 69,500 tons. Moreover, accumulated reserves of placer gold are 336 tons historically. According to the MRAM, there are 43 gold deposits. Of these deposits, 37 are placer

deposits and the remaining 6 are the quartz vein deposits. Gold production reached 24.1 tons in 2005. Mongolian gold production increased for the last three years. By 2016, the total amount of gold output reached 26.9 tons of which 8.5 tons were produced from OT.

There are five major gold producing companies. Altan Dornod Mongol produced around 1.04 tons and 0.6 tons of gold and Centerra Gold’s “Boroo Gold” mine produced around 1.64 tons and 0.4 tons of gold in 2014 and 2015, respectively. In recent years, many companies started production. For example, in 2016, 15 companies’ gold mines received permission from the national committee to start operations.

#### **4.1. Oyu Tolgoi**

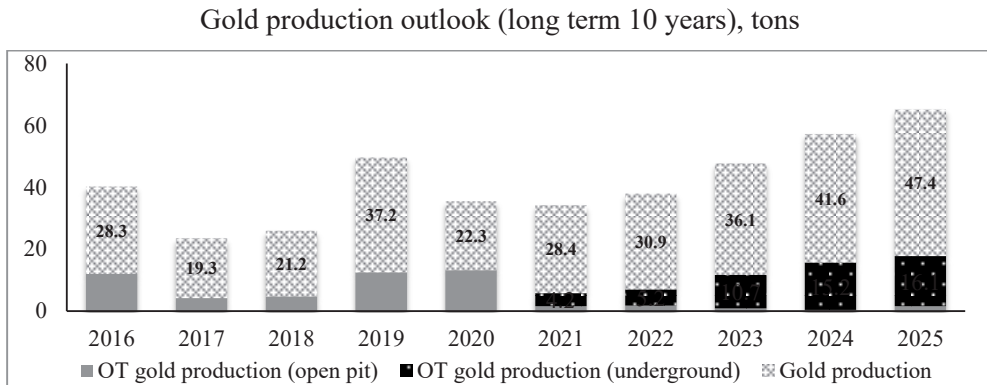
Oyu Tolgoi produces copper-gold concentrates, and is one of the world’s largest copper-gold mines, started producing and exporting copper and gold concentrate since 2013. Historically, Oyu Tolgoi’s sales revenue was 1,635 mln USD in 2014 and 1,736 mln USD in 2015 of which 20.8 tons (736.6 thousand ounces), 15.9 tons were gold. Sales revenue decreased in 2015 despite higher sales volumes as gold prices declined from 1199 USD per troy ounce at the end of 2014 to USD 1062 per troy ounce at the end of 2015 [18]. Moreover, Oyu Tolgoi’s gold concentrate production increased by 11 percent in 2015 compared to 2014. In 2016, Oyu Tolgoi produced 300,000 oz of gold, which was markedly higher than the projection of 175-195 thousand oz even though it registered 54.1 percent decline compared to the previous year. The company collected USD 226.3 mln from its gold sales in revenue.

#### **4.2. Outlook of Mongolian gold supply**

It is estimated that Mongolian gold production will be 0.88 moz (24.9 tons) by the end of 2017. According to the BMI research of FitchGroup company, gold production forecast will reach 1.3moz (37.4 tons) by 2020 [2].

In the next 10 years, Mongolian gold production is expected to reach 47 tons as shown in Figure 2 [10]. It also expected that Oyu tolgoi will produce 13.1 tons of gold from the open pit for the next 4 years. In 2025, it will reach 16 tons.

Figure 2



Source: Mineral Resource Authority of Mongolia

The OT gold production will be accounted for about 30-50 percent of Mongolian total gold production. OT's underground mining will significantly increase its gold production between 2021-2025. Oyu Tolgoi is planning to produce 100-140 thousand ounce of gold concentrate from the OT mine by the end of 2017.

#### 4.3. Related supply-impacting policies

To develop gold sector, Ministry of Mining, Mineral Resource Authority of Mongolia and the Parliament conducted several programs and regulation amendments [10]. For instance, the government proposed “Gold-2025” program in 2015, including three steps:

- The first step /2015-2017/: To support gold exploration and production, the government will improve tax and investment regulations.
- The second step /2018-2020/: To keep sustainable development of gold mining and its production, introduction of advanced technologies.
- The final step /2021-2025/: To increase contribution of the sector to the state budget, the government will improve volume of industrial process, and increase value added output.

However, the government changed the “Gold-2025” project into “Gold-2” program in January, 2017. In this new program, it will cover the following 3 to 5 years instead of 10. Current parliament’s plan on development policy not only focus on developing gold, but also include “Mongolian copper”, “Mongolian iron ore” and “Spar program” that will be conducted within next 4 years.

There are two main activities within the Gold 2 program:

- Gold-2 near-term /2017-2018/ includes implementation on regulations of gold production and financial support for the gold mining companies. In addition, illegal gold mining activities will be regulated.
- Gold-2 mid-term /2018-2020/ includes creating, monitoring and accounting system, and environmental and reclamation system as well. In particular,

national gold processing plant will be built.

Analysts expect that Mongolian gold production will reach 25 tons by 2020 through steady increase of 2-3 tons annually. In addition, the government will support strategically important mines' operations such as Gatsuurt and Oyu Tolgoi underground gold mine.

## 5. Gold price

For the period between 2012 and 2015, the price of gold decreased from USD 1,669 to USD 1,160. This decrease is in line with the fact that during this period total demand decreased from 4,706 tons to 4,259 tons. The weakening demand led to downward adjustment in gold prices. Recently, many new mines started their operations in the gold market, but most of them are waiting for gold prices to rebound, although World Bank estimates that upcoming years' gold prices are likely to decrease globally. Generally, it should be noted that U.S. dollar is the mine driver of gold prices. A strong U.S. dollar makes gold less attractive as an investment tool. This means that when the U.S. economy is on recovering trend, making U.S. dollar to appreciate, and hence depressing the gold price. Whether the country is in growth period or recession, it makes impact on investors' behavior and hence on gold prices.

In the first half of 2016, gold prices soared due to fears of a global recession and uncertainty that U.K. voted to exit from the European Union. In fact, between January and July, gold prices advanced more than 23% to around \$1,380 per ounce.

Moreover, one reason of gold prices soaring was stock market crash that sent investors flocking back into precious metals. The Federal Reserve Bank introduced years of artificially low interest rates by lowering interest rates to zero, which made investment tools such as bonds, CDs, and Treasuries unattractive.

In the second half of 2016, gold prices declined slightly on improving U.S. economic data, but rebounded after Donald Trump won the election. Gold ended the year up roughly 8.5%. However, it should be noted that world gold market remained quite volatile on the background of decreasing or weakening demand for gold.

According to the The London Bullion Market Association (LBMA), there are 24 analysts who predicted 2017 gold price [23]. Majority of experts are predicting that gold price in 2017 will increase 5.3% or more in 2017, which means average gold price will reach \$1244/oz.

There is not many predictions about long term forecast in gold price. This is understandable as the market itself is notoriously difficult to predict. We discussed that ETF demand for gold and Central Bank purchases are highly dependent on current developments in the economy and investment environment. Nevertheless, there are few sources that predict gold prices in longer horizon. For example, in BMI Gold Report, the firm forecasts an average of \$1,500 per ounce by 2020. EIU expects that gold prices will increase 6.2% in 2017 and reach USD 1,269 levels. For 2018, EIU expects further increase in gold prices and reach USD 1,385.

### **5.1. Prices for Mongolian gold**

Mongolian gold prices strongly follow the world gold market. Locally, the Bank of Mongolia purchases gold based on London bullion market price. Therefore, projections of gold prices coincide with global price projections [21]. The BoM purchases gold at current exchange rate in Mongolian Togrog.

### **6. Conclusion**

World gold price is highly related to demand in China and India. The demand fall in these countries largely dictated fall in gold price, whereas gold supply remained volatile. Uncertainties remain as to whether ETF demand and Central bank purchases of gold will remain at today's level. Since gold production will not be decreasing significantly, and the demand for gold is projected to be sluggish for foreseeable future. As a result, the price of gold is expected to decrease.

The BoM bought 42.9 tons for gold between 2010 and 2015. According to the central budget outlook, the government planned to collect 1 trillion Togrog from the mining industry of which 56 bln Togrog will be collected from the gold sector. In the next 10 years, MRAM projects will increase the gold production, which will reach 40 tons by 2025.

As of 2016, 43 mining companies produced 17.7 tons of gold. Estimation by the Turquoise Hill Resource stated that Oyu Tolgoi will produce about 4 tons of gold in 2017. Experts expect that Mongolian gold production will reach 37 tons by 2020, of which 37 percent will be produced by Oyu Tolgoi. After sharp drop in production of gold until 2021, it is expected that the project will increase its production of gold and reach 17.7 tons by 2025. In recent years, the government consistently promoted the gold sector. Government programs are expected to increase total gold production, provide environmental solutions and at the same time will increase tax revenues for the state budget. Further, the Gold-2025 program has been changed into the Gold-2 program, which focused more on near to medium term activities.



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