Hayek's Dream Meets Distributed Ledgers:
Asset-referenced Stablecoins as Commodity Reserve Currencies

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Hayek's notion of currency competition is frequently evoked to describe a plausible outcome of the proliferation of cryptocurrencies, and more specifically of payment tokens. The underlying distributed ledger technology (DLT), conceived to allow transactions "without a trusted third party", may indeed appear, in this perspective, as the enabling technology for the *Denationalization of money*. However, DLT can be used to create a wide variety of cryptocurrencies, with very different implications in terms of monetary stability. In this paper, we focus specifically on "asset-referenced tokens" (ART), a relatively neglected typology, which yet has several significant embodiments and is explicitly envisaged by the recent EU regulation MiCA (Markets in Crypto-Assets). We offer a survey of ARTs backed by commodities and suggest that they may be viewed as a form of money that embodies the principles of monetary reform supported by Hayek and aimed at establishing a commodity reserve currency under a regime of currency competition.

In section 1 we introduce the concept of a commodity reserve currency and analyze the reasons why, in 1943, Hayek came to advocate it as the most desirable, if not the most politically feasible, monetary standard: essentially, since commodities have a utility as primary goods in all productive processes, they would serve as ideal stores of value in times of uncertainty, and their adoption as reserve assets to back the money supply would have the effect of stabilizing economic activity and prices. In section 2 we review various proposals of commodity reserve currencies, starting from those that were elaborated in the interwar period by Benjamin and Frank Graham and that were endorsed by Hayek. We show that the idea to use commodities as a reserve asset and as a means of settlement for international payments is brought forth today, particularly by emerging countries, as a way to reduce dependence on the US dollar. However, we also suggest that current proposals and practices seem to lead in the direction of a fragmentation, rather than of a reform of the international monetary system along the principles of a commodity reserve currency. A further factor of fragmentation has been, in recent years, the proliferation of cryptocurrencies. In section 3 we analyze a specific type of cryptocurrencies, commodity-referenced stablecoins, which may be seen as a commodity reserve currency resulting not from an international agreement, but from the free competition among private issuers of tokens. Interestingly, this regime of currency competition resembles the ideal system sketched out by Hayek in *The Denationalization of Money* in 1974. In section 4, therefore, we return to Hayek and to his theory of institutions, to understand to what extent spontaneous and constructed order concur to the evolution of monetary institutions, and the peculiar role of a commodity standard in defining the nature and form of international money.

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1. Hayek's support for a commodity reserve currency

1.1. Tabular standard

The idea of stabilizing money in terms of commodities dates back to the late 19th – early 20th century (Ussher et al. 2015). The idea was to establish a "tabular standard", i.e. to stabilize a price index composed of the prices of a given set of staples widely traded on international markets. The merits of the proposal were also praised and described by Keynes (1930). However, these versions did not envisage an actual backing of the currency, but merely a stabilization of its value, in terms of commodities. The stabilization would be achieved by regulating the value of money through variations of its quantity: yet the purchase and sale of money by the issuer would not be against commodities, but against other types of assets traditionally held on the balance sheet of central banks, such as, most typically, government bonds. It was only in the 1930s that, through the separate but closely related work of Benjamin and Frank Graham, the idea was elaborated in the direction of a commodity reserve currency, involving the actual storage of commodities as a form of backing for money. Their plan, together with other similar subsequent proposals, is described below (section 2). Here, we focus on the main economic motivations underlying the concept of a money based on a basket of primary goods.

1.2. Raw materials as a form of liquidity (store of value) for the economic system as a whole

The rationale for linking money with commodities is explained in an article by F. A. Hayek that endorses the proposals by the two Grahams (Hayek 1943). In times of uncertainty, individuals express an increased demand for liquid assets. The reason is simple: liquid assets are, by definition, assets that can be promptly converted into money at any moment, and money, in turn, can be easily spent to purchase anything that might be needed in circumstances that, especially in uncertain times, can hardly be anticipated. The observation that uncertainty fosters the demand for liquid assets is notoriously at the basis of Keynes's notion of liquidity preference and ultimately of his explanation for the persistence of high interest rates incompatible with full employment.

To be sure, Hayek had disputed Keynes's monetary account of the interwar depression. Nonetheless, in his 1943 article, Hayek concedes that uncertainty may lead to the hoarding not just of money, but more generally of "liquid assets" and indeed admits that this may be counterproductive for the economic system as a whole:

> "the striving of all individuals to become more liquid did not put society into a more liquid position at all" (Hayek 1943, p. 178)

Hayek calls this "the one really paradoxical feature of the gold standard". The paradox consists in a dramatic divergence between individual and collective interests: the more individuals accumulate liquid assets to prepare for unanticipated contingencies, the larger the share of

aggregate savings that are held in the form of a commodity – gold – which has very little uses. Moreover, since this commodity is only available in limited amounts and its quantity cannot be augmented but at great cost and with great incertitude and delay, the increase in its demand produces a rise in its relative value, which attracts still greater demand, in a deflationary spiral that further depresses expectations and investments. Hence the paradox, which appears literally as a contradiction of the common knowledge captured by the metaphor of the "invisible hand": to the extent that savings take the form of a demand for highly liquid assets, the frugal man is no longer a public benefactor, as predicated by Smith; on the contrary, the more individuals legitimately prepare for an uncertain future by hoarding liquid assets, the less prepared to face the future is the collectivity, since it is led to reduce production and divert it primarily towards one good of very limited utility.

The intuition behind Hayek's endorsement of a commodity reserve currency is the fact that, by moving beyond gold and allowing central banks to hold a wide range of raw materials and foodstuffs, individual savings would be realigned with collective savings. To save, especially in times of uncertainty, means to store away something that can prove useful to satisfy unpredictable needs:

> "There will always be periods in which increased uncertainty about the future will make it desirable that a larger portion of our assets should be given forms in which they can be readily converted to the needs of what are still unpredictable circumstances" (Hayek 1943: 178).

In similar situations, a commodity reserve currency would allow the increased liquidity preference of the public to be accommodated by a form of money creation which would involve the holding of increasing amounts of reserves of primary goods. This is the essence of Hayek's proposal:

> "A rational arrangement of our affairs would require that at such times production is in some measure switched from things of more restricted usefulness to the kind of things which will be needed in all conditions, such as the most widely used raw materials" (Hayek 1943: 178).

The latter, far from being useless, would represent the best form of collective storage to face uncertain times. It is, in fact, the distinctive feature of commodities as primary goods to be at the beginning of all value chains and hence at the top of an ideal hierarchy of goods in terms of their utility.

Raw materials are "liquid" in the sense of being capable of taking different forms. They may be less liquid than money, because their transformation in different goods to satisfy different needs may require a longer time. However, they are also more liquid than money, because they do not rely on the assumption that those goods have been produced and are offered for sale, but they provide the basis for the production of those goods. More than money, commodities are the ultimate liquidity (Fantacci 2024).

1.3. Commodity reserve currency (1943)

Hayek builds his case against the gold standard on the same points that Keynes makes in chapter 17 of the General Theory and that underly his theory of interest, and more specifically his explanation of the tendency of the rate of interest to remain at a higher level than what would ensure full employment (Keynes 1936: 229-234). Keynes's argument is essentially twofold:

i) money has a low elasticity of substitution: an increase in its price will not cause its demand to fall and to be directed towards other (substitute) goods, capable of responding to similar uses, because its use value consists primarily in its exchange value;
ii) money has a low elasticity of production: an increase in its price will not cause its supply to increase promptly and largely enough to adapt to the initial increase in demand.

Hayek's rejection of the gold standard is predicated on the same premises. First, Hayek characterizes gold in the same terms, as "a thing [...] which has not only very few other uses, but which can be supplied in increased quantity only so slowly that an increase in the demand for it will act much more on its value than on its quantity or, in other words, will cause a general fall in prices" (Hayek 1943: 178).

If he follows Keynes in the diagnosis, Hayek goes even further than Keynes in suggesting a solution. In fact, he seems to take seriously what in the General Theory is only a quip:

> "Unemployment develops, that is to say, because people want the moon;—men cannot be employed when the object of desire (i.e. money) is something which cannot be produced and the demand for which cannot be readily choked off. There is no remedy but to persuade the public that green cheese is practically the same thing and to have a green cheese factory (i.e. a central bank) under public control" (Keynes 1936: 235).

Hayek's endorsement of the commodity reserve currency goes in the direction of transforming the central bank, if not into a blue cheese factory, at least into a deposit for foodstuffs and raw materials more palatable than gold. Indeed, according to Hayek, by broadening the array of commodities held as reserves, central banks would overcome the limits of the gold standard, while retaining its merits. To be sure, most commodities individually share with gold a lengthy, uncertain and financially onerous productive process. However, taken collectively, they preserve the advantage of being generally countercyclical if adopted as a monetary standard.

Commodities typically have, as gold, a low elasticity of substitution: they can hardly be substituted in their respective uses for their distinctive properties. However, to the extent that they are primary goods widely used in most productive processes, their demand as inputs will typically fall in the low phases of the economic cycle, when there are expectations of a sluggish demand: laying them at the basis of the monetary system, as a reserve asset for central banks, would prop up their demand as a store of value precisely at the moment when their demand for productive purposes would fall. In other words, a commodity reserve currency, by granting foodstuffs and raw materials a monetary function as a reserve asset, would stabilize their

demand and hence their price, by counterbalancing the fluctuations of productive demand with opposite changes in their monetary demand.

Commodities also share the other distinctive feature of gold, of having a low elasticity of production. However, thanks to the function that they would acquire within a commodity reserve currency, their production would be stimulated for the purpose of accumulating reserves precisely at the moments when their requirement as an input to satisfy the needs of production and consumption would be sluggish.

For both Keynes and Hayek, money has an advantage over other goods as a store of value thanks to its greater liquidity. The difference between the two authors lies in how they propose to address and smooth out this disparity. Keynes's proposal is to reduce the liquidity of money by imposing artificial carrying costs:

> "In the case of a commodity other than money a modest stock of it may offer some convenience to users of the commodity. But even though a larger stock might have some attractions as representing a store of wealth of stable value, this would be offset by its carrying-costs in the shape of storage, wastage, etc. Hence, after a certain point is reached, there is necessarily a loss in holding a greater stock. In the case of money, however, this, as we have seen, is not so,—and for a variety of reasons, namely, those which constitute money as being, in the estimation of the public, par excellence 'liquid'. Thus those reformers, who look for a remedy by creating artificial carrying-costs for money through the device of requiring legal-tender currency to be periodically stamped at a prescribed cost in order to retain its quality as money, or in analogous ways, have been on the right track; and the practical value of their proposals deserves consideration" (Keynes 1936: 233-234)

Hayek's proposal, instead, is to recognize the intrinsic liquidity of commodities as primary goods, endowed with the innate quality of being able to satisfy a multiplicity of different needs, not through their exchange on the market, but through their use in the productive process, i.e. in virtue not of their value in exchange, but of their value in use (Fantacci 2024).

2. National and international initiatives and proposals to establish monetary systems based on commodities

Proposals to implement some commodity-reserve currency, such as Benjamin Graham's endorsed by Hayek, share several common elements. Firstly, they all recognize that raw materials markets are inherently unstable, even in perfectly competitive environments. Additionally, these proposals view the establishment of reserves in raw materials as an evolution of the gold standard. They suggest replacing gold—which has limited practical utility and struggles to adapt efficiently to fluctuations in demand—with commodities that have significant use value and are essential in the early stages of production processes.
The authors discussed here ultimately contend that raw materials can serve as liquid assets in times of uncertainty. Furthermore, raw materials constitute a substantial portion of global

production. As a result, their characteristics could not only stabilize the prices of a selected basket of commodities but also contribute to creating a more robust and stable currency. This, in turn, would help mitigate economic cycles.

2.1. History of Commodity-Reserve Currency proposals

As mentioned in the previous section, Benjamin Graham made one of the first proposals for a commodity-backed currency in 1937 in his book *Storage and Stability*[2]. While in that book Graham proposed a national currency, he later applied the 1937 proposal to the international sphere in *World Commodities and World Currency* (B. Graham 1944).

Graham argued that a currency backed by and convertible in a bundle of raw materials could achieve several objectives. First, it would enhance national security and the well-being of the population by ensuring continuous access to essential raw materials, thereby preventing significant price increases during times of scarcity. Second, it would stabilize the prices of those raw materials, contributing to the overall goal of mitigating the trade cycle. Since raw materials play a critical role in the production process, their price fluctuations can affect the economy as a whole. Additionally, a currency backed by a basket of commodities would serve as a solid and stable international currency.

He believed this "composite unit" would have advantages over the gold standard, stating that "it will be more closely related to the things people want and use. Its value will not be based on convention or traditional acceptance, but on direct and everyday utilities." (B. Graham 1937, 147). Graham often emphasized that the value of gold is more associated with convention than intrinsic worth. He noted, for example, that the United States' "eagerness to see that other countries possess gold and use it in their own monetary systems is a strong indication of our doubt of its intrinsic value. […] The United States Treasury's currency plan -now the Experts' plan -appears to be as much a rescue operation for gold as it is for debtor countries. It offers the world a certain amount of credit on condition that they recognize the present value of gold as inviolable" (B. Graham 1944, 95–96). Ultimately, to Graham, the real purpose of the world economy is to produce, exchange, and consume useful goods and services. He believed that a commodity reserve currency system could align the global economy more closely with these real activities, minimizing the excessive influence of finance: "Commodity-reserve currency has certain basic superiorities to both gold and international credits. It embodies the new attitude of *groceries first*" (B. Graham 1944, 84). In the light of these quotations, Hayek's endorsement of Graham's proposal will hardly be surprising: indeed, as noted in section 1, the usefulness of primary goods represents also for Hayek a strong argument in favour of their adoption as a monetary standard and as a reserve asset

In Graham's proposal, this commodity-reserve currency would be managed by an International Commodity Corporation (ICC), a subsidiary of the IMF. While the proposals by Keynes and White aim to maintain exchange rate stability through credit transfers from surplus to deficit

[2] Based on this proposal, also Frank Graham proposed the implementation of a commodity-reserve currency at a national level (F. D. Graham 1940).

countries, Graham stresses that exchange rate stability does not necessarily equate to price stability[3]. In contrast, the commodity-reserve currency seeks price stability through mechanisms that involve coinage rather than credit. Debtor countries could sell their goods to the ICC to address their trade deficits, thus reducing reliance on loans from the IMF. In this way, the IMF and the ICC would function as complementary entities.

Keynes's early proposals also included the creation of an agency charged with managing stocks of raw materials. His first drafts for the International Clearing Union (ICU) included proposals for buffer stocks, reflecting his long-standing interest in raw materials since the 1920s (Fantacci 2017). In 1938, Keynes suggested that the British government offer producers in the British Empire the opportunity to store raw materials, which would remain their property: "It would be a form of foreign investment, the security for which would offer the great advantage of being situated at home! […] But at this juncture of affairs I can see no form of foreign investment which it would be safer or more advantageous for us to accumulate. It is true, of course, that the income we should derive from it would not be in the shape of money interest or dividends, but in the shape of security and in the facility to avoid paying excessive prices for purchases made subsequently in circumstances of unusual need." (J. M. Keynes 1938, 458)[4].

Keynes viewed the accumulation of raw materials not as a factor driving gold out of the country, but he regarded "the policy of holding liquid stocks of raw materials as a natural evolution of the policy of holding liquid stocks of gold outside the banking system". In short, accumulating raw material stocks is a form of foreign investment without the usual liquidity problems associated with such investments. Particularly during wartime, Keynes believed that accessing this type of liquidity was more advantageous than relying on gold.

In the early 1940s, Keynes began envisioning an international organization that could manage buffer stocks through acquisitions rather than just storage. Like Benjamin Graham, he believed that this approach was superior to individual commodity arrangements, which stabilize prices by restricting production. Building on his 1938 work, Keynes drafted the first proposal for International Commodity Control to manage buffer stocks. He proposed that the International Clearing Union and International Commodity Control operate as complementary institutions. The Commodity Control would set the prices of commodities in Bancor and finance its commodity acquisitions with overdraft facilities provided by the Clearing Union. Both institutions were to simultaneously deal with the problem of international imbalances, promote international trade and mitigate the economic cycle.

Ultimately, Harry Dexter White's approach prevailed, leading to the establishment of the International Monetary Fund (IMF) and an international monetary system centered on the US dollar as the primary reserve currency. This outcome diverged from Keynes's goal of stabilizing

[3] Graham wrote his book while the proposals were still being discussed.

[4] This is the kind of advantage that in the General Theory Keynes will call liquidity-premium, that is the fact that "the power of disposal over an asset during a period may offer a potential convenience or security […]" (John Maynard Keynes 1936, 226).

raw material prices, as the Bretton Woods system focused instead on stabilizing exchange rates and offering short-term financial assistance.

After having disappeared from the debate for 20 years, the issue of stabilizing commodity prices was revived with the establishment of UNCTAD and was given further impetus after the collapse of Bretton Woods. This time, the discussion took place in a context in which OPEC countries were using politically their dominance in oil production and in which third-world countries were beginning to organize themselves to try to achieve economic development. Ultimately, proposals for a New International Economic Order (NIEO) were unsuccessful, as were proposals for a commodity-reserve currency.

In 1964, Kaldor, along with Hart and Tinbergen, advocated for a change in the international monetary system, believing that the existing system threatened global prosperity. They identified a fundamental paradox in the key currency system: the key currency must be strong to be accepted as an international reserve, which means there is no expectation of devaluation. Conversely, the issuing country must maintain a deficit in its balance of payments, necessitating that the key currency also be "weak." As Hart, Kaldor, and Tinbergen noted, “To be simultaneously strong and weak in the relevant way is an inherently transitory condition” (Hart, Kaldor, e Tinbergen 1980). They concluded that the most effective way to reform the international monetary system was to monetize assets other than gold.

Like Graham and Hayek, Hart et al. emphasized the different characteristics of gold compared to other raw materials. They described gold as an "artificial" commodity, stating that its value lies in its function as a reserve of value. In contrast, raw materials possess use value in the production process. However, due to gold's significant role in global reserves, its status should be preserved in any new system. The new currency would be backed by commodities with high degree of standardization and reasonable durability storage, and with reasonable freedom of price manipulation (this excludes petroleum).

The proposed new currency, called Bancor after Keynes’s plan, would be issued by the IMF and would be in part backed by gold, and in part backed by a basket of raw materials. Additionally, a fixed portion would be fiduciary. The proposal allowed for the substitution of physical commodities with reliable future delivery contracts when the futures price is lower than the spot price, a consideration not included in previous proposals. Bancor would be convertible into gold and commodities, with fixed exchange rates between these assets. It would act as a deposit currency, serving, like gold, to facilitate transactions between countries. Similar to Benjamin Graham's proposal, this system would not stabilize the prices of individual commodities but rather the prices of the entire commodity basket.

As was noted before by Graham and Hayek, under the gold standard, price stabilization was not achieved due to delays in adjusting gold quantities to changing demand and the limited contribution of new gold production to the existing stock. A commodity-reserve currency would alleviate these issues, as the eligible commodities represent between 5% and 10% of global production. This would result in a more effective stabilizing effect, given that raw

materials are integral to all production processes and could contribute to a general stabilization of prices.

Another critical aspect, which was missing from proposals made in the 1940s, was that the implementation of a commodity-reserve currency would help improve the terms of trade for less developed countries. Kaldor noted that the long-term solution to the decline in the terms of trade for developing countries was not merely to stockpile excess primary products but to diversify their economies. However, stabilizing the prices of raw materials in the short term was necessary to achieve this long-term goal (Kaldor 1980).

While the rate of growth of manufacturing production has an influence on the prices of raw materials and ultimately on their output, this does not work the other way around. When the production of raw materials increases more than manufactures production, their prices fall. A fall in the prices of primary products represents an increase of real income for industrialized countries. But at the same time, the diminished demand for manufactures of the under-developed countries will likely more than offset that increase in income. In the end, the fall in primary prices will be depressing for the world economy as a whole. The paradox is that it is exactly during periods when the supply of primary products is increasing at a relatively quick pace that there is potential for an increase in the growth rate of global manufacturing output.

With the implementation of a commodity-reserve currency, an increase in primary production would be absorbed by the IMF, leading to a corresponding increase in effective demand for manufactured goods, thereby generating a multiplier effect. While the IMF accumulates reserves, industrialized countries would experience export surpluses. Once these countries reach full employment, the manufacturing sectors of less developed countries would begin to expand. Hart, et al. stated, “Since the world as a whole is a vast under-developed economy - with vast reserves of under-utilised and unemployed labour which can be drawn on for employment in industry so long as raw materials supplies are available and demand is expanding -it cannot be denied that it is possible to step up the growth of world manufacturing production sufficiently so as to match any likely increase in the supply of primary products.” (Hart, Kaldor, e Tinbergen 1980, 166). There is little risk that this system would excessively stimulate raw material production since the potential for growth in world manufacturing production is still enormous, and the proposed system provides a mechanism through which increased primary production induces an acceleration of industrial growth. In this way, the long-term objective of industrialisation of under-developed countries can be reached, and so their terms of trade improved.

2.2. Current initiatives to give commodities a greater role in the international monetary system

Following the failure of discussions to establish a NIEO and the rise of neoliberalism during the 1980s and 1990s, these discussions were abandoned until the Global Financial Crisis that began in 2008. In 2009, the president of the People's Bank of China proposed reforming the international monetary system (Xiaochuan 2009). In his article, he examined the criteria that an international reserve currency should fulfil to achieve the initial objectives of the

International Monetary Fund (IMF), as stated in its Articles of Agreement: promoting international financial cooperation, facilitating the expansion of international trade, ensuring exchange stability, and addressing international imbalances. He concluded that an effective international reserve currency must be stable, flexible in supply, and issued according to pre-established rules.

Furthermore, the currency's supply should not be tied to the needs of any specific country. Echoing the insights of Hart et al. from the mid-1960s, Xiaochuan referenced Triffin's dilemma, which highlights the challenges faced by countries that issue international reserve currencies—they must provide liquidity to the global monetary system while simultaneously maintaining the currency's value.

According to Xiaochuan, John Maynard Keynes had already envisioned a super-sovereign reserve currency when he proposed the Bancor. Xiaochuan also significantly emphasizes an aspect of Keynes's proposal that has seldom been noted even by the most devoted scholars: bancor was intended to be anchored to the value of representative commodities. Although this proposal was never implemented, the Special Drawing Rights (SDRs) created by the IMF in 1969 possess characteristics that could enable them to function as an international reserve currency. In the short term, the role of the IMF's SDRs could be enhanced if they were utilized not only among governments and international institutions but also for international trade and financial transactions. Additionally, financial assets denominated in SDRs could be developed to increase their attractiveness, and their usage in international trade, corporate accounting, and commodity pricing could be actively promoted. Therefore, allocations of SDRs should be increased, and the composition of the SDR basket should be updated to reflect the GDP of the countries included[5].

The proposal from the People's Bank of China has sparked a debate regarding the reform of the international monetary system. Since the end of the Cold War, the world has operated under a unipolar structure; however, this may soon change as China actively challenges that dominance through various initiatives, such as the Belt and Road Initiative and participation in the BRICS group of countries (Pozsar 2022b). While the specifics of how the international monetary system will change remain uncertain, it is clear that we are moving towards a multipolar order and a trend of de-dollarization. In fact, the need to de-dollarize the international monetary system is the only point of consensus among the BRICS countries.

We are interested in exploring to what extent this de-dollarization may involve the use of commodities as international reserves, effectively replacing the US dollar. In his article "War and Industrial Policy," analyst Zoltan Pozsar suggests that to counter the "alliance of the sanctioned" countries—namely Turkey, Russia, Iran, China, and North Korea (referred to as TRICKS)—key elements of industrial policy in the coming years will focus on re-stocking, investment, re-shoring, and re-arming, all of which are commodity-intensive endeavors (Pozsar 2022b). Pozsar also argues that the new international order, which he refers to as Bretton Woods III, will be centered on commodity-based currencies from China and Russia. This shift

[5] This was partially done in 2016, when the Chinese renminbi (RMB) was included in the SDR basket.

is likely to generate inflationary pressures and weaken the euro and the dollar. He asserts that the embargo on Russian reserves marked the end of Bretton Woods II, i.e. on the international monetary system based on the use of an inconvertible US dollar as a global currency. China has begun diversifying its international reserves, and Pozsar predicts that "When this crisis (and war) is over, the U.S. dollar should be much weaker and, on the flipside, the renminbi much stronger, backed by a basket of commodities." (Pozsar 2022a, 4).

China is not the only country interested in de-dollarization. Several nations in the Global South are also looking to reform the international monetary system for various reasons, some of which are general, while others are more recent. Among the recent reasons the most relevant are the sanctions imposed on Russia, which have affected three main areas: energy, supply chains, and international finance (Bai 2023). First, energy sanctions have disrupted the global energy market. Russia has been compelled to sell its oil and gas at low prices to the Asia-Pacific region, which has put pressure on other producers who are already exporting to those markets. Additionally, the economic sanctions have led some companies and suppliers to withdraw from the Russian market, pushing Russia to seek new suppliers. Lastly, financial sanctions and the freezing of reserves are driving Russia towards de-dollarization.

Russia's expulsion from SWIFT and the freezing of the reserves and funds of sanctioned businessmen have diminished the dollar's status as a safe haven. The recent sanctions against Russia have made countries in the Global South more aware of the connection between the international financial system and global trade[6]. For example, Russia has required hostile countries to open accounts in Russia to pay for gas, forcing them to deposit euros and dollars. Meanwhile, China has signed bilateral agreements with several energy-rich countries to settle transactions in renminbi (RMB).

Russia has recently proposed reforms for the international monetary system following the BRICS meeting in Kazan in October 2024 (The Ministry of Finance of the Russian Federation e Bank of Russia 2024). This report emphasizes the lack of competition in the international payments infrastructure, which hinders countries from adopting alternatives. In a joint statement, the member countries expressed their commitment to “encourage strengthening of corresponding banking networks within BRICS and enabling settlements in local currencies in line with BRICS Cross-Border Payments Initiative (BCBPI), which is voluntary and non-binding, and look forward to further discussions in this area, including in the BRICS Payment Task Force.” (XVI BRICS Summit 2024, 17).

The countries most interested in diversifying the international financial system are Russia and Iran, primarily due to sanctions. China is partially included in this group, as it has faced fewer sanctions so far, although these may increase in the future. Conversely, Brazil, India, and South Africa—original BRICS members—along with Egypt, Ethiopia, and the UAE, are closely

[6] This had already been noted by Hart et al. (1964), who observed that the fact that the international monetary order is part of the mechanism of world trade has not been sufficiently emphasized, so its reform will affect the shape that trade will take in the future.

integrated into the existing system and do not view de-dollarization as an urgent priority. However, they acknowledge that it could be beneficial in the long term.

The BRICS countries are exploring various approaches to de-dollarization, including the concept of creating a common currency backed by commodities. During the opening plenary of the Johannesburg Summit, Brazil's president Lula da Silva stated, "The creation of a currency for trade and investment transactions between BRICS members increases our payment options and reduces our vulnerabilities"[7].

This idea is still in its early stages, and it remains unclear what this new currency will entail. One possibility is the use of the yuan; however, this seems unlikely at present and would not address the issue of the international monetary system's dependence on a single national currency. Gai Bao's article discusses the potential for a BRICS currency backed by oil, especially since several oil-producing countries have recently joined the BRICS. However, if a BRICS currency were to be utilized for setting oil prices, it would represent a direct challenge to the US. Additionally, the establishment of developed financial markets for that currency would be necessary.

Additionally, the idea that Iran and Russia have begun working towards a gold-backed CBDC, which would replace the dollar and the respective national currencies in foreign trade transactions, has gained strength in recent months (Escobar 2023). With both countries affected by international sanctions, trade between them has grown. If other countries involved in the International North-South Transportation Corridor (INTSC) route decide not to respect the sanctions, trade in the area is destined to grow, and the creation of a gold-backed stablecoin could be successful.

Likewise, these countries are part of the BRICS, which, as we mentioned, have been discussing the creation of some kind of common currency for a few years.

On the other hand, Sergey Glazyev, Commissioner for Integration and Macroeconomics of the Eurasian Economic Union (EAEU), has argued that Russia's best strategic decision would be to construct transparent and mutually beneficial rules for countries that currently trade with Russia, such as Turkey, Iran, China, and India, among others (Glazyev and Mityaev 2023). Fixing the price of major commodities in gold would be one way to do this. Building up gold reserves would also eliminate the exchange rate risk caused by Russian exporters building up soft currency balance sheets.

For the time being, the main attraction is the settlement of transactions in national currencies, as several bilateral agreements have already been established, including those between China and Russia, China and Brazil, and Russia and India for energy trade. Although the establishment of a commodity-reserve currency by BRICS countries appears unlikely in the near future, it is evident that, as Western nations seek to decrease their dependence on Russian

[7] In the past, Lula had also proposed to create a common currency for Mercosur.

energy[8] and Chinese supply chains, the BRICS countries are also aiming to minimize their reliance on the US dollar and mitigate the impact of economic sanctions.

3. Commodity-based tokens and Hayek's currency competition

3.1. Types and examples

The intrinsic volatility of bitcoin and other cryptocurrencies inspired the issuance of a new generation of tokens pegged to official currency or other assets, the so-called stablecoins. Among these, there is a particular class of crypto-assets that are anchored to commodities. Different types can be identified according to the kind of commodity that provides the reference:

- The most common type of commodity-referenced token is represented by stablecoins convertible into metals, primarily gold. The issuers are private businesses, such as Paxos and Tether. The value of the tokens is fixed in terms of a quantity of gold, of designated weight and fineness. Each token represents either a specific ingot identified by its unique serial number (allocated gold) or an amount of generic (unallocated) gold. Also governments may be involved in issuing similar tokens. In January 2023, Russian news agency Vedmosti reported that Russia and Iran had started talks to issue a gold-backed stablecoin for the purpose of reducing the dependence on the US dollar in their bilateral trade relations (Tayeb 2023).
- Another commodity that has been identified as a possible anchor for the issuance of a government stablecoin is oil. The initiative on this front was taken particularly by Venezuela under president Maduro, in 2018: the "petro" was intended to facilitate circumvention of US sanctions. However, after six years of very limited use and suspects of scams, the coin was discontinued in January 2024 (Rojas 2024).
- Agricultural products are also used as backing for stablecoins. Agrotoken is a company that offers producers the possibility of tokenizing their crops, primarily for the purpose of using the tokens as collateral for loans from the banks. The company reports having tokenized 230.000 tonnes of grains (corn, wheat and soya) for a transaction volume of $70 million.
- Finally, another significant form of backing is represented by energy. Several startups have viewed DLT (distributed ledger technology) as a way to support DER (distributed energy resources): for example, Powerledger has developed a blockchain-based platform to facilitate P2P exchanges of energy from renewable sources; KlimaDAO is a decentralized autonomous organization that aims to protect the environment by issuing a token backed by carbon credits (nuant 2024).

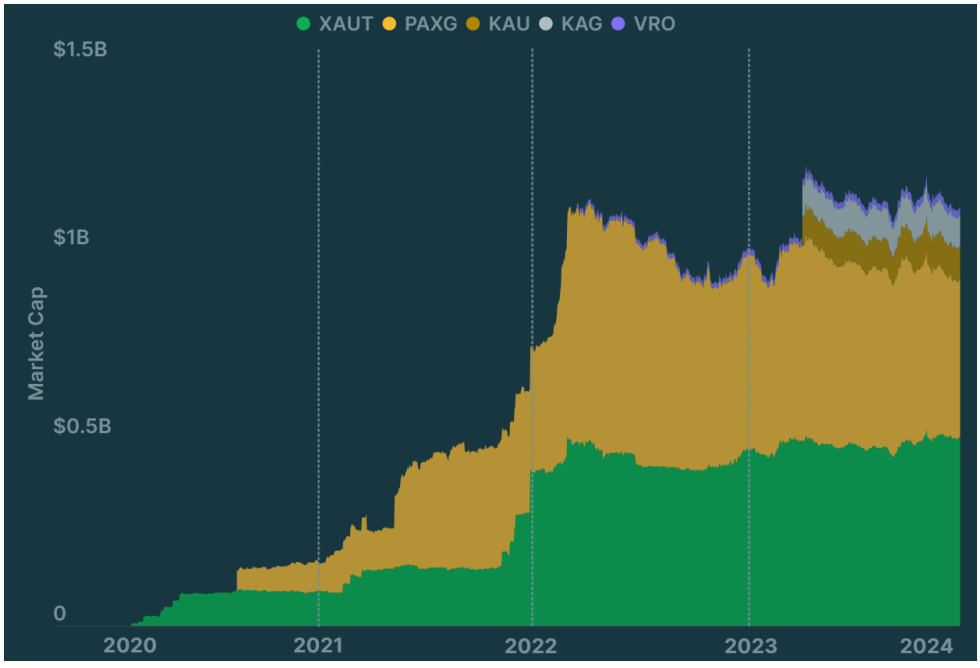
[8] See, for example, RePowerEU to reduce energy dependence on Russia.

3.2. Market capitalization and transaction volumes

Commodity-backed stablecoins have a market capitalization of $1.69 billion. The overwhelming majority is backed by gold and the two largest tokens make up over half of the market.

Table 1. Top 5 commodity-backed stablecoins by market capitalization

Position	Name	Price	Trading volume	Capitalization
161	Tether Gold XAUT	$2,629.24	$4,912,796	$647,925,061
187	PAX Gold PAXG	$2,631.67	$16,163,158	$522,909,669
343	Quorium QGOLD	$2,581.43	$109,833	$216,771,468
496	Kinesis Gold KAU	$84.33	$77,397.40	$120,981,561
519	Kinesis Silver KAG	$29.98	$67,440.32	$113,585,878
Source:	https://www.coingecko.com/en/categories/tokenized-commodities			



Source: CoinGecko 2024 RWA Report

3.3. Different stabilization mechanisms: backing, control of supply, algorithmic trading

The fact that a stablecoin has a fixed value in terms of a given commodity does not necessarily mean that it is fully backed by the commodity itself, nor that the issuer commits to its convertibility into the actual commodity at the designated value. The main obligation of the issuer is to maintain the value stable in terms of the commodity. This may be achieved by backing, i.e. by actually purchasing and holding an amount of physical commodity equivalent to the tokens issued. But the peg to the commodity may also be achieved by buying and selling the token not against the referenced commodity, but against other assets, in order to control its supply and hence its price. Similar mechanisms may be automatized through the use of algorithmic trading.

3.4. Trading platforms

Trading platforms differ in reputation, legal and technical security, types of trade operations and range of cryptocurrencies traded. The main trading platforms are Goldmoney, Tether Gold, Paxos Gold and DigixDAO.

3.5. Use cases: investment vs. Transaction

Although in principle the stability of commodity-referenced tokens make them an ideal means of exchange, particularly for wholesale transactions in the context of international trade, the demand for this as for other types of stablecoins is apparently confined primarily not to transaction- but to investment purposes.

3.6. Limits: legal uncertainty and carrying costs

The further diffusion of commodity-backed stablecoins for both transaction- and investment purposes is mired by many obstacles, both legal (regulatory uncertainty and legal differences between various jurisdictions) and technical (related to the scalability of blockchain technology and to the interoperability of different DLTs) (SACA 2024).

Such difficulties exacerbate the uncertainties related to the ability of issuers to maintain the peg to the designated commodity. Confidence can be supported by backing, but at the cost of huge carrying costs.

3.7. Rationale for public intervention

The opportunity for governments to issue commodity-backed stablecoins is justified, not only by the limits encountered by private enterprise and described in the previous sections, but also

by the willingness to pursue political aims, such as to stabilize commodity prices, reduce dependence on the US dollar or circumvent sanctions.

3.8. Currency competition according to Hayek

The scenario that starts to appear today with the proliferation of cryptocurrencies, and more specifically of commodity-based tokens, is strikingly similar to the one sketched out by Hayek in a later essay, The Denationalization of Money, originally published in 1974.

Indeed, after having apparently turned away from monetary matters (and from strictly economic issues, more generally) for three full decades, Hayek famously presents an entirely new currency proposal in 1974: The Denationalization of Money. The reasons for a revived interest are clear: in 1943, Hayek had contributed to the debate concerning the new international economic order to be established after World War II; now, in 1974, the order that had been established back then in the form of the Bretton Woods System was collapsing with the suspension of the dollar convertibility into gold and with the shift towards a system of floating exchange rates. It was time to reform the international monetary system.

What is more surprising, perhaps, is that in 1974 Hayek does not go back to his previous proposal of establishing a commodity reserve currency but advocates a form of currency competition. At first glance, this seems to represent a U-turn: the commodity reserve currency implied an order imposed "from above", since it relied on the initiative of a supranational organization to issue the currency and ensure the backing; by contrast, the denationalization of money envisaged the ability of free competition to ensure the production of the best form of money "from below", as a response of private enterprise to the needs expressed by the users.

However, at closer consideration, there is a continuity between the two proposals. Indeed, Hayek's notion of currency competition is based on the idea that the object of competition would be precisely the ability to provide the public with a form of money with a stable value in terms of a basket of commodities. In fact, Hayek envisages a plurality of private banks issuing "private token money" and he describes in the following terms the kind of considerations that would guide the individual banker:

> "I could hope to keep these ducats in circulation only if I fulfilled the expectation that their real value would be kept approximately constant. And I would announce that I proposed from time to time to state the precise commodity equivalent in terms of which I intended to keep the value of the ducat constant" (Hayek 1990: 46).

It should be emphasized that Hayek is thinking about stabilizing the value of the currency in terms of a basket not of consumer goods, but of primary goods. The example he provides, in fact, is strikingly similar to a tabular standard of the type described above (in section a):

TABLE II

ILLUSTRATION OF
A CURRENCY STABILISATION SCHEME

Commodity	*Quantity*	*Currency in which quoted*	*Price in that currency*	*Rate of exchange*	*Price in own currency*
Aluminium	x tons	$	.	.	.
Beef	.	£	.	.	.
Camphor	.	Ducats	—	—	.
Cocoa	.	.	.	.	.
Coffee	.	.	.	.	.
Coal	.	.	.	.	.
Coke	.	.	.	.	.
Copper	.	.	.	.	.
Copra	.	.	.	.	.
Corn	.	Ducats	—	—	.
etc.	.	.	.	.	.
				Total	1,000

Source: Hayek 1990: 61.

The reference to commodities is advocated, in 1974 as in 1943, also in view of stabilizing the economy and smoothing out the trade cycle:

> "a currency stable in terms of raw material prices is probably also the nearest approach we can hope to achieve to one conducive to stability of general economic activity" (Hayek 1990: 75).

Ultimately, currency competition is regarded by Hayek as a way of achieving the very same purposes of a commodity reserve currency through different, more expedient means:

> "In most respects, indeed, the proposed system should prove a more practicable method of achieving all that was hoped from a commodity reserve standard or some other form of 'tabular standard.' At the same time it would remove the necessity of making it fully automatic by taking the control from a monopolistic authority and entrusting it to private concerns" (Hayek 1990: 48).

4. Hayek on the evolution of international monetary institutions

In the previous sessions, we highlighted an apparent shift in Hayek's stance, from advocating a commodity reserve currency—a system dependent on a supranational organization imposing order 'from above'—to endorsing currency competition, which relies on the spontaneous 'bottom-up' dynamics of private enterprise responding to user needs. The examination of examples of commodity-reserve currency proposals in history and of current initiatives to give commodities a greater role in the international monetary system aimed at developing asset-

based currencies, pointed out that such proposals involve both bottom-up and top-down processes. On one hand, the innovative spirit of entrepreneurs and market participants drives the creation of new financial instruments that respond to the evolving needs of users. On the other hand, the establishment of robust regulatory frameworks should provide the necessary structure to support these innovations, ensuring that they operate within a safe and stable environment.

Here, we argue that this argument can be better understood by exploring whether and how Hayek's works written in-between his two major currency proposals of 1943 and 1974—*The Constitution of Liberty* and *Law, Legislation, and Liberty*, for instance—can help shed light on the relationship between the two apparently contradictory concepts of a commodity reserve currency and of currency competition. This inquiry also seeks to determine whether, according to Hayek, the national and international initiatives and proposals for commodity-based monetary systems, discussed in the previous section, might be more or less feasible and desirable than a system of currency competition. In other words, we intend to investigate whether Hayek indeed moves from a top-down to a bottom-up approach to monetary reform, or whether his political thought allows to envisage some kind of conflation between the two.

To address this, we aim to collate Hayek's argument for a commodity reserve currency, introduced in 1943, his proposal for currency competition in 1974, and his perspective on the institutional dimensions of economic systems (1952,1960, 1967,1982). Specifically, we examine whether and how currency competition and market competition diverge in Hayek's thought, as well as how he conceptualizes money.

4.1. Hayek on the origin and evolution of institutions

Formal rules and established institutions are essential for the functioning of a civilized society. For Hayek, institutions and legal norms define the boundaries of individual actions, enabling individuals to act and coordinate their behavior to achieve their purposes. Rules of law and property rights, which safeguard individual autonomy against arbitrary interference, are crucial for fostering the emergence of spontaneous order and advancing civilization. As social environments change, institutions evolve through a process of adaptation based on past experiences. Hayek argues that the fundamental rules of society are not produced by central authority or rational planning. Instead, they emerge spontaneously through human interactions over time. Institutions develop as part of a process of spontaneous cultural evolution. These institutions, as abstract codes of conduct, enable individuals to meet their changing expectations and reduce uncertainty. Rules create a framework that facilitates voluntary cooperation among individuals, minimizing conflict and uncertainty. Hayek emphasizes that such rules are vital for the functioning of the market order, where individuals interact based on mutual benefit.

The rules that emerge are abstract, meaning they do not prescribe specific actions but establish general principles that guide behavior, such as fairness, justice, and respect for property rights. Their abstract nature allows individuals to navigate unpredictable and ever-changing circumstances effectively. Hayek underscores the importance of tradition in shaping these rules, as traditions embody the accumulated wisdom of past generations. Hayek also distinguishes between "law" and "legislation." He views "law" as the body of spontaneously evolved rules, such as customary law and common law, grounded in societal practices and traditions. In contrast, "legislation" refers to rules deliberately created by governments or authorities. Hayek cautions against overreliance on legislation, arguing that it often disrupts the organic development of effective rules. Nonetheless, legislators and the state have an essential role in identifying spontaneously evolved rules and formalizing them as established social institutions. While human intervention can play a role in refining and understanding rules, Hayek warns against overestimating reason's capacity to design effective social systems. Attempts to impose rationally designed rules often fail because they cannot account for the complexity of human interactions.

Complex systems, such as societies and markets, function most effectively when governed by evolved, abstract principles rather than rigid, top-down directives. Societies develop rules through cultural evolution, where successful practices are retained because they enhance social cooperation and stability. Rules concerning property, contracts, and prohibitions on violence or theft did not emerge through decree but because they proved essential for coexistence and prosperity. Hayek posits that groups or societies with more effective rules are more likely to survive and thrive. Over time, less effective rules are discarded, and more successful norms spread, ensuring the continued evolution and improvement of social systems.

4.2. Managing the storage of commodities: Market vs. Centralized institutions

Hayek contrasts **spontaneous order**, exemplified by the market, with **constructed order**, represented by central planning, emphasizing how the former naturally emerges to organize economic activity while the latter relies on deliberate design and control. Spontaneous order arises organically from the interactions of individuals pursuing their own interests, without the need for direction by a central authority. This type of order can be observed in phenomena such as markets, language, customs, and common law. Its strength lies in the decentralization of knowledge: individuals act based on specific, localized information that no central planner could fully gather or utilize. Furthermore, spontaneous order is highly adaptable, evolving dynamically in response to changes in conditions and preferences. This flexibility enables the efficient allocation of resources through price signals and voluntary exchange. Hayek views market competition as a discovery process that reveals the most efficient methods of production

and the true value of goods and services. The resulting order, while complex, proves remarkably effective in addressing diverse needs and promoting individual freedom.

In contrast, constructed order is designed and imposed by a central authority, such as in planned economies, bureaucratic regulations, and urban developments shaped by predetermined blueprints. Hayek warns that attempts to control markets in this way disrupt their natural emergent processes, risking the delicate balance essential to their functioning. The limitations of constructed order are evident in several ways. Its overreliance on centralized knowledge is a fundamental issue: central planners seek to gather and process all relevant information, a task that Hayek argues is impossible due to the dispersed nature of knowledge. Such systems are often rigid, struggling to adapt effectively to unforeseen changes or local variations. Inefficiencies are common, as resources are frequently misallocated, and uniform solutions are imposed, ignoring individual preferences. Ultimately, Hayek contends that constructed orders lead to inefficiency, stagnation, and even the erosion of individual freedom. Planned economies, in particular, disrupt the natural flow of information by attempting to centralize decision-making, preventing the effective use of the dispersed knowledge that individuals rely on in their daily decisions.

In *Law, Legislation, and Liberty*, Hayek illustrates the functioning of market spontaneous order with reference to money as an emergent, decentralized process driven by individual choices rather than central design or imposition. He emphasizes that money, like other components of a market system, originates and evolves organically through human action but not human design. Hayek posits that money emerges naturally as individuals in a barter economy seek to overcome the inefficiencies of direct exchange. Certain commodities, such as gold or silver, gradually become preferred as a medium of exchange because of their desirable qualities—durability, divisibility, portability, and universal acceptance. This adoption is not directed by any central authority but results from countless individual transactions and decisions. Competition in the market for money acts as a discovery mechanism, revealing which forms of money are most efficient and widely accepted. This aligns with his broader understanding of markets as systems that evolve through trial and error, driven by the choices of individuals and businesses. Over time, the most effective forms of money dominate, while less effective ones are discarded[9].

> "The problem of proper monetary arrangements, on the other hand, is too big and difficult to deal with adequately in the present context. To understand what is involved here requires freeing oneself of deeply ingrained habits, and a rethinking of much monetary theory. If the abolition of the government monopoly led to the general use of several competing currencies, that would in itself be an improvement on a governmental monetary monopoly which has without exception been abused in order to defraud and deceive the citizens; but its main purpose would be to impose a very necessary

[9] Here one could further develop the link between what H. argues in LLL and in The Use of Knowledge in Society, 1945

discipline upon the governmental issue of currency through the threat of its being displaced by a more reliable one" (Vol 3 p.57).

"It is of course nonsense that government is ever needed to 'protect' the money used in a country against any threat (except counterfeiting which, like all fraud, the ordinary rules of law forbid) other than that which comes from government itself: it is against the state that money must primarily be protected" (Vol 3 p.58).

"though the illusion that government monopoly would secure for the countries a better money than the market has governed all the development of monetary institutions ever since, the fact is of course that wherever the exercise of this power was not limited by some such automatic mechanism as the gold standard, it was abused to defraud the people" (Vol 3 p.58).

Hayek thus comes to view the limitation of government power over money as the necessary condition for the effective limitation of government power in general:

"I fear now that all the safeguards against oppression and other abuses of governmental power which the restructuring of government on the lines suggested in this volume are intended to achieve, would be of little help unless at the same time the control of government over the supply of money is removed. Since I am convinced that there are now no longer any rigid rules possible which would secure a supply of money by government by which at the same time the legitimate demands for money are satisfied and the value of that money kept stable, there appears to me to exist no other way of achieving this than to replace the present national moneys by competing different moneys offered by private enterprise, from which the public would be free to choose that which serves best for their transactions" (Vol 3 p.148).

The *Denationalization of Money* is consistent with Hayek's previous writings. Indeed, its main argument in favor of currency competition builds explicitly on the concept of money as an institution produced by spontaneous market forces:

"the superstition that it is necessary for government (usually called the 'state' to make it sound better) to declare what is to be money [...] has been wholly displaced by our understanding of the spontaneous generation of such undesigned institutions by a process of social evolution of which money has since become the prime paradigm (law, language and morals being the other main instances)" (Hayek 1990, pp. 37-38).

4.3. Hayek on the free market

Governments have assumed a much more active part in controlling money, and this has been as much a cause as a consequence of instability. It is only natural, therefore, that some people should feel it would be better if governments were deprived of their control over monetary policy. Why, it is sometimes asked, should we not rely on the spontaneous forces of the market to supply whatever is needed for a satisfactory medium of exchange as we do in most other respects? (CofL p.324)

In Hayek 1990, he goes so far as to claim that the extension of the principle of free competition to the sphere of money would weed out the tares of recurrent crises from the field of capitalism: "The past instability of the market economy is the consequence of the exclusion of the most important regulator of the market mechanism, money, from itself being regulated by the market process" (Hayek 1990: 102)." (Fantacci, 2019).

On the contrary Keynes suggests a somehow unavoidable role for the state in enforcing money both as account and contracts: money is fundamentally tied to the authority of the state or community, which enforces contracts and defines what constitutes lawful payment. This enforcement can occur either through legal mechanisms or through established customs, highlighting the dual foundations of money's role in society. The state plays a dual role: enforcing contractual obligations and determining what "money" actually means in terms of legal or customary discharge of debts. He aligns this idea with Knapp's chartalist theory, which sees money as a creation of the state.

Keynes emphasizes the importance of continuity in the "money of account" (the unit in which money is measured and contracts are made), asserting that even if its name or form changes, a relationship must exist between the old and the new. This continuity ensures that money retains its function in economic transactions. Any complete break in this chain would result in economic chaos, as contracts and the underlying system of trust in money would collapse. Modern money, Keynes concludes, is unambiguously chartalist, reflecting its reliance on state authority.

In contrast to Keynes, Hayek advocated for competition in currency issuance to ensure stability and adaptability to the needs of a free market. While Hayek recognized the necessity of legal frameworks for contract enforcement, his focus was more on minimizing coercive state intervention in monetary matters.

According to Hayek, currency competition is a necessary and sufficient condition for free markets. By depriving the government of a potentially unlimited source of funding in the form of unconvertible paper money, the establishment of a regime of currency competition between private banks would greatly restrict the role of collective activity, leaving more room for private initiative (Hayek 1990: 119–121). Depriving the governments of their power to create money would allow to harness their tendency to gradually but relentlessly encroach over wider and wider spheres of life and therefore to arrest the decline along the slippery slope toward totalitarianism that Hayek had denounced decades earlier in The Road to Serfdom (Hayek 1944).

Ultimately, the financial constraints on governments would contribute also to international order and stability (Hayek 1990: 113).(in Fantacci 2019)

Hayek's description of the market as a catallaxy *in Law, Legislation, and Liberty* does help him explain why he believes a free market for money could lead to economic stability. The concept of a catallaxy highlights the market as a dynamic and decentralized system of voluntary exchanges, guided by individual preferences and the coordination of dispersed knowledge. Hayek argues that these characteristics make free markets uniquely capable of fostering stability and adaptability, including in the realm of money.
Market as a catallaxy, distinguishing it from the conventional idea of an "economy " as a planned and purposeful system; the market is a system of voluntary exchanges that organizes dispersed knowledge and coordinates individual efforts to achieve complex, cooperative outcomes. Catallaxy is an emergent, self-organizing system of voluntary interactions, it reflects the coexistence of diverse individual goals. The beneficial outcomes of the market order are often unintended consequences of individual actions, underscoring the emergent nature of catallaxy.
By framing the market as a catallaxy, Hayek underscores its ability to coordinate diverse and often conflicting individual interests. A free market for money would operate under these same principles, allowing the monetary system to adapt organically to economic conditions, fostering long-term stability and growth.

The market order allows individuals to freely pursue their goals within the constraints of general rules, promoting liberty and reducing conflict. The market relies on a set of abstract rules, such as property rights, contract enforcement, and the prohibition of coercion or fraud. These rules form the legal and moral basis for voluntary exchanges.
Rules governing the market are rules evolved over time through cultural and social processes, rather than being the result of deliberate design.

4.4. Spontaneous order in the monetary system: Gresham's Law, the Constitution of Liberty

Starting from Hayek's definition of spontaneous order, we can provide some preliminary remarks allowing us to discuss whether currency competition is a feasible solution for economic systems.

> "It is important to be clear at the outset that this is not only politically impracticable today but would probably be undesirable if it were possible. Perhaps, if governments had never interfered, a kind of monetary arrangement might have evolved which would not have required deliberate control; in particular, if men had not come extensively to use credit instruments as money or close substitutes for money, we might have been able to rely on some self-regulating mechanism. This choice, however, is now closed

> to us. We know of no substantially different alternatives to the credit institutions on which the organization of modern business has come largely to rely; and historical developments have created conditions in which the existence of these institutions makes necessary some deliberate control of the interacting money and credit systems. Moreover, other circumstances which we certainly could not hope to change by merely altering our monetary arrangements make it, for the time being, inevitable that this control should be largely exercised by governments". (CofL p.324/5)

Hayek provides three fundamental reasons for this state of affairs of different degrees of generality and validity: "The first refers to all money at all times and explains why changes in the relative supply of money are so much more disturbing than changes in any of the other circumstances that affect prices and production. The second refers to all monetary systems in which the supply of money is closely related to credit-the kind on which all modern economic life rests. The third refers to the present volume of government expenditure and thus to a circumstance which we may hope to change eventually but which we must accept, for the time being, in all decisions about monetary policy". (CofL p.325)

A possible way out is offered by an international asset-based currency:

> "We will merely add that if a standard is desired which is highly automatic and can at the same time be made international, a commodity reserve standard which has been worked out in some detail appears to me still the best plan for achieving all the advantages attributed to the gold standard without its defects. But, though the proposals for such a standard deserve more attention than they have received, they hardly offer a practical alternative for the near future". (CofL, 335)
>
> "Even if there were a chance of such a scheme being immediately adopted, there would be very little prospect of its being run as it should be, i,e., for the purpose of stabilizing only the aggregate price of the large group of commodities selected and not the prices of any of the individual commodities included". (335)

The challenge in defining an international standard currency based on commodities, Hayek stresses, is that while mechanisms to limit monetary authorities' discretion are valuable, they cannot eliminate discretion entirely. The effectiveness of such a system depends on how discretion is managed, as this will influence whether the mechanism can function as intended. Overestimating what such arrangements can achieve could undermine their credibility. "There is perhaps nothing more disheartening than the fact that there are still so many intelligent and informed people who in most other respects will defend freedom and yet are induced by the immediate benefits of an expansionist policy to support what, in the long run, must destroy the foundations of a free society". (339)

5. Concluding remarks

The contemporary debate surrounding asset-based cryptocurrencies reflects the duality between bottom-up and top-down processes, as it invites examination of various competitive frameworks that can coexist within the financial system. These cryptocurrencies, particularly those backed by commodities discussed here, exemplify a blend of grassroots innovation and regulatory oversight, illustrating how both approaches can contribute to the stability of monetary systems. As the global economy continues to evolve, the interplay between decentralized initiatives and centralized regulations will be critical in shaping the future of money. The paper argued that Hayek's economic theories provide a nuanced framework for understanding the dynamics of both bottom-up and top-down processes within the context of currency and monetary systems. His advocacy for currency competition emphasizes the importance of decentralized mechanisms, which allow for individual and market-driven initiatives to flourish. This competition reflects Hayek's belief in the efficacy of spontaneous order. The rise of different proposals for commodity-based stablecoins serves as an example of this dynamic, as these tokens not only provide a stable alternative to fiat currencies but also embody the principles of Hayek's earlier monetary plans aimed at establishing a commodity reserve currency.

However, the author also acknowledges the necessity of structured institutions that can facilitate and regulate these processes, thereby creating a space for top-down interventions when warranted. Hayek's insights remain relevant, providing a foundational perspective for analyzing the ongoing developments in the realm of digital currencies and their potential to harmonize the benefits of both bottom-up and top-down processes in fostering a possible future financial landscape. His emphasis on the need for a sound currency to be anchored to commodities points in the direction of the potential relevance, for the international monetary system, of a type of cryptocurrency which has remained hitherto at the margins: commodity-referenced stablecoins.

[1] Graham wrote his book while the proposals were still being discussed.

[2] This had been already emphasized by Hart et al. (1963).

[3] In the past Lula had also proposed to create a common currency for Mercosur.

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