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Bibliometric Review on Gold Currency and The Islamic Perspective

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Abstract

The use of gold is the beginning of the development of the monetary system in the world. The development of gold currency which has long been practiced, has undergone several evolutions from time to time. As a consequence, this evolution has implications for the development of research using gold currency. Therefore, this study aims to provide quantitative information on the development of gold currency literature. There are 917 papers in journals, books, book chapters, conference papers, and review papers indexed and indexed by the Scopus database from 1899-2021. We employed VOSViewer and Excel software to synthesize and analyze the data. This research is limited to the Scopus database related to gold currency. In addition, we find macroeconomic trend that often arise, which are related to the use of gold as a hedge and safe haven. Therefore, the author provides an overview of several studies that discuss the advantages of gold currency as the findings in this paper. In the context of gold currency, to the best of the authors' knowledge, the bibliometric approach has not been applied previously in literature before. This study also provides an Islamic perspective on gold currency.

Keywords: *Gold currency, VosViewer, Bibliometric, Islamic view*

INTRODUCTION

Historically, the development of money has undergone increasing changes or evolutions. Starting from barter transactions using goods, switching to gold and silver, continued using fiat money. To this day, through human intelligence and inventiveness, we can design currencies in the form of digital wallets, e-money, and even cryptocurrencies.

However, the monetary system in the world began with a currency system with a bimetallic system, such as gold, silver, copper, or bronze (Yaacob et al., 2011; Yaacob & Ahmad, 2014). The use of gold and silver had begun before the Islamic era, beginning in 570-546 BC by the Lydians. Then this practice was followed by the Jews and the Greeks. On the other hand, the denarius as one of the currencies of the Romans was introduced in 268 BC, followed by the Persians in 546 BC to 621 AD (Santoso et al., 2017). Referring to the history of Islamic civilization recorded in the Qur'an (3:75, 11:20), the Arabs initiated the bimetallic system by using dinar and dirham as the main currency in circulation.

Furthermore, gold as a fundamental of the monetary system underwent a significant evolution of the system since the 18th century. From the 18th century to the early 19th century, the classical gold standard system was practiced. In 1915-1925, the world started to adopt the floating papers exchange system. After World War I, in 1925-1931, the gold bullion standard was introduced by Britain. Due to the depression that occurred in the 1930s, the gold standard system failed, and the world began to adopt an approach of floating papers exchange rates back in 1931-1944. An international monetary system known as the Bretton Woods system was built in 1944, and under this system, the International Monetary Fund (IMF) restricted the use of gold as currency and was only limited to the central bank. As a country with a dominant gold stock, America regulated that the US dollar was the International currency linked to gold in circulation. The Bretton Woods system dissolved in 1971 and was switched by a fiat money system Bie & Pedersen, 1999; Lucey et al., 2016; Yaacob & Ahmad, 2014).

As a consequence of evolution of the gold currency system, related research has also progressed inclusively. Starting from the analysis of the relationship between gold prices and inflation (Bemanke & James, 1991), the function of gold in the monetary system (Bie & Pedersen, 1999), gold as a hedging tool (Aftab et al., 2019; Cheong, 2017; Hoang et al., 2016; Iqbal, 2016; Joy, 2011; Reboredo, 2013; Reboredo & Rivera-Castro, 2014), gold and currencies and their efficiency (Kristoufek & Vosvrda, 2015), risk assessment as currency and its credibility (Mitchener & Weidenmier, 2015), the comparison of gold and the dollar (Pukthuanthong & Roll, 2011) and many kinds of research have been developed. However, there has been no research that has reviewed and summarized the development of literature related to gold currency as a whole through a bibliometric approach. Therefore, this is a good time to analyze and harmonize the literature to understand all the topics discussed in the context of gold currency. The main objective of this paper is to conduct an extensive literature review by identifying research developments related to gold currency. In addition, we examine the advantages and disadvantages of the gold currency from several works of literature in the findings section.

The structure of this research is as follows: chapter 2 discusses the data and methodology, chapter 3 covers the analysis and results, chapter 4 presents the findings of this research, and the last chapter 5 concludes the research.

RESEARCH METHOD

This study uses data on publications of papers sourced from various journals from 1899 with research on the theme of gold currency. For data collection, we search for gold currency articles that indexed by Scopus. From the search results, there are 917 works of literature published from 1899-2021. We analyze the trend of publication development on the gold currency using VOSViewer software.

VOSviewer is a program developed for creating and viewing bibliometric maps. This program is available free of charge to the bibliometric research community (see www.vosviewer.com). VOSviewer can create author maps or journals based on cocitation data or create keyword maps based on shared incident data. The program offers a viewer that allows bibliometric maps to be examined in detail. VOSviewer can display maps constructed using the VOS mapping technique and showing the multidimensional result to build the map. VOSviewer runs on many hardware and operating system platforms and can be started directly from the internet.

RESULTS AND DISCUSSION

Table 1 below shows the collection of documents used in the research with the theme of gold currency. Of the total 917 papers used, the classification contains five types of documents, including 641 journal articles, books (27), book chapters (108), conference papers (67), and reviews (74).

Table 1: Document Types

No	Document Types	Number of Articles
1	Journal article	641
2	Book	27
3	Book chapter	108
4	Conference Paper	67
5	Review	74
	TOTAL	917

Based on table 1, the most widely used document types as research subjects with the theme of gold currency are documents in journal articles with a percentage of 69% or the equivalent of 641 papers. The documents that are the least used are in the form of Retracted by 8% or the equivalent of 74 articles. This result shows that the references used are quite valid because most of them come from documents in scientific journals.

Bibliometric Graph Analysis

Bibliometrics is based on the calculation and statistical analysis of scientific outputs in articles, publications, citations, patents, and other more complex indicators. It is an essential tool in

evaluating research, laboratory and scientist, scientific specialization and country performance. After establishing the background for bibliometric development, the report presents the database from which the bibliometric was created and the main indicators used.

This section presents a visual mapping chart of 917 gold currency publications to explore the meta-analysis results. The results of the keyword mapping analysis become the basis for mapping together important or unique terms contained in certain articles. Mapping is a process that enables one to recognize elements of knowledge and their configuration, dynamics, interdependencies, and interactions.

Related to bibliometrics, science mapping is a method of visualizing the field of science. This visualization is done by making a landscape map that can display topics from science (Royani et al., 2013). The results of network visualization from 917 word map literature with the theme of gold currency are as follows

Bibliometric Author Mapping

Using the VOSViewer software, we found the author's bibliometric mapping, as shown in the following figure. The bigger the shape and the brighter the color indicates, the more the author publishes his writings related to gold currency.

Figure 1: Bibliometric Author Mapping
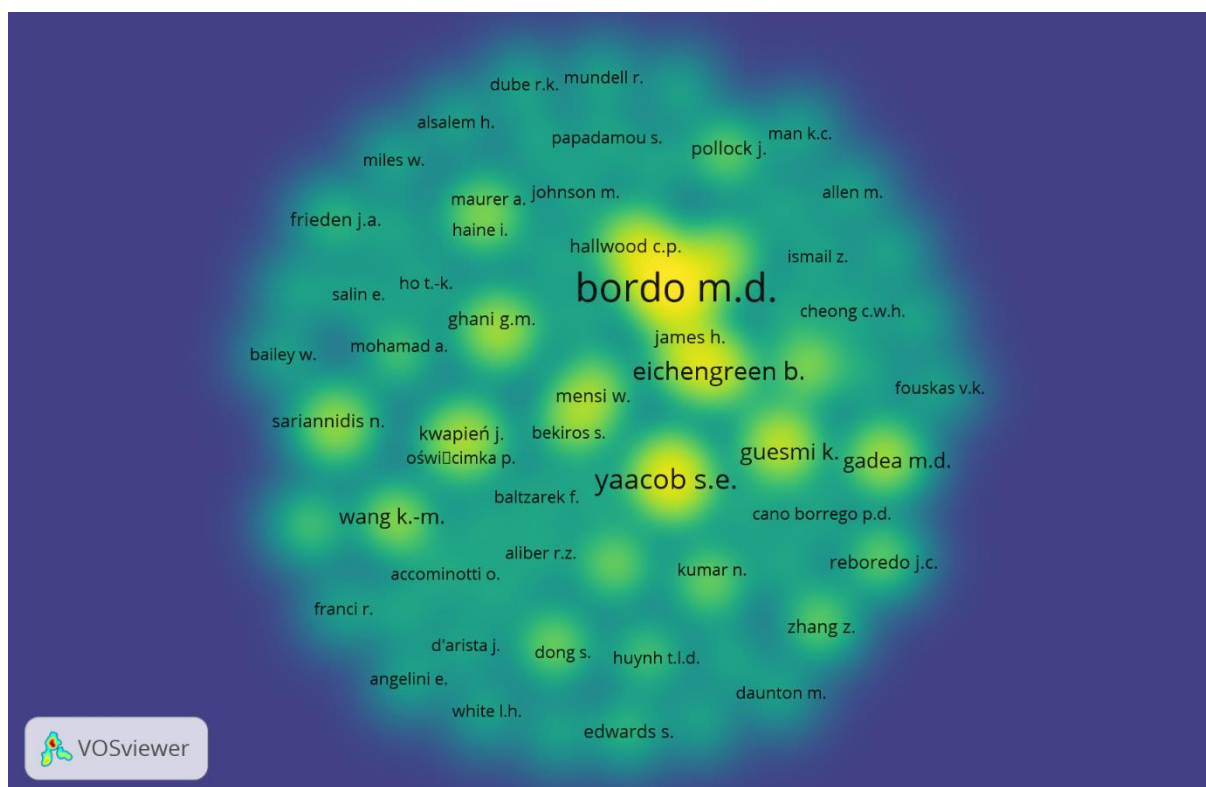
The appearance of cluster density depends on the level of yellow light brightness. This identifies that the yellow color on the map depends on the number of items associated with other items. This section is useful for getting an idea of the general structure of a bibliometric

map by paying attention to which parts of the light are considered important to analyze. From the map, it is possible to interpret the authors who have published the most.

In general, each researcher has different tendencies. Some writers are indexed as a single author, others co-author with other researchers so that multiple clusters appear, which are indicated with different densities. However, authors with a fairly large density indicate that they publish more research on the theme of gold currency. This result can be a reference for future researchers. Based on these results, the author publishes the most publications related to the theme of gold currency based on bibliometric mapping, namely Michael David Bordo.

Bibliometric Institutions Mapping

In bibliometric analysis, the author's institution can be seen from which institution they come from. Through these results, we were able to interpret the institutions that wrote the most publications.

Figure 2: Bibliometric Institutions Mapping
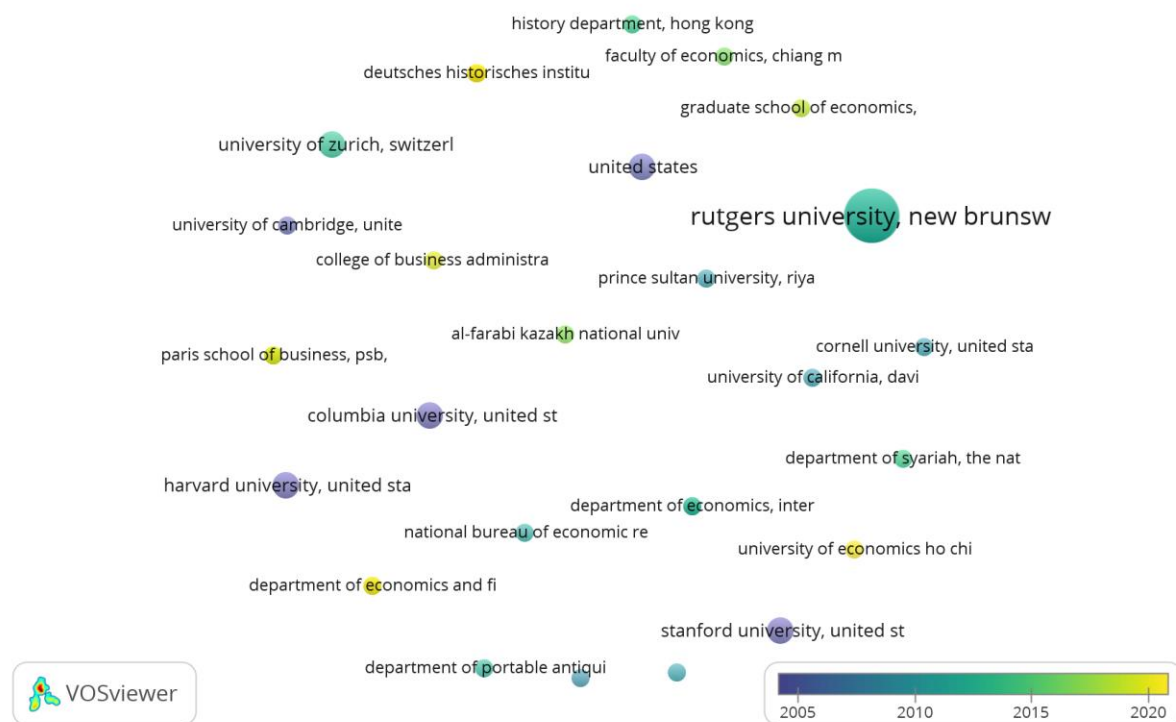
Based on the following figure, the cluster of institutions with large circles shows that these institutions are the most productive in contributing to publishing papers with the theme of gold currency. The largest number of institutions is calculated from the number of publications and links to other institutions, where an author can write many papers in different journals.

The most popular institutions are calculated based on the number of publications and the number of links to other institutions, where a paper writer can write many papers in different

journals. The most well-known ranking of institutions shown by the results of bibliometric mapping is Rutgers University-New Brunswick, NJ, United States.

Bibliometric Country Mapping

Furthermore, the visualization of the journal publisher mapping is illustrated in the bibliometric image of the journal source below. Based on Figure 3, it can be seen that several clusters of countries appear to publish the most articles with the theme of gold currency.

**Figure 3:** Bibliometric Country Mapping
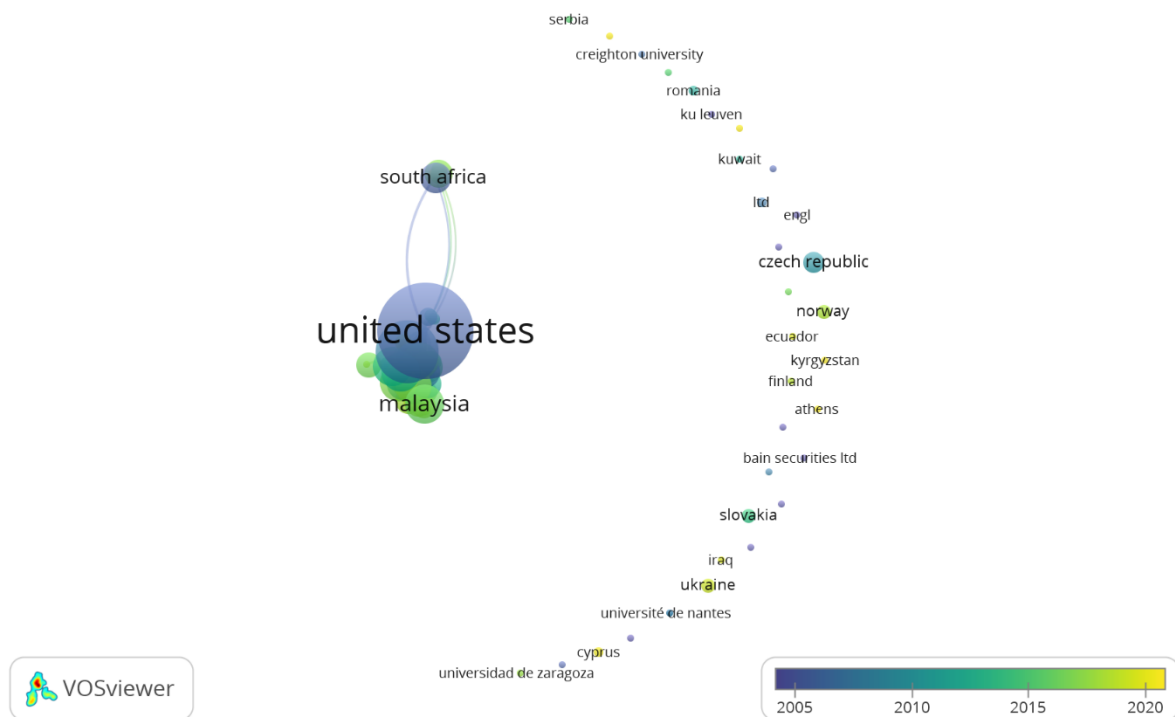
Based on the picture above, the larger the circle of the publishing country, the more papers that country publishes. According to figure 4, the United States has the brightest light; that is to say, the United States publishes the most gold currency-themed papers compared to other countries.

Bibliometric Keyword Mapping

VOSViewer can also find a bibliometric mapping of the most used keywords in gold currency themes. Keywords that have a larger form indicate that the word is used more in journals related to gold currency. Figure 4 below illustrates the bibliometric map of keywords.

Figure 4: Bibliometric map of keywords
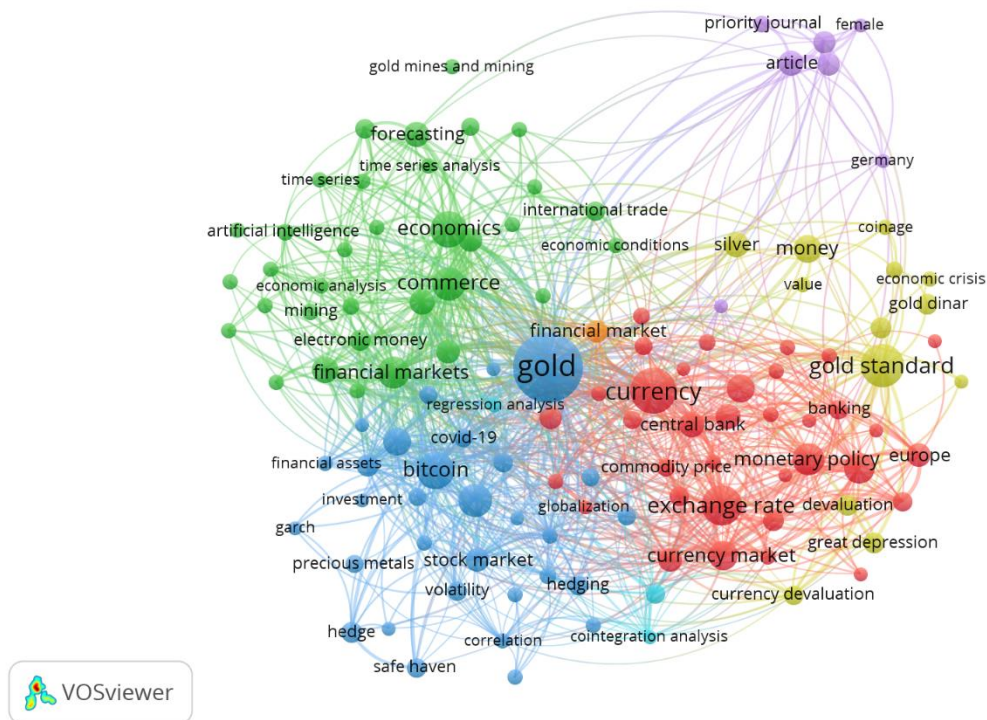
Some keywords that often appear in gold currency papers are divided into 6 clusters, namely:

- Cluster 1 (red) consists of 34 keywords: Banking, Central Bank, China, Commodity Price, Comparative Study, Currency, Currency Devaluation, Currency Market, Debt, Economic Activity, Economic Growth, Economic History, Economic Impact, Economic Instability, England, Eurasia, Europe, Exchange Rate, Financial Crisis, Financial System, Fiscal Policy, Great Depression, Historical Geography, Inflation, Interest Rate, Macroeconomics, Monetary Policy, Monetary Union, North America, Standard (Regulation), United Kingdom, and the United States
- Cluster 2 (green) consists of 28 keywords: Bitcoin, Commodity, Copper, Crude Oil, Currency Markets, Data Mining, Decision Making, Economic Analysis, Economic Geology, Electronic Money, Financial Assets, Financial Markets, Gold, Gold Prices, Information Management, Innovation, Investments, Mining, National Currency, Risk Assessment, Silver, Spillover Effect, US Dollar, Virtual Currency, and Volatility Transmissions.
- Cluster 3 (blue) consists of 15 keywords: Artificial Intelligence, Commerce, Costs, Cryptocurrency, Dynamics, Electronic Trading, Energy Markets, Exchange Rates, Financial Data Processing, Forecasting, Neural Networks, Recurrent Neural Networks, Regression Analysis, Time Series, ad Time Series Analysis.
- Cluster 4 (yellow) consists of 12 keywords: Currency Exchange Rates, Economic Conditions, Economics, Finance, Gold and Alloys, Gold Mines, Gold Mines And Mining, Industrial Economics, International Trade, Marketing, Mineral Exploration, ad Public Policy.
- Cluster 5 (blue) consists of 10 keywords: Cointegration Analysis, Commodity Market, Correlation Crude Oil Price, Demand Analysis, Economic Policy, Financial Market, Price Determination, Price Dynamics, and Stock Market.

- Cluster 6 (purple) consists of 9 keywords: Article, Controlled Study, Female, Human, Humans, Methodology, Priority Journal, and South Africa.

The keywords that are divided into 6 clusters are arranged in colored circles that show cluster indicators. This data can be used to find out the trend of keywords in the last year. The bibliometric analysis shows several widely used keywords in the papers, which are the object of research. The more keywords that appear, the wider the circle is shown. Meanwhile, the line relationship between keywords shows how much they are related to other keywords.

Bibliometric Index Mapping

In addition, this study generates an index of words that are often used by authors and are interrelated in the gold currency, as shown in the image below. An index that has the same color indicates a very close relationship.

Figure 5: Bibliometric Index Mapping
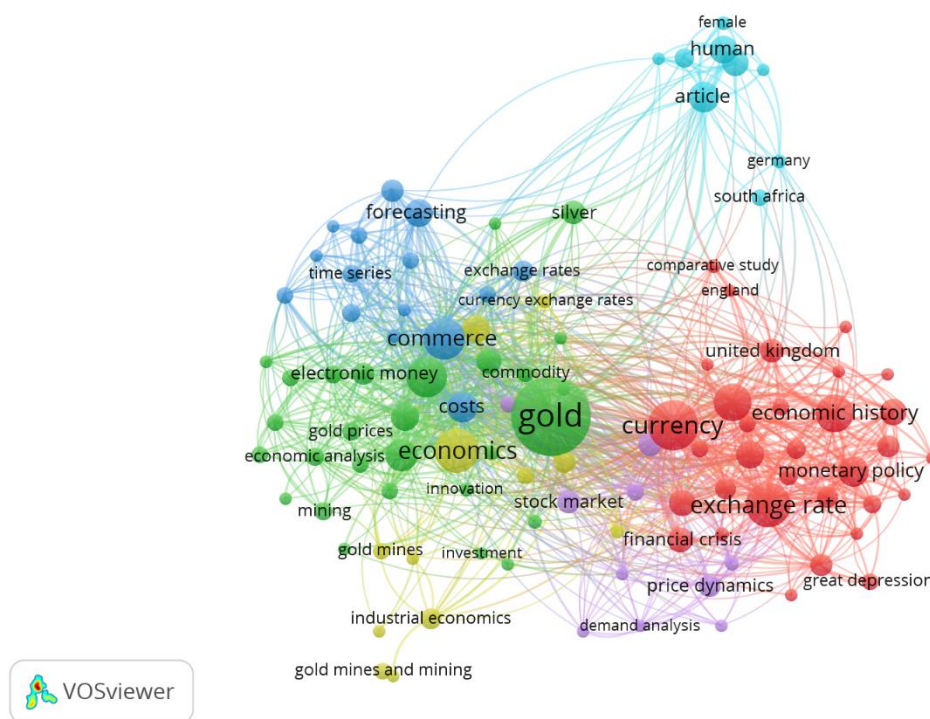
Based on the results obtained, the larger the size of the circle, the more recent the index is used. Figure 6 shows that the word that the author often uses is Gold, then followed by the word Currency.

FINDINGS

Based on bibliometric results, we found research trends related to gold currency. According to co-occurrence analysis, keywords related to safe-haven and hedging appear quite often.

The issues discussed in it are the correlation between gold, investment, and inflation. At the same time, we identified several issues raised from the bibliometric results of the gold currency, namely, related to the advantages of the gold currency system.

Many studies have examined the advantages of the gold system. Through their research, Baur & McDermontt (2010) state that gold can act as a hedge and safe haven. Since the value of gold is not based on debt and future income, gold is considered superior so that gold can be a safe haven over other assets, such as stocks or bonds (Aftab et al., 2016; Baur & Lucey, 2009). This is in line with Iqbal (2017), who examined more deeply with samples of India, Pakistan, and the United States and found that apart from functioning as a safe haven, gold can act as a hedge. Furthermore, according to Iqbal (2017), the function as a hedge for inflation risk is influenced by gold market conditions, both bearish and bullish. Using the multivariate GARCH model, Joy (2011) also investigated that gold can be used to hedge against currency or inflation risk. This is confirmed by the findings by Bordo et al. (2007), who studied the development of the inflation rate during the gold standard, which was smaller than the current use of fiat money. Bordo (1992) also discussed stability and almost no inflation in the 1821-1914 period.

Although gold can act as a hedge, Hoang et al. (2016) and Raza et al. (2016) find that the function does not apply to long-run inflation. In contrast to Hoang et al. (2016). Dee et al. (2013) studied with a sample of the Chinese capital market showing otherwise. They found that gold cannot be a hedge or safe haven in the long term but plays a role in the short term.

In the perspective of Islamic economics, the history of Islamic civilization from the time of the Rashidun caliphate to the end of the Ottoman caliphate period proves the practice of gold currency known as dinar (gold coins weighing 4.25 grams of gold) and dirham (silver coins weighing 2,975 grams of silver). Up to the present, although the use of gold is not a sharia requirement (Hasan, 2008), the gold dinar is an instrument that is compatible with Maqashid al-Shariah because inflation that occurs is not influenced by gold and gold does not lose its intrinsic value (Lee, 2011).

In addition, Cheong (2017) examines the capability of Islamic dinar gold in hedging the value of derivative instruments. The results show that, in the face of market volatility, Islamic gold dinars can protect the value of derivative instruments through the diversification of portfolios. This is in line with Joy (2011), Reboredo & Riveras-Castro (2014), Nagayev & Masih (2013), Hoang et al. (2016), and Raza et al. (2016). In addition, according to Cheong (2017), the Islamic gold dinar has a negative relationship to the subprime mortgage financial crisis in 2007-2010. When compared to the fiat money system, the existence of interest rates in the fiat money system also triggers speculation and manipulation with the potential to cause a financial crisis (Meera & Aziz, 2002). Since gold has higher stability as a reserve asset in the financial system, several studies have raised the topic of returning to the gold standard system (Bertayeva et al., 2016; Hasan, 2008; Yaacob & Ahmad, 2014).

Table 2: Advantages of gold currency system

No	Advantages of gold currency system	Source
1.	Gold as safe haven over other asset such as stocks or bonds	(Aftab et al., 2019; Baur & Lucey, 2009)
2	Gold as a hedge against currency risk / inflation	(Bordo, 1992; Bordo et al., 2007; Iqbal, 2016; Joy, 2011)
3	Gold can act as a hedge in short run, not in long run	(Hoang et al., 2016)
4	Gold can act as a hedge in the long run	(Dee et al., 2013)
5	Gold as an investment hedge	(Cheong, 2017; Hoang et al., 2016; Joy, 2011; Nagayev & Masih, 2013; Reboredo & Rivera-Castro, 2014)
6	Gold tends to be more stable rather than fiat money	(Bordo, 1992; Bordo et al., 2007; Cheong, 2017; Meera & Aziz, 2002)
8	Gold diminishes speculation & manipulation	(Meera & Aziz, 2002)

CONCLUSION

This study aims to determine the extent of the development of the gold currency research. The results show an increasing number of papers published on this theme in recent years from 1899 to 2021. More than 900 studies have been published on this theme.

Bibliometric mapping visualization shows that Michael David Bordo wrote the most about gold currency. The country that publishes the most papers related to gold currency is the United States. The institution that publishes the most papers related to gold currency is Rutgers University-New Brunswick, NJ, United States.

The gold currency research development map is classified into 6 clusters. Cluster 1 consists of 34 topics, cluster 2 consists of 28 topics, cluster 3 consists of 15 topics, cluster 4 consists of 12 topics, cluster 5 consists of 10 topics, and cluster 6 consists of 9 topics. In the word index with the theme of gold currency, Gold id the most widely used word.

However, there are following limitation on this research: first, our data collection is only rely on one indexing database, i.e. Scopus. Second, we find some literature that are irrelevant and therefore our data selection is based on the wisdom of the authors. We discard some literature with non-direct relation to gold currency. We restrict only journal articles, book and book chapters, conference papers, and review papers to be our data collection.

This study presents the current status of gold currency research. Furthermore, this study is useful for academics to continue to develop scientific research on the theme of gold currency, especially by utilizing bibliometric results. For example, using popular keywords, selecting

references based on the most popular authors, institutions, countries, keywords, and indexes. Academics can also expand their review of the gold currency literature with more specific references, such as articles indexed by Scopus or use other software to produce more diverse bibliometric mappings, such as R Biblioshiny.

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