



Gold and its Determining Role in Modernization and Technological Processes Related to Changing Geo-economic Structure of the World

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ABSTRACT

This article considers the role of gold in the world economy and its place in contemporary structures of gold-value reserves of the leading countries of the world. It also takes into account the historical experience of using gold in various periods (epochs). The theme of the article is rather urgent at the moment of transformation and occurrence of a new transitional stage in the world economy, because traditionally at any transitional period the investment activity was focused on the least risky investments. Investments in precious metals are thought to be such investments. They do not lose their value and price during the long period of time. The following essential conclusions were received within this article: (1) Gold is the most demanded precious metal in terms of decreasing risks of accumulation and investments. The main part of the gold obtained industrially is presented by centralized reserves (standard ingots of chemically pure gold), (2) gold mining is limited in the world because natural reserves of this metal are irretrievable; at the same time modern physical and chemical technologies allow to artificially grow crystals of gold; however, such technologies are characterized by high cost and low level of returns from their use, (3) gold as a resource will continue playing a psychologically stabilizing role; herewith, the information resource (business information) required for ensuring the world stable social and economic development will get basic value.

Keywords: Gold, Gold and Foreign Currency Reserves, Economic Crisis, Factorial Analysis, Cluster Analysis

JEL Classifications: Q32, Q34, H54, P45

1. INTRODUCTION

At all times of the active economic history of the humankind the notions of wealth and people's perception of gold as a monetary metal were universalized. As a consequence, its place in the economic activity of the contemporary society was steadfastly stipulated. Since the chronicle appearance, gold has played an important role in the system of currencies and credit relations. However, its meaning was not always univalent (Calvet et al., 2009; Hansen, 2014). When the leader was changed in the world economic system, the monetary unit of the financial and currency center lost its "attractiveness," and at this stage gold became

the most demanded tool for international financial operations. Numerous factors affected and still go on affecting such state of things. It is necessary to particularly mention geo-economic "behavior" of the leading countries of the world system among them (Bernheim and Rangel, 2009; Daheim and Uerz, 2008). At the contemporary historical stage we observe the change of the Pax Americana (the epoch of America) to the Pax Sinica (the epoch of China). Due to this, in the immediate future the US dollar will obviously lose its status of the principle international payment unit more and more. Nevertheless, we will note a number of factors due to which the US dollar became the principle world currency (Kolganova, 2013; Dudin et al., 2013; Krainer, 2014):

- Certainty as for debentures of the US government that are nominated in the national currency, and theoretically the USA can pay off their external debts through a simple increase in the monetary emission.
- “Special” relations of the US government with Middle East monarchies; consequently, the Middle East oil is sold exclusively for the US dollars.
- US circumspect policy on attracting “intellect” from abroad; as a result, at the present time the USA remains the most developed country in the area of development projects.
- Battle-worthy army equipped with modern weapons and NATO bases located around the world.

Referring to the history of the world economy development, it is necessary to note that during the period of financial instability, the role of gold in international currency and credit relations more often and especially intensively became the object of closer attention on the part of many researchers (Klimov, 2007; Fedorova and Lanets, 2013). The evidence of it is a rather long list of scientific references presented at the end of the article. It considers concepts of the role of gold in macro economy. Based on the above, according to the authors, the research of the role of gold in contemporary international currency and credit relations is a rather urgent theme.

2. METHODOLOGY

Works of national and foreign researchers devoted to various aspects of the theory of the world economy, market of gold and banking were the theoretical basis of this article. The following methods were applied as the methodological basis: Analysis, synthesis, analogy, comparison, induction and deduction, mathematical and statistical (cluster, factor and method of statistical surface). While writing this article, the authors took into account and used the results and conclusions from numerous works of the leading Russian and foreign specialists in the area of gold value relations as well as materials of online resources. On the basis of the existing works, the authors’ concept in relation to the view of perspectives of the development of the world currency and gold value relations was stated.

3. RESULTS

Currency relations are the aggregate of monetary relations that define payment and settlement operations between national economies. Currency aspects of countries of the world are in direct relationship to the state of international economic relations between basic centers of economic growth (the North America, Europe and Asia-Pacific Region). The integration of Russia in the global geo-economic environment is rather complicated and manifold task. Its successful implementation requires circumspect, scientifically developed strategy and accurate and pragmatic management on the part of the state. Now the world geo-economic space is presented by the arena of actions related to interests of geo-economically powerful regional unions. Russia heads one of them. This is the Eurasian Economic Union. These entire coalitions act according to the regulations of the World Trade Organization,

the International Monetary Fund and the World Bank that are the implementation of the geo-economic structure of the world.

At the moment the geo-economic structure of the world is in the state of transformation. The starting point of the current period of the transformation of the world geo-economic structure is the mortgage crisis of the USA that with time turned into the 2008 economic crisis, debt crisis of the European Union that started in 2010, and economic crisis in Russia (2014-2015). In a greater or lesser degree the latter is related to the economic crisis in the world. As a consequence, the architecture of the world geo-economy undergoes considerable structural changes. Above all, it is expressed in gradual changing of traditional leaders of the world economy. In recent time China has been asserting itself rather strongly. However, this state still refrains from a real challenge for the role of the only leader of one of the economic centers of the world. So, the change of positions in the rating of leading economies is an example of it. Up to 2011 the economy of Japan was considered to be the second economy after the USA. However, starting from 2011, the economy of China has been considered to be the second economy of the world (Gold Survey, 2012). In addition, we can also observe the accumulation of considerable financial resources for non-traditional geo-economic players of the world - China, Brazil, India, and Russia. However, the lack of gold and foreign currency reserves is observed in the traditional “triad” of the geo-economic structure of the world - Europe, the North America, and the Asia-Pacific Region. Consequently, in certain cases considerable indicators of the external debt can several times surpass specific value of the gross domestic product calculated according to the purchasing power balance. At the same time the situation related to gold and foreign currency reserves and economy functioning in debt on the edge of default in Europe and Asia-Pacific Region provokes a discussion, because there is transformation of the geo-economic leader: The PRC replaces Japan. At the same time Asia-Pacific Region is expended. That’s why in the geo-economic aspect these tendencies can be regarded as differently directed. As a result, the top-ranked rich and stable countries have to call on “new” geo-economic centers with the request to deposit gold and foreign currency reserves for maintaining geo-economic stability of the first ones and preventing them from geo-economic catastrophe of the global scale.

The international role of gold and foreign currency reserves of any country of the world depends on the economic power of this country and its place in the world economy. Today in case of the shift of the geo-economic center of the world economy to the east and parallel process related to the increase in the importance of the developed markets (above all, it is related to China and India), there is a situation when the government of the USA finds it more and more difficult to maintain the role of the US dollar as the principle means of exchange and transactions in the world trading and on the international markets of capital.

In their published works some researchers and scientists state that countries whose currencies are the reserve currencies must have a deficit of accounting current operations in order to ensure international liquidity (Svetlova, 2012; Gennaioli et al., 2014; Gossé and Plihon, 2014). However, when the amount

of the negative trading balance becomes too high, the country accumulates unstable external debt due to the burden related to serving this debt.

Thus, the dollar liquidity required for financing the world trade and capital movement will increase in the near future, and decrease the impact of the US economy. That's why in the multipolar world where the size of economies of China and the European zone is on the same level as the US economy, the international role of US dollar will decrease in favor of the increasing role of the currency of the new-old geo-economic centers of the world. Besides, other countries such as Japan, Brazil, countries of the Persian Gulf, the Republic of Korea, Republic of South Africa and the European Economic Union play important roles. Everything taking place on the world arena will lead to the greater centralized network of financial centers, and as a result, the US dollar will lose the role of the principle world currency, and the role of gold will traditionally increase for the transitional period.

The gold and foreign currency reserves of one state can be located on the territory of another state according to relevant international agreements. In the interwar period there was an event that is now known as "Moscow Gold" (corrected Oro de Moscou) or "Gold of the Republic" (corrected Oro de la Republica). These names define the action related to the transfer of 510 tons of gold that is approximately equal to 73% of the total volume of the gold and foreign currency reserves in the Bank of Spain from their initial location in Madrid to the Soviet Union in several months after the beginning of the Spanish Civil War. This transfer took place according to the order of the Government of the Second Spanish Republic headed by Francisco Largo Caballero on the initiative of its Minister of Finances Juan Negrin. The term also covers the further issues related to selling the gold in the USSR and using the received funds. The remaining quarter of the gold and foreign currency reserves of the bank including 193 tons was exchanged to the currency in France. This was an operation also known as "Gold of Paris" according to the analogy of the above term.

During the Second World War shortly before the occupation of the Nazi Germany the Government of Belgium evacuated the gold and foreign currency reserves of the country to Dakar (Africa) - 221 tons. However, the French State (Vichy France) contributed to delivering this gold to the bank of the Third Reich. It is interesting that at the present moment the Federal Republic of Germany (FRG) gold is stored not only on the territory of FRG but also in the USA, Great Britain, and France. And this is the first time after the Second World War when a special commission of the Bundestag intends to check the storage of the German gold abroad. This is the German gold that has a lot of contradictory factors in the history. Some researchers think that exactly before the capitulation of the Third Reich the German gold was transferred to Swiss banks, and due to it the "German" economic wonder took place.

Due to this, the role of gold as never before deserves a detailed research in the structure of the international gold and currency system. That's why it will be logical to define what development stages the gold exchange systems have undergone for the whole period since the moment of forming the most stable world

economic relations of the state level (approximately the 17th-19th centuries) to our time. Every stage is characterized by basic principles of the system functioning, but it also has definite succession in relation to the previous one. Table 1 graphically shows basic stages of forming the world gold exchange system.

For the first time the principles of the Paris currency system came into operation in Britain (1867). Its characteristic feature was free movement of gold in the system of international and currency relations. Banks of the states that participated in the conditions of the Paris currency system freely exchanged banknotes to gold.

At the beginning of the 20th century the growing power of Germany, France and the USA undercut the position of Great Britain in the international currency system. After the beginning of the First World War the Gold Standard collapsed. The movement of gold in the international payment turnover was banned. It was replaced by banknotes that could not be exchanged to gold. In the USA this situation turned into the Great Depression (1932-1933). In April 1935 the President of the USA Roosevelt issued an edict about actual confiscation of gold that was stored in ingots and coins from the population and organizations (Kolganova, 2013).

The gold confiscated from citizens of the USA was sent to the Fort Knox national depository (Kentucky) of the Federal Reserve System that is still operating. Thus, to a large extent the trust in the US dollar is based not only on the possibilities of the American economy, ideal reputation of the debtor, but also on the gold stored in the Fort Knox. That's why it is not occasional that at the present time at the beginning of the downfall of the USA power, they quite often publish information that a number of highly developed countries sent an audit to check their gold and foreign currency reserves in the USA. Less developed countries simply take their gold from the depositories on the territory of the USA. For example, Venezuela did it.

After the end of the First World War there was a necessity to organize a new world currency system. Its principles and fundamentals were realized in the Genoese currency system at the international conference on economic and financial issues in Genoa (Italy) in 1922. Except gold and pound, it was also recommended to use US dollar. Both currencies were meant to perform the role of the international payment means that received the name of a gold standard. It resulted in the change of the new world economic and trading leader. The USA succeeded Britain. The basic principles of the gold standard were analogous to the

Table 1: Basic stages of forming the world gold exchange system

Stage	Period of activity
Paris currency system	1816-1914
First transitional currency financial period	1914-1927
Genoese currency period	1922-1933
Second transitional currency financial period	1933-1944
Bretton woods currency system	1944-1976
Third transitional currency financial period	1976-1978
Jamaican currency system	1978-2008
Fourth transitional currency financial period	2008-present time

principles of the preceding Paris system. However, certain changes were made. The gold exchange standard was a form of the gold standard when separate national banknotes were exchanged not to gold but to currency of other countries.

The middle and the end of the 30s of the 20th century were unstable for the international currency system. The depression of 1929-1933 vividly showed that the world economy was to be reformed. 1944 was the next stage of the evolution of the international currency system of the world economy. At the Bretton Woods conference the Gold Standard was adopted. It was based on the gold and two gold exchange currencies - The US dollar and British pound. Later it became clear that the British pound could not maintain the exchange to gold under equal conditions with the US dollar.

On February 4, 1965 Charles de Gaulle gives an order to cancel the use of US dollar in France as the only payment world unit and states about the transfer of the country to the gold exchange standard. In spring of the same year USD 750 million were delivered from France to the USA. It was the first tranche from the target USD 1.5 billion that was to be exchanged to gold. Later on the reality showed that it was quite difficult for the USA to adhere to the practice related to exchanging US dollar to gold.

In 1972 the International Committee on Reforming the International Currency System was formed. It dealt with the development and agreement of new principles of its functioning. In 1976 at the conference in Jamaica representatives of 20 countries came to an agreement about reforming the world currency system. Later in 1978 the Jamaica agreements were ratified by the majority of countries that were members of the International Monetary Fund. In accordance with the Jamaica system, the gold exchange relations are based on specific principles. The basic ones include official cancellation of the gold standard; special drawing rights standard is introduced; freely convertible currency of the most developed capitalistic countries of the world (US dollar, FRG mark, British pound, French franc, Swiss franc, Japanese yen, later Euro, etc.) are acknowledged as reserve currencies; the mode of freely floating currency rates is established.

Economic importance of gold is in its use as money goods together with other noble metals during a considerable historical period, and in its monopoly use in the international currency and financial relations since the end of the 19th century (Naim, 2009). However, with time as a result of official demonetization of gold, it got out of free monetary and currency circulating and started being used as reserves. Operations related to this noble metal take place on specific markets. In the world there are special trading gold centers where it is regularly sold and bought. This metal is supplied to markets in the form of standard ingots:

- Ingots of international standard in 400 troy ounces with the assay not lower than 995.
- Large ingots with assays from 900 to 916.6 and weight of above 100 troy ounces.
- Small ingots - several tens of troy ounces.

Golden coins of both old coinage and modern anniversary and souvenir coins act as objects of operations on the markets related

to gold. Today there are more than 50 markets of gold. The highest number of markets of gold is in Asia (about 19 objects). In America it is possible to count 14 markets of gold. In the Western Europe there are about 11 such markets, and in Africa there are about 8 markets.

The leading place belongs to the markets of gold in London and Zurich. Depending on the regime provided by the state, markets of gold are classified into the following:

- The ones of the world importance (London, Zurich, New York, Honk Kong, Dubai, etc.).
- Markets of gold that are less important than the world ones, however they are internal and free (Paris, Istanbul, Milan, Rio de Janeiro).
- Local controlled markets (Shanghai, Athens).
- Black markets (Lagos, etc.).

The contemporary world market of gold was formed in 1961-1968. It was officially documented and acknowledged as gold pool. It includes the following countries of the capitalistic world - The USA and countries of the Western Europe. The aim of creating this market was to maintain prices for gold on the free market on the official level. In the 70s of the 20th century gold auctions - selling gold from public auctions - were organized. Such auctions were held from time to time by the International Monetary Fund, governments of the USA, India, Portugal, etc. In the period from 1976 to 1980 the International Monetary Fund conducted 45 auctions and sold 777.6 tons of gold. In 1978-1979 during 19 monthly auctions the USA sold 491 tons of gold for the amount of USD 4.1 billion. At the end of the 20th century central banks became the main players on the world market of gold. Only in 1997 they sold 825 tons of gold. Thus, the Netherlands, Belgium, Austria, Canada, Australia partially sold their gold and foreign currency reserves (from 1/3 to 2/3), and Argentina sold its whole gold and foreign currency reserves including 125 tons of gold (Egorova et al., 2015).

Major owners of gold are central banks of such countries as Belgium, Italy, the Netherlands, the USA, France, FRG, and Switzerland. About 80% of the world centralized reserves of gold fall at industrially developed countries. 110 thousand tons of the mined gold were accounted from 1493 to 1993 (500 years), and for the whole history of gold mining (about 6 thousand years) - more than 125 thousand tons. The Republic of South Africa is the largest gold miner in the world. Every year this country mines above 22% of the world volume of gold mining. In due time, the Soviet Union was rather serious gold miner. In some years gold mining in the USSR suppressed 130 tons per year. To compare, in 1914 the Russian Empire mined 59.2 tons of gold, and about 1,600 tons were stored in depositories of the State Bank. The first official data about currency reserves of the USSR was published in 1935. At that time they were 2,050 tons. The currency reserves included 2.5 thousand tons of gold extracted from subsoil of the USSR. 4-5 thousand tons were requisitioned from the Russian Orthodox Church (it was used mainly for industrialization in the USSR). Undefined amount of gold was taken from the defeated Nazi Germany and its allies after the Second World War. The minimum amount of the gold reserve in the USSR was fixed at

the end of the 90s of the 20th century. Its reason was unsuccessful attempt of the USSR management to reform the socialistic system and the considerable decrease in prices for oil on the world markets (Egorova et al., 2015). Annual extraction of gold in separate countries is as follows (Kolganova, 2013):

- Up to 50 tons (Brazil, Ghana, Canada, Peru, Chile)
- From 50 to 100 tons (Indonesia, Uzbekistan)
- 250 tons (Australia)
- Above 300 tons (the USA)
- Above 450 tons (the Republic of South Africa).

Today gold remains rather reliable highly liquid reserve assets of central banks of the leading countries of the world. Concurrently the scales of private hoarding (gold accumulation by individual persons) do not decrease. At the present time central banks and international organizations (such as the International Monetary Fund) form under one fifth of the global reserve of gold as reserve assets (110 central banks and international organizations possess 29,000 tons). In average, gold makes up 15% from the official gold and foreign currency reserves of the country. However, the share differs from country to country. Countries with the developed economy in the Western Europe and the North America usually have above 40% of their total external reserves in gold, basically as inheritance from the gold standard. On the contrary, developing countries do not have such historical heritage, and, consequently, they have smaller gold and foreign currency reserves. As a rule, this is about 5% or less of the total volume of their external reserves in gold. In their turn, as a rule, central banks of the developing countries were net sellers. However, since 1989 we have been able to observe changes in attitudes of these central banks to gold. During two decades gold has been goods that was purchased and sold worldwide mainly by individual persons. This period finished in 2009, and 2010 was the first year when the turnovers of gold in the official sector surpassed turnovers in the private one. A number of reasons contributed to it. The most important one includes the fact that the economy of a number of developing countries grew very quickly. At the present time these countries are more and more often defined as buyers of a considerable volume of gold for their reserves. Its basic reason was the wish to move in the direction of restoring the balance between foreign currencies and gold.

Western central banks have more than a 10 years history in relation to so called “golden agreements” with one another and private sector. The Central Bank Gold Agreement-3 that has been in force until recently legally covers selling gold from central banks of the European zone, Sweden, and Switzerland. Like previous two agreements, Central Bank Gold Agreements-3 is meant for 5 years. In this case, from September 27, 2009 (as soon as the term of the second agreement expired) to September 26, 2014. In 2014 the European Central Bank and 20 Central Banks of Europe more declared about signing the Central Bank Gold Agreements-4 (CBGA, 2015).

The agreement was signed by the Central Bank of the European Union, and central banks of such European states as Belgium, FRG, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Luxemburg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia, Finland, Sweden, and Switzerland. The Central

Bank Gold Agreements-4 (CBGA, 2015) have the following features:

- Gold remains an important element of global currency reserves
- Members of the agreement will coordinate their transactions with gold in order to avoid market shocks
- Members of the agreement will not sell considerable volumes of gold
- This agreement will be reconsidered in 5 years.

It is necessary to note that the development of new technologies and changes of traditional financial instruments in the people’s perception considerably affected the world market of gold and bore such a new phenomenon as digital gold currency. This is one of the forms of digital money on the basis of the gold ounces. The US securities in the form of a golden certificate can be considered as the prototype of such gold currency. From 1873 to 1933 this golden certificate could be exchanged to gold at the first request. Digital golden currency is also supported by gold. Gram of gold or troy ounce is a typical payment unit of this currency. However, they also use other payment units such as the golden dinar. Performing their activity on various financial markets, a number of companies created terms and conditions for the circulation of the digital gold currency. Every such company created a system that allows users to make settlements with one another in units that maintain the same value as golden ingots. These companies provide the world financial and currency system with a new type of independent currency.

Thus, at the present time it is possible to conclude that gold plays an important role in functioning of the world gold exchange and financial and credit system. It is obvious that gold is a universal precious metal that can be used for regulating various financial standards.

4. DISCUSSION

International gold and foreign currency reserves are highly liquid assets in external structures. Such assets are most often represented by gold or foreign currencies. They are inspected by governmental credit and monetary regulation authorities. It means that they can be used in case of deficit of the payment balance and the national currency. The greatest part of the world market makes payments in US dollars. It means that almost all principle banks store large international reserves in US dollars. Figure 1 shows data about 20 countries with the largest gold and foreign currency reserves.

Taiwan and Siangan (known as Honk Kong) are included in the countries from Figure 1. Both territories enter PRC. However, de facto Taiwan is an independent economic player of the global scale. Its economy influence in the world and gold and foreign currency reserves are comparable to gold and foreign currency reserves of Russia at the moment of comparison. As for Siangan, according to the British-Chinese agreement (dated 1997), it has an opportunity to conduct its own policy, including in the area of international trading during 50 years. About 50% of all international gold and foreign currency reserves are formed in these countries.

It is necessary to note that rather often they establish dependence of the size of gold and foreign currency reserves on any resource

of surpluses. For example, in the Russian Federation the size of gold and foreign currency reserves is related to the price for the Urals oil.

Figure 2 graphically analyzes researches of the statistical surface of the interrelation between the price for Urals oil and gold and foreign currency reserves of the Russian Federation for the period of 2008-2014. It is possible to proportionally mark integral connection of these two indicators.

In addition, we can also observe direct proportional dependence (the growth of the price for Urals oil from USD 39 to USD 109 in the period from 2008 to 2012 and the increase in the gold and foreign currency reserves of the Russian Federation from USD 438 billion to USD 537 billion). This component is proportional to the integral for the researched period and lies in the decline of the regulated size of the gold and foreign currency reserves. It allows to take into account unsystematic factors (sanctions of the West against Russia and as a result the use of the gold and foreign currency reserves for maintaining the economy of the country in 2013-2015).

Except the Russian Federation, the largest holders of gold and foreign currency reserves in the world include the USA, PRC, Japan, India, Brazil, Saudi Arabia, Mexico, Poland, Malaysia, Thailand, Indonesia, Turkey, Great Britain, the South Korea, Taiwan, Siangan, Switzerland, and Singapore. Using the cluster analysis, we selected 20 countries with the largest gold and foreign currency reserves. Figure 3 graphically shows this aggregate made

Figure 1: Countries with the largest gold and foreign currency reserves as on 2014 (The World Factbook, 2015)

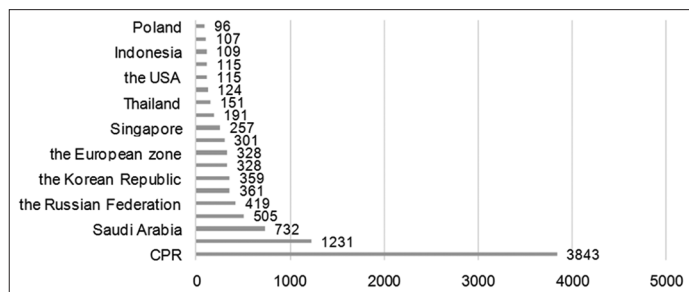
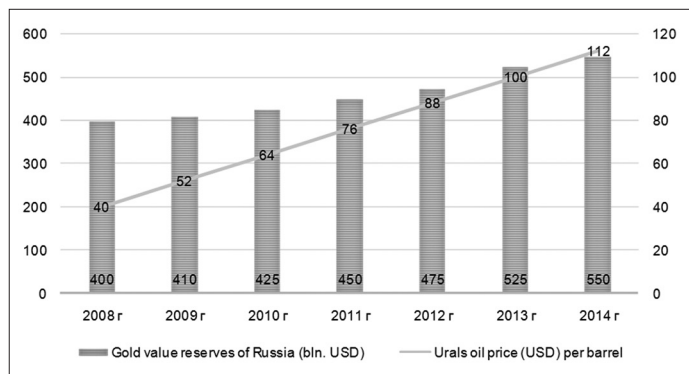


Figure 2: Statistical dependence of interrelation of the “Urals” oil price and gold and foreign currencies reserves of the Russian Federation for the period of 2008-2014 (The World Factbook 2015; Central Bank of Russia, 2015)



up by the authors. In accordance with the above segmentation, the first cluster - the USA (1) - can be characterized as the only currently super-state. Especially, it refers to economic indicators (gross domestic product [GDP] volume, GDP per head). It is also necessary to take into account that US dollars are used in the majority of trades worldwide. As for gold, it has already lost its former attractiveness for the USA because to some extent dollar managed to replace gold in the currency financial system of the world.

The second cluster - CPR (2), Japan (4) - is characterized by a high level of competitive positions and considerable interests of local investors in gold.

The third cluster - India (3), Russia (5), Brazil (6), and Saudi Arabia (12) - is characterized by high potential opportunities for quick growth of competitiveness that are based either on surplus from selling mineral resources or competitive advantages from local cheap work force. Central banks of these countries display considerable interest in gold.

Taking into account the characteristics of main factors of its economic positions in the world economy, the fourth cluster - Mexico (8), Poland (14), Malaysia (16), Thailand (15), Indonesia (10) and Turkey (11) - can be characterized as the one with the growing competitiveness. However, it is not sufficient for participating in the world markets of gold.

The fifth cluster includes Great Britain (7), the Republic of Korea (9), Taiwan (13), Siangan (17), Switzerland (18), and Singapore (19). This cluster is characterized by non-proportionality to the actual sizes of the state (area, population) and its influence in the world economy, including that on the market of gold. So, the main market of gold and the World Gold Council are located in London.

In order to reveal basic factors of the gold impact in the world economic system, the factor analysis was applied. Figure 4 shows the graphic representation of this aggregate.

14 statistical indicators for 19 countries with the most considerable gold and foreign currency reserves were selected for the analysis. 2013 was selected for the analysis because the statistical indicators for this period were the most complete. The main principles of their selection included accessibility, veracity and compliance with the criteria of the research. These principles were founded in the first part of the 20th century within creating mathematical basis of the contemporary economic science. In accordance with the “enrockment” criteria of Cattell (Coudert and Raymond, 2010; Coudert et al., 2015), on the basis of the received results, from the selected indicators we defined 5 groups of factors affecting the role of gold in the world economic system.

We define the first group of factors as economic and trading because it was formed mainly by such indicators as GDP, volume of export and import, volume of direct foreign investments, etc. All its indicators are positive except the accounting of current operations. It can be caused by the fact that it is negative in a great number of highly developed countries (the USA, Britain,

and Japan) and capitalistic states (Poland, Turkey, and Mexico) (Mwase and Yang, 2012).

The second group of factors can be interpreted as demographic because it is based on the indicators related to the size of population, and GDP per head. This factor is “contradictory” according to its impact because GDP per head has a negative impact, while the size of population has a positive one.

The third group of factors directly consists of the indicators related to the dynamics and volume of gold and foreign currency reserves. In this case this factor is a key one.

The fourth group of factors includes indicators of the “potential internal credit” category. It is natural that it has a negative impact on the role of gold in the world economy, because having considerable indicators the internal credit forms a sort of psychological certainty in stability and does not make the government of central bank actively acquire gold on the global markets.

Figure 3: Hierarchical clustering of countries with the largest gold and foreign currencies reserves due to the role of gold in their economy (The World Factbook, 2015)

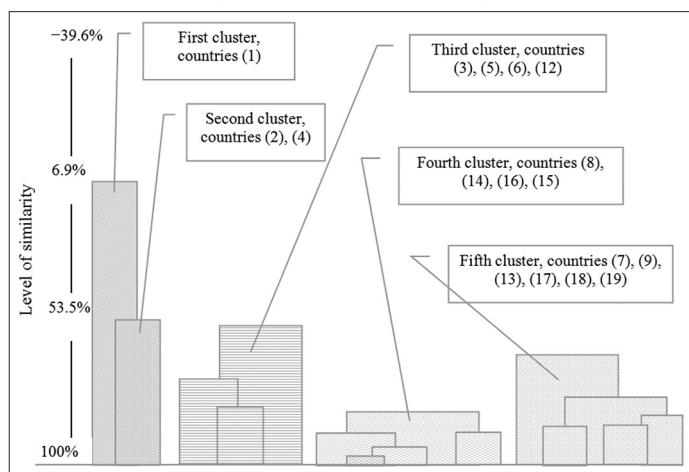
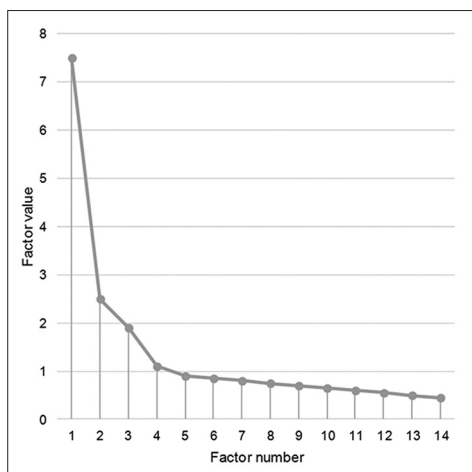


Figure 4: Graph of dispersions for defining number of factors that affect the role of gold in the world economic system (The World Factbook, 2015)



The fifth group of factors (other factors) has low indicators on the edge of minimum error and virtually does not affect the role of gold in the world economy.

It is necessary to note that only the first four factors considerably influence the state and dynamics of gold exchange operations in countries with the largest gold and foreign currency reserves. Especially, it is related to the first group of factors that includes the greatest number of indicators (Factors 1-6 on Figure 4). Accordingly, this group has the greatest impact on the state and dynamics of the gold value processes. Negative pressure of indicators means that there is specific misbalance of the world market of gold (Fedorova and Afanasiev, 2013; Dudin et al., 2015). Above all, it is explained by possible historical overestimation of the role of gold in the world economy (Ivaniuk et al., 2014).

Thus, at this stage it is possible to resume that on the one hand the role and importance of gold in the world currency, financial and credit system is rather significant, because gold is virtually the only standard of measuring national reserves for all countries. On the other hand, there is no doubt that gold and foreign currency reserves must be formed adequately to economic and social development of the country. Under the conditions when the leitmotif of the economic development includes cognitive resources, the importance of material resources considerable decreases. That’s why while remaining the most convenient means of forming reserves, accumulation, and the most optimal object of investing, gold does not hold that generally valid unique importance that characterized it earlier.

5. CONCLUSIONS

In the period of the contemporary unstable financial and economic satiation in the world, it is rather difficult to speak about potential efficiency and profitability of investing private, corporate or state savings. It is possible to single out the following basic advantages of investing in gold:

- Investing monetary funds and generally financial resources in gold is an efficient and operant method of protection from inflation.
- Possibility to earn profit in case of the price growth on the world market.
- Banking metals have the highest standard; herewith, unlike jewelries, their buy-back is carried under the same conditions as purchase (jewelries are bought-back as salvage).
- Ingots of gold, coins are convenient for storing and practically do not change under the impact of external factors; consequently, they do not require special terms and conditions of storage.

The contemporary situation on the market of gold can be characterized as a rising trend with strong movements because the prices for this banking metal grow exponentially. It is stipulated by several factors. The basic factor of the gold price growth is purposeful weakening of the US dollar. If the US dollar weakens, consequently, the gold is fixed in the rising trend almost simultaneously. Moreover, it becomes more available for customers from the non-dollar zone.

However, herewith, it is necessary to note that in addition to the advantages of investing in gold, there is a problem related to selling the metals that have been acquired, because in countries with the transitive economy (particularly, in Russia, India, Brazil, and China) the consumer market of banking metals and precious stones including gold is not well-developed. Consequently, the basic turnover touches on the jewelries market. Herewith, jewelries do not fulfill functions of accumulation and saving. For national economies the formation of gold and foreign currency reserves is an objective necessity because gold and foreign currency reserves ensure the support of economic and social stability during crisis periods. However, experts agree more and more that the role of gold in the world economy can be considerably overestimated. On the background of global economic tendencies and constant loss of the role of the world leader by the USA, it is the most probable that the formation of a new international financial and credit and reserve system based on the reasonable diversification will be required.

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