

Integral

Gold and Cryptocurrencies

What monetary history reveals about
the future of digital exchange



Integral has a long history as a trusted partner supporting banks and brokers in foreign exchange and metals/commodities. While it's not surprising that euro-dollar and dollar-yen are the two most traded instruments by volume on our platform, gold often ranks as the third most traded instrument. As the leading provider of SaaS technology to bullion brokers globally, the volume of gold traded on our platform continues to increase.

Integral recognizes the growing importance of cryptocurrencies, tokens, and other digital assets, and we've extended our technology to support them. We see parallels between the history of gold and how cryptocurrencies are evolving: this paper describes our observations.



Cryptocurrencies Confront Gold's Legacy

Overview

Disorder in the cryptocurrency industry could be viewed as the collapse of a speculative bubble in which chaos reigns. Investors endured agonizing market volatility; FTX executives pleaded guilty, letting their CEO face a punishment-seeking team of prosecutors alone, leading to his conviction for defrauding FTX customers; and regulators promised to throttle the industry.

Instead, we regard that turmoil as an expected stage in the development of an emerging medium of exchange. In fact, we see striking similarities – and admittedly vast differences – between cryptocurrencies and another form of money with

a rich and riveting past: gold. Below, we describe how gold first began its use as money, its struggle to overcome its metallic competitor, silver, and how gold became the 'go to' standard for backing currencies of the world's leading economies.

We follow with a brief history of cryptocurrencies, how this new form of money battles volatility, and its lack of familiarity with users who are more comfortable with other payment methods. We determine that cryptocurrencies need to find a situation for which they are ideally suited. We suggest that cross-border payments are that perfect situation: an industry that is desperate for something – such as digital currencies – to solve its myriad problems.



Introduction

Some observers might view the recent boom–bust–boom cycles in the cryptocurrency industry with trepidation. A more thoughtful evaluation may view the industry havoc as the opportunity for participants to craft a more cautious approach to digital currency development and investment. The problems besetting the cryptocurrency industry could be a valuable lesson to survivors who will carefully examine those failures and evolve to become the tech giants of the cryptocurrency future. This recent history will be a reminder of the rewards – and risks – that are characteristic of a new form of money and payment system.

That’s why we disagree with the journalist who claimed that cryptocurrencies are pointless.¹ That viewpoint is an overreaction to cryptocurrencies’ turbulent times. Instead, we see the upheaval in cryptocurrencies as not unlike some events in the history of gold. In fact, there are many similarities – and differences – between gold and cryptocurrencies. Gold has an extraordinary resume as a medium of exchange; cryptocurrency users struggle to buy or sell goods and services.

Gold and cryptocurrencies have experienced powerful manias: gold manias focused mostly on locating and mining the precious metal while cryptocurrency crazes have involved stunning changes in price. Fraud and theft have plagued both, leading to damaged reputations, regulation, and severe punishments. Characteristics such as intrinsic value, store of value, and risk and return are controversial. The future for gold is likely to be uneventful while the forecast for cryptocurrencies is unknown but certain to be thrilling. In this article, we discuss a critical feature of gold and cryptocurrencies, namely their function as a medium of exchange.

¹ <https://ft.pressreader.com/v99e/20230525/281848647971116>



Medium of Exchange

Gold

Gold has a fascinating 2500-year history as a medium of exchange, meaning something that can be traded for goods and services. A book would be necessary to describe the march of gold through history; indeed, researchers have written many tomes about gold as money.² This section relates a few of the instances of gold as currency, its complicated relationship with silver and how gold overcame its metallic competitor to be the sole precious metal to back paper currencies. We focus on recent history: the disastrous attempts to reestablish the gold standard after World War I and why nations gave up linking their currencies to gold in the 1970s.

Lydians' claim to fame

Sardis, the capital of the Lydian kingdom (in modern Turkey), sat astride a great east-west highway that extended from the Aegean Sea to the Euphrates and into Asia, more than 1700 miles. Commerce was a natural outcome of this highway, and trade gave rise to the need for money. Seizing on their good fortune to be located close to a bountiful river of gold, the Lydians melted existing coins of silver and gold, mined gold and a metal called electrum (a combination of gold and silver) and minted new coins that met traders' needs: the coins were portable, uniform in size and weight, stamped with their value and of consistent purity. The Lydian coins were popular and widely accepted, spurring economic development not only in Lydia, but in surrounding areas and into Greece.

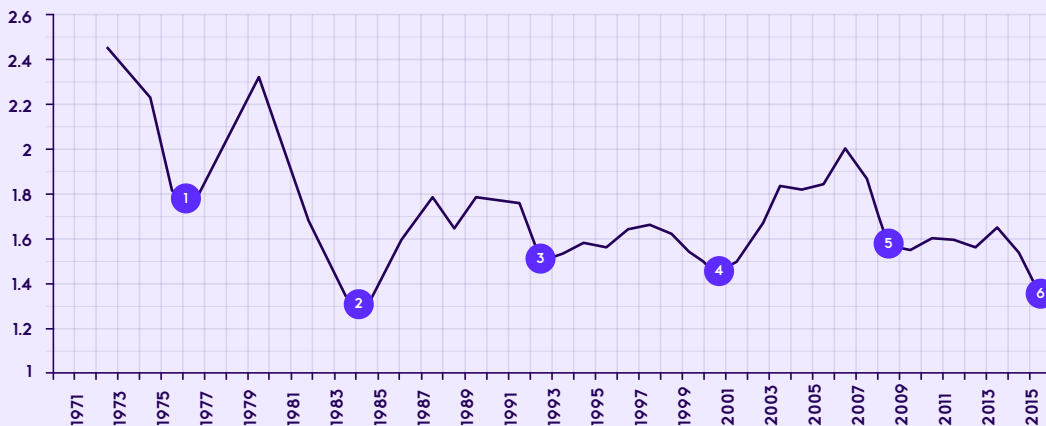
Gold coins were used for larger, usually foreign, transactions, and silver for smaller business deals. This bimetallic system persisted through most of history, despite problems with the changing value of one metal relative to the other when supplies fluctuated. Bimetallic issues didn't obscure the Lydian's monumental achievement: not only had they developed a systematic, accepted form of money, but the choices of gold and silver made those two metals the standard for all future coins and currency.



² Superb Lydian Stater – cngcoins.com/coin.aspx?coinid=237080



A Short History of the Pound: How many US dollars £1 buys, 1971 - 2016



1. 1975-76: High unemployment and inflation forces Britain to request an IMF loan
2. 1985: International intervention in the currency markets to depreciate the dollar drives down the value of the pound
3. 1992: The UK exits the Exchange Rate Mechanism seeing a decline by over 20%
4. 2001: After recovering in the 90s the dot-com bubble burst sees the pound fall again by 20%
5. 2008: Lehman Brothers demise triggers the global financial crisis and the pound falls 30%
6. 2016: UK votes to leave the EU. Pound falls to levels not seen for 30 years in the currency's worst day ever.

History behind the pound sterling

Sources of gold weren't plentiful in the British Isles, but silver was. Offa, King of Mercia in central England, created silver pennies that were enormously useful and sought-after – Offa minted millions of coins in the late 8th century. By the time William the Conqueror came ashore in 1066, 240 pennies equaled a pound sterling.

The Romans contributed terms that became the foundation of the English monetary system for almost 1000 years. The symbol £ denotes a pound sterling because of the Latin word *libra*, meaning pound. Before 1971 when Great Britain decimalized its currency, the Latin *denarius* stood for penny; *denarius* was abbreviated to *d* in the English system. And *solidus*, or *s*, meant a coin was pure gold or silver. That *s* eventually was called shilling and stood for 1/20th of a pound of silver and was equal to 12 *d*. Thus, from the time of the Norman conquest and lasting until the 1970s, England and then Great Britain had a coinage system of one pound that was equivalent to 20 *s* or 240 *d* of sterling silver.

Victorian and Edwardian eras gold standard

From about the end of the US Civil War in 1865 to the beginning of World War I, Western economic conditions were about as good as one might expect. Few major wars troubled the world, and a calm political environment led to a period of strong economic growth in Europe and the United States. That growth, along with economic cooperation and manageable debt levels, was attributed, in part, to a gold standard; many historians, however, believe the standard was more of a consequence than a cause.³

Most people believed otherwise, and a firm and unshakable commitment to the gold standard was the foundation of business and economic attitudes in most countries. That commitment meant, however, that a nation's domestic politics and economics were superseded by this allegiance to gold, even if that meant interest rates had to rise, and imports had to decline to attract capital – including gold – to the nation's central bank. Higher rates and lower imports would result in a contraction in business accompanied by lower wages, higher unemployment, and reduced profits. No matter, the belief was uniform – it was all for the common good. That attitude would lead to enormous economic misery and suffering following WWI and exacerbate the Depression.





Disaster follows the return to the gold standard after WWI

The world was an unrecognizable place after the Great War of 1914–1918. Eight million killed (not including civilians), almost 30 million wounded, missing, or prisoners; revolution racking Russia; upheaval in countries from Poland to the Balkans; Germany torn apart by revolution and impoverishment; and attitudes of suspicion, resentment, and selfishness ruling those who made fateful decisions on behalf of their nations.

Nations had discontinued the gold standard to expand their money supplies to finance the war. After the conflict ended, the British made a critical decision to reinstate the gold standard by 1925. Despite soaring price levels left as a remnant of the war, the Bank of England resolved to return the currency to its prewar level of \$4.86 per pound.

The Bank's strategy was to raise interest rates to attract foreign capital and thus replenish the gold stock even though higher rates meant significant levels of unemployment and reduced business activity. 'Sacrifice' became the word of the day.

Obstacles to returning to the gold standard included uncompetitive industries, exports that were about 25 percent below pre-war levels, and higher levels of

imports that resulted in a balance of trade situation that ran against Britain's hope to increase its gold stock. The British persisted; a pound value less than \$4.86, many feared, would signal to the world Britain's financial instability causing the world's great finance center to shift to New York or Paris, an unimaginable outcome.

Unlike losing financial supremacy, the human cost to returning the pound to \$4.86 seemed incidental. To attract foreign capital flows that would increase gold holdings meant higher interest rates and unemployment. Indeed, in 1920 that meant a million British workers were thrown out of work within twelve months when interest rates were raised.

Things got worse. The roaring US stock market caused the Federal Reserve to raise interest rates to slow the mania and that, in turn, spurred increases in interest rates in Europe to keep gold from flowing to the US. Britain, Germany, Italy, and Austria were already on their way to depression in 1929; German unemployment had quadrupled between the summer of 1928 and the end of 1929.



The Depression intensified the misery. The unbending reverence for gold led to one decision after another that caused deflation to intensify. The only asset people and businesses wanted to hold – money – was drained from the system by higher interest rates, bank failures, unemployment, and a Federal Reserve that was too tentative in attempts to provide money to the economy. Disaster followed. In the US, 1931 prices were 24% below those in 1929, unemployment rose to 15% (on its way to 25%) and three thousand banks had failed. No deposit insurance and little public social assistance were available to help.

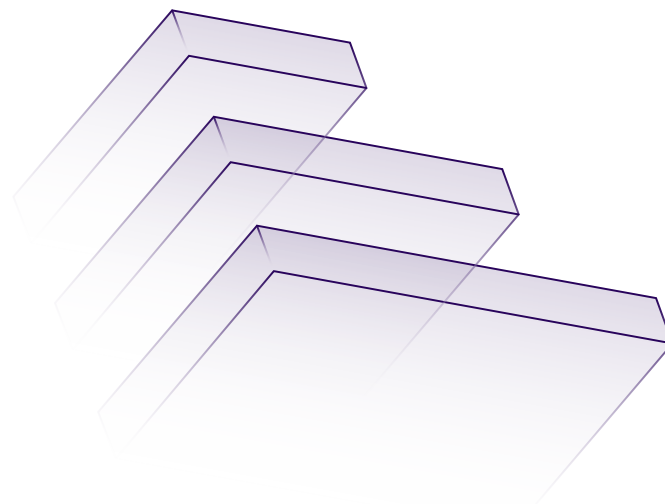
As exports declined, the only business solution was to raise tariffs to reduce imports and stimulate domestic demand, but that was an easy solution for other nations to copy. The result was a collapse of international commerce with more pain for everyone. Every action was designed to maintain, and hopefully increase, the amount of gold held in each country's central bank. The allegiance to gold and the consequential social catastrophe led to Adolf Hitler's ascent to the Chancellor's office in January 1933, supported Mussolini and contributed to conditions that led to World War II.

Gold plays a leading role in the recovery following WWII

After World War II, gold was a key component in the post-war financial system that governed international trade until the early 1970s. Gold's function was the outcome of the United Nations Monetary and Financial Conference held at Mt Washington Hotel in Bretton Woods, New Hampshire in 1944.

⁴ Eichengreen, Barry, *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*

⁵ Eichengreen, Barry, *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*, Oxford University Press 2011, page 60.



The centerpiece of the Bretton Woods structure of global commerce and finance was the obligation of the United States to convert US dollars to gold at \$35 per ounce, a de facto gold standard. Nations would maintain their currencies at a fixed exchange rate solely with the dollar.

That structure helped foreign economies recover from the war by the end of the 1950s. But the recovery was such that foreign central banks held more dollars than the US held in gold reserves. Not wanting to be the last bank holding dollars, dollar-to-gold conversions increased.

Unable to meet the demand, President Nixon halted gold conversion in 1971. The end of gold conversions was part of Nixon's New Economic Policy that also included a 90-day wage and price freeze, an import surcharge of ten percent, and tax cuts. The president later waived the import surcharge in exchange for a set of new fixed exchange rates that amounted to a substantial devaluation of the dollar.⁴

Nixon pressured the Federal Reserve to run a loose monetary policy in 1972 to improve his reelection chances.⁵ Inflation went up, and because the exchange rates were fixed, foreign nations had to inflate along with the United States. The strain on the fixed rates increased, causing speculation against the dollar in early 1973 to become so great that foreign governments let their currencies float in March 1973, effectively ending the Bretton Woods system.



Cryptocurrencies

New money

Gold is old money. Well-established wealth that has been passed from generation to generation for thousands of years, gold has an elite status not only because it signifies luxury and riches, but also because it demonstrates power. Cryptocurrency is new money, a brash newcomer that demands recognition as a medium of exchange and as an asset, evidence of wealth and power just like gold.

Cryptocurrency fills the role of asset more easily than it functions as a medium of exchange. Cryptocurrencies' price volatility causes purchasers to hesitate to spend cryptocurrencies when prices are rising and sellers to back away from accepting cryptocurrencies when prices are falling.

To address price volatility, cryptocurrency issuers developed stable coins. A stable coin is a cryptocurrency whose value is pegged to a currency, commodity, or an asset such as another cryptocurrency. Stable coins can be useful as the connection between conventional money, such as US dollars, and cryptocurrencies. That connection can remain stable if the assets backing the stable coin are high quality, liquid, and verifiable (such as through periodic audits).

Few merchants had been willing to accept cryptocurrencies, but that's changing, making it easier to transact. While some merchants such as travel company CheapAir.com accept cryptocurrency directly, most transactions are managed with gift cards purchased with cryptocurrency or via a third-party cryptocurrency payment processor such as

Bitpay and Flexa. PayPal, a well-established payments processor, manages cryptocurrency accounts for its clients and processes payments from those cryptocurrency accounts in funds transfers.

Cryptocurrencies as money encounters competition from more traditional payment methods like credit cards, payment apps (Cash App and PayPal), checks, direct debit from bank accounts, and cash. Consumers' familiarity with these payment methods, their reliability, and often low cost (to the end consumer) make them favorite ways to transact.

Fast transaction processing has been a problem with cryptocurrency commerce, especially during periods when cryptocurrency prices are volatile. Even during calmer periods of price volatility, transaction congestion can result in high trading fees, making small purchases, such as coffee drinks, prohibitively expensive.

To improve the processing rate, the Lightning Network is designed to speed up transactions by allowing participants to trade with one another when immediate settlement of the transaction isn't required. Small transactions are ideally suited to delayed settlement to periods when transaction volumes and resulting transaction fees are lower.



Central bank digital currencies

Cryptocurrencies are private enterprises, but that's changing as many nations have issued, or are preparing to issue, central bank digital currencies. A CBDC is a digital form of government-issued currency. CBDCs are the same as checking accounts at commercial banks except that they are accounts at the central bank. Central bank digital currencies can be used to pay bills, buy goods and services, and settle debts. Eleven nations have issued CBDCs, and 21 countries are piloting CBDCs while dozens of nations, including the United States, are in development or research stages.⁶

The technology adoption framework⁷ is a useful way to categorize how nations are reacting to and adopting central bank digital currencies. The framework's categories include innovator, early adopter, early majority, late majority, and laggard.

Nations that have issued central bank digital currencies, like the Bahamas' Sand Dollar (issued in October 2020) and Nigeria's eNaria (October 2021), follow the experience of innovators and early adopters who are keen to experiment with innovative technologies and are willing to accept setbacks and problems. The launch of the Sand Dollar has experienced typical innovator/early adopter issues. Some Bahamians are unaware of the Sand Dollar, many do not know how to use it, and few businesses accept Sand Dollars.⁸ Statistics confirm early-in-the-process results: the Sand Dollar makes up less than 0.1 percent of the currency in circulation.⁹

Nigeria's eNaria is experiencing similar problems. A lack of awareness of the eNaria, a preference for cash transactions and technical problems have plagued the digital currency.¹⁰

China exhibits the characteristics of an early majority user: collecting information, testing thoroughly, anticipating problems, and considering practical solutions. That nation has been working on a central bank digital currency since 2014 and has launched

pilot programs in several cities. Despite China's efforts, those programs have shown lukewarm acceptance of the currency;¹¹ people are more comfortable using well-established payment applications such as Alipay and WeChat Pay. Like The Bahamas and Nigeria, many merchants don't accept the new currency, hindering its adoption.

El Salvador did not issue a central bank digital currency, but the Central America country made bitcoin legal tender in September 2021. The nation's investment followed the cryptocurrency boom-bust-boom cycle and reportedly is in the black at the end of 2023. But only about one-quarter of Salvadoreans have used bitcoin to buy something; a portion of those purchases is attributed to the \$30 of bitcoin that the government provided to those who downloaded a digital wallet.

Most other nations are in the late majority and laggard portions of the technology adoption framework. Taking a wait-and-see approach, these countries are observing the CBDC launches of the innovators, early adopters, and early majority. These late-to-market central banks hope, if they decide to offer a central bank digital currency, to benefit by avoiding the pitfalls and obstacles that the early-to-market central banks experienced.

⁶ <https://www.atlanticcouncil.org/cbdctracker/>

⁷ <https://whatfix.com/blog/technology-adoption-curve/>

⁸ <https://www.cigionline.org/articles/can-a-central-bank-digital-currency-work-the-bahamas-offers-lessons/>

⁹ <https://www.imf.org/en/Publications/CR/Issues/2022/05/06/The-Bahamas-2022-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-517631>

¹⁰ <https://www.aljazeera.com/features/2022/5/23/how-has-nigerias-e-currency-fared-since-introduction>

¹¹ <https://www.reuters.com/world/china/chinas-digital-yuan-wallets-swell-usage-lags-2022-01-17/>

¹² https://consent.yahoo.com/v2/collectConsent?sessionId=3_cc-session_e412539c-0d12-4280-ab9a-ae4c6a204b27



Mediums of Exchange Wax and Wane

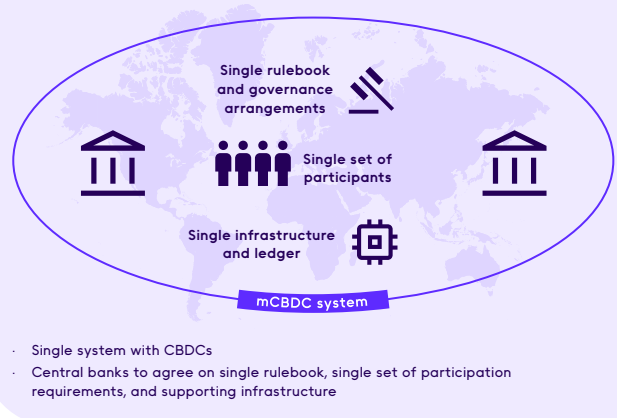
Gold's run as a medium of exchange is unparalleled. Over two millennia in duration, accepted around the world, and victorious over silver, gold's usefulness as a medium of exchange has never been questioned. It may be less convenient than paper money to store and handle, and modern technology's bits and bytes make electronic money easier to use and enormously more popular, but gold is always in the background, ready to resume its role as the indisputable champion of exchange.

The power of distributed ledger technology, with its tremendous cost savings, can easily disrupt the entire payments system. Domestic payment methods have traditionally enjoyed advantages like transaction speed and reliability; however, distributed ledger technology is likely to open a new chapter when it comes to all payment transactions.

Cryptocurrencies could add immediate value to cross-border payments. Although nations have been exchanging currencies and handling international payments for hundreds of years, the process has many shortcomings. It suffers from insufficient transparency, slow processing, bureaucracy, system-to-system communication difficulties, settlement risk, time zone differences, short banking hours, and the excessive involvement of intermediaries. The issues are extensive, and the solutions are complex.

A major improvement could be either private cryptocurrencies or central bank digital currencies. A private or public enterprise could provide around-the-clock processing, instant (or near instant) settlement, transparent processing, elimination – or at least a reduction – in the number of intermediaries, and real-time payment status. Those enhancements would be improvements that current international payment systems cannot seem to implement. Figure 1 displays the features of a system involving multiple central bank currencies.

Potential Payment System Solution Involving Multiple Central Bank Digital Currencies (mCBDCs)



There are concerns about central bank digital currencies and cryptocurrencies including privacy, fraud, theft, and usefulness. But, to use military terminology, digital currencies have already stormed the financial beaches and formed a beachhead. Reinforcements, nations that are important to the world economy that are readying the launch of their own CBDCs, are poised to arrive. In other words, despite concerns, CBDCs are here. The enemies of digital currencies – lack of familiarity, inexperience, and poor acceptability – will be overcome through education, experience, and marketing.

A growing base of innovators and early adopters will drive digital currencies forward and provide the revenue – and the hope of future revenue – that will encourage public or private organizations to create the infrastructure to transact with other users, record those transactions, and to do both in real time.

Integral stands at the forefront of new ways to do business – using our leading Software-as-a-Service technology – that are better, faster, and cheaper for foreign exchange, commodities, digital assets, and payments. It's an exciting time for corporations, small – and mid-sized enterprises, and financial institutions, a time that will involve rapid change and significant improvements.

Soon, we'll look back at paper-check payments and lengthy delays before payments clear like today's young phone users who stare at a rotary phone, wondering how it managed to work at all.



Change can be disruptive and upsetting. It can also be transformational with tremendously positive outcomes. That's today's cryptocurrencies: on the cusp of uncertain change, but change that could be amazingly rewarding.

Some nations have acted: building infrastructure, developing standards, and piloting digital currency programs. Others have stood by, tentative and uncertain, paralyzed by necessary actions that might lead to a different world.

Integral doesn't know the future, but we recognize the present: cloud technology will continue to drive innovation in the financial services industry at a rapid pace and we expect to be integral to that.



Integral

The world's currency technology partner.

We are trusted by the world's most innovative and influential organizations. Our subscription-based SaaS platform network is integral to their infrastructure, whether it's payments, pricing, trading or managing risk.

Our configurable cloud-based SaaS technology ensures the most reliable trading technology on the market, with scalability to match your ambitions.

Contact us on hello@integral.com to hear more about our fully customizable eFX trading and automated workflow solutions which help you manage liquidity across a diverse set of products and markets efficiently and achieve optimal returns.

