İSTANBUL TİCARET UNIVERSITY
GRADUATE SCHOOL OF FOREIGN TRADE
DEPARTMENT OF INTERNATIONAL TRADE
INTERNATIONAL TRADE M.A. PROGRAM

GOLD TRADE IN INTERNATIONAL TRADE

M.A. Thesis

MAKHMUD ALKARABLIYA

İstanbul, 2023

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DECLARATION OF ORIGINALITY

I, Makhmud Alkarabliya, certify that,

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- This is a true copy of the thesis approved by my advisor and thesis committee at Istanbul Commerce University, including the final revisions required by them.

Makhmud Alkarabliya

June, 2023

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ABSTRACT

The international trade of gold holds significant importance in the global economy, shaping financial systems and influencing various industries. This research delves into the multifaceted dimensions of gold trade, exploring its historical developments, production processes, and diverse applications across sectors. The study investigates the demand for gold in different world markets, including key hubs like the London Market, the US Futures Market, the Chinese Market, and secondary market centres. The first part of the study examines the historical progression of gold, examining its significance and development across time. It illustrates how gold interacts with monetary systems and emphasizes how valuable and useful it is as a medium of trade. The research also delves into international trade dynamics surrounding gold, exploring the impact of significant events such as the Russia-Ukraine conflict and the BRICS agreement on gold mining and pricing. Focusing specifically on the gold trade in Türkiye, this thesis examines the Istanbul Precious Metals Market, the standard and non-standard gold traded within it, and the dynamics of supply and demand in the Turkish market. Additionally, the research evaluates the trade and production aspects in Türkiye, shedding light on the market's performance and its significance in the broader context of international gold trade.

Keywords: Precious Metals, Gold Trade, International Trade

ÖZET

Altın ticaretinin uluslararası ticarette büyük önemi vardır ve finansal sistemleri şekillendirerek çeşitli endüstrileri etkiler. Bu araştırma, altın ticaretinin çok yönlü boyutlarına derinlemesine bir bakış sunarak, tarihî gelişmelerini, üretim süreçlerini ve sektörler arasındaki çeşitli uygulamalarını keşfeder. Çalışma, Londra Piyasası, ABD Vadeli İşlemler Piyasası, Çin Piyasası ve ikincil piyasa merkezleri gibi önemli merkezler de dahil olmak üzere farklı dünya pazarlarındaki altın talebini araştırır. Araştırma ayrıca Rusya-Ukrayna çatışması ve BRICS anlaşması gibi önemli olayların altın madenciliği ve fiyatlandırma üzerindeki etkilerini inceleyerek altın ticaretinin uluslararası dinamiklerine derinlemesine bir bakış sunar. Türkiye'deki altın ticaretine özel olarak odaklanan bu tez, İstanbul Kıymetli Madenler Borsası içinde standart ve standart olmayan altın ticaretini ve Türk pazarındaki arz-talep dinamiklerini araştırır. Ek olarak, araştırma Türkiye'deki ticaret ve üretim yönlerini değerlendirerek, pazarın performansını ve uluslararası altın ticareti genelindeki önemini açığa çıkarır. Bu çalışma, altının uluslararası ticaretin önemli bir bileşeni olarak karmaşık dinamiklerini ve küresel ekonomik peyzajla olan bağlantısını daha iyi anlamak için kapsamlı bir analiz sunmayı amaçlamaktadır. Bulgular, altın piyasasının karmaşıklıklarını ve küresel ekonomik manzarayla olan bağlantısını daha derinlemesine anlamaya katkı sağlayacaktır.

Anahtar Kelimeler: Kıymetli Madenler, Altın Ticareti, Uluslararası Ticaret

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LIST OF ABBREVIATIONS

CMC	Currency Management Corporation.
IMF	International Monetary Fund
COMEX	The Commodity Exchange Inc.
OTC	Over-the-Counter
BRICS	Brazil, Russia, India, China and South Africa.
LBMA	The London Bullion Market Association
PMM	Product Management and Marketing
ETS	Emissions Trading System
LBMA	London Bullion Market Association
AFDB	Africa Development Bank
AGOA	Africa Growth and Opportunity Act

1. INTRODUCTION

Gold has been highly valued by people for a very long time due to its glow and its ability to be shaped in many different ways. Traders today see gold as the best safe-haven asset because it can withstand the volatility of the market and keep its value when things are uncertain. Trading experts usually put gold in their portfolios to diversify and protect against inflation. This is because gold reacts to market shocks differently than most other assets. Even though there may be a lot of competition for products and services in the U.S., still there is less competition in other countries (McDougall, 2007). Gold and crude oil are two of the most traded natural resources around the world. Given this fact, it is important to both the economy and culture, it is also the most-used valuable metal. In the United Kingdom, investing in gold is one of the most common ways to trade money. Any precious metal that is part of the commodities market can be traded if the owner has an account with CMC Markets. This means buying and selling gold, silver, and platinum. Gold can be bought in many different ways, such as in the form of bullion, coins, and shares of stock on the stock market (Gold, 1975).

Buying and selling gold is one of the oldest kinds of financial transactions that have been recorded. The precious metal's price can have a big effect on economies all over the world. Gold has been a sign of wealth and success in all cultures for a long time, and it has always been sold in some way or another. Due to how rare it is and how hard it is to find gold mines, gold is much more valuable than what it is used for in the industry. The process of getting metal out of ore takes a long time, requires a lot of work, and costs a lot of money. This means that the price of gold could go up if mining stopped or if the number of people wanting it went up a lot. There are many important reasons to invest in or trade precious metals outside of one's home country. These include its value as a hedge against inflation and a haven in times of political or economic uncertainty. Additionally, the study investigates the behavior of precious metals in the stock market and demonstrates how gold impacts the systematic skewness and kurtosis of a portfolio. It has been found that gold has a favorable coskewness with the portfolio when it is skewed to the left and a low level of cokurtosis with market returns when the market is unstable (Finlay, 2020).

Given its unique position in the international economic and political systems, the gold market has a significant amount of capital and opportunities to generate revenue in various market conditions. This fact holds whether the gold market is bullish or bearish. Therefore, this study brings to light important aspects of gold that are often overlooked and contributes to a better understanding of this precious metal's role in the global economy (Hwang, 2019). The motivation of this study is to provide a comprehensive understanding of the gold market and its impact on international trade. The study aims to investigate the changes in the commodity and investment value of gold and other precious metals, analyze the functioning of the gold standard and its historical significance in international trade, and examine the performance of gold in comparison to other precious metals.

The effectiveness of gold as a hedge against inflation and currency fluctuations in international trade is dependent on the strength of the relationship between gold prices and the USD parity. This study will investigate the relationship between gold prices, USD parity, and Federal Reserve interest rates. The findings of this study will provide insights into the effectiveness of gold as a hedge against inflation and currency fluctuations, and help investors make informed decisions regarding their portfolio diversification strategies. As a result, this research indicates that gold is an excellent option for investors looking to limit their risk exposure, as it can lower the likelihood of negative outcomes and reduce losses if they do occur. This investigation will look into the role that the gold trade plays in the larger context of the global economy to better understand its significance (Marton, 2016).

To investigate the connection between gold, USD parity, and the impact of Federal Reserve interest rates on the dollar. The Reuters database, which offers a comprehensive source of data on financial markets, economic indicators, and news events, will be used as the study's data source. The information will be gathered and arranged into a dataset that includes daily closing gold prices, USD exchange rates versus a basket of other important currencies, and daily Federal Reserve interest rate announcements. The study will specifically look at how changes in interest rates and USD parity affect gold prices. The study will also look at how changes in interest rates affect the correlation between gold prices and USD parity.

2. GOLD

Gold has an atomic number of 79, and its chemical symbol, which comes from the Latin word for gold, is Au (derived from the Latin word aurum). This puts it in the group of elements that are more common in nature and have higher atomic numbers. It is a bright, pure, orange-yellow metal that is thick, soft, malleable, and ductile. In terms of chemistry, gold is a transition metal in group 11. It is a chemical element that does not change much and usually gets solid. Most gold is found as nuggets or grains in rocks, veins, and alluvial deposits, where it is in its free elemental form. It naturally mixes with silver in a solid solution series with other metals like copper and palladium and minerals like pyrite (as electrum). 10% of newly made gold is used in industry, 40% is invested, and the other 50% is made into jewelry. Due to gold's great malleability, ductility, resistance to corrosion and most other chemical reactions, and electrical conductivity, corrosion-resistant electrical connectors are still used in many types of electronic devices. This is gold's main industrial use (its chief industrial use). Gold is also made into colored glass, gold leaf, and fillings for teeth. Some gold salts are still used in medicine as pain relievers (Gold, 1975).

It happens more often with tellurium than with gold (gold tellurides), which is a mineral. Most acids do not dissolve gold, but aqua regia, which is a mix of hydrochloric and nitric acids, does. When this happens, a tetrachlorocuprate anion is made that can be dissolved in water. Nitric acid can dissolve silver and other base metals, but it can't dissolve gold. Acid has been used for a long time to clean gold and find gold in metals. This is where the term "acid test" comes from. Gold can be broken up with alkaline cyanide solutions, which are used in mining and electroplating. Gold can also dissolve in mercury to make amalgam alloys, but there is no chemical reaction when this happens because gold is just a solute (Hwang, 2019).

As far back as records go, gold has been used to make money, jewelry, and other forms of art. It does not happen very often. In the past, a gold standard was often used as a way to run the economy. In the 1930s, people stopped making gold coins that could be used as legal money. Nixon's shock policies in 1971 led to the end of the gold standard and the start of a fiat currency regime. China produced the most gold in 2020, followed by Russia and

Australia. About 201,296 tonnes of gold will be above ground by the year 2020. This is about as long as a cube whose sides are 21.7 meters (71 ft) long.

Gold can be shaped more than any other metal. It can be made into a wire that is only one atom wide, stretched to very long lengths before breaking, and then used again because crystal twins and dislocations form, move, and change places, these nanowires are not very rigid and can bend. One gram of gold can be hammered into a sheet that is one square meter (11 square feet) and one avoirdupois ounce can be hammered into a sheet that is 300 square feet (28 m2). Gold leaf can be hammered until it is so thin that one can see right through it. Gold's bright yellow and red reflections make the greenish-blue light that gets through. Since these semi-transparent materials also reflect a lot of infrared radiation, they can be used as infrared (radiant heat) shields in heat-resistant suits and as sun visors in spacesuits. Gold is good at moving heat and electricity (Pesigan & Soriano, 2020). Since tungsten and gold have similar densities (19.3 g/cm3 and 19.25 g/cm3, respectively), tungsten has been used to make gold bars by coating tungsten bars with gold or by cutting holes in gold bars and putting tungsten rods in place of the gold. The density of lead is 11.34 g/cm3, which is less than the density of osmium, which is 22.588 g/cm3.

German chemist Julius Lothar Meyer, who lived from 1830 to 1895, and Russian chemist Dimitri Mendeleev, who lived from 1834 to 1907, both studied the relationships between atomic mass and other physical and chemical properties. The modern periodic chart was made because of their work. In 1869, they both did it on their own and came up with almost the same elemental groups (Pesigan & Soriano, 2020). Meyer put the elements in his table in a way that made sense based on how their basic atomic properties changed over time. For example, he figured out an element's "atomic volume" by dividing its atomic mass (also called its "molar mass") in grams per mole by its density, which was measured in grams per cubic centimeter. This helped him figure out how big the element was. This trait is similar to the idea of molar volume, which can be found by multiplying the molar mass of an element by its density, which is measured in cubic centimeters per mole. Figure 1 demonstrates the molar mass equation (IUPAC 1993).

$$V_m = \frac{M}{\rho}$$

V_m = molar volume M = molar mass ρ = mass density

Figure 1. Molar Volume

Source: IUPAC 1993

Mendeleev is credited with making the modern periodic table, which was first printed in 1869. The most important difference between Mendeleev's arrangement of the elements and those of Meyer and others is that Mendeleev did not assume at the time of his work that all of the elements had been found (in fact, only about two-thirds of the naturally occurring elements were known at the time). On the other hand, he left his table blank at atomic masses 44, 68, 72, and 100 because he thought those elements would be found one day. At the moment, the blanks are meant to stand in for the elements scandium, gallium, germanium, and technetium. The first version of the Mendeleev Periodic Table, as it appeared in the 1872 issue of the German magazine Annalen der Chemie und Pharmacie. "Reihen" means "to stand in a row" and "Gruppe" means "a group." A row can also be written as "Reihe," which means "line." Now, instead of subscripts, superscripts are used to show what kinds of compounds each group can make. "R" stands for "any element" and stands for "any compound." In each column with an equal sign, the masses of the atomic nuclei are written in a rising order from left to right (Li & Li, 2002).

Mendeleev's table is divided into groups based on how many oxygen or hydrogen atoms each element needs to form a compound. For example, Group I compound are made by combining one oxygen atom with two of each of the following atoms: hydrogen (H), lithium (Li), sodium (Na), and potassium (K) (K). In the seventh group of elements, one atom of fluorine (F), one atom of chlorine (Cl), and one atom of bromine (Br) combine with one atom of hydrogen (H) (Br). Notice how the presence of transition metals makes this process much more difficult. The standard that was shown in front of chemistry lecture halls until about 1960 was a table that was based on reactivity and was changed from Mendeleev's table (Hwang, 2019). Mendeleev's arrangement of the elements was supported most by the discovery of two new

elements whose properties were very close to what he had predicted, see Table 1. Mendeleev's first version of the periodic table had two blank spaces right under silicon and aluminum. These spaces were meant to make room for eka-silicon and eka-aluminum, which hadn't been found yet (from the Sanskrit eka, meaning "one," as in "one beyond aluminum"). After gallium and germanium were found, Mendeleev's periodic table became very popular because the properties of these new elements were very similar to those of eka-aluminum and eka-silicon. Mendeleev's table, on the other hand, was not widely used until after gallium and germanium were found. Mendeleev's table is illustrated in Table 1 (Mejia et al, 2016).

Table 1. Comparison of the Properties Predicted by Mendeleev

Property	eka-Aluminum (predicted)	Gallium (observed)	eka-Silicon (predicted)	Germanium (observed)
Atomic mass	68 Metal	69.723 Metal	72 Dirty -gray metal	72.64 Gray -white metal
Element	low mp* d = 5.9 g/cm3	mp = 29.8°C d = 5.91 g/cm3	high mp d = 5.5 g/cm3	mp = 938°C d = 5.323 g/cm3
Oxide	E2O3 d = 5.5 g/cm3	Ga2O3 d = 6.0 g/cm3	EO2 d = 4.7 g/cm3	GeO2 d = 4.25 g/cm3
Chloride	ECl3 volatile	GaCl3 mp = 78°C bp* = 201°C	ECl4 bp < 100°C	GeCl4 bp = 87°C
***mp = melting point; bp = boiling point.**				

Source: Mendeleev and Periodic Table, 2022.

2.1 Historical Developments

Since the beginning of time, people have used the precious metal Au (which comes from the Latin word aurum, which means "shining dawn") to make jewelry, coins, sculptures, and containers, and to decorate statues, buildings, and other objects. Because it does not rust, gold became a sign of power and immortality in many ancient cultures. Because it was so rare and had so many nice qualities, the ruling elites could use it to show off their power and position. At first, gold was found on the surface near rivers in Asia Minor, like the Pactolus in Lydia.

Around 2000 BCE, the Egyptians and then the Romans started digging for gold underground in Africa, Portugal, and Spain. Histories show that the Romans were able to get gold flakes out of many different ores, including iron pyrites. Gold was used for many things because it was easy to shape and could be mixed with other metals like silver and copper to make it stronger and change its color. Gold was used a lot in jewelry and art by most ancient societies because it was valuable, beautiful, flexible, and easy to work with. Since 5000 BCE, the Egyptians made jewelry out of electrum, which is a mix of pure gold and silver. Men and women in Sumerian society wore gold jewelry around 3000 BCE. Ur was the first place where gold chains were made. Early in the second millennium BCE, when the Minoans lived on the island of Crete, they made the first cable chain jewelry. The Minoans made a wide range of jewelry using many different methods. Necklaces, bracelets, earrings, rings, diadems, pendants, pins, and brooches were all made of gold. One of the best-known gold coins from the past is the Roman bezant. During the time of Emperor Constantine, it was used as money. It could weigh up to 70 Troy grains. It was used from the 4th century to the 12th century CE (Fujiki, 2003).

Filigree, battered thin shapes, granulation, embossing, chasing, inlaying, molding, and engraving were some of the techniques and designs that were used. This method was known to the Egyptians as early as 2500 BCE. Around 1200 BCE, the Chavin people of Peru started to treat gold similarly. Around 500 BCE, the Nazca people were the first to make gold castings. During the Byzantine era, pearls, jewels, and enamels were added to the Roman practice of setting precious and semi-precious stones in gold (Li & Li, 2002). Asia Minor at the end of the ninth century BCE was the first place where gold coins were used. The coins were made of electrum and had strange shapes. Most of the time, they were only stamped on one side. During his reign from 561 to 546 BCE, King Croesus of Lydia made the first pure gold coins with designs pressed into them. Academics say that the country's capital, Sardis, was also once a place where gold was refined. Nonetheless, the Lydians were able to clean their gold with salt and temperatures between 600 and 800 °C in their furnaces. Even gold that came from the ground could have up to 5% silver in it. After the salt and silver mixed, there was still pure gold left over. This gold could be used to make standard coins with a

known amount of gold. Even though silver coins were used more often overall, gold coins were often used by the Mycenaeans, the Greeks, and the Romans who came after them.

Because of its value and beauty, solid gold was the right material for important political and religious things like crowns, scepters, symbolic sculptures, libation vessels, and votive offerings. Since gold artifacts were sometimes buried with the dead as a sign of status, it is clear that the extravagant use of such an expensive and valuable material was done to impress. The best-known example is the "Agamemnon mask" that was found in Mycenae. People in Peru thought that gold was the sweat of the sun god Inti, so they used it to make a lot of religious items. During this time, gold was often used for religious purposes to make things like masks and sun discs. Gold was seen as very important and holy in pre-Columbian Colombia because it was shiny and linked to the sun. During the elaborate coronation ceremony that started the story of El Dorado, the gold powder was used to cover the body of the future king (Lavigne & Rowland, 1978). Gold leaf and plate have been used to decorate shrines, temples, tombs, sarcophagi, sculptures, ornamental weapons, armor, ceramics, and jewelry since the time of ancient Egypt. The death mask of King Tutankhamun is without a doubt the most well-known old piece of gold leaf. Gold has been used in dentistry since more than 3,000 BC because it can be shaped and does not break down. Around 700 BCE, the Etruscans used gold wire to hold fake animal teeth together. Gold thread was also used to make the outfit. Pliny says that in the first century BCE, people put gold on wounds to keep away "magic potions."

2.2 Gold and Monetary Systems

In a system called the "gold standard," the value of paper money or coins is tied to the value of gold. Under the gold standard, countries had to agree to trade their paper money for a certain amount of gold. If a country uses the gold standard, the price of gold stays the same, and the country buys and sells gold at that price. In a system called the "gold standard," the value of paper money or coins is tied to the value of gold. Under the gold standard, countries had to agree to trade their paper money for a certain amount of gold. If a country uses the gold standard, the price of gold stays the same, and the country buys and sells gold at that price. The value of the currency is set by this price, which has already been set. If the US set

the price of gold at $500 per ounce, for example, one dollar would buy one-fiftieth of an ounce of gold (Lavigne & Rowland, 1978). Right now, no government is using the gold standard. Britain stopped using the gold standard in 1931, and the US did the same in 1933. In 1973, the United States gave up the last parts of the system. The gold standard was completely replaced by fiat money, which is used because the government says, or "fiats," that it must be accepted as a way to pay. Since the beginning of time, the gold standard had been in place. For example, the dollar is the fiat currency in the United States, while the naira is the fiat currency in Nigeria. The first country to switch to a gold standard was England (Burger, 1974).

In 1821, this took place. All over the world, trade and production grew a lot during this century, which led to a lot of gold being found. This made sure that the gold standard would be used for a long time, even into the next century. All trade imbalances between countries were settled with gold, so governments had a strong reason to build up gold reserves to use in hard times. At the moment, the stockpiles in question are still there. The first country to switch to the gold standard was Germany in 1871. This led to the creation of a gold standard for the whole world. By 1900, the gold standard was the main way that most developed countries around the world managed their money. It's interesting to know that the US was one of the countries that joined the club very late in the game. In the United States in the 1800s, there was a strong group of people who only wanted silver to be used as money. This group tried to stop gold from being the only currency standard. The goal of this group was to keep silver from replacing gold as the main way to measure value. From 1871 to 1914, when the gold standard was at its strongest, this period was called the "golden age." During this time, the governments of most countries that used the gold standard, like Australia, Canada, New Zealand, and India, were very close to being perfect. On the other hand, when the Great War started in 1914, it changed a lot about how things were going (Rodoplu & Elitaş, 2018).

When the value of money was tied to the price of gold, gold was an important part of the world's financial system. The value of gold was used to figure out how different currencies related to each other. When fixed exchange rates ended in 1973, gold's importance in the economy of the whole world started to go down (Şahinler et al., 2022). Gold is still seen as

an important reserve asset, and the International Monetary Fund (IMF) is one of the largest official holders of gold in the world. The IMF takes care of about 90,5 million ounces of gold in places called "designated depositories." This amount is the same as having 2,814.1 tonnes of gold. Before the start of the 1970s, there were four main ways for the IMF to get gold. They could use these ways to talk. When the IMF was first set up in 1944, each country that wanted to join had to pay 25 percent of its initial quota in gold. Even after the quotas were raised, they kept doing this for the next thirty years. These are the countries where most of the gold reserves of the IMF come from. When making interest payments on loans from the IMF, gold was almost always used as the medium of exchange (Rodoplu & Elitaş, 2018).

There is a chance that gold could be used to pay back loans from the IMF. The money from selling gold to the International Monetary Fund could be used by members to buy each other's currencies' IMF. Between 1970 and 1971, this thing happened in South Africa. After countries stopped using the gold standard, the IMF made some changes to reflect the new state of affairs. The Second Amendment to the Articles of Agreement was passed in April 1978. This means that the IMF cannot buy gold or use it as collateral for a loan, lease, or swap. Also, the IMF is not allowed to use gold as a way to trade currencies. The IMF can sell gold outright at the current market price, and it can also buy gold from member nations that are paying back loans at a price that is set based on the current market price. Both of these abilities depend on the price of the market at the moment. Before these plans can be put into place, 85 percent of the voting power on the IMF Executive Board must agree with them for them to be considered acceptable.

The IMF has sold or given back some of the gold it kept in its reserves on a few occasions. Many things can be blamed for this result. For example, between 1957 and 1971, IMF sold gold several times so that it could buy more currencies. Between the years 1957 and 1971, this happened. Between 1956 and 1960, the IMF had to make up for operating losses by selling gold to the United States and putting the money from that sale into US government bonds. This was done to keep the IMF from going out of business. In 1999, the IMF's Executive Board said that gold could be sold outside of the market to help pay for the IMF's share of the HIPC Initiative. This was said so that the IMF's part of the initiative could be

paid for Heavily Indebted Poor Countries. In the end, the International Monetary Fund was able to sell 12.94 million ounces of gold to Brazil and Mexico through sales agreements. In 2009, the IMF Executive Board gave the green light to sell 12.97 million ounces of gold. This amount was equal to one-eighth of all the gold the IMF owned at the time, so it was a big deal for the organization. The sale was part of a new way for the IMF to make money so that its finances would be safe in the long run and so that the Poverty Reduction and Growth Trust could lend more money to poor countries at low or no interest. This was done so that the IMF's finances would be safe in the long run and so that the Poverty Reduction and Growth Trust could give more money to poor countries. This was done so that the Poverty Reduction and Growth Trust would be able to help poor countries reduce their overall levels of poverty.

The sale started officially in October 2009, and that's when central banks and other official holders started buying and selling at market rates. In February 2010, the IMF said it would sell money on the market over the course of a few months to calm it down and keep it from getting upset. The IMF stopped selling things in December 2010. When it decided to sell the gold, the IMF thought it would make a certain amount of money. However, it made more money than it expected, which was more than 6.85 billion SDR than the book value of the gold. Because of these unexpected earnings, the IMF executive board decided in February 2012 to give each member a first payment of 700 million SDR. This payment was made only once. This payment was made for the first time in October 2012 (Rodoplu & Elitaş, 2018).

2.3 Gold Production

Mining production can influence gold prices. For example, if production at a mine is interrupted, the amount of gold that is accessible will decrease, which will result in less gold being mined. This will lead to an increase in the price of gold. Because of this, the amount of gold that is extracted from the ground will go down. On the other hand, whenever a new mine begins production, there is an increase in the supply of the commodity that is in question. This happens whenever there is a new mine that begins production. The reason for this is that there are a greater number of mines manufacturing the commodity. According to the World Gold Council, annual gold mining production has increased to approximately

3,500 tonnes, up from approximately 2,800 tonnes a decade ago (Lothrop, 1937). This increase can be attributed to an increase in gold mining operations. In other words, this constitutes a considerable rise in the total amount. This increase in output can be attributed to a wide variety of various contributing factors all working together to create this effect. The annual recovery of an additional 1,100 tonnes of material has been considerably helped by recycling initiatives, which have contributed significantly. A decade ago, the countries of China, Australia, Russia, and the United States of America were the ones who produced the most gold from their mines. Most gold was mined in China, making it the world's leading producer. Other countries that have contributed significant contributions to the world's gold supply are South Africa and Canada, to name just two examples of each. South Africa was another nation that made a significant contribution in the past; however, the nation has been falling more and further behind in the most recent years. In terms of history, South Africa made a significant contribution as well (Rush, 1985).

Gold's innate brightness and beauty have made it very desirable for collectors and investors throughout history. Because of this, many different cultures have conceptualized gold as being symbolic of the sun. Even though there are now other colors of gold available, yellow gold jewelry continues to be the most popular choice. The ability to alloy, or blend other metals with pure 24-carat gold, offers malleable gold the potential to change its color of the gold as well as increase its durability. Pure gold can be transformed into white gold by the process of alloying with other white metals such as palladium or silver. Rhodium plating is widely used because it produces a surface that is harder and shines more brilliantly than other finishes. Platinum's position as the most common metal for wedding bands in the United States has mostly been usurped by white gold. Although the application of patinas or oxides to the surface of the alloy might result in the creation of odd colors such as blue and purple, the soft pink color of rose gold is due to the presence of copper. For example, the color of black gold comes from a substance called cobalt oxide.

The weight of one troy ounce is equivalent to 31.1034768 grams. On the other hand, the purity of the gold may be determined by looking at the number of carats it contains. "Carat" is a measurement used to determine how pure gold is after it has been combined with other

metals. There is no other metal present in 24-carat gold; it is pure gold. Things with a lower carat rating contain less gold. For example, 18-karat gold is composed of 75% gold and 25% other metals, most commonly copper or silver. For something to be considered gold in a particular nation, it must first meet the country's required minimum carat weight. The United States allows for a minimum of 10 carats of gold to be sold legally, with 14 carats being the most typical number sold. Table 2 (World Gold Council, 2023) shows some examples of the composition of various caratages of gold.

Table 2. Caratage of Gold

	Cartage	**Gold (AU)**	**Silver (AG)**	**Copper (Cu)**	**Zinc (zn)**	**Palladium (Pd)**
Yellow gold	9k	37.5 %	42.50%	20%		
Yellow gold	10k	41.70 %	52%	6.30%		
Yellow gold	14k	58.30%	30%	11.70%		
Yellow Gold	18k	75%	15%	10%		
Yellow gold	22k	91.70%	5%	2%	1.30%	
White gold	9k	37.5%	62.5%			
White gold	10k	41.7%	47.4%		0.9%	10%
White gold	14k	58.30%	32.20%			9.50%
White gold	18k	75%				25%
White gold	22k	N/A	N/A	N/A	N/A	N/A
Rose gold	9k	37.5 %	20%	42.5%		
Rose gold	10k	41.70%	20%	38.3%		
Rose gold	14k	58.30%	9.2%	32.5%		
Rose gold	18k	75%	9.2%	22.2%		
Rose gold	22k	91.7%		8.40%		

Source: World Gold Council, 2023.

2.3.1 Types Of Gold Production

For thousands of years, gold has been used to create decorations and jewelry. One of the first metals exploited by humans was possibly gold as it is so simple to work with. Gold that is presently mined or recycled is used most frequently to manufacture jewelry. Over 78% of the gold consumed annually is used in jewelry making. Gold has special qualities that make it perfect for use in jewelry. These features include the ability to be pulled into wires,

hammered into sheets, or cast into shapes, as well as tarnish resistance, exceedingly high shine, and appealing yellow color. These are all characteristics of a desirable metal that can be shaped into special objects with ease. Tradition is another key feature that necessitates the utilization of gold as a jewelry metal. Gold is widely employed in the creation of significant items. Pure gold is too delicate to sustain the forces that are exerted on many jewelry products. As found by artists, copper, silver, and platinum can be used to boost the durability of gold. Since then, the majority of the gold used to manufacture jewelry has been an alloy of gold and one or more other metals. In comparison to pure gold, gold alloys are less valuable per unit of weight.

The amount of gold in these alloys is indicated by the term "cartage," which is used in trade. The term "24 Carat gold" is frequently used to describe pure gold. 12 karat gold (12/24ths) is a designation for an alloy that comprises 50% gold by weight, and it may be distinguished by the letters "12K." The weight of gold in an alloy with the marking "18K" is 75% (18/24 = 75% gold). High-karat jewelry normally tends to be softer and more tarnish-resistant while low-karat jewelry is stronger and less tarnish-resistant, especially when it comes into touch with perspiration. In the early days of paper money, a certain amount of gold was kept in reserve to serve as a backing for each unit of currency. Before the implementation of the so-called "gold standard," every paper dollar in the United States was backed by a gold reserve. Anyone can hand the government their paper money and ask for the same quantity of gold in return when operating under the gold standard. The gold standard, which was once utilized by a great number of nations but is no longer utilized because its utilization has grown too difficult. The most frequent form of gold that was used to back the money was the commodity known as "gold bars," which is also known as "bullion." Gold bars were popular among people because they were simple to transport, store, and manufacture. The useful form of gold known as bullion is held in inventory today by a large number of companies, governments, and private individuals (Redmond, 1988).

The color of the finished items is affected when gold is alloyed with other metals (see image) (see illustration). Yellow gold is made by combining 75% gold, 16% silver, and 9% copper. The components of white gold are 75% gold, 4% silver, 4% copper, and 17% palladium.

Metals with pink, green, peach, and even black coloring can be made using various alloys. Because gold is highly expensive and in relatively limited quantities, it has long been used as a medium of exchange or money. The first known utilization of gold in business dates back over 6000 years. Early transactions were done using pieces of gold or pieces of silver. The scarcity, usefulness, and desire for gold make it a substance of long-term worth. Gold works well for this function since it has a high value, and is durable, portable, and easily separated (Rodoplu & Elitaş, 2018). The estimated values of gold production in metric tons are illustrated in Table 2 (World Gold Council, 2022).

Table 3. Gold Production: 2020-2021

Country	2020	2021
United States	193	180
Argentina	59	60
Australia	328	330
Brazil	78	80
Burkina Faso	58	60
Canada	170	170
China	365	370
Colombia	48	50
Ghana	125	130
Indonesia	86	90
Kazakhstan	63	60
Mexico	102	100
Papua New Guinea	54	50
Peru	87	90
Russia	305	300
South Africa	96	100
Sudan	90	90
Tanzania	47	50
Uzbekistan	101	100
Other countries	572	570
The values above are estimated gold production in metric tons.		

Source: USGS Mineral Commodity Summaries, 2021.

King Croesus of Lydia, whose kingdom is now a part of Türkiye, is credited for minting the first gold coins in 560 B.C. Before the beginning of the 1900s, gold coins were frequently employed as a medium of exchange. The usage of paper money eventually became more widespread after that. Two distinct varieties of gold coins were produced. Others were distributed in standard quantities of money, such as dollars, while others were distributed in

conventional units of weight, such as ounces or grams (Aliber, 2023). Coins made of gold aren't used in commerce nearly as frequently as they were in the past. However, smaller quantities of gold are frequently purchased and stored as investments in the form of gold coins, which are manufactured to weigh a specific amount of gold. Additionally, gold coins are produced to be presented as "memory" presents. People enjoy collecting these commemorative coins, and the fact that they are made of valuable metals also contributes to their widespread circulation (Marton, 2016).

2.3.2 Gold Mine Production

The gold CIL process, which is also known as the carbon in leach technique, is an efficient method for recovering gold after it has been extracted from its ores. This process is also known as the gold extraction technique. The CIL process lowers the costs associated with operating a gold mine, while at the same time increasing the amount of gold that can be recovered from crushed ore and bringing that percentage up to 99%. It is the method of choice in modern gold mining and gold beneficiation facilities because of its efficiency and effectiveness.

The setup typically consists of the following pieces of equipment: a jaw crusher, a ball mill, a vibrating screen, a spiral classifier, belt conveyors, a hydro cyclone, a thickener, leaching tanks, an electrowinning and desorption device, a gold smelting furnace, and other similar pieces of machinery. CIL is primarily utilized for the processing of gold ores that have grades greater than 1 g/t and gold ores that contain a significant amount of other valuable metals and minerals, such as silver, platinum, copper, and others. However, CIL can also be utilized for the processing of gold ores that do not contain significant amounts of these other valuable metals and minerals. As CIL notes an improvement in performance in the process of simultaneously extracting various minerals from the ore, In addition to that, the Hongji Mineral Dressing Test Center can lend a hand in the process of analyzing the various components of the ores (Grossman, 2014).

South Africa was the country that produced the most gold up until the year 2006; nevertheless, Australia soon overtook South Africa to become the primary producer. In 2007, China overtook South Africa as the largest producer as a result of increased production in

other countries and a decrease in South Africa's output. China also benefited from increased production in other countries. The production of other countries increased, whilst that of South Africa decreased. The United States of America is no longer the largest producer worldwide; China has usurped its place. Despite this, no other nation has even come close to matching the scale of South Africa's peak production period, which occurred in the late 1960s and early 1970s. This was during the period when the country was in its early apartheid phase. This historical period took place during the period in which the nation had the greatest level of economic success (Meredith, 2023). The second part of the 1960s and the beginning of the 1970s were the years in which this took place. In 1970, South Africa was responsible for the production of 995 tonnes of gold, which is equal to 32 million ounces. This figure was achieved through mining operations.

This number was accomplished through the operations of the mining company. This accounted for two-thirds of the entire quantity of gold that was extracted from mines all over the world, which in total amounted to 47.5 million ounces of the precious metal. The output of the primary mine is reflected in the data that represent production, which is production statistics. This output can be thought of as production statistics. In 2011, primary production in the United States was overtaken by secondary sources, which included both new and old scrap metal. Primary production in the United States was eclipsed by secondary sources. Before this point, primary production had been the most important aspect. This was true not only for scrap metal that had been recently created but also for scrap metal that was much older (Hannah, 2017).

2.4 Gold Production Process

Even though the jewelry industry has a glossy reputation, it takes a significant financial commitment to run a successful jewelry firm. Researching a product, figuring out who the ideal customer is, and analyzing who else is in the industry are all essential steps to do before getting started. A strong understanding of the production process is required if an individual is just starting as a jewelry designer and wishes to break into the industry. The production process will go more quickly and easily if fruitful conversations are held with individuals working in different fields. Working with only one company during vacation will make

logistics a lot less complicated. They can direct individuals in the process of building connections, aid them in making connections with specialists, streamline and simplify the entire process, and decide what is ideal for the organization at each level. If an individual desire to work independently, they need to be an expert in a few different subjects (Grossman, 2014).

2.4.1 Designing A 3D Jewelry Model

As soon as the preliminary concept and/or sketch has been established, it is time to begin working on the digital model. A piece of software known as CAD will be utilized by the 3D designer to create a digital representation of the jewelry that was ordered. This is a piece of design software that is referred to as CAD, which is an abbreviation that stands for computer-aided design. This could take anywhere from one day to one week, depending on how difficult the task is and how busy the artist's studio or the artist themselves are. This could take anywhere from one day to one week. The amount of time required could be as little as one day or as much as one week. Keep in mind that the 3D model was created with usefulness rather than aesthetics, and keep in mind that it was developed with functionality. As a direct result of this, there is a danger that the model will not look to be as appealing as the product that is ultimately produced, and this risk increases the longer the production process takes. On the other hand, this process is quite beneficial because it enables individuals to view their jewelry before committing to full manufacturing. This gives individuals the opportunity to make any necessary adjustments before committing to full manufacturing. In the process of making a decision, this phase often proves to be very beneficial. Having said that, an individual can request at any time a more detailed rendering of the scene (Grossman, 2014).

2.4.2 3D Wax Printing Jewelry

The purpose of the 3D model that was developed in the stage before this one was not only to provide individuals with a preview of the final result but also to lay the groundwork for the creation of the wax model that will take place in the stage that comes after this one. This is because the creation of the wax model will take place in the stage that comes after this one. This will be done in the phase that follows this one, which is the one that comes after this one in the process. When making modern jewelry, it is almost always necessary to make use

of a 3d printing machine to print a wax model that is constructed out of resin. This is done to facilitate the manufacturing process. This is done in order to prepare the model for the subsequent step of having resin cast over it. It is standard practice to carry out this procedure, the duration of which, in the overwhelming majority of cases, must not exceed forty-eight hours.

2.4.3 Casting The Wax Model Into Metal

The casting procedure will now be applied to the jewelry as the following phase in the process. At this point, pieces start to take on the appearance of jewelry that could be purchased in a store. After the wax has been eliminated, the molten metal of choice—typically gold, silver, or platinum—is poured into the cavity left by the wax. When the metal has completely dried, the piece of jewelry assumes its finished form. The process of casting with this technique is known as "lost wax."

2.4.4 Basic Jewelry Assembly

After going through the steps of design and casting, the final production of jewelry can take anywhere from three days to three weeks to complete depending on the complexity of the piece. The refinement of the primary structure of the ring, necklace, or other pieces of jewelry that have been ordered from the jeweler is the task at hand at this stage. To get to the metal that lies beneath the casting's surface, the jeweler carefully scrapes away the surface of the casting. Even though the casting process transformed the jewelry into fine metal, the jeweler still needs to make any necessary aesthetic adjustments and guarantee that the item can adequately hold gemstones to finish the piece. After the mounting has been completed on the piece of jewelry, the item is then prepared for the following step, which is the stone placement. Any enameling work that needs to be done on the piece, in addition to any further design work that needs to be done, will be undertaken before the piece is set.

2.4.5 The Stone Setting Process

During this stage of the process, the diamond setter will finish the job by securing diamonds and other jewels for the jewelry that has been purchased. The diamond setter approaches the placement of the major stone atop the mount with extreme care. The stone setter is required

to first do hand drilling for any side stones that will be used before beginning the procedure of setting the stone. After that, a microscope was used to precisely position each stone (Grossman, 2014).

2.4.6 Polishing, Finishing, and Quality Assurance

During the final stage of the process, a polisher will make every effort to ensure that the metal has been polished to absolute perfection so that it is as shiny as is physically possible. This will be done so that the metal will be as reflective as is physically possible. Any other touches of finishing, such as engravings, are added at this point in the process as well. After the manufacturing process has been completed, the jewelry is subjected to a thorough inspection to ascertain whether or not the process was a success. This happens right before the product is packaged and shipped out to customers (Hannah, 2017).

2.5 Uses of Gold

Gold is of far too high value for it to ever be wasted. It is instead only used on purpose and only in circumstances where there are no alternatives that are accessible at a lower cost. As a consequence of this, once a use for gold has been discovered, there is a very low chance that it will be replaced by another metal. This illustrates that there has been a rise in the number of applications for gold over time. The vast majority of gold's current applications have just been around for the past two or three decades. It is anticipated that this pattern will continue. As a result of our society's pursuit of increasingly complicated and dependable resources, our reliance on gold will increase. Gold's value and significance will steadily increase over time as a result of increased demand, a scarcity of alternatives, and limited supply. These factors will all contribute to this rise. It is incontestably a metal that will be used in the future.

2.5.1 Electronics

The most important way that gold is used in industry is to make electrical parts. Solid-state electronic systems use very low voltages and currents, so corrosion or tarnish on contact points can easily mess with them. Voltages and currents can be changed easily. For these very small currents, gold is the best conductor because it does not rust. Electrical parts that

are gold-plated are especially reliable. Gold is used to make connections, contacts for switches and relays, soldered joints, wire connectors, and connection strips. Gold traces are in almost every piece of high-tech electrical equipment. Cell phones, calculators, personal digital assistants (PDAs), GPS systems, and any other connected technology are all covered. Most big electrical appliances, like TVs, have gold in them. Gold is used in such small amounts and in such small ways that it raises a lot of questions, one of which is whether or not the metal will ever be used again. About a billion cell phones are made every year, and most of them only have about fifty cents worth of gold in them. Their average life span is less than two years, and very few of them are recycled. Even though each device only has a small amount of gold, there is a lot of gold that cannot be recycled because there are so many of these devices (Redmond, 1988).

Gold plating can be found on a variety of components within a conventional desktop or laptop computer. The swift and accurate transmission of digital information across the computer and from one component to another requires a conductor that is both efficient and reliable. Gold is the metal that most effectively satisfies these conditions, even more so than any other metal. The superb quality and steady performance are well worth the additional cost because their benefits outweigh it. Gold is utilized in the plug-and-socket connections, which are used to link cables, as well as in the edge connectors, which are utilized to connect memory and CPU chips to the motherboard. Gold is frequently electroplated onto other metals and alloyed with trace amounts of nickel or cobalt to lengthen the lifespan of these components. This process is done to make the gold more corrosion-resistant (Marton, 2016).

2.5.2 Medical Usages

Dentists would require blacksmithing equipment, a filling would cause the smile to become tarnished for a few days, and the patient would need to become accustomed to the taste of iron. Gold is used in dentistry because it is far more useful and has an appealing appearance, even though it is significantly more expensive. Gold alloys are used in the construction of a variety of dental restorations, including fillings, crowns, and bridges. Gold is utilized in dentistry because it is simple to work with for dentists, it is chemically inert, and it does not produce allergic reactions (Marton, 2016).

There is evidence that dental procedures with gold were performed as early as 700 B.C. The so-called "dentists" of Etruscan times would use wire made of gold to secure their patients' fake teeth. There is evidence that the metal was once employed in this capacity, even though gold wasn't used for filling cavities until a little more than a thousand years ago. Up until the late 1970s, gold was utilized in dentistry on an exceptionally regular basis. The significant increase in the price of gold at the time prompted the exploration and development of other materials. However, there has been a recent trend toward increased utilization of gold in dental procedures. One factor that plays a role in this is the worry that metals with a lower degree of inertia might hurt health over the long term. Gold has been processed into a drug that has shown some promise in treating a limited range of medical conditions. Injections of aurothioglucose or sodium aurothiomalate, both of which are dilute solutions of the chemicals that they contain, are sometimes given to patients diagnosed with rheumatoid arthritis. To treat certain kinds of tumors with radiation therapy, particles of a radioactive gold isotope are implanted into the patient's tissues. This allows for the procedure to be performed. Lagophthalmos is a medical disorder in which a person is unable to completely close their eyes, as the condition prevents them from doing so. The condition known as lagophthalmos can be treated with very minute doses of gold. The application of a very small quantity of gold to the upper eyelid has been suggested as a therapy for this condition. Because the eyelid is "weighted" with the gold, it will close more completely when it is subjected to the gravitational force that comes from the earth's mass (Li & Li, 2002).

During the process of determining what the issue is, radioactive gold is utilized. It is administered in the form of an injection in a colloidal solution, and its progress through the body may be monitored to see how effectively it functions as a beta emitter. A broad variety of medical and technical instruments, including some that are responsible for keeping people alive, require minute amounts of gold as an ingredient. Because gold does not degrade when it is worked into instruments, it is an extremely dependable material for use in electronics and other technologies that are essential to maintaining life (Lavigne & Rowland, 1978).

2.5.3 Aerospace

Spending billions of dollars on a vehicle once it is launched, will travel on a voyage with no possibility for lubrication, maintenance, or repair. Therefore, very reliable materials are needed. This is the rationale behind the myriad of methods in which gold can be discovered on board every mission operated by NASA. Because of its consistent and reliable performance, gold is frequently used in the electronic industry both as a conductor and a connection. In addition, each spaceship carries a considerable quantity of film made of polyester with a gold coating. Because it reflects infrared radiation, this material helps keep the spaceship at a more comfortable temperature. Without this covering, the black components of the spacecraft would quickly become hot to the touch. Gold is also used in the capacity of a lubricant between the various mechanical components. In the absence of the atmosphere surrounding the Earth, organic lubricants would vaporize and be destroyed by high levels of radiation. Gold molecules can slide past one another when there is friction between them; this allows a very thin film of gold to function as a lubricant when it is placed between large moving parts. Gold has an extremely low shear strength (Lavigne & Rowland 1978).

2.5.4 Awards and Status Symbols

What kind of precious metal was utilized in the production of the king's crown? Gold! The decision was made to choose gold specifically since it is frequently thought of as THE most valuable metal. Even though steel has the highest tensile strength of all metals, a king's crown shouldn't be fashioned of the stuff. Gold is the metal that is most frequently chosen to be used in the design of a king's crown since it is the metal that is most typically linked with the greatest levels of regard and rank. Numerous admirable attributes have been associated with gold. The great degree of purity of gold is another attribute related to it. Because of this, gold is the metal that is most usually used to create objects that are seen as having religious significance. Gold is therefore widely used in the production of religious artifacts like crosses, communion cups, and other symbols (Fujiki, 2003). The victor of practically every type of competition is awarded a gold trophy or medal. Regardless of the type of competition, this is true. First-place finishers in the Olympics have the chance to compete for a gold medal

in their respective events. During the Academy Awards, sometimes referred to as the Academy Honors, gold awards are presented. Nothing in the music industry comes close to the caliber of the Grammy Awards. Awards made of gold-plated metal have been given in recognition of each of these notable accomplishments (Lavigne & Rowland, 1978).

2.5.5 Glassmaking

Gold is utilized in the production of glass in a variety of different ways. Utilizing a pigment as part of the production process for glass is the way that is considered to be the most fundamental. When the glass is annealed, a rich crimson hue can be achieved by adding a very small amount of gold to the mixture and suspending it in it (Fujiki, 2003). Additionally, gold is utilized in the production of specialized glass for use in museums and other climate-controlled structures. When a little amount of gold is spread within the glass or coated onto the glass surface, the buildings will remain cooler in the summer and warmer in the winter because the gold will reflect heat from the interior back inward into the building. A very thin layer of gold plating is applied to the surface of the visor of the astronaut's helmet, which is a component of the space suit. The astronauts' eyes and skin are shielded by this extremely thin coating, which can deflect the vast majority of the highly powerful solar radiation that is present in space.

2.5.6 Gold Gilding And Gold Leaf

Gold, even more than silver and copper, is the most malleable metal. As a result, gold can be pounded into sheets only a few millionths of an inch thick. These extremely thin sheets of gold leaf can be placed on the uneven surfaces of picture frames, moldings, or furniture. Gold leaf is another aesthetic option that may be used on both the interior and exterior of constructions. This results in a long-lasting, corrosion-resistant coating. The domes of religious buildings and other significant structures are one of the most eye-catching applications of gold leaf. The cost of this "roofing material" per square foot is relatively high; yet, the cost of gold accounts for only a small portion of the overall project cost. The labor of extraordinarily talented artisans in charge of applying the gold leaf accounts for the majority of the expense. (Dippel et al., 2022).

3. GOLD DEMAND AND TRADE

Jewelry manufactured out of gold is the sector that contributes the most significant to the overall annual demand for gold across all industries. In recent decades, there has been a discernible decline in this, even though it still accounts for approximately half of the total demand for gold. conventional jewelry is still the primary use for gold. The marketplaces for jewelry in India and China together account for more than fifty percent of the entire market value, making them by far the largest in the world. Figure 2 (Hannah, 2017) shows the gold demand in the Jewelry sector.

The demand for gold that is of a greater purity and larger carat dominates the markets in Asia and the Middle East. The demand for gold jewelry during the second quarter was somewhat greater than it was during the same period of the previous year, but it is still modest in comparison to the norms that prevailed before the epidemic. Although the global consumption of jewelry has recovered from the worst of the COVID-induced decrease experienced in 2020, it has not yet achieved the regular quarterly averages — of roughly 550t — that were characteristic of the few years before the pandemic (Keys, 2012).

During the second quarter, demand was hampered by several factors, including China's economic constraints and rising prices around the world, both of which contributed to an increase in overall inflation. However, support came from robust spending at weddings and festivals in India, and rising oil prices boosted sentiment in the Middle East. Both of these factors contributed to an improvement in the overall economy. The strong economic growth can be attributed in part to both of these factors. The increase in the volume of output continued to surpass the increase in consumption, as was the case throughout the first three months of the year. As a direct consequence of this, there was a 31-ton increase in the inventory of jewelry during the second quarter. This was because the supply chain in some regions continued to rebuild stockpiles after the impact of the epidemic, and it also responded to healthy demand from customers (Keys, 2012).

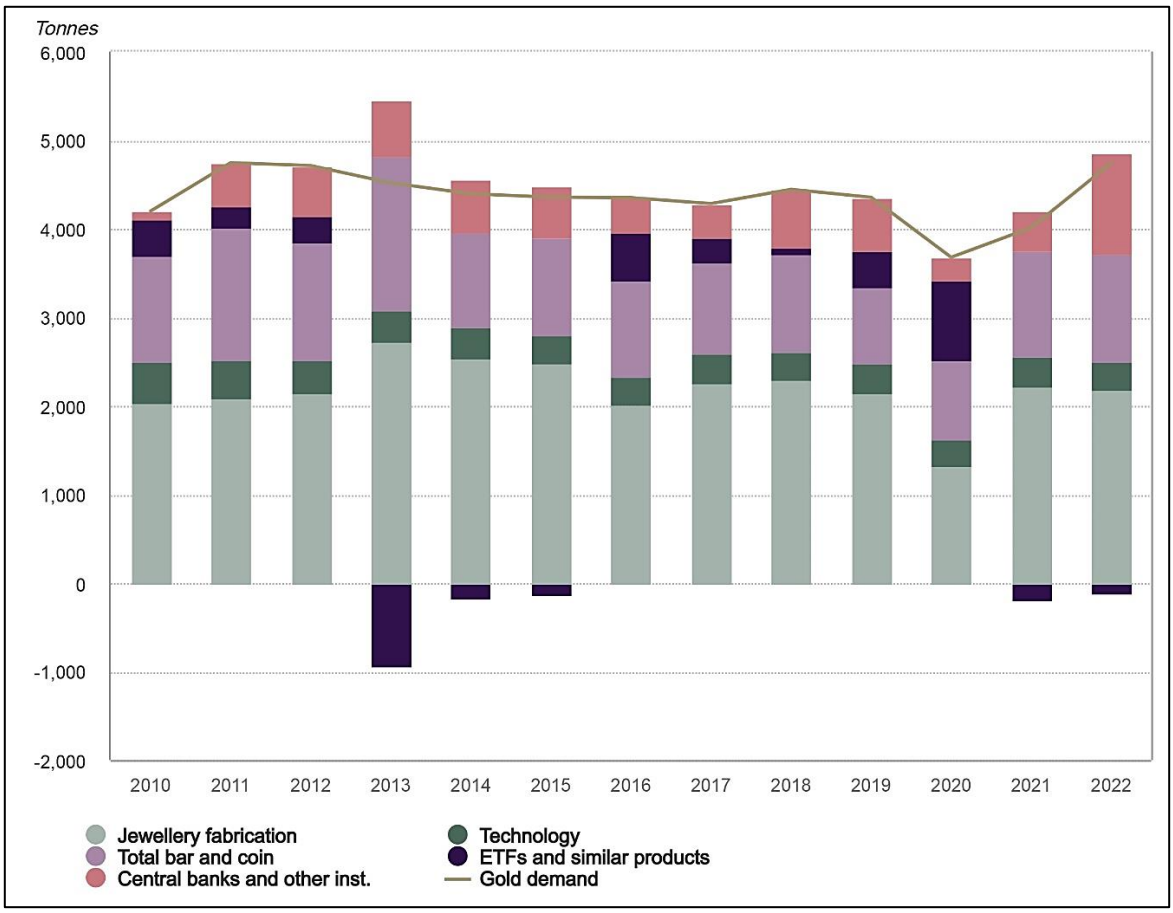


Figure 2. Gold Demand in Various Sectors

Source: World Gold Council, 2023.

3.1 Gold Demand Across World Markets

In China, the demand for gold jewelry had a 29% year-over-year decline during the second quarter, reaching a total of 103 tonnes. As a result of this increase, the total for the first half of the year amounted to 281t, which was 17% lower than the total for the previous year and 19% lower than its average for the previous 10 years. Because millions of people were subjected to controls as part of an effort to reduce the risk of contagion during the months of April and May, the closure of major urban areas harmed the consumption of gold. This was because the closures were part of an effort to reduce the risk of contagion.

The inability of consumers to spend money, in conjunction with a slowdown in the development of their incomes (the year-over-year rise of 1.5% in Q2 was the lowest on record excluding 2020), were the primary factors that contributed to the decline in the demand for

gold jewelry in China during the second quarter. This decline occurred during the period of March, April, May, and June. There was a five percent increase in the price of gold on the local market as a direct result of the decline in the value of the RMB. This may have resulted in a decrease in the demand for gold jewelry during the first half of the year. Alterations in the conduct of customers are another factor that, in our opinion, contributed to the issue. The fact that the second quarter is frequently considered to be the off-season for the consumption of gold jewelry contributed even more to the decline. This perception also contributed to the fact that the demand for gold jewelry decreased. This conception was an additional factor that contributed to the fall. As a result of the uncertainty and the decline in confidence that COVID has produced, households have started taking preventative measures, such as increasing the amount of money that they set aside in their savings accounts. The analysis is illustrated in Figure 3 (Households' Saving Behaviour).

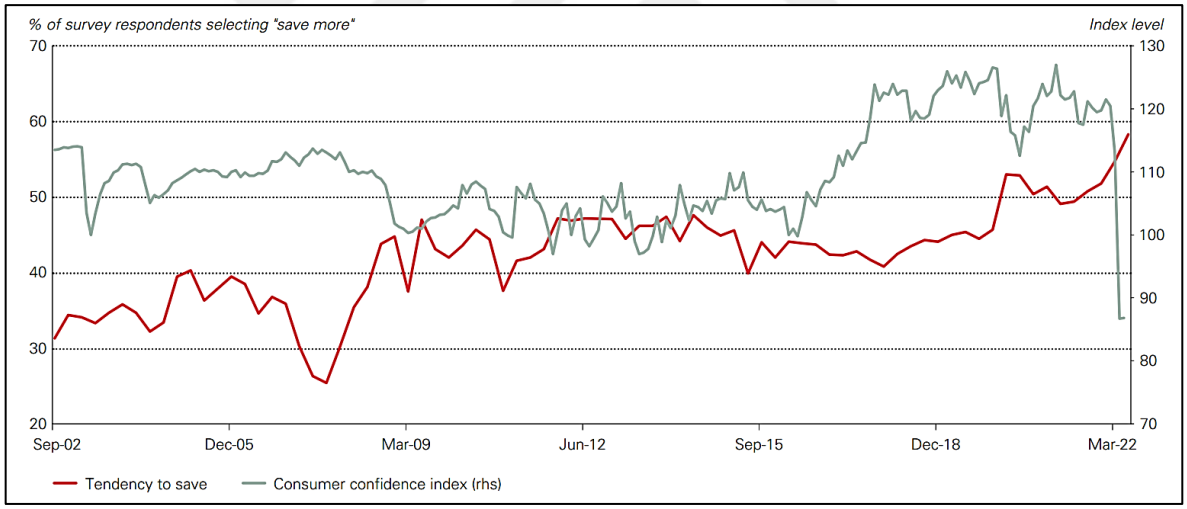


Figure 3. Households' Saving Behaviour

Sources: National Bureau of Statistics, PBoC, World Gold Council

Even though the market as a whole was experiencing difficulties, heritage gold jewelry was able to keep its position as the industry leader. This was accomplished even though the market had reached a certain level of saturation, which caused momentum to come to a standstill. Nevertheless, this objective was completed. Because 24K pure hard gold was present, further market share was taken away from the competition. Due to the increasing need for price transparency, the jewelry business is undergoing a move away from pricing

"per piece" toward pricing "per gram," which has made this sector more difficult to navigate. This transition has been going on for a considerable amount of time at this point. The revival of COVID in 2022 did not slow down the rapid expansion that was being pursued by leading brands at that time. It accelerated it. For example, Chow Tai Fook will have 5,931 points of sale across mainland China by the end of the second quarter of 2022, which is an increase from 5,646 points of sale by the end of 2021. This increase was more prominent in cities that are ranked on a lower tier than those being discussed. Based on what is still to come, it is believed that the weakness that was displayed in the first half of the year will carry over into the second half of the year. This is because of what is still to come. It is quite likely that the policy of having a COVID rate that is set at zero, having weak domestic demand, and having upheavals in the real estate business would continue to weigh down on local economic growth, which would hurt the market for gold jewelry. If the steps taken to manage the pandemic are effective, there may be some respite from the efforts that have been done to stimulate the economy for consumers (Tokic, 2020). Additionally, the pent-up demand for weddings, in addition to the expanding product ranges of 24k Hard Gold and Heritage Gold jewelry, may provide additional assistance. This demand has been building up for some time (Hannah, 2017). According to the results of a survey that is carried out by the People's Bank of China every quarter, the percentage of local households that have the intention to save money hit its highest point on record in the second quarter of this year. This was ascribed to the challenging weather conditions, which prompted families to put money away for emergency preparedness (Keys, 2012).

In India, Strong sales during weddings and festivals were a contributing factor in the large increase in demand for jewelry that occurred during the second quarter of the year. The relatively dismal performance of the second quarter of 2021 contributed significantly to the year-over-year increase in demand for the second quarter of 2018. This is even though demand in the most recent quarter was robust from a more long-term viewpoint and was 6% higher than the average quarterly volume over the previous five years, which was 132t. In addition, the fact that the second quarter of 2018 was the most recent quarter contributed to the year-over-year increase in demand for that period. Even though demand was lower in the first quarter of the year compared to the second quarter, total demand for the first half of the

year reached 234t, which was 6% higher than the same period last year. Even though the second quarter was the most successful of the four, this was the outcome. Demand was driven higher as a result of multiple factors, including increased sales during Akshaya Tritiya in May and wedding purchases made during the traditional wedding season, which occurs throughout the second quarter. As a consequence of the interaction of these factors, there was an increase in demand. The timely decline in the price of gold from its peak in April, when it was at its lowest point, also provided a positive contribution to the bigger picture as a whole.

This decline occurred when the price of gold was at its lowest point. Even though demand remained robust throughout the entirety of the second quarter, there were roadblocks presented by the macroeconomic environment. These roadblocks consisted of a weakened currency, rising inflation, and higher interest rates. The rise in demand has occurred at the same time that there has been a general recovery of economic activity in these regions to the levels that were witnessed before the pandemic (Tokic, 2020). Urban dwellers of India have been the primary factor behind the growth in demand that has been observed. There has not yet been a complete reversal of the effects that COVID had on demand during this quarter, and demand has not yet fully recovered from those effects. On the other hand, rural consumers have seen a major decrease in their purchasing power as a direct result of growing inflation as well as higher interest rates attached to agricultural loans. (Grossman, 2014).

Even though jewelry made of cheaper 18-karat and 14-karat gold gained market share, particularly among younger buyers, jewelry made of plain 22-karat gold continued to dominate the market. This was especially true in the case of the plain gold category. This was especially true regarding jewelry made of plain gold. The prediction for the remaining months of this year is surrounded by a certain amount of ambiguity at the moment. Even though demand for weddings and festivals ought to be a positive factor in the fourth quarter, demand will face obstacles due to the depreciation of the rupee, greater inflation, and an increase in the import duty on gold. These three factors are likely to have an adverse effect. When taken together, these factors will increase the cost of purchasing gold.

In contrast to Türkiye, where it continued to be subdued, the demand for jewelry in the Middle East strengthened its comeback to the levels that were typical before COVID. The amount of gold jewelry purchased by Turks fell by 9% compared to the previous year, reaching 7 metric tonnes. Even though it has been relatively stable over the course of the last three quarters, demand is still at an all-time low. The decline in the value of the local currency has led to volatility in the price of gold while growing inflation has led to a reduction in consumers' discretionary income. In contrast to assets that are considered safe havens, the demand for 22k gold, which has relatively low production costs, has remained relatively stable. During the second quarter, the Middle Eastern markets generally increased year over year. Growing oil prices in the region contributed to a rise in demand by contributing to an increase in consumer confidence as well as rising income levels. The United Arab Emirates (UAE) continued to profit from an increase in tourists that was practically on par with the average (Chen, 2022). Despite having a low base from the second quarter of 21, Iran was able to increase its demand from the previous year to the current year during the second quarter. Egypt stood out as an anomaly because local gold prices increased at a quick pace while at the same time, the value of the country's currency declined, and demand decreased by 3% year over year. (Grossman, 2014).

The demand for gold jewelry among customers in the United States shows no sign of slowing down, although there is a chance that consumer interest may be beginning to wane. In the second quarter, demand climbed by 2% to a total of 38 metric tonnes, which is much more than the 33 metric tonnes that have been the quarterly average over the previous five years. There are early indications that the end of federal income support may have taken the wind out of the sails of the more affordable, lower-carat end of the market. Although demand has continued to be supported by the return to a more normal year for weddings, there are early indications that this may have occurred. It is possible that this transpired as a result of the increasing level of rivalry in this particular sector of the industry. The demand for jewelry in Europe hit 15 tonnes during the second quarter, which was the highest level observed since 2016 and the highest level recorded since 2016. The demand rose by a corresponding 15%, which brought the total to 26t and indicated a recovery to levels seen before the pandemic. The year-over-year increase of 14% was a contributor to the corresponding increase in

demand, which rose by 15%. When compared to the second quarter of the previous year, the majority of the growth may be attributed to an increase in the number of weddings, as well as a healthier economic condition, particularly about lockdowns. Nonetheless, there was a reported softening in demand towards the end of the quarter, which suggests that momentum could begin to slow down. This suggests that the momentum could begin to slow down. This transpired at the same time that the cost-of-living crisis started to take hold (Hannah, 2017).

Indonesia's use of jewelry went down in the first quarter, but in the second quarter, it went up by 18% year over year to reach 5t. As consumer confidence grew, the economy got better, and the rupiah's value went up, demand went up (some bought gold due to concerns about a further and heavier drop in the currency). For the sixth straight quarter, the amount of jewelry bought in Thailand went up by 10%, to 2t. Even though demand has been slowly rising since the start of 2021, it is still much lower than it was before the epidemic. The end of COVID, the economy getting better, and more tourists have all helped jewelry sales. Fears about inflation and the baht's currency have also made people more interested in gold as a way to save money. As gold stores started to restock in response to the continuing rise in demand, more jewelry was made than was bought.

The amount of jewelry Vietnam bought in the second quarter was 4t, which was 28% more than the same time last year. The local economy was growing, the price of gold was going down, and wages were going up because many businesses ended short-term wage cuts. The $15 billion government stimulus program has boosted the economy and made people feel better about spending. It is important to remember that the slow sales of jewelry in the second quarter are often caused by the effects of the Vietnamese New Year (Hannah, 2017). Over the last year, the demand for jewelry in Singapore went up by 43%, to 2t. Because the economy is getting better and many COVID restrictions were lifted at the last minute, demand has gone up. The amount of jewelry that Malaysians buy each year went up by 35%, to 3t. Jewelry sales went up a lot because all of the pandemic control measures were taken off, international travel began in April, and last year's sales were lower because of Malaysia's Moving Control Orders. Festival shopping was also good for the second quarter (Hannah, 2017).

For the second quarter in a row, Japan's demand for gold jewelry went up by 5% compared to the same time last year. Demand is still low at 4t, but Q2 growth was clear because the price of gold in the country is going up. But the rest of the year could be hard because of rising inflation. South Korea bought 8% less jewelry in the second quarter of this year compared to the same time last year. This is the same as 4t. When the economy was bad and gold prices were high, people were more careful about what they bought (Keys, 2012).

The amount of jewelry that was purchased in Australia increased by 8% year on year to reach 3t. The increased cost of living is having a depressing effect on consumer demand. Even though more people are making purchases, the increase of demand for jewelry is rising at a slower rate (Grossman, 2014).

3.2 Gold Trade Across World Markets

The environment of the wholesale gold trade is exceedingly complicated and constantly changing. The Shanghai Gold Exchange, the US futures market, and the London OTC market are the three most significant gold trading hubs. More than 90% of all trading volume occurs on these markets, which are further backed by several smaller secondary market hubs (both OTC and exchange-traded). The results in Figure 4 (Rodoplu & Elitaş, 2018) show the daily nominal gold price in dollars and millions.

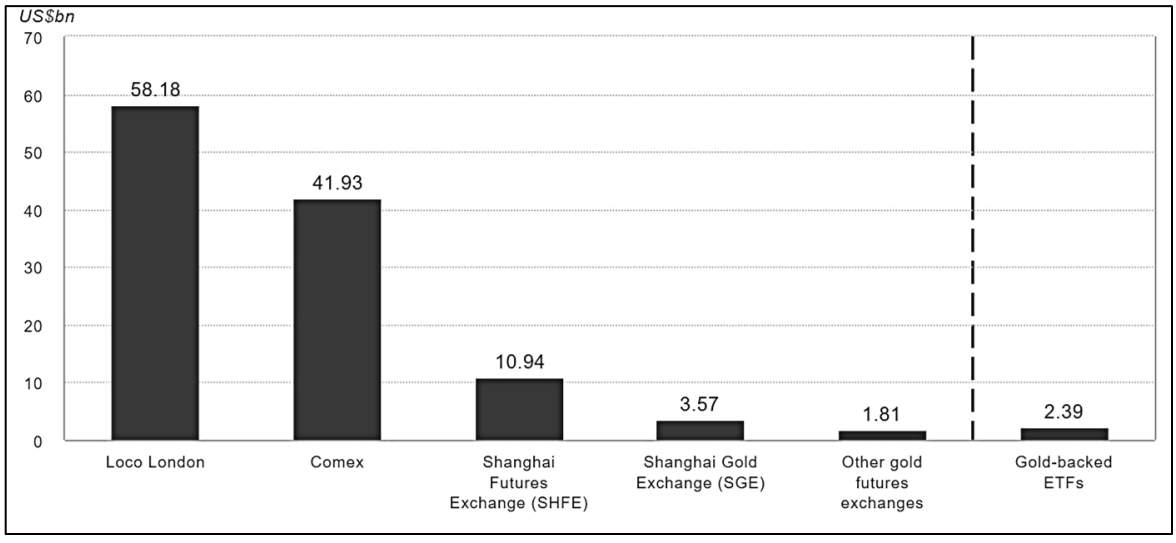


Figure 4. Daily National Gold Volumes in USD Dollar

Source: Bloomberg

3.2.1 The London Market

According to the data the researcher has, the London Over-the-Counter (OTC) market, which has been the center of the global gold trade for a long time, is now responsible for about 70% of the total notional trading volume. The London market, which is known for bringing in traders from all over the world, is where the LBMA Gold Price is set. This price is used as the global standard for gold twice a day. Only the London market trades 400-ounce "Good Delivery" bars, which are kept in the vaults of the Bank of England and other London Precious Metals Clearing Limited members. These bars can only be sold on the London market. London is often called the "terminal market" because of its vaulting system, which is one of a kind and includes a chain of custody that is carefully kept and holds a lot of gold. This is because there is so much gold in London. The London stock exchange benefits from being in a time zone that lets it trade during both Asian and American trading hours. It is also a major center for financial services around the world. Even though the London market is the most important, it has been losing business to other markets around the world. In 2015, banks that actively traded on the market stopped reporting forward offering rates, which were used to build the market's forward curve. This is one sign that the market is getting more and more divided. In response to these worries, a group of powerful businesspeople, the London Metal Exchange, and the World Gold Council got together to make LME precious. The main goal of this group of exchange-traded contracts is to make the gold trading market more modern and help it work better (Rodoplu & Elitaş, 2018).

3.2.2 The US Futures Market (COMEX)

Despite London's preeminent position in the physical market, the COMEX derivatives exchange has emerged as an increasingly significant venue in the process of driving price discovery. This is because the CME Group controls a large majority of the global derivatives market. This is a result of the fact that CME Group is in charge of managing COMEX. The so-called "active month," which refers to the contract with the earliest feasible expiration date, is the focal point of the vast bulk of the trading activity that takes place on the COMEX exchange. This "active month" serves as a substitute for the current spot price. The market is inextricably linked to physical markets using a very active Exchange for Physical (EFP)

market. Even though only a small percentage of contracts ever settle into the delivery of bars into COMEX vaults, the market is linked inextricably to physical markets. This market is also referred to as an over-the-counter market, or OTC for short. It is essential to take into account the fact that the share of COMEX volume that takes place during Asian market hours has been consistently increasing over the past few years. This is a direct consequence of the exchange's previous success in capitalizing on the growing market in Asia (Rodoplu & Elitaş, 2018).

3.2.3 The Chinese Market (SGE & SHFE)

The Shanghai Gold Market is the largest spot exchange in the world that focuses solely on the trading of physical commodities. The Shanghai Gold Exchange (SGE), a company that was founded in 2002 and is closely regulated by the People's Bank of China, has quickly become well-known in line with China's rapidly growing significance in the gold market (Liu, 2023). The People's Bank of China is the organization that oversees The Shanghai Gold Exchange. The People's Bank of China is the principal regulatory body that oversees the corporation. The Shanghai Gold Exchange initiated the Shanghai Gold Price benchmark in 2016, with the objectives of strengthening China's position as a price-setter, advancing the internationalization of the RMB, and increasing foreign investment in the Chinese market (Lu, 2022). All of these objectives were accomplished. It should be emphasized that even though the two exchanges are not physically connected, the extremely active futures trading on Shanghai Futures Market complements the spot and delayed contracts on SGE. This is something that needs to be emphasized. Because of its significance, this point needs to be driven home repeatedly.

3.2.4 Secondary Market Centers

Many people consider Dubai, India, Japan, Singapore, and Hong Kong to be some of the most important financial centers and markets in the world. This is because these countries are home to large economies with developed financial sectors. Although there are exchanges in each of these markets that offer a diverse selection of spot trading facilities or listed contracts, these exchanges have not been able to attract the same amount of liquidity that can be found on the market's primary venues. This is because these exchanges do not offer the

same level of accessibility. Despite this, these markets serve a vital purpose since they either serve as centers for regional trade or they satisfy the requirements of local demand to varied degrees. For a good number of years, Hong Kong has served as a port of entry into the Chinese market. On the other hand, Singapore is rapidly emerging as one of the most significant focal points for commercial activity within the ASEAN region.

4. GOLD AS AN INVESTMENT TOOL

When times are tough economically or when global events such as the Russia-Ukraine War throw the markets into a loop, investors will often seek refuge in gold as a haven investment option. As a haven against both rising inflation and decreasing stock prices, gold is becoming increasingly attractive to investors. Gold's many positive qualities make it an appealing alternative to more traditional investments such as stocks and bonds. Gold's many positive qualities make it an attractive investment. Although it does not provide any revenue, gold is considered to be a secure investment. Gold is considered by some as a hedge against inflation because the Federal Reserve's stimulus initiatives, such as near-zero interest rates and government expenditure, have caused prices to skyrocket. In this article, the researcher will investigate the risks that are connected with five different ownership options for gold (Grossman, 2014).

4.1 Gold Bullion and ETFs

Buying gold in the form of coins or bars can be one of the more emotionally fulfilling ways to accomplish this goal. An individual will feel a sense of fulfillment from seeing it and being able to touch it, but possessing more than a minute amount comes with several significant negatives. One of the most significant disadvantages is the requirement to safeguard and insure actual gold. The only way for buyers of physical gold to come out ahead is if there is a significant increase in the asset's price. A corporation, such as a gold mining firm, as opposed to individual business owners, is capable of producing more gold and, as a consequence, more profit, hence increasing the amount invested in that particular business.

If the individual works with a local dealer or collector, they may be able to purchase gold bullion. There are further opportunities available online, such as APMEX and JM Bullion. Gold can be purchased at pawn shops or other similar establishments. During the time that

an individual is making purchases, it is important to keep an eye on the spot price for gold. The spot price for gold is the price per ounce that is currently being offered on the market. If an individual wish to avoid paying more for a coin's collector value than its actual gold content, an individual might find it more profitable to trade in bars rather than coins. This list features nine of the most valuable coins in the world (although they may not all be made of gold). The risks behind that could be that If an individual is not able to keep their belongings safe, the most significant risk is that someone will physically take their gold from them.

When an individual is forced to sell their gold, they face the second-largest risk of all. When an individual needs money quickly and they have coins in their possession, it can be tough to receive the full market value for what they own, especially if the coins are rare. Because of this, an individual might find that they have little choice but to sell their assets for a significantly lower price than what they would typically fetch on the open market (Grossman, 2014). If one does not want the trouble of owning actual gold or dealing with the quick pace and margin requirements of the futures market, one can consider purchasing an exchange-traded fund (ETF) that follows the commodity instead.

If one does not want to deal with either of those things, this is a fantastic solution for them to consider. Three of the most well-known ETFs that invest in gold are the SPDR Gold Shares (GLD), the iShares Gold Trust (IAU), and the Aberdeen Standard Physical Gold Shares ETF (SGOL). These types of ETFs, which seek to imitate the price performance of gold while keeping the ETF's annual expense ratio to a minimum, have as their primary purpose to achieve the former. The expense ratios for the funds stated above are merely 0.4 percent, 0.25 percent, and 0.17 percent, respectively, as of October 2022. Having an ETF rather than bullion has the additional substantial advantage of being able to be changed into cash at a price that is established by the market more quickly and easily. One can trade the fund on any day when the market is open, just like they would sell a stock, and the transaction will take place at the price that is now in effect. Because of this, gold exchange-traded funds are more liquid than physical gold, and one can trade them without ever having to leave the comfort of their own home.

One can also gain exposure to the price of gold through the use of ETFs. This means that regardless of whether the price of gold goes up or down, the fund should perform comparably, once again minus the cost of the fund itself. Gold, much like equities, goes through times when its price is extremely unpredictable. Investing in these exchange-traded funds, on the other hand, enables individuals to avoid two of the most significant risks associated with owning the actual commodity. These risks are the possibility that the value of their holdings will decrease, as well as the possibility that their gold will be stolen.

Investing in the mining companies that produce the gold is another option to capitalize on rising metal prices and turn a profit. Given that there are two different avenues via which investors can make money off of gold, this could very well be the greatest choice. To begin, an increase in the price of gold results in an increase in the miner's profits. The miner can create a double-whammy effect by progressively boosting production over time. Nevertheless, before putting money into any particular stock, individuals should conduct in-depth research on the market. Because there are a lot of highly unsafe miners out there, they need to exercise caution when picking a market participant to work with. It is in everyone's best interest to steer clear of small miners and mines that are not yet producing as much as is technically possible.

In conclusion, it is possible for mining stocks to experience price fluctuations, just like other types of equity. If the idea is to limit the amount of information individuals obtain for specific gold companies, therefore, investing in an ETF might be a very smart move. Additionally, individuals can gain exposure to the industry's most significant gold miners by investing in exchange-traded funds that focus on gold mining. Individuals will not be adversely affected to a significant degree by the bad performance of any individual miner because these monies are evenly spread across the industry as a whole. The iShares MSCI Global Gold Miners ETF, the VanEck Vectors Gold Miners ETF (GDX), and the VanEck Vectors Junior Gold Miners ETF (GDXJ) are three of the most prominent ETFs operating in this industry (RING). As of the month of October 2022, the cost ratios for the three funds are as follows: 0.51 percent, 0.52 percent, and 0.39 percent, respectively. These funds give investors the peace of mind that comes with diversification while also allowing them to benefit from the ownership

of individual miners. The risk behind that could be the diversified ETF will not shelter individuals from anything that affects the entire industry, such as persistently low gold prices, but it will protect them from any one firm performing poorly if it fails to meet its investment objectives. When individuals choose where to put their money, they shall keep in mind that not all funds are created equal in terms of their potential returns. Although junior miners have a lower risk than senior miners, several funds choose to invest in junior miners.

4.2 Risks, Expenses, And Profits

Putting money into gold is a practice that is extremely typical among Indians; nonetheless, a substantial number of folks frequently fail to comprehend the numerous reasons why gold is not the lone suitable investment alternative. In the most recent few years, gold has failed to provide investors with good returns and may even have provided investors with negative returns. Although there is always some degree of hazard connected with investment, gold has not exhibited any very compelling advantages that make it an especially smart choice. During the financial crisis created by Lehman Brothers, when investors were selling their shares and buying gold, it was shown that it does provide profits. Gold is only relied on by investors when there is a great deal of unpredictability in the business sector all over the world. However, they do dump it the very moment the economy recovers, and this can be seen in the current situation as well since this is exactly the condition that is prevailing today: the conditions that are prevailing now are the same as those that were prevailing before. Gold is a market that a person can invest in, based on their necessity. However, the price of yellow metal is controlled by the demand on the worldwide bullion market as well as changes in that market (Estrella, 2020).

Several business professionals explain that it is not suggested to buy gold jewelry as an investment. When individuals purchase jewelry from the jeweler, they are also liable for paying the making charges and the wastage charges. Based on the design of the jewelry, the production expenses can increase by up to 22 carats. Excellent gold is utilized in producing jewelry and when it is sold, the jeweler does not regard the production charge or wastage (Estrella, 2020). Gold ETFs may be a little more expensive than genuine gold because of the inclusion of management fees paid by the specific fund house. Also, one can be subject to

brokerage, which could increase the price of a unit of the ETF. Gold Coin\Investing money in gold coins and bars is yet another loss because every time an individual sells from it they will get a lesser amount. Moreover, banks do not buy back the gold bars and coins once it is sold. Gold is an asset that fails to provide any regular income, on the other hand, investments made in mutual funds, real estate, and shares would offer individuals dividends and rentals. A lot of investors do not grasp the fact that Indian gold prices are prone to shift based on the international market. Any big fluctuations abroad will influence Indian prices as well. The dollar exerts a crucial effect on gold pricing (Estrella, 2020). Indians have a strong affinity with ornamentation, yet in necessity, these sentiments operate as a hindrance. This fails the basic aim of buying gold to use it during times of uncertainty (Hetland, 2018). Every time an individual possesses a valuable amount of gold, preserving it safe is always a concern. Keeping jewelry and coins in a bank locker is not convenient. Additionally, one needs to pay locker maintenance charges each year. If one opts for bank deposits one obtains the recent returns based on the tenure.

5. INTERNATIONAL TRADE IN GOLD

The London Bullion Market Association (LBMA) and its member bullion banks have chosen not to release trading data for the London Gold Market. The London Gold Market operates exclusively through private, off-the-record deals. Only a survey of the London market conducted in 2011 by the London Bullion Market Association (LBMA) may be considered current statistics on trade. That poll was conducted to show the Basel Committee on Banking Supervision that gold is a liquid asset.

Trading data for spot, forwards, and other transactions were collected during the first quarter of 2011 for this survey (which was only open to LBMA members and only replied to by a subset of members) (such as options and commodity-related swaps). However, no information about gold holdings or lending was gathered in the poll. Three-sixths of the LBMA's active gold traders (all spot and forward market makers) responded to the survey, and the information they supplied included not just transactions with fellow LBMA members but also those with non-members. Although taking part in the poll was entirely voluntary, 36 of 56 members who were actively involved in gold trading did so. The survey revealed that

during the first three months of 2011, there were 385,000 trades involving 10.9 billion ounces of gold. In dollar terms, that is equal to $15.1 trillion. Nearly 90% of all market activity involved spot gold trades, with the remaining 10% split between forwards and other transactions. This amounts to an average daily trading volume of 6,100 trades, with a value of 241 billion dollars and 173 million ounces.

Even while the London Bullion Market Association (LBMA) publishes the monthly clearing volumes, the LBMA does not publicize the amounts of London traded. Transaction quantities that have been cleared are referred to as clearing volumes. In the first three months of 2011, 1.18 billion ounces of gold were cleared, which means that trade turnover was ten times as high as clearing turnover. As a result, the London Gold Market's trading volumes can be roughly estimated using the LBMA liquidity survey's 2011 data and the reverse engineering method for the LBMA clearing volumes (Hannah, 2017).

5.1 New Price Record Due To The Russia-Ukraine Conflict

Since February, the crisis that is currently taking place between Russia and Ukraine has been going on, but the financial markets have paid very little attention to it. Even though the markets have become more volatile since the Russian military entered Ukraine, the rise in US stocks in the early days of the war was more due to US monetary policy than Russian military policy. This is true even though the Russian military has entered Ukraine. It has been demonstrated throughout history that geopolitical crises do not often have any long-term ramifications for investors, and the first reaction of the markets to the war is consistent with this historical finding. Recent evidence, on the other hand, suggests that the war and the sanctions that it prompted are having increasingly disastrous effects on the economy (Grossman, 2014).

The United States is less sensitive to the repercussions of the conflict in Ukraine than Europe because it has a robust domestic economy and the ability to meet its energy demands independently of imports. Even if the United States can avoid recession while Europe is not, investors in the United States may experience additional volatility in the months ahead due to the global nature of financial markets. This may be the case even if Europe remains in recession. Because the economy of the European Union is larger than that of the United

States, a significant number of publicly traded American companies derive a significant portion of their revenue from customers in the European Union. If customers restrict their spending owing to fears of job loss during a recession, investors in the United States may observe a decline in the profits of businesses as well as a decline in the prices of stocks. According to David Bridges, a geopolitical risk analyst at Fidelity, investors should not dismiss the possibility that the conflict will lead to further volatility in the months ahead. Bridges suggest that investors not dismiss the possibility.

This is the beginning of a new ice age. This debate has several different possible outcomes and will not be resolved anytime soon. He cautions that as time goes on, information on the situation in Ukraine will become scarcer, adding to the growing sense that things are becoming increasingly unpredictable. It is not just the military situation that is unclear; the effects of Western sanctions on Russia are also unclear, and there is always the possibility that U.S. politicians will drag the country into a fight that it would be better off avoiding. The military situation is not the only unclear thing; the effects of Western sanctions on Russia are also unclear (Estrella, 2020).

5.2 Brics Agreement On Gold Mining And Pricing

During the BRICS meeting that took place in Johannesburg, China National Gold and Sun Gold of India announced that they would be starting a joint gold mining venture in the Siberian region of Russia. China National Gold, a major player in the global gold market, and Sun Gold came to an agreement in 2016 that stipulated the former would sell the latter a 70% stake in the Kluchevskoye gold deposit project. In exchange, the Chinese gold business would contribute its experience in the field of development. The transaction, however, was held up by several circumstances, including the difficulties Russia experiences with its bureaucracy (Keys, 2012).

The partners indicated in their statement that China National Gold is anticipated to be the project's primary stakeholder following the Duma, the lower house of parliament in Russia, providing its final permission, and that an investment in pre-production of up to $500 million is envisioned. China National Gold is a state-owned gold mining company in China. Thursday was the day that, according to the public records kept by the Duma, the decision to

adopt the initiative was made. Open-pit mining of the Kluchevskoye deposit is anticipated to yield 6.5 tonnes of gold per year, as stated by the partners. It was not specified when the first gold was expected to be produced but it was anticipated shortly (Hannah, 2017).

As a direct result of the sanctions imposed on it after the invasion of Crimea in 2014, Russia has increased the amount of work it puts into expanding its gold reserves over time. At the moment, the Russian central bank has almost 150,000 gold bars, which have a combined value of approximately USD 140 billion. The quantity of gold that Russia possesses presently places it sixth among all countries in the globe. A significant portion of Russia's rising stockpile can be attributed to the country's high domestic production. It produces 330 tonnes of gold per year, which has a worth of over USD 20 billion, making it the third-largest gold producer in the world. After going through the refining process, the gold is subsequently presented to commercial banks before being routinely exchanged on the international market. In 2021, Russia exported gold to a value of USD 15,2 billion, while Switzerland and Türkiye were supplemental importers of this commodity. In addition, there are allegations that Russia engages in the unethical importation of gold from countries such as Sudan. The argument that Russia is complicit in the gold trade in Africa, which contributes to unrest on the continent, is getting more and more plausible as time goes on (Hannah, 2017).

5.3 Moving The Stock Base From London To Russia

Trading in 27 companies with ties to Russia has been halted by the London Stock Exchange. These companies include Sberbank, which is Russia's largest financial institution, and Gazprom, which is a massive energy company. Lukoil, Polyus, and EN+ are just a few of the businesses that are prohibited from operating legally within the city limits of London. Trading was halted at the VTB subsidiary, which is the nation's second-largest bank, on Friday of last week. According to David Schwimmer, the Chief Executive Officer of the London Stock Exchange, the FTSE Russell index company has removed Russian listings from its indexes, and the London Stock Exchange has restricted trading in twenty-seven different equities that are listed in Russia (Rush, 1985).

Individuals are currently engaged in productive collaboration with various regulatory bodies across the board to bring about the aforementioned effects. Rush (1985) states that the

company, World-Check, is constantly and diligently updating the database with new information as newly sanctioned individuals are added to it. Since the invasion of Ukraine and the subsequent catastrophic economic sanctions imposed on the country's businesses, institutions, and inhabitants by the United States and its Western allies, the share prices of Russian companies that are listed on the London Stock Exchange have dropped significantly. When the suspension was finally announced on Thursday, the previous day, the value of Russia's stocks that were traded on the London Stock Exchange had nearly all disappeared. As of the trading on Wednesday, Sberbank had a year-to-date loss of 99.72%, while Gazprom, Lukoil, Polyus, Rosneft, and EN+ each had losses of 93.71%, 99.2%, 95.58%, and 99.2%, respectively. Over the course of the past week, Russia has increased the intensity of its attacks on Ukraine, laying siege to several key cities while meeting fierce opposition from the Ukrainian side (Hwang, 2019).

On Thursday, there were explosions reported in the city of Kyiv, which serves as the capital of Ukraine, as the current conflict entered its second week. In addition, Russian forces went into the key city of Kherson, which is located on a port. On Wednesday, the cities of Kharkiv and Maripol were also subjected to heavy shelling. The growing collection of measures that virtually forbid Western investors from conducting business with the Central Bank of Russia has had the effect of effectively freezing several assets, including the sizeable foreign exchange reserves held by the Central Bank of Russia. These reserves have been utilized by the CBR to compensate for decreases in the value of local assets. Despite the London Stock Exchange's (LSE) claim in its results report on Thursday that its operations in Russia and Ukraine only account for less than 1% of its total revenues, London has long been the preferred offshore trading hub for Russian oligarchs and businesses. This is the case even though the LSE stated that its operations in Russia and Ukraine only account for less than 1% of its total revenues. As a result of the decision made by the national central bank to prohibit trading in both futures and stocks, the majority of the nation's stock market remained closed on Thursday. Domestic markets in Russia have been negatively affected as well.

The London Stock Exchange announced in response to the MSCI's decision to exclude Russian companies from its carefully watched global indices. This decision was made by

MSCI as part of an effort by Western financial institutions to further restrict capital flows to Moscow (Rush, 1985). The company that does benchmark moved the MSCI Russia indexes out of the "Emerging Markets" category and into the "Standalone Markets" category. According to the organization that does the benchmarking, this decision will have the effect of removing Russian assets from MSCI's indices beginning the following Wednesday at a cost "that is effectively nothing". The vast majority of institutional investors] admitted that the Russian equity market is currently uninvestable," said a statement that was released by MSCI late on Wednesday. According to the MSCI Market Classification Framework, the accessibility of the Russian equity market to foreign institutional investors has recently deteriorated to the point where it is no longer in compliance with the market accessibility requirements for emerging markets classification. This is the case because the Russian equity market no longer meets these requirements. Before the market opens on Monday, the FTSE Russell, which is owned by the LSE, will remove companies that are based in Russia from its indices (Estrella, 2020).

An internet resource called TradeMap offers insightful data about international trade. TradeMap gives customers access to trade statistics, export and import patterns, and market analysis for a variety of items by exploiting the large amount of trade data available. TradeMap offers thorough data on the percentage of nations in both world exports and imports for this specific commodity. Users of TradeMap are able to investigate the complex nuances of international trade thanks to its extensive data and research. TradeMap aids informed decision-making and offers a better knowledge of global trade patterns by offering insights into the percentage of countries in both world exports and imports for goods. Accessing the TradeMap platform and making use of its capabilities can be quite advantageous for people and organizations trying to understand the complexities of the global trade environment.

The TradeMap database search on the state of global gold commerce for both imports and exports produced some insightful results. A very valuable commodity with a big role in international trade is gold. The TradeMap database offers comprehensive statistics on the contribution of various nations to global gold imports and exports. The statistics highlighted the top players in the international market for gold exports. Leading gold-producing nations

including China, Australia, Russia, and the US started to become important exporters. These nations have built mining operations to harvest and export this precious metal, and they also have sizable gold deposits. Due to their proficiency in gold artistry, nations with robust jewelry industries, such as India and Switzerland, also played a significant role in gold exports, see figure 5 and figure 6. The statistics revealed nations with a high demand for gold when looking at gold imports. Major importers include countries like India, China, the United States, and Switzerland. These nations have thriving jewelry markets, and both traditional and modern designs frequently feature gold. Additionally, as a part of their plan to diversify their reserve holdings, central banks from different nations actively import gold, which adds to the demand for this precious metal on a global scale. The data illustrated the interaction between nations that produce gold and those who have a strong demand for this precious metal. For companies operating in the gold sector, for decision-makers creating trade regulations, and for analysts researching global economic trends, understanding the dynamics of gold trading might be essential. The TradeMap database is a useful tool for examining and evaluating these trading patterns and provides insightful data on the world gold market. Table 4 shows the share percentages of both the imports and exports for the highest 15 ranked countries regarding the gold trade map in 2022.

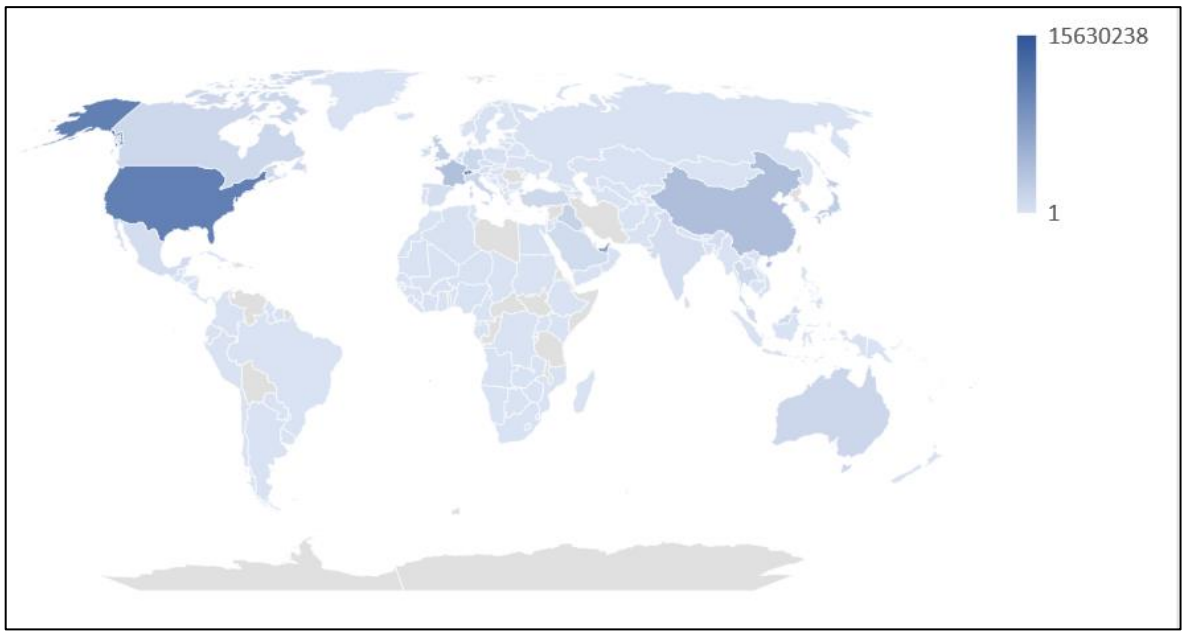


Figure 5. List of Importers for Selected Product in 2022. Product : 711319.
Source: Trademap

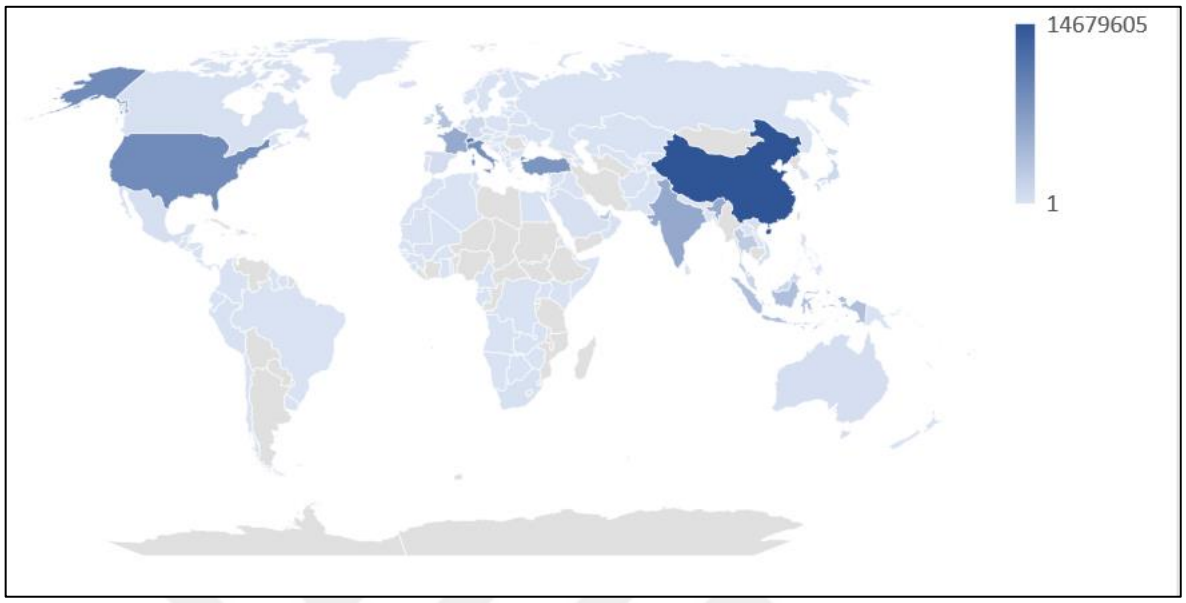


Figure 6. List of Exporters for Selected Product in 2022

Source: Trademap. Product : 711319 Articles of jewellery and parts thereof, of precious metal other than silver.

Table 4. Value Imported and Exported in 2022 by Country

Importers	**Value imported in 2022 (%)**	**Exporters**	**Value exported in 2022 (%)**
Hong Kong, China	18.85694101	China	14.71015446
USA	13.18133069	Switzerland	12.51976655
Switzerland	10.65784833	USA	9.049542728
UAE	8.587112668	Italy	8.661368584
Singapore	5.448134894	Hong Kong, China	8.503108916
China	4.882074552	Türkiye	8.043716869
France	4.52582736	India	5.964763382
Japan	2.744065393	France	5.897877476
United Kingdom	2.726166652	Indonesia	3.706759049
Qatar	2.107482613	Singapore	3.431032431
Iraq	2.06072342	United Kingdom	3.257359754
Italy	1.659235943	UAE	3.179136303
Macao, China	1.612633587	Thailand	2.342843524
Australia	1.593003605	Malaysia	1.3502281
Germany	1.497852905	Japan	1.046960285

Source: Trademap

6. GOLD TRADE IN TÜRKİYE

The significance of gold in Turkish culture is vast. In ancient Lydia, gold coins were first used by traders. They are still significant and developing for Türkiye's economy today. The country's rich cultural legacy, which places a strong emphasis on the use of gold in weddings and other religious ceremonies, contributes to Türkiye's yearning for the metal. In the jewelry industry, gold is utilized as a unit of account and a medium of trade. Rents are typically offered in gold in the Grand Bazaar, which is the center of the Turkish gold market. Owning gold is also strongly advantageous economically. For many years, Turkish savers have used gold as a reliable hedge against the effects of inflation and weakening currencies (Hwang, 2019). The organized gold trading platforms that are part of Türkiye's multi-market financial exchange venue, Borsa Istanbul, are the center of the country's gold market. While gold futures are traded on the Precious Metal Futures Market, physical spot gold is traded on the Precious Metals Market (PMM) of Borsa Istanbul (PMFM).

Following a series of legislative changes that started in 1989, the Turkish gold market had its first liberalization in 1993 (Rush, 1985). Only the Central Bank of the Republic of Türkiye (Türkiye Cumhuriyet Merkez Bankasi) was permitted to import gold before liberalization. One of the main goals of the liberalization of the gold market was to open up the global gold trade by enabling institutions other than the central bank to start importing gold. The Istanbul Gold Exchange, which opened its doors in July 1995 and offered spot and futures trading in gold, served as the PMM's forerunner. Beginning in 1995, the Turkish government permitted members of the Istanbul Gold Exchange to import gold. In 2011, palladium and silver trading started, and in 1999, trading in platinum and silver was added (Pesigan & Soriano, 2020).

Turkish Futures and Options Exchange (VOB), Istanbul Stock Exchange, and Istanbul Gold Exchange combined to become Borsa Istanbul AS (BIST). Following the merger, PMM members could import gold from Borsa Istanbul. Transferring the gold to the Borsa Istanbul vault within three days of arrival in Türkiye is one of the conditions for PMM members who import gold into Türkiye. This includes gold refineries recognized by the Dubai Multi Commodity Center, the Indian Bullion Market Association, and the London Bullion Market Association. After that, any domestic refineries that meet the PMM's requirements for

accreditation are added to the list of approved refineries that is kept by the PMM (Estrella, 2020). Figure 7 (World Gold Council 1978) illustrates gold prices and consumption.

Gold prices are determined by various factors, including supply and demand dynamics, economic conditions, geopolitical events, inflation rates, currency fluctuations, and investor sentiment. As a globally traded commodity, gold serves as a store of value and a safe haven asset during times of economic uncertainty. Monitoring average gold prices and end-of-period prices in major consumer countries can provide insights into trends, volatility, and market behavior. Changes in gold prices can impact various stakeholders, including consumers, investors, jewelry manufacturers, and central banks. For consumer countries like Türkiye, fluctuations in gold prices can have implications for domestic consumption, inflation rates, and the overall economic environment. Diversification of products (711319) imported and exported by Türkiye are clarified in Figure 8 (Trade Map, 2023).

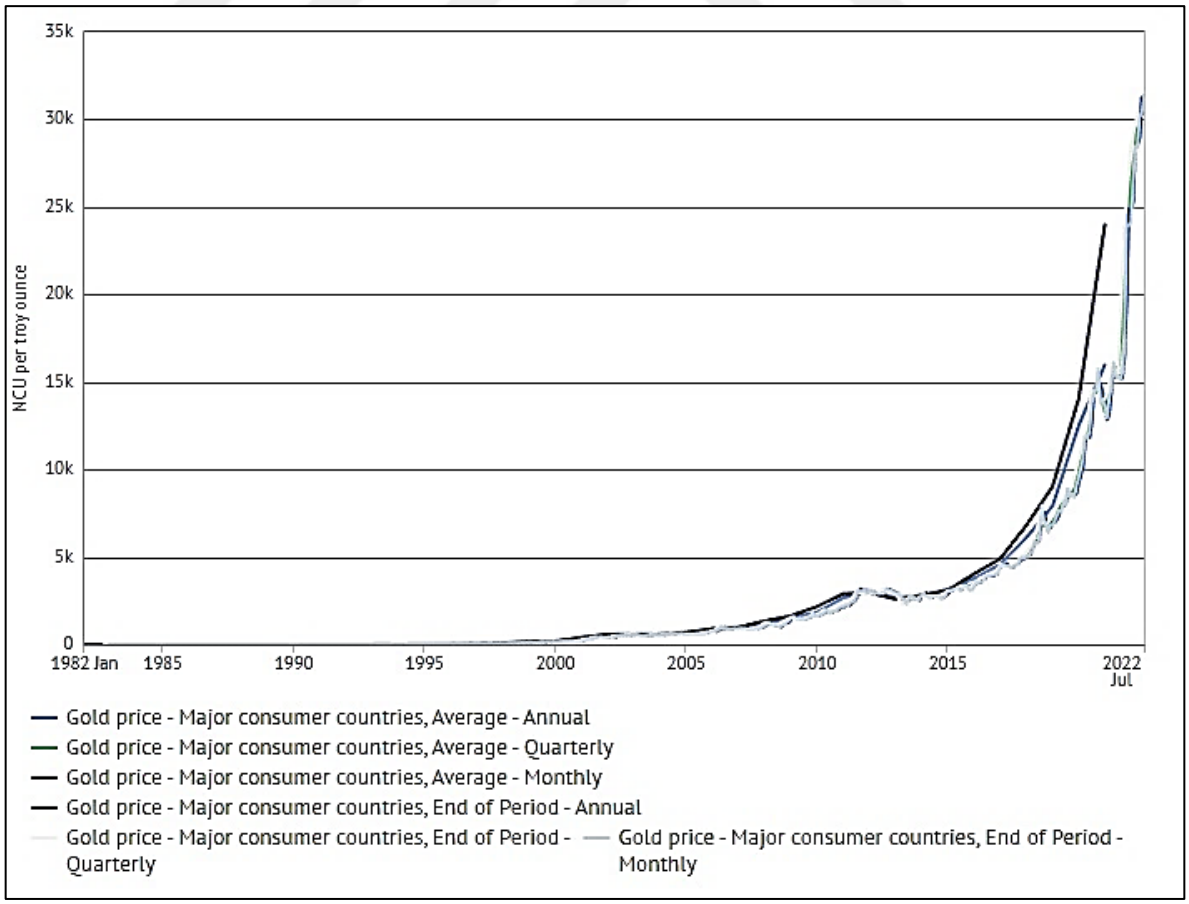


Figure 7. Gold Prices: 1982-2022
Source: World Gold Council. Updated at 8/22/2022.

In 2022, Türkiye imported gold products with HS code 711319 (Articles of jewellery and parts thereof, of precious metal other than silver) from a range of supplying markets. The list of exporters and their respective value imported highlights the significant contributors to Türkiye's gold imports, see Figure 9. Italy emerged as the largest supplier, accounting for 44.34% of the total value imported. The United Arab Emirates (UAE) followed closely behind, with a share of 22.95%. India also played a substantial role, supplying 19.73% of the imported gold products. Switzerland, known for its expertise in the gold industry, contributed 2.95% to the total imports. China, France, and Thailand constituted smaller yet notable sources, with shares of 1.84%, 1.57%, and 1.30%, respectively. The remaining exporting countries, including Germany, the USA, Iran, Montenegro, Cyprus, Bulgaria, the United Kingdom, and Libya, State of, each contributed below 1% to Türkiye's gold imports in 2022. These diverse supplying markets indicate Türkiye's reliance on a global network of sources to fulfill its gold import demand. The distribution of imports among these countries reflects not only their own gold production capacities but also factors such as trade agreements, market competitiveness, and historical trade relationships. Understanding the origins of imported gold products can provide valuable insights into Türkiye's trade patterns and its position within the global gold market, see Table 5.

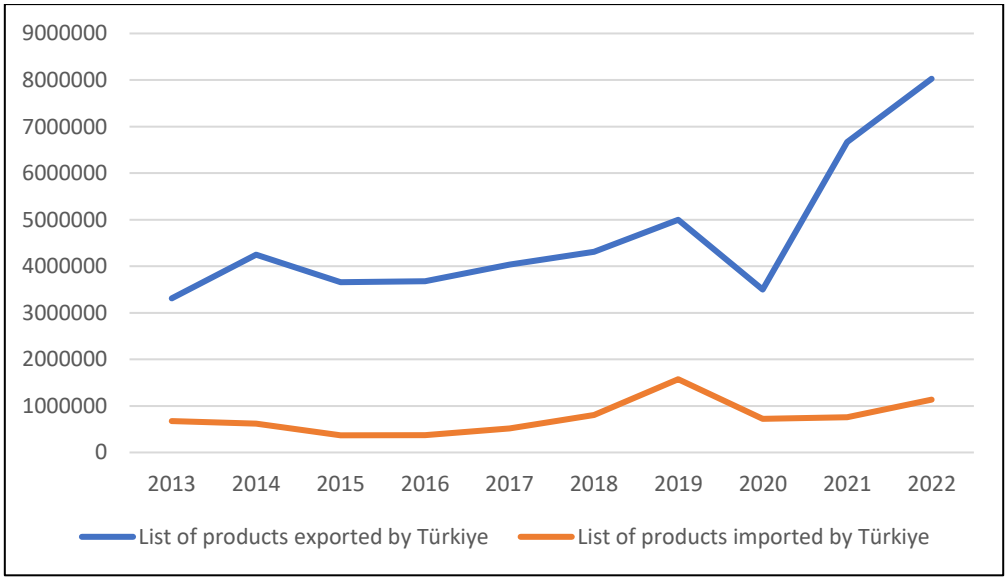


Figure 8. List of Products Exported and Imported by Türkiye.
Source: Trademap. Product : 711319 Articles of jewellery and parts thereof, of precious metal other than silver.

In 2022, Türkiye exported gold products with HS code 711319 to various supplying markets. The list of importers and their respective value exported demonstrates the significant destinations for Türkiye's gold exports, see Figure 10. The United Arab Emirates (UAE) stood out as the largest importer, receiving 22.96% of the total value exported. Iraq followed closely behind, with a share of 21.04%, highlighting its substantial demand for Turkish gold products. The United States accounted for 9.83% of the exports, while Hong Kong, China, and Libya, State of, constituted significant importers with shares of 6.44% and 4.69%, respectively.

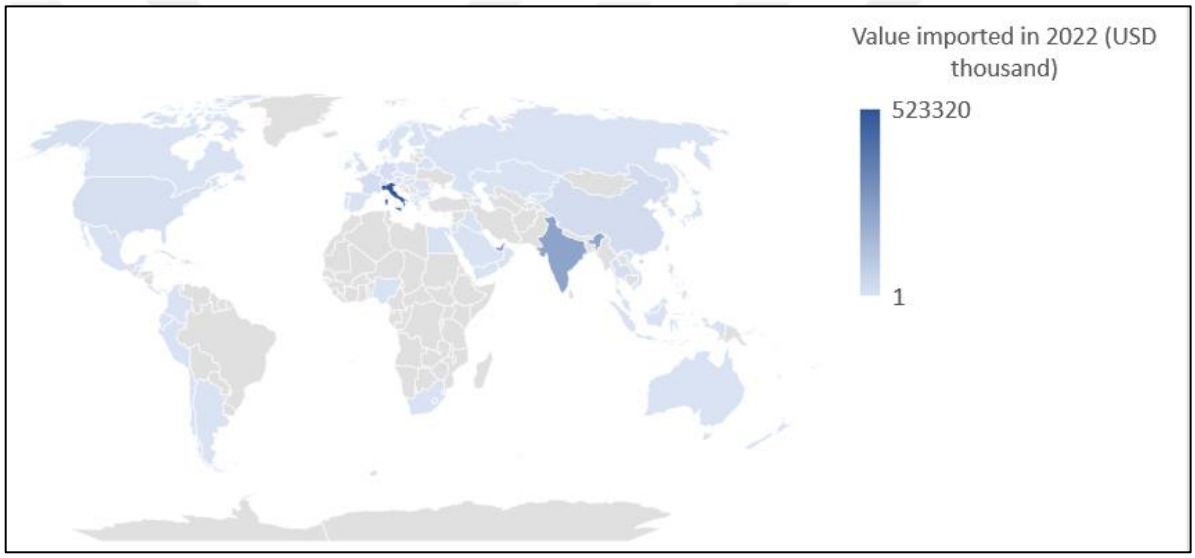


Figure 9. Gold Imports in 2022

Source: Trade Map, 2023

Other notable importers of Turkish gold products included Israel, Kyrgyzstan, and the Czech Republic, with shares of 3.40%, 3.35%, and 2.76% respectively. Egypt, Mexico, Lebanon, Germany, the Netherlands, and Romania also contributed to Türkiye's gold exports, each representing a share below 2% but still adding to the overall distribution. The diversification of supplying markets reflects Türkiye's ability to meet the gold demand of various countries worldwide. It showcases the country's position as a reliable exporter in the global gold market. The distribution of exports among these importers is influenced by factors such as economic relationships, market demand, and Türkiye's competitiveness in the gold industry. Understanding the destinations for Turkish gold products provides insights into the country's export patterns and its role as a significant player in the international gold trade, see Table 5.

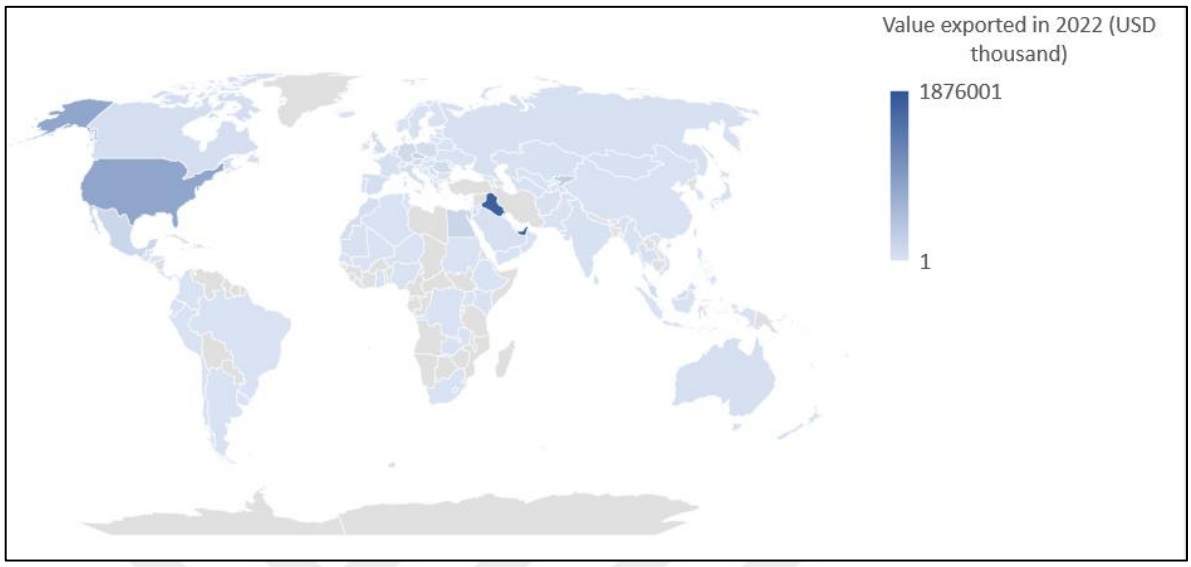


Figure 10. Gold Exports in 2022

Source: Trade Map, 2023

Table 5. Value Imported to Türkiye and Exported from Türkiye in 2022 by Country

Exporters	Value imported in 2022 (%)	Importers	Value exported in 2022 (%)
Italy	44.3438914	UAE	22.96223999
UAE	22.95015846	Iraq	21.03505302
India	19.72986256	USA	9.834039153
Switzerland	2.953802091	Hong Kong, China	6.438726164
China	1.844526921	Libya, State of	4.690255337
France	1.566339587	Israel	3.403109864
Thailand	1.301794702	Kyrgyzstan	3.347466854
Germany	1.113003542	Czech Republic	2.759225008
USA	1.060552138	Egypt	2.15447141
Iran	0.564594031	Mexico	1.98677126
Montenegro	0.318775738	Lebanon	1.707736129
Cyprus	0.283017269	Germany	1.417183164
Bulgaria	0.264544885	Netherlands	1.234782781
United Kingdom	0.187859068	Romania	1.112737806
Libya, State of	0.185655939	Austria	0.891573364

Source: Trade Map, 2023

The map provided, Türkiye exports 2021, offers insights into the share of partner countries in Türkiye's gold exports for the year 2021. The selected product, identified by the Harmonized System (HS) code 711319, represents gold. This information provides a

valuable perspective on the global distribution of Türkiye's gold exports and the countries that play a significant role in this trade. Examining the map, it becomes evident that Türkiye's gold exports have a diverse range of destination countries. The data visualized on the map highlights the varying levels of export shares among different partner countries. Some countries may have a higher share, indicating a stronger trade relationship, while others may have a lower share, suggesting a relatively smaller presence in Türkiye's gold export market. By analyzing the map, researchers and policymakers can gain insights into Türkiye's export patterns in the gold sector and identify key partner countries that contribute significantly to its export market. This information can be valuable for understanding trade dynamics, identifying potential growth opportunities, and formulating targeted trade policies to enhance bilateral trade relationships in the gold sector. It is important to note that for a more detailed and comprehensive analysis, it is recommended to refer directly to the map provided, as it contains specific data visualizations and interactive features that allow for a more in-depth exploration of Türkiye's gold export shares among partner countries in 2021.

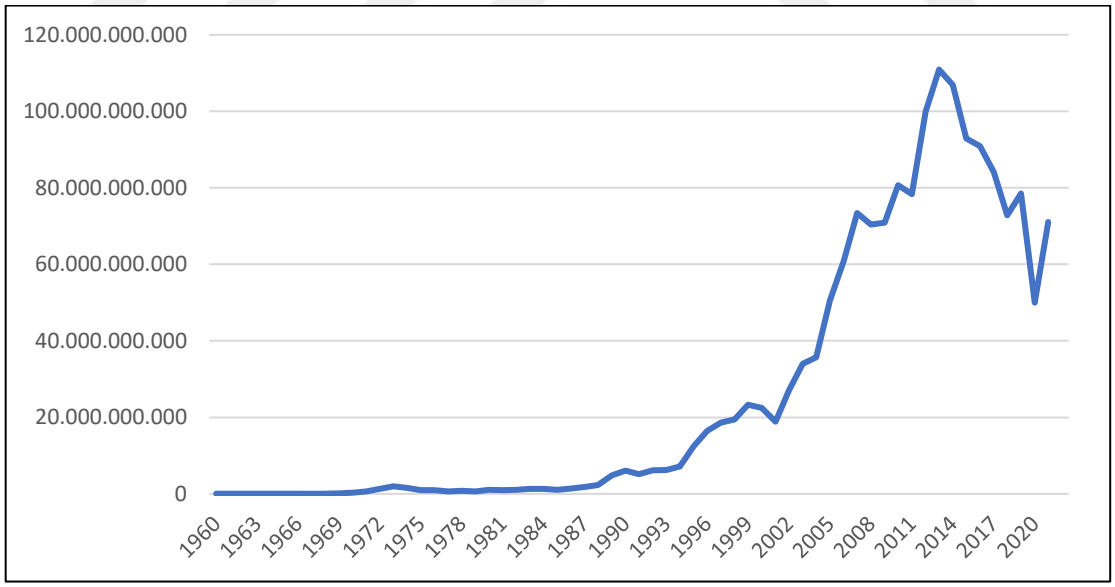


Figure 11. Total Reserves Minus Gold (USD Dollar)

Source: The World Bank

Total reserves typically refer to a country's holdings of foreign currencies, such as the US dollar, euro, or yen, and other liquid assets that can be used to support the national currency

and meet international payment obligations. These reserves play a crucial role in maintaining economic stability, supporting foreign trade, and managing financial crises. The exclusion of gold from total reserves provides insights into a country's holdings of foreign currencies and other liquid assets, excluding the value of gold reserves. This allows for a more focused analysis of a country's reserve position and its ability to address external payment requirements. Changes in total reserves minus gold can indicate fluctuations in a country's overall reserve position, reflecting factors such as international trade, capital flows, central bank interventions, and economic conditions.

The data provided by trademap for the list of supplying markets for gold imported by Türkiye from the top-ranked 15 countries in 2022 include the percentage changes in imported values from 2019 to 2022, offering insights into the evolving trends and dynamics in Türkiye's gold imports from these key trading partners, see Figure 12. Italy, a prominent supplying market, experienced a 5.56% increase in imported value from 2019 to 2020. However, it witnessed a significant decline of 32.95% in 2020. The trend swiftly reversed, resulting in a remarkable 96.16% increase in 2021 and a further 46.28% rise in 2022. These fluctuations indicate Italy's dynamic role as a significant supplier of gold to Türkiye. The United Arab Emirates (UAE) displayed substantial fluctuations in imported value. From 2019 to 2020, there was a notable decline of 40.21%. However, the trend reversed in subsequent years, with an impressive 89.93% increase in 2021 and a further 22.62% rise in 2022. These percentages signify the evolving nature of the UAE's contribution to Türkiye's gold imports.

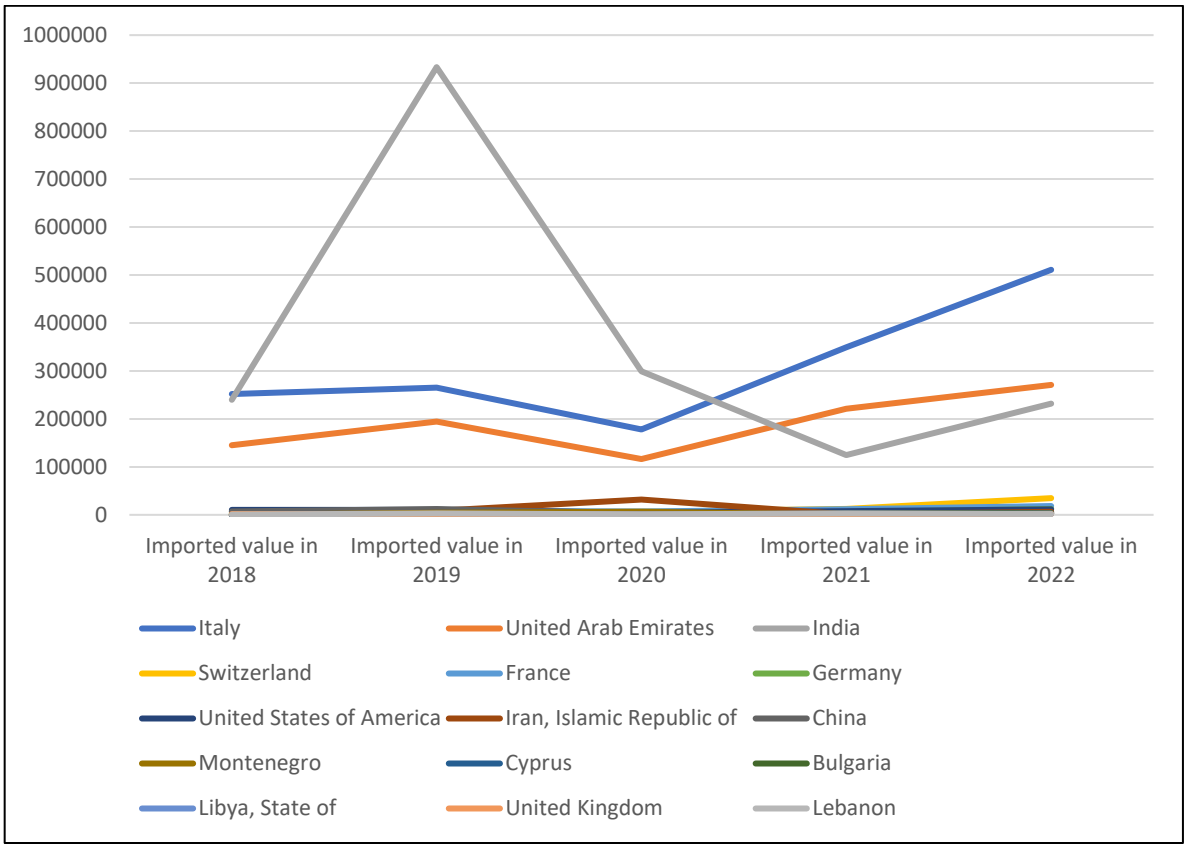


Figure 12. Imports by Country and Year: Top 15 Country in Exports

Source: Turkish Statistical Institute

India exhibited significant fluctuations in imported value. After an astonishing surge of 289.63% from 2019 to 2020, there was a substantial decline of 67.96% in 2020. The trend continued in 2021, with a significant decrease of 58.33%. However, the trend reversed again in 2022, with a remarkable increase of 86.33%. These fluctuations demonstrate the dynamic nature of India's gold exports to Türkiye. Switzerland demonstrated consistent growth in imported value. From 2019 to 2020, there was a slight decline of 1.24%. However, the trend swiftly reversed, resulting in an impressive 87.71% increase in 2021 and a further remarkable rise of 183.91% in 2022. This showcases Switzerland's enduring role as a significant supplier of gold to Türkiye, characterized by notable surges in recent years. The analysis of the top 15 supplying markets for gold imported by Türkiye reveals diverse patterns of growth, decline, and recovery in imported values over the years. The change percentages exemplify

the dynamic nature of Türkiye's gold imports and the evolving relationships with its trading partners, see Table 6.

Table 6. Imports by Country and Year: Change over the previous year (%)

	Change (%)			
	Imported value in 2019	**Imported value in 2020**	**Imported value in 2021**	**Imported value in 2022**
Italy	5.56	-32.95	96.16	46.28
United Arab Emirates	33.94	-40.21	89.93	22.62
India	289.63	-67.96	-58.33	86.33
Switzerland	65.65	-1.24	87.71	183.91
France	25.19	-15.73	59.14	57.67
Germany	105.07	-26.65	48.61	118.88
United States of America	5.51	-58.23	73.24	47.57
Iran, Islamic Republic of	4167.16	271.32	-96.40	480.40
China	74.77	-74.16	-23.85	61.15
Montenegro		54.22	-90.02	471.73
Cyprus		5.15	1749.65	26.28
Bulgaria	119.75	11.52	111.78	47.37
Libya, State of	669.23	-40.93	-24.79	252.25
United Kingdom	-56.49	-51.86	110.00	180.27
Lebanon	494.55	-55.88	150.58	-44.05

Source: Trade Map

The data provided by trademap highlights the list of importing markets for a product exported by Türkiye to the top-ranked 15 countries in 2022, see Figure 13. The figures include the exported values from 2018 to 2022, along with the corresponding change percentages. This analysis offers insights into the evolving trends and dynamics in Türkiye's exports to these

key trading partners. The United Arab Emirates (UAE) emerges as a significant importing market, with an exported value increase of 26.53% from 2018 to 2019. However, there was a substantial decline of 54.45% in 2020. The trend reversed in 2021, with an impressive increase of 183.76%, followed by a more moderate rise of 32.35% in 2022. These percentages reflect the dynamic nature of Türkiye's exports to the UAE.

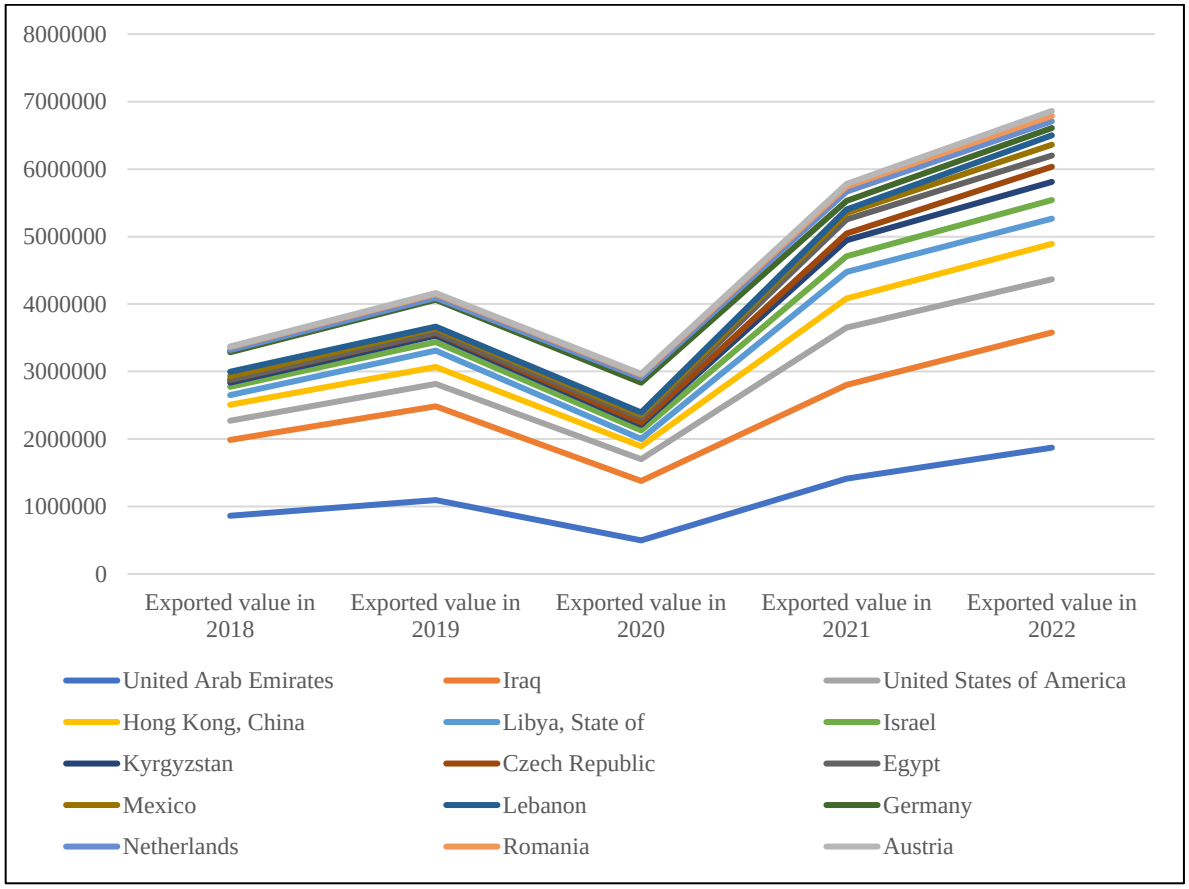


Figure 13. Exports by Country and Year: Top 15 Country in Exports

Source: Turkish Statistical Institute

Iraq also demonstrates notable fluctuations in exported value. After a 24.14% increase from 2018 to 2019, there was a decline of 36.76% in 2020. However, the trend reversed in 2021, with a significant increase of 57.79%. The positive momentum continued in 2022, with a further rise of 22.90%. These figures highlight the changing patterns of Türkiye's exports to Iraq. The United States of America experienced a steady increase in exported value from 2018 to 2020, with a 15.59% growth rate in 2019 and a 162.76% surge in 2021. However,

there was a decline of 2.10% in 2020, and the negative trend persisted with a further decrease of 7.18% in 2022. These fluctuations signify the evolving nature of Türkiye's exports to the United States.

Table 7. Exports by Country and Year: Change Over the Previous Year (%)

	Change (%)			
	Exported value in 2019	**Exported value in 2020**	**Exported value in 2021**	**Exported value in 2022**
United Arab Emirates	26.53	-54.45	183.76	32.35
Iraq	24.14	-36.76	57.79	22.90
United States of America	15.59	-2.10	162.76	-7.18
Hong Kong, China	6.46	-23.95	126.13	21.58
Libya, State of	72.41	-55.42	264.03	-5.36
Israel	0.85	-2.05	83.35	19.01
Kyrgyzstan	53.01	-11.72	184.87	14.19
Czech Republic	6.43	-7.82	181.78	126.46
Egypt	90.05	936.17	188.25	-21.04
Mexico	8.05	-35.46	158.18	67.20
Lebanon	-54.03	28.96	26.22	183.55
Germany	36.18	11.44	-71.16	-15.17
Netherlands	-1.09	132.91	98.06	-28.58
Romania	27.82	-20.81	60.89	7.63
Austria	10.79	26.23	167.11	100.81

Source: Trade Map

Hong Kong, China witnessed consistent growth in exported value, with a 6.46% increase in 2019 and a remarkable surge of 126.13% in 2021. Despite a decline of 23.95% in 2020, the

positive momentum returned in 2022 with a notable increase of 21.58%. These percentages highlight the dynamic nature of Türkiye's exports to Hong Kong, China. The analysis of the top 15 importing markets for a product exported by Türkiye unveils diverse patterns of growth, decline, and recovery in exported values over the years. The change percentages exemplify the dynamic nature of Türkiye's exports and the evolving relationships with its trading partners, see Table 7.

6.1 The Istanbul Precious Metals Market (PMM)

The precious metals market has a total of 96 participants, including 12 metal manufacturers and marketing companies, 23 local and foreign banks, 41 authorized entities (previously known as currency offices), and 19 brokerage houses (PMM). Some examples of international banks that are a part of the PMM are ING, HSBC, and Finansbank; these banks are essentially the Turkish branches of other international financial institutions (owned by the National Bank of Greece). A few examples of local banks that take part in the program include Ziraat Bankasi, which is owned by the state, and Türkiye Is Bankasi, Garanti, and Akbank, all of which are privately held. At the precious metals market held in the Borsa Istanbul building, there are 57 representatives from the diamond sector present. The name given to this market is the "Diamond and Precious Stone Market". The Bursa Istanbul Commodities Exchange is a member of the London Bullion Market Association (LBMA) (Pesigan & Soriano, 2020).

6.2 PMM Standard And Non-Standard Gold Traded

Gold of either Standard or Non-Standard purity may be used for PMM applications. These two forms of gold do not need to be PMM-approved. Gold that has not been further processed into another form and that has been cast into bars with a purity of at least 99.5% is considered standard gold. Gold in its purest form is meant by this definition. The tradable bars on the PMM are available in a wide range of weights and can be purchased singly (Hwang, 2019). The PMM only allows "Bullion" bars and other sorts of bars that meet certain criteria (refinery stamp, serial number, weight, and fineness) to be traded. These guidelines can be used by any refinery, regardless of whether or not it has received regional, national, or

international recognition. Non-standard gold refers to gold that has not been refined into more common forms such as bullion, gold bars, dore bars, granules, powder, or scrap.

Here are the several forms in which an individual can acquire this gold: Low-purity gold, defined as less than 995 parts per thousand, is not considered jewelry-grade. An assay certificate (of fineness) must be produced for local gold that falls short of international norms (Rush, 1985). This certificate can only be obtained from the Turkish Mint or an assaying establishment approved by the Turkish Mint. If an individual wish to import gold into Türkiye that does not meet the legal criteria, they will need a customs declaration from the Turkish Government and an assay certificate given by a refinery in a different country. Brand names of bars are only added to the PMM's worldwide refiner list after it has thoroughly researched the accreditation lists kept by numerous international gold associations and numerous gold exchanges. This is done to ensure that the brand names used for the bars are legitimate. The gold refineries recognized by the London Bullion Market Association the Dubai Multi Commodity Centre, and the Indian Bullion Market Association must be taken into account during this procedure. In this case, the citation is required After that time, domestic refineries that meet the criteria for inclusion on the list of refineries that have been awarded PMM accreditation are added to the list (Estrella, 2020). Table 4 states the PMM standards and non-standards gold traded (Borsa Istanbul, 2023).

Table 8. PMM Standard and Non-Standard Gold Traded

Type	**Weights**
Mini Bar	1 gram, 2,5 gram, 5 gram. 10 gram, 20 gram, 50 gram,100 gram, 250 gram, 500 gram
Bullion	1 kilogram
Large Bar	Bullion over 1 kilogram

6.3 Supply And Demand In Türkiye

The economic theory of supply and demand is valid if there is an excess of both supplies and needs in competitive markets, and if individual suppliers cannot manipulate pricing. In light

of this, the curve that is presented below serves both to illustrate the notion and to provide evidence in support of it. When there is a high degree of demand for a product or service but there is a limited supply of that product or service, the price that is established for that product or service will be at its greatest level. On the other hand, when there is a low degree of demand but a large supply available, the price that is set for the product or service will be at its lowest point. If the price of a good or service falls exactly within the average optimal range when the equation of supply and demand is balanced at the midpoint, then the price of the good or service is optimal (Hwang, 2019). This assertion is backed up by the abundance of investors and developers operating in the Istanbul real estate market (although it is essential to keep in mind that the proportion of international investors to local investors operating in the Turkish real estate market as a whole is less than 2%). As a consequence of this, it has been demonstrated that the theory of supply and demand is accurate and that an increase in the number of properties listed for sale is a sign of a high supply as well as the opposite being true (that is, an increase in the number of properties listed for sale is a sign of high demand) (Rush, 1985).

The investors also stand for the demand side of the equation, which is the second pole of the binary. According to official statistics released by the Turkish government, the demand has been on the rise since the second half of 2021. This is in comparison to the same period in 2020. This shows that there has been an increase in demand of at least 55% between the preceding year and the one before it, which will lead to an increase in real estate prices in 2022 as a direct result of the application of the theory of supply and demand to the market.

Moreover, the following question must be taken into account, is there a problem with getting supplies? Researchers can assert unequivocally that, in light of recent occurrences such as the end of the Corona pandemic, issues with supply chains, inflation, and outrageous prices for building materials globally, a significant increase in demand invariably leads to a shortage of supply. This assertion can be supported by citing recent events such as the conclusion of the pandemic caused by the Coronavirus. All of these factors, in addition to others, contribute to a decreased propensity on the part of real estate developers to extend the scope of their

ongoing projects. As a result, the supply of available properties is unable to keep up with demand, which pushes up the price of real estate (Rush, 1985).

Türkiye is probably the best example there is of how extensively gold may be employed in modern culture. Türkiye is the fourth largest consumer of gold in the world, providing on average during the past 10 years somewhere around 6% of the total demand for gold among consumers all over the world. According to our best estimates, Turkish households have secreted away at least 3,500 metric tonnes of gold "under the pillow." The purpose of our study, entitled Türkiye: Gold in Action, is to investigate how gold functions down the value chain and examine the consequences that it has on Türkiye's economy (Kaufman, 1965).

Researchers anticipate that Türkiye will maintain its long-standing demand for gold in the foreseeable future. Gold links from Türkiye have a long and illustrious cultural history to back them up. The rent at the Grand Bazaar, which is the center of the gold market in Türkiye, is denominated in gold, which means that gold is used in the jewelry sector as both a medium of exchange and a unit of account. Gold ownership also has significant financial benefits to offer. For many decades, Turkish savers have looked to gold as a reliable hedge against the negative effects that inflation and falling currencies might have on their investments. Despite the country's size, the gold mining industry is experiencing rapid expansion. The mining business in Türkiye is booming, and there is a great deal of unrealized potential in the sector. Since 2001, the amount of gold produced has climbed practically annually, going from 2 tonnes to 33.5 tonnes in 2013. And this may be the beginning of only the beginning: The Turkish Ministry of Energy and Natural Resources is where the 840 metric tonne estimate for gold reserves originated from.

The gold industry's contribution to Türkiye's economy is significant and beneficial in many respects. At least $3.8 billion US dollars was provided to the economy of Türkiye through gold-related activities in 2012, including production, consumption, and recycling. The value chain is responsible for supporting around 250,000 workers in addition to 35,000 retail locations and 5,000 gold fabricators. Gold constitutes a very minor yet significant component of Türkiye's monetary system. At the end of 2013, commercial banks had held around 250 lira, which is equivalent to $10.4 billion in US dollars, which was used to support the

economy of Türkiye. Investors moving Turkish Lira and other currencies into gold accounts was the primary driver of this trend. In addition to that, it consists of 40 tonnes of Türkiye's "under-the-pillow" stock, which has been in operation since the middle of 2012 and is estimated to be worth approximately $1.7 billion (Scientific, 2005).

6.4 The Evaluation Of Trade And Production

In December 2019, Türkiye produced 38,000,000 kilograms of gold, according to a report. This represents an increase when compared to the previous figure for December 2018, which was 27,100,000 kg. Türkiye's Gold Production figures are updated annually, and between December 1990 and 2019, a total of 30 observations with a mean weight of 5,750.000 kg were made. A record high of 38,000,000 kg was recorded in 2019 and a record low of 500,000 kg was recorded in 2000 for this data. The U.S. Geological Survey states that CEIC is still actively collecting data on Türkiye's Gold Production. Details can be found in the parts of World Trend Plus' Association following WB Table. USGS: The Metal and Mining Sector of the Economy Gold is a precious metal. Gold Production on a National or Regional Scale According to claims made to Demiroren News Agency on October 23, the freshly discovered mine in the northwest Turkish province of Bilecik would provide Türkiye with about 7 tonnes of gold when production capacity reaches its peak in 2024. Despite the epidemic, Türkiye's 18 operational mines produced 42 tonnes of gold in 2017. An estimated $2.4 billion was added to Türkiye's GDP in the preceding year as a result of its gold production. According to government data, Türkiye imported goods worth a total of around $219.4 billion in 2020. Out of this total, the country recovered $26.6 billion in gold, more than double its performance from the previous year.

According to the Ministry of Energy and Natural Resources, approximately $6 billion has been invested in Türkiye's gold mining sector overall. Within the next five years, Türkiye wants to expand its domestic gold production from the current level to 100 tonnes yearly. The government claims that Türkiye has enough gold in its reserves to cut its annual gold purchases in half (Scientific, 2005). The country's gold mining industry began in 2001 with the production of a meager 1.4 tonnes of gold. Since then, mining operations in Türkiye have generated 382 tonnes of gold. The eastern region of Agri in Türkiye possesses a sizeable 20-

ton gold resource that is worth an estimated $1.2 billion, the nation's minister of industry and technology declared on June 10. Mustafa Varank said that a 3.5-ton silver reserve expected to be worth $2.8 million was also discovered in the same location during a ceremony for the new facility that the Turkish gold mining business

Koza Altin will be constructing in Ar. The facility, in Varank's opinion, is crucial to the economies of Türkiye and the entire region. It will cost 160 million dollars, create 2,000 jobs, and work 500 people both directly and indirectly. He added that the company planned to begin gold casting operations by the fourth quarter of 2022. He asserted that a significant quantity more gold is being discovered because the mine is continuously being studied and investigated. He mentioned that the mining industry in Türkiye presently employs 13,000 people and has received $6 billion in investments in response to a question about it (Li & Li, 2002). Varank emphasized the accomplishments made by Türkiye 's mining sector since the AKP took office in 2001. Türkiye, which couldn't generate a single gram of gold until the early 2000s, produced 42 tonnes of gold in 18 operating mines last year despite the pandemic, according to Varank. According to Varank, Türkiye was unable to produce even a single gram of gold in the early 2000s.

The nation's 18 operating mines were nevertheless able to produce 42 tonnes of gold in 2017, despite the pandemic. According to Varank, there is still active exploration taking place at the mine, which is anticipated to have another six years of life left in it (Estrella, 2020). On June 10, 2021, the laying of the cornerstone ceremony took place for the Mollakara gold mining complex in Ar, which is located in eastern Türkiye. (Image courtesy of AA) He stated that given the fact that further reserves might be identified, they anticipate the usable life of the operation to last anywhere between 15 and 20 years. Sustainability and the protection of the surrounding environment were important factors in the operation of the mines in the area, in addition to being major considerations for this project. Regular measurements of the levels of dust, noise, blasting, and gas in the air will be collected by using sensors that are expected to be installed as part of the project and that are equipped with cutting-edge technology (Hwang, 2019).

The minister emphasized that the environmental impact of the mine will be kept to a minimal since state-of-the-art procedures that are going to be utilized there to produce gold will keep the mine's influence on the environment to a minimum." After the productive life of the facility has ended, he noted, the site would undergo the necessary restoration work for it to be returned to its original state. Donmez, who is the Minister of Energy, was also there and gave a speech. He discussed a variety of subjects, one of which was the fact that gold mining is one of the subsectors of the mining industry that has the highest added value. "There are approximately 1,175 tonnes of gold stored up in Türkiye 's reserves at the moment. The previous year, 42 tonnes of gold were produced, which allowed us to surpass the previous record for production in this sector that had been held by the Republic of Türkiye (Kaufman, 1965).

Donmez, who echoed the allegations made by Varank in this regard, stated that the country's annual production was barely 1.4 tonnes when they first began extracting gold in 2001. Varank's comments were based on the fact that the country's annual production was barely 1.4 tonnes. "During the past two decades, our business has been responsible for the mining of a total of 382 metric tonnes of gold. The amount of tax money obtained by the state as a result of this output was comparable to 76 tonnes of gold. Donmez asserts that the company's objectives are to produce more than 45 tonnes of gold this year and to increase that amount to an annual output of 100 tonnes during the next five years. According to the findings of the minister's investigation, a total of 197 drillings have been carried out at the Mollakara gold and silver property up until this point. In a statement that was made public in the past by the Ministry of Industry and Technology, it was said that "It is anticipated that the mine will produce its first gold casting sometime around the fourth quarter of the year 2022. Additionally, there will be a processing facility at the mine (Kaufman, 1965).

7. CONCLUSION

The buying and selling of gold ought to be an everyday element of conducting business on a global scale. Gold is more likely to give amazing prospects for trading more regularly than currency pairs from other countries. Forex and CFD brokerages that enable gold trading are among the most cost-effective options for investors who have a limited trading budget of a

few hundred or a thousand dollars. Gold has a long history of use as a form of investment, as a medium of commerce, in the production of exquisite jewelry, and in the creation of various artifacts. It has been agreed that gold has been and will continue to be valuable; nevertheless, the value of gold is ultimately something that is constructed by society.

Gold has a long and reliable history as a reliable hedge against inflation. The greatest risk that investors face is that of inflation. In turbulent times, when the stock market is struggling and cash is losing value due to low-interest rates, investors may desire to purchase gold as a hedge against potential losses. Despite the recent return of protectionism, international commerce continues to be the backbone of the contemporary global economy because it contributes to the wealth of individual countries. But what exactly is the relationship between gold and international business? To begin, this is an international market where investors from all over the world come to trade gold with one another. Because of this, trading in gold is an essential component of international commerce. The concept of using gold as a standard of value was made possible by the fact that, for over five thousand years, gold was the only commodity that was universally recognized and valued by all people, societies, and civilizations (Estrella, 2020).

Second, investors may be protected from even the most severe restrictions on global trade if they hold gold because it is considered a safe-haven asset. Gold, in particular, can be an asset that protects from commercial problems. The following chart shows the month of August 2019 as arguably the greatest example, when gold prices soared in reaction to concerns that the Sino-American trade war had escalated (and declined later when the U.S. eased its stance toward China). Third, despite all of the positive effects that international trade can have, there is a possibility that it will have some adverse effects on the current monetary system. The unrestricted movement of both goods and money is inextricably linked. In a system characterized by fiat currencies and credit booms, the mobility of capital can result in the circulation of speculative or "hot" money, which is a source of financial instability and may even precipitate a financial crisis. In circumstances like these, gold usually shines brightly. To disguise the results of the research, the researcher has held conversations about the international trade in gold in Türkiye, China, and London.

The analysis of Türkiye imported and exported gold products with HS code 711319 for the top importing markets for a product exported by Türkiye in 2022 provides valuable insights into the evolving trends and dynamics of Türkiye's exports. The data reveals that Türkiye's export performance varied across different countries, with notable fluctuations in exported values and change percentages. These findings underscore the importance of adaptability and responsiveness to changing market dynamics for Turkish exporters. The results highlight the significance of diversifying export destinations and strengthening trade relationships with key markets. The fluctuations in exported values demonstrate the need for exporters to closely monitor market trends, economic conditions, and regulatory environments in target countries. By staying informed and agile, Turkish exporters can better navigate market challenges and seize emerging opportunities. Furthermore, the analysis underscores the importance of continuous efforts to enhance competitiveness and promote product quality and innovation. Türkiye's exporters can leverage the insights gained from the data to identify areas for improvement and align their offerings with the evolving demands of different markets. This adaptability will contribute to sustainable growth and resilience in Türkiye's export sector.

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