MFS®

A History of Money & Investing

From Barter to Bitcoin

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MFS: Responsibly investing from the 1920's to the 2020's

An active investment approach focused on the long term horizon

9 worldwide research offices

Since launching the first US open-end mutual fund in 1924, MFS has been committed to a single purpose: ***to create value responsibly for clients***

Agenda

A Concise History of Money

How Bitcoin Works

Investing for Successful Outcomes

A Concise History of Money

Money is "anything that is socially and economically agreed upon to represent value"

Barter System

Cowrie Shells

Gold & Silver Coins

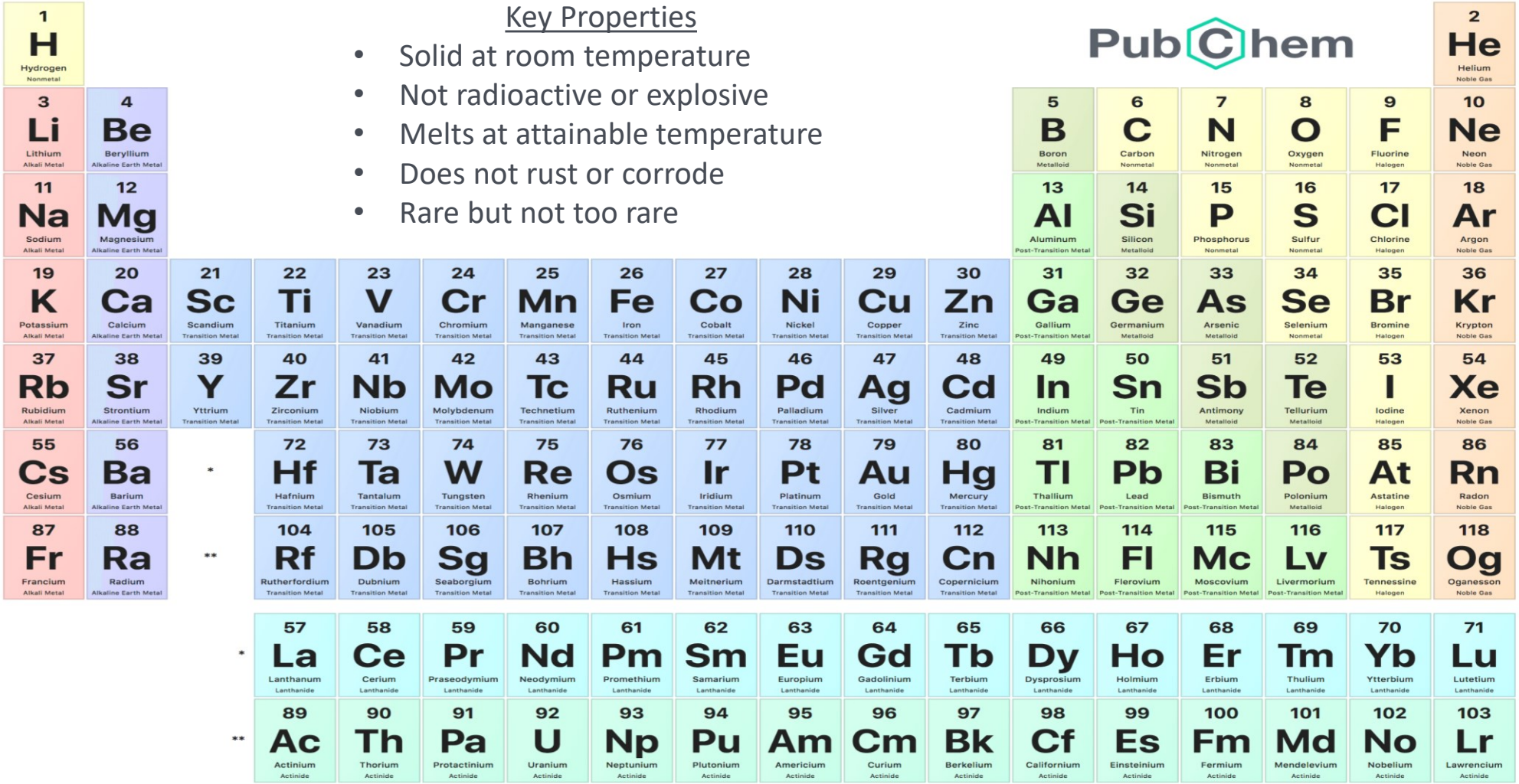
Source: https://www.worldhistory.org/coinage/

A Logical Explanation Why Gold and Silver Were Chosen as Money

Immutable physical properties are the key

<u>Key Properties</u>

- Solid at room temperature
- Not radioactive or explosive
- Melts at attainable temperature
- Does not rust or corrode
- Rare but not too rare



Source: PubChem. https://pubchem.ncbi.nlm.nih.gov/

The Almighty US Dollar

Worth much more than the paper its printed on

- Universally accepted worldwide
- Backed by the “full faith and credit” of the US Government
- Has not been officially backed by gold since 1971
- Legal tender and the *only* way to pay US taxes

Source: US Treasury

The Battle of the Currencies in the US

The US has had many different forms of currencies in its short history

Private Currencies

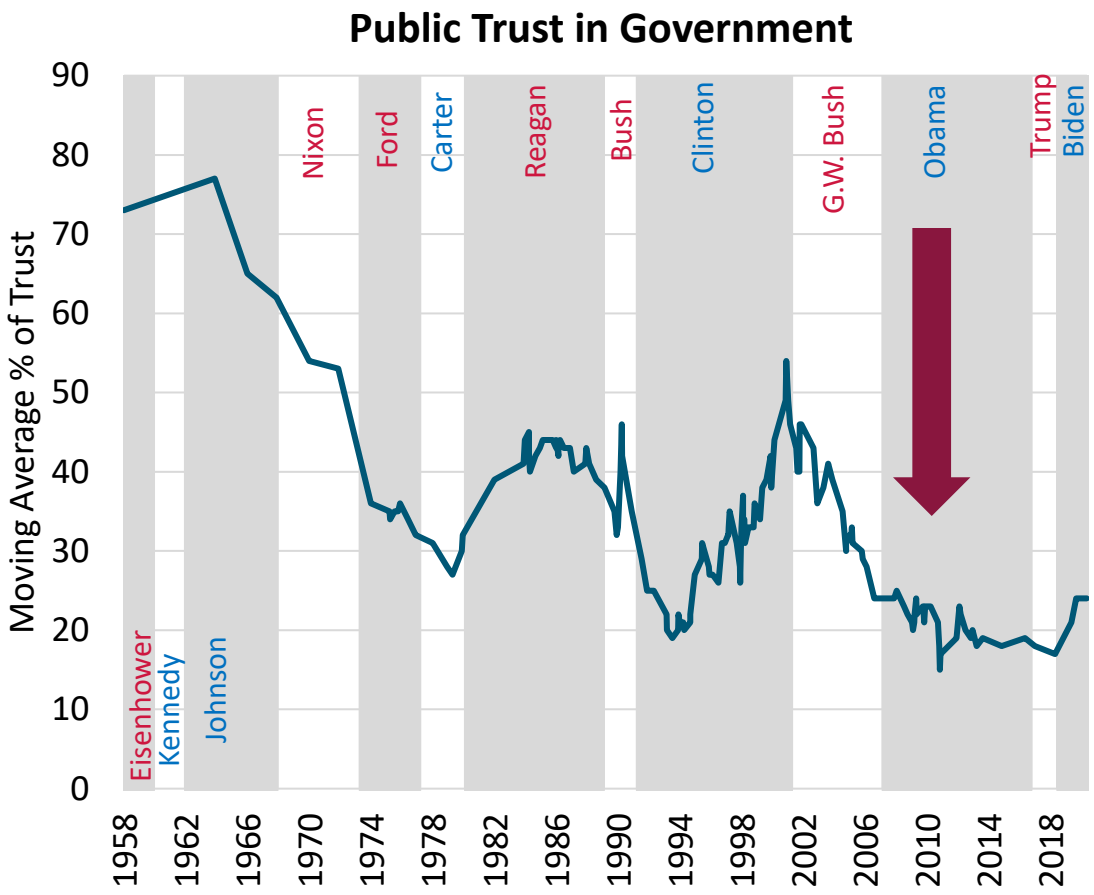
Bimetallism

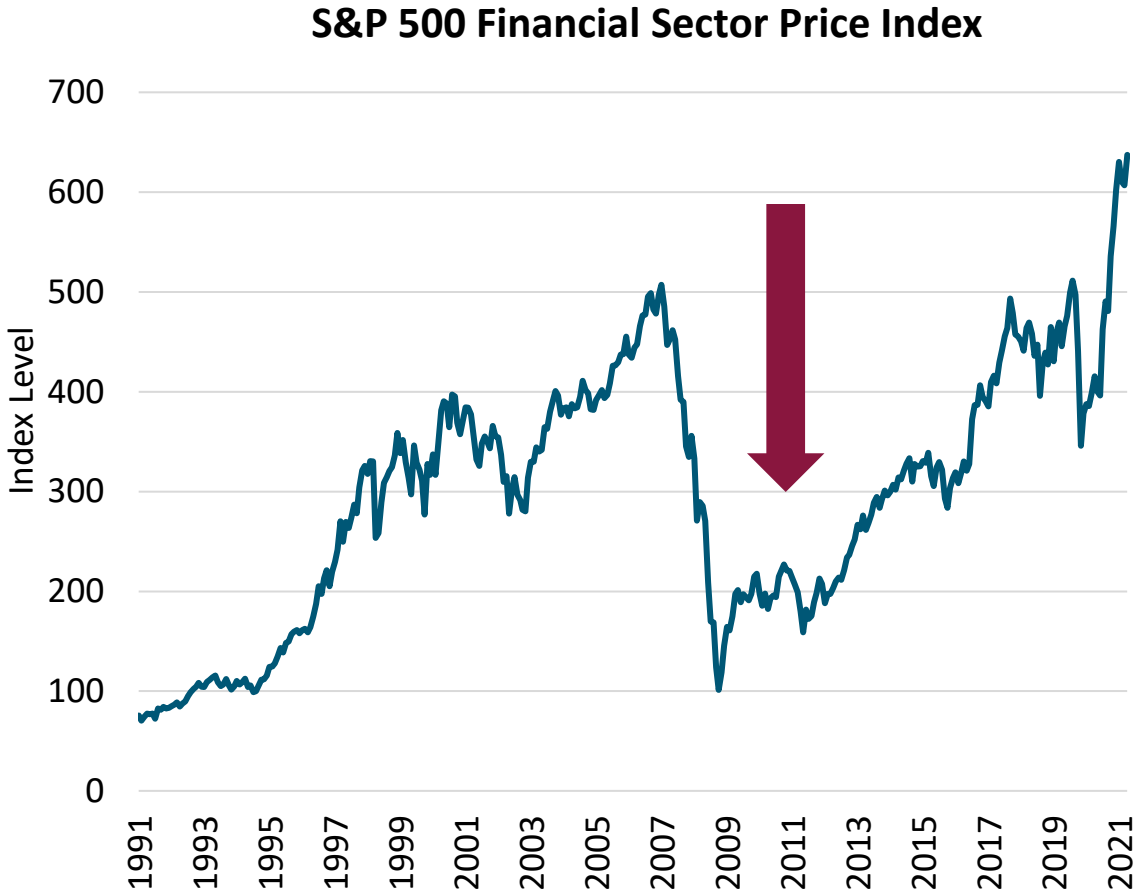
Repeal of the Gold Standard

Source: Library of Congress, Wikipedia.com, US Federal Reserve

A Loss In Confidence in the Government and Financial System

Public trust in "the system" had been on the decline

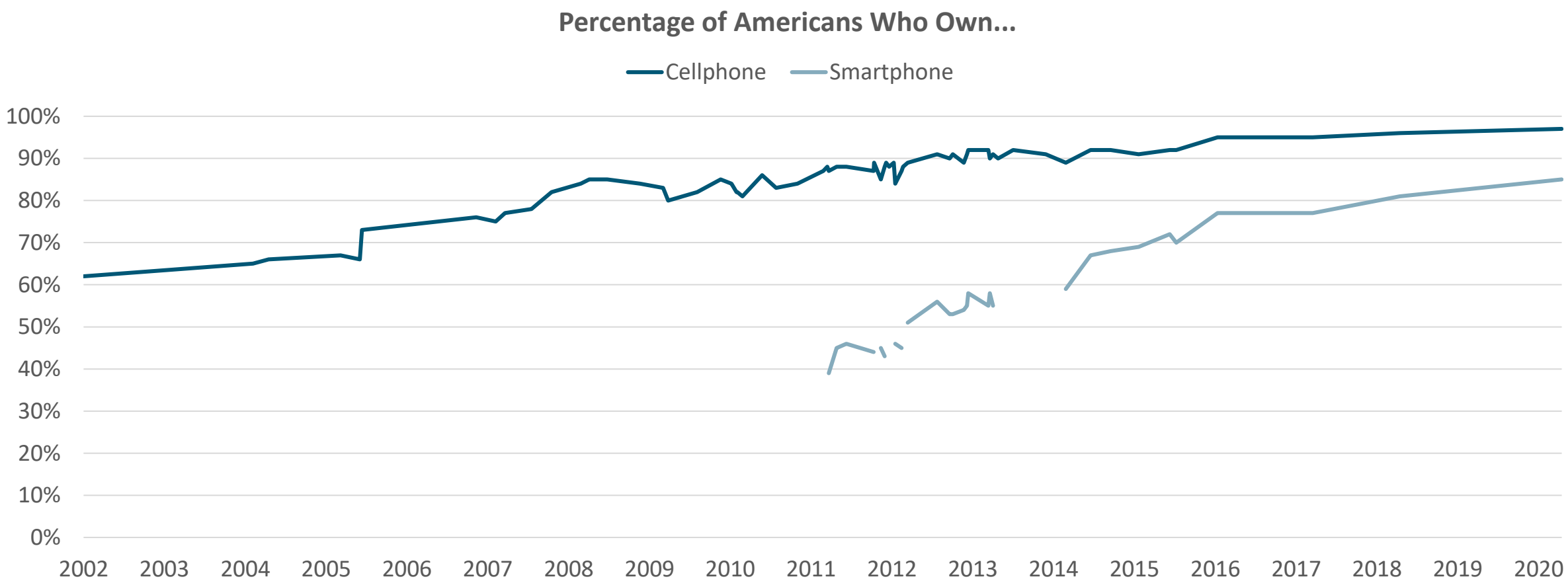




Source: LHS - Pew Research Center US Politics and Policy, Public Trust in Government: 1958-2021 | Pew Research Center. Data from 1958 to 2021. RHS - FactSet. Monthly data from 31 May 1991 through 31 August 2021. The S&P 500 Financials sector index is a subset of the broader S&P 500 index. S&P 500 Index measures the performance of the 500 largest US publicly traded companies in the US equity market.

The Rise of Smartphones

Technology moved from the desktop to your fingertips

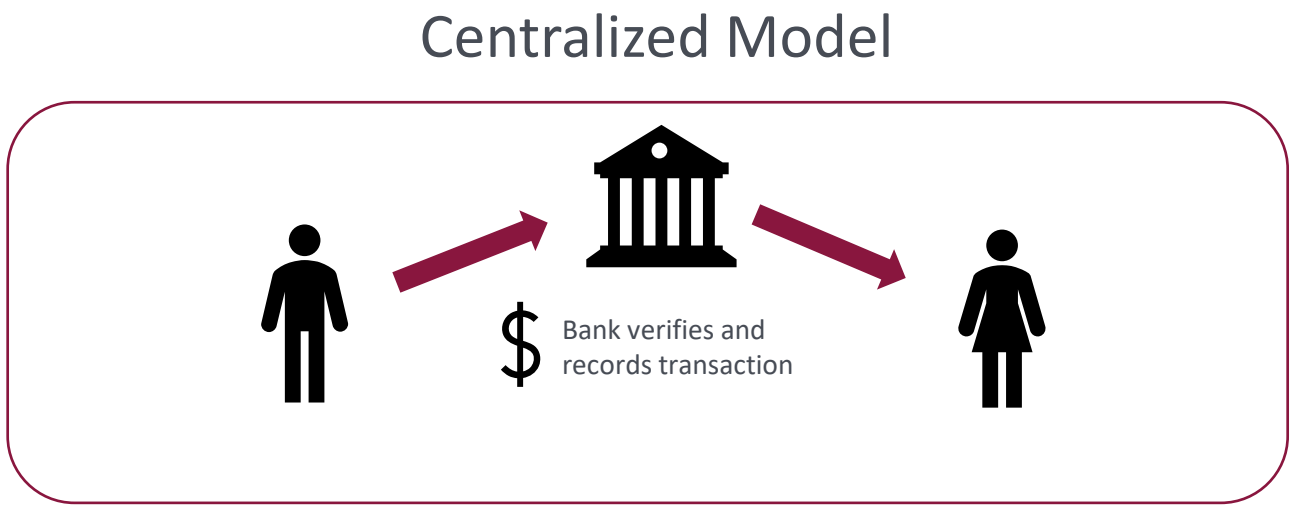


Source: Pew Research Center. Note: Respondents who did not give an answer are not shown. Surveys of U.S. adults conducted from 2002-2021.

How Bitcoin Works

Centralized Transaction Model

Requires a bank or other institution

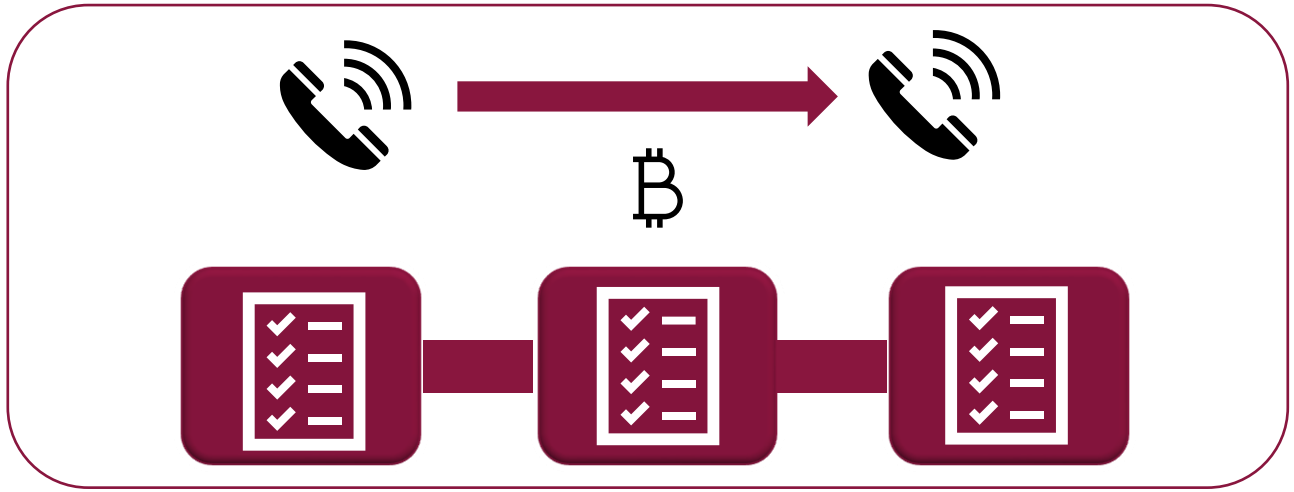


Source: www.bitcoin.org

Decentralized Transaction Model

Does not require a bank or other institution

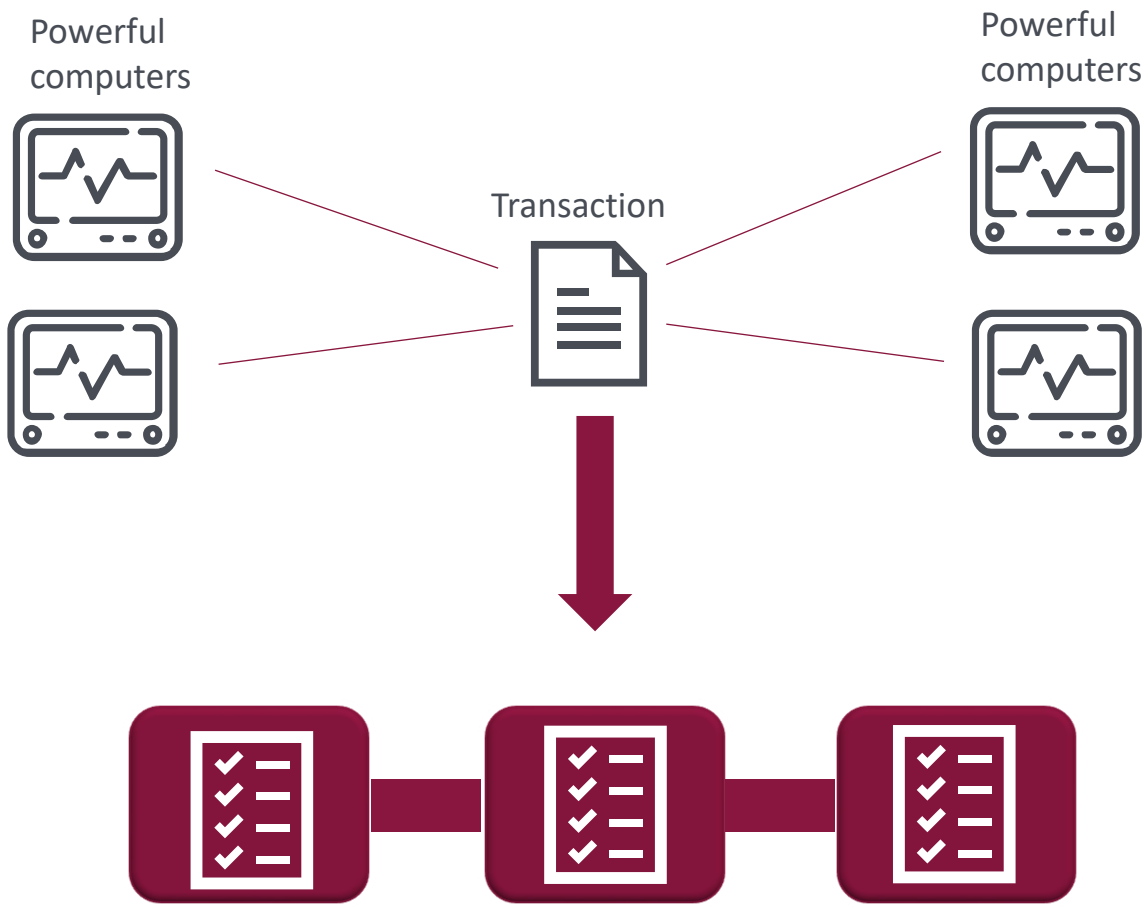
Decentralized Model



Blockchain process verifies and records the transaction

The Mechanics of the Bitcoin Network

Powerful computers compete to verify transactions which are recoded to the Blockchain



Source: www.bitcoin.org

Taking the Mystery Out of the Blockchain

Blockchain is a type of distributed ledger technology

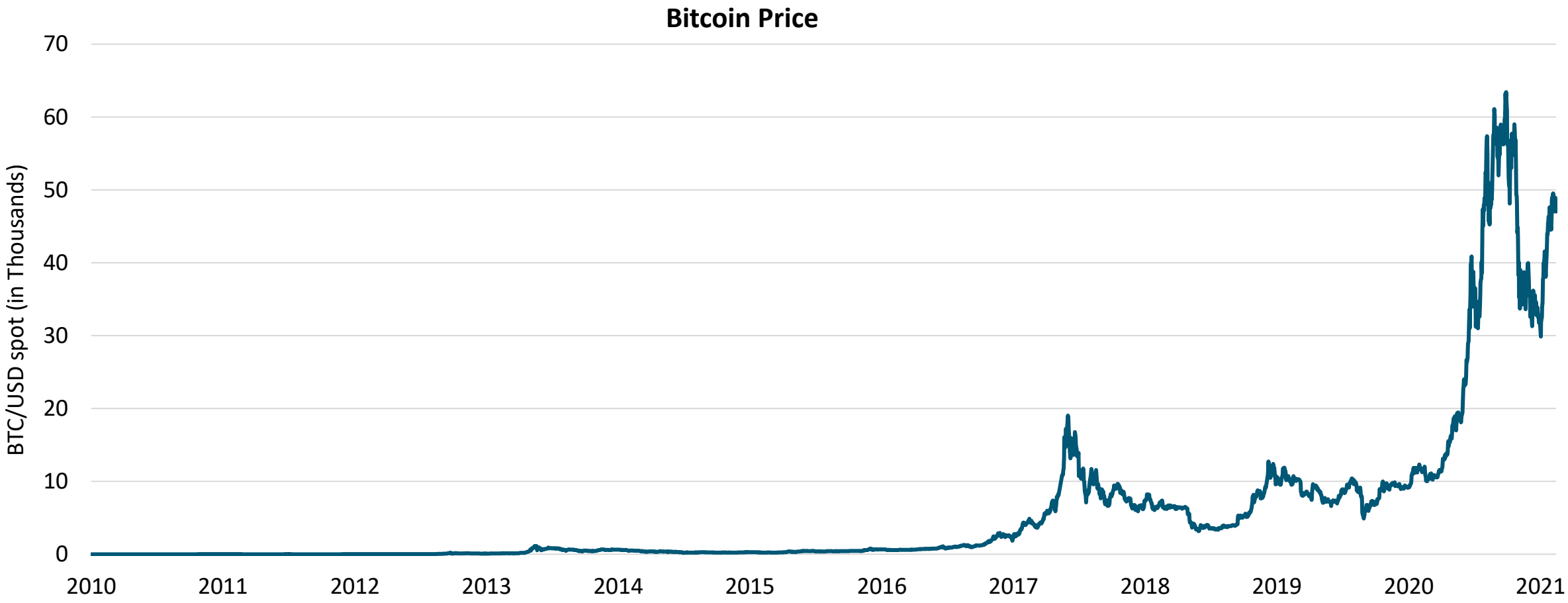
This transaction was first broadcast to the Bitcoin network on June 17, 2016 at 12:41 PM EDT. The transaction currently has 276,502 confirmations on the network. At the time of this transaction, 2.90366000 BTC was sent with a value of $2,152.69. The current value of this transaction is now $115,295.57. Learn more about how transactions work.

Hash	8088eeadbb0c6cbc6cc87ffacc05045f50195bd3837ec392a89...			2016-06-17 12:41
	18NzmGzcY9HsWsQdr5PmmTTYoX1GuCqJu9	2.90466000 BTC	13znVNnEg8qmorjD8dktpdPomuymqKScZE 16zA95T6985CLCsYm6hNocbET3uBdZ8nTF	0.39706000 BTC 2.50660000 BTC
Fee	0.00100000 BTC (444.444 sat/B - 111.111 sat/WU - 225 bytes)			2.90366000 BTC

Source: www.blockchain.com/explorer

A Shifting Narrative from Payment to Investment

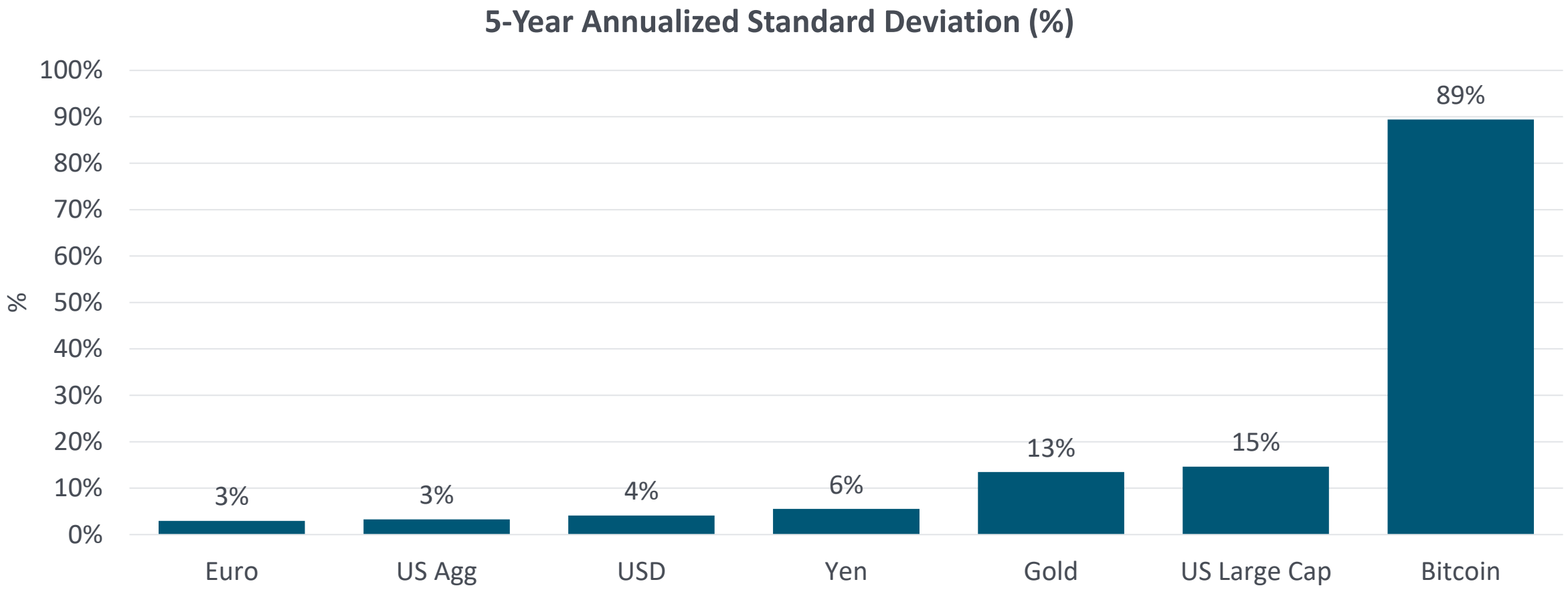
Price increases began to capture the interest of media and investors



Source: Bloomberg. Daily data from 19 July 2010 to 31 August 2021. BTC = Bitcoin, USD = United States Dollar.

Understanding the Risks of Different Asset Classes

The ultimate risk is permanent impairment of capital



Source: FactSet, Bloomberg. Bitcoin price pulled from Bloomberg, all other data fields pulled from FactSet. Monthly data from 30 June 2016 to 31 August 2021. 5-year standard deviation is calculated using month-over-month changes and is annualized. USD, EUR and YEN represented by JP Morgan Nominal Broad Effective Exchange Rate Index for each respective currency. US Large Cap represented by S&P 500 and US Agg represented by Bloomberg Barclays US Aggregate. Gold price is $/ozt and bitcoin price is bitcoin/USD.

S&P 500 Index measures the performance of the 500 largest US publicly traded companies in the US equity market. Bloomberg Barclays U.S. Aggregate Bond Index measures the investment grade, US dollar-denominated, fixed-rate taxable bond market in the US.

Standard deviation is the measure of dispersion of a set of data from its mean. It measures the absolute variability of a distribution – the higher the dispersion, the greater the standard deviation and greater will be the magnitude of the deviation of the value from their mean.

Three Challenges to Bitcoin & Cryptocurrencies

Has failure as a currency shifted the narrative?

Highly volatile

- Volatility makes it impossible to price goods or plan spending
- IRS classifies as commodity, so spending can create a taxable event
- Volatility has not declined as Bitcoin has become more popular

Transaction Inefficiency

- 3+ transactions per second vs Visa's 24,000 transactions per second
- Slow and inconsistent verification speed of 10 - 60 minutes
- Massive energy consumption

Limited supply

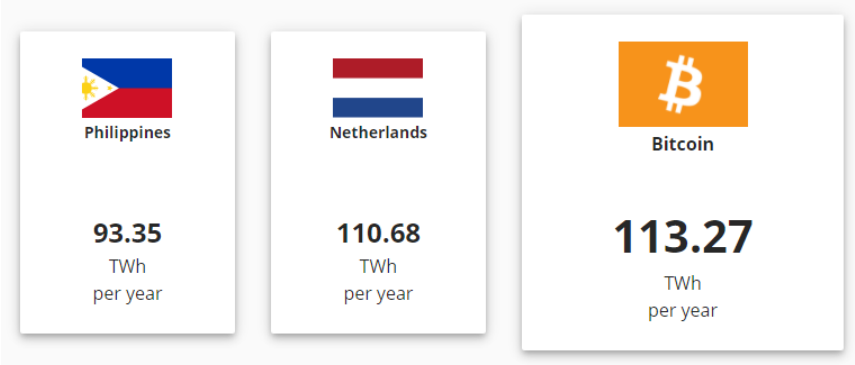
- 21 million Bitcoin cap is a bug and not a feature
- Currency needs to be elastic to account for expanding population, expanding economy and inflation
- Monetary policy requires the ability to control money supply

Source: Source: Hashgraph.com – average Bitcoin transaction fee from 2/20/21 – 5/21/21, https://usa.visa.com/run-your-business/small-business-tools/retail.html - based on an August 2010 study, bitcoin.org

New Technologies Introduce New Risks

Volatility is not the only risk

Carbon Footprint



Central Banks and Regulators

'Greater investor protection' needed in crypto: SEC chair Gary Gensler

Wall Street-ization

Reputation

Silk Road

Lost Keys

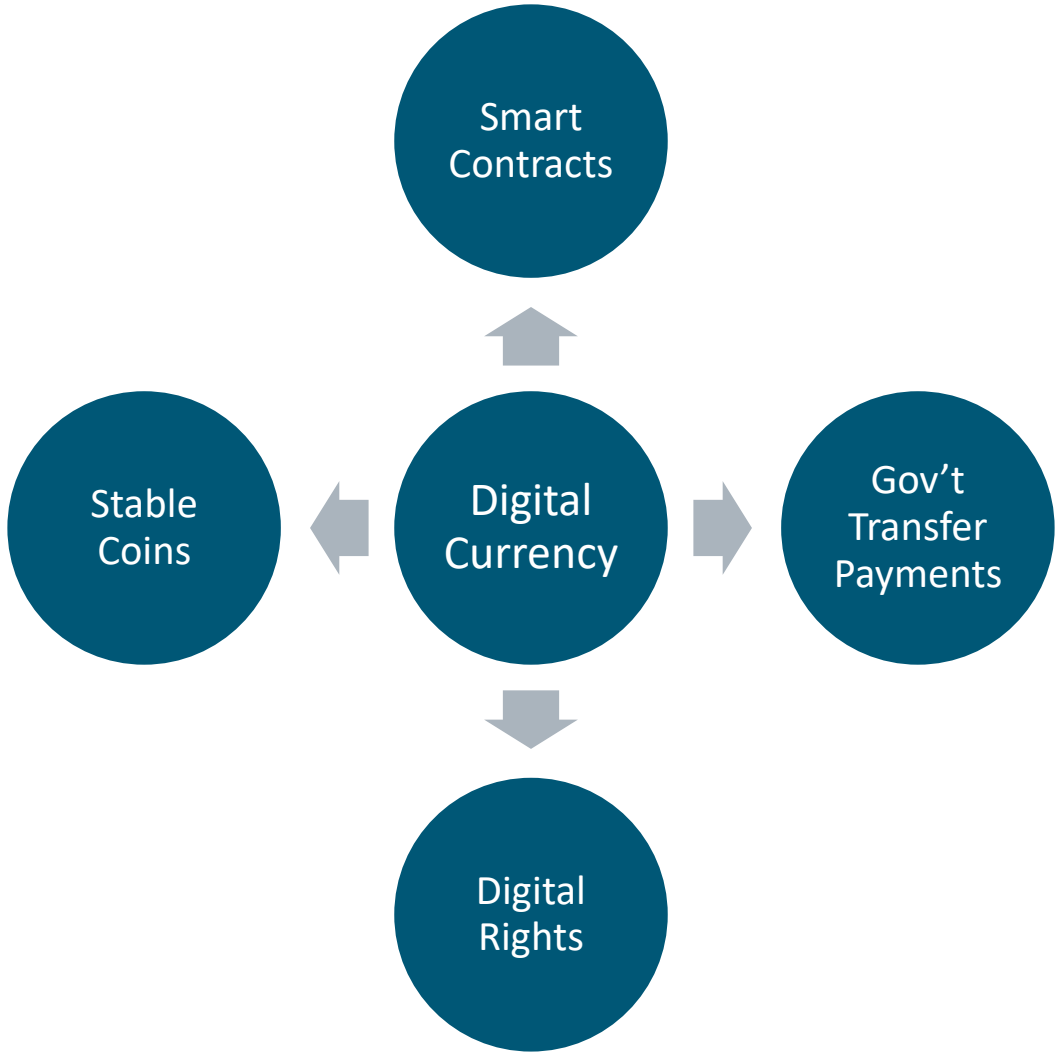
Ransomware

Money Laundering

Source: University of Cambridge Centre for Alternative Finance. US Energy Administration country data 2019. Wikipedia, Federal Reserve, IRS, SEC.

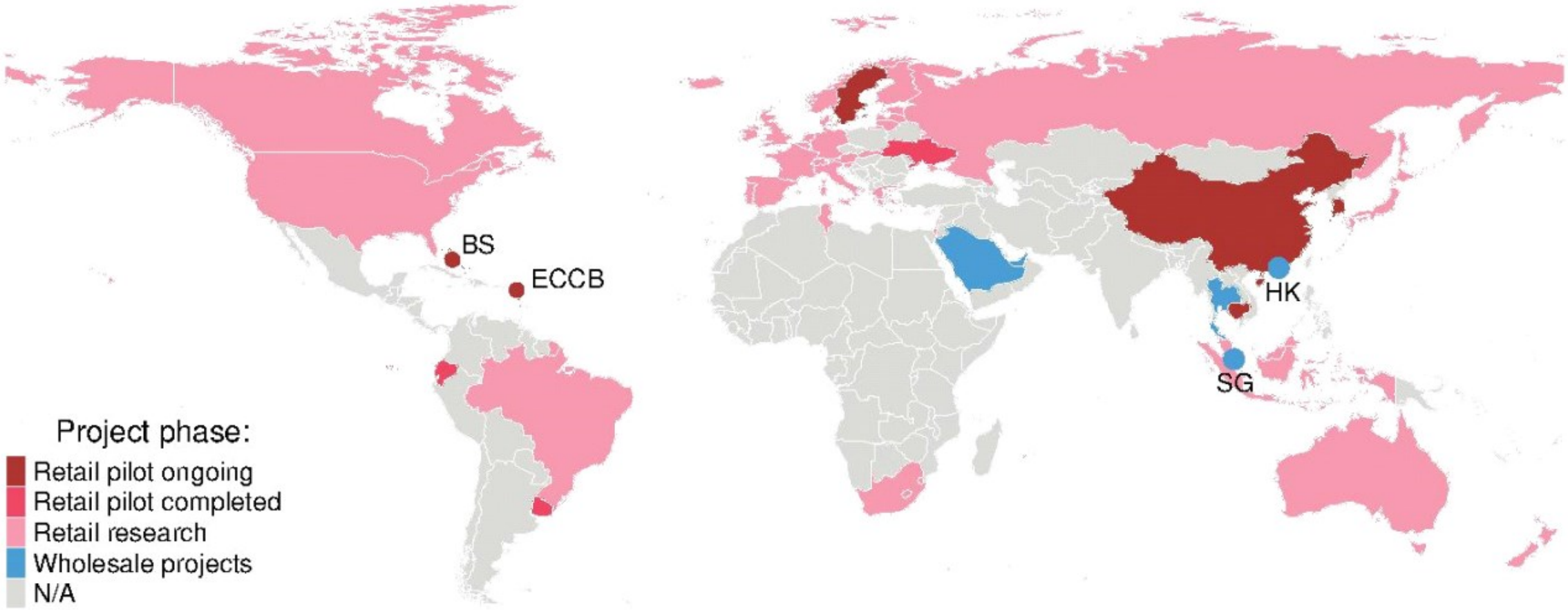
The Future of Money – Digital Currency with Utility

Central banks across the globe are focused on digital currencies



Central Banks Piloting Digital Currencies

Central banks will be the predominant issuer of digital currencies



Source: Bank for International Settlements as of August 2021

Investing for Successful Outcomes

A Concise History of Investing

Ancient rules and tradition shaped investing today

1700 BC: Code of Hammurabi

200 BC: The Talmud Scriptures

Today: Modern Financial System

Source: Wikipedia

What Does It Mean to Invest in a Stock?

Successful investing require analysis, patience and discipline

- Partial ownership in a company that is creating and selling real goods and services
- Ownership gives shareholders certain rights – typically dividends, votes on company business and access to changes in the company's value
- Companies are incentivized to add economic value because investors can buy or sell at any time based on future prospects

What Does It Mean to Speculate?

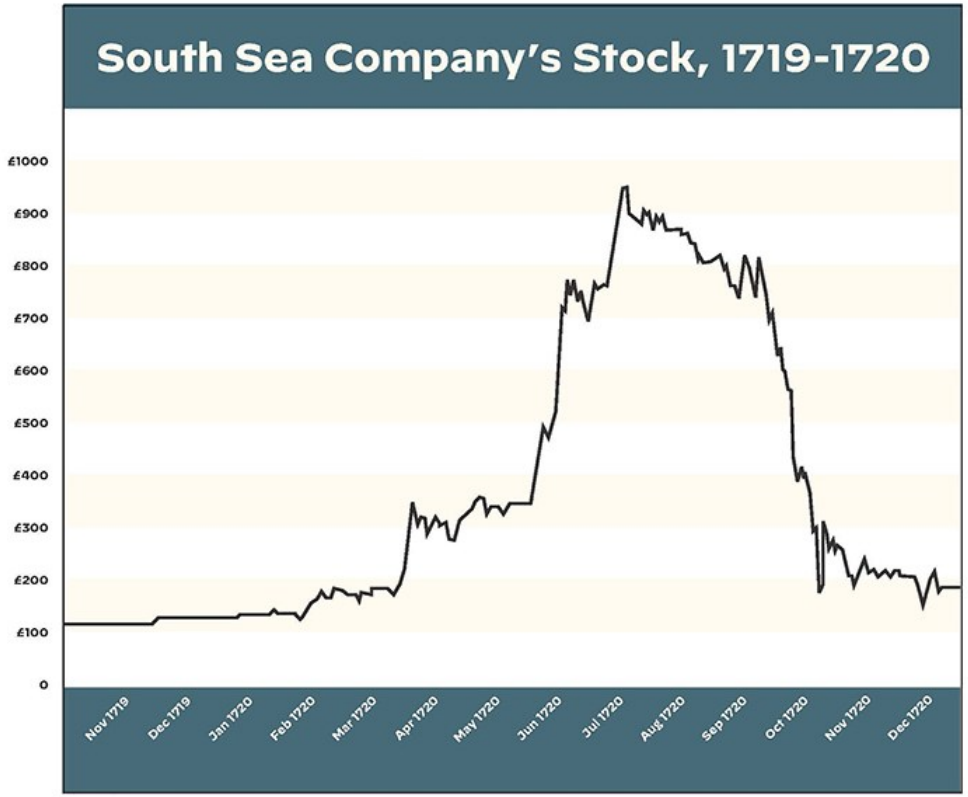
Expect a significant rise price, even if no value is ever created

- Buying something with the expectation that a rise in price will allow you to sell to someone else at a gain
- Little to no regard of profits, assets or ability to add economic value
- Typically done over the short term because no cash is being generated by the speculative asset

Source: nerdable.com

Speculation: What Does History Tell Us About Bubbles?

The South Sea Bubble



- One of the first recorded financial bubbles
- The South Sea Company published the names of prominent shareholders for promotion
- Sir Isaac Newtown made, and then lost a fortune

"I can calculate the motion of heavenly bodies, but not the madness of people"

-Sir Isaac Newton

Source: *Stock value from November 1719-December 1720. Source: Frehen, Rik, William N. Goetzmann, and Rouwenhorst, K. Geert. "New Evidence on the First Financial Bubble." Journal of Financial Economics vol. 108, Issue 3 (June 2013): 585-607. Available at SSRN: https://ssrn.com/abstract=1371007*

Characteristics of Speculative Market Environments

History doesn't always repeat, but it often rhymes

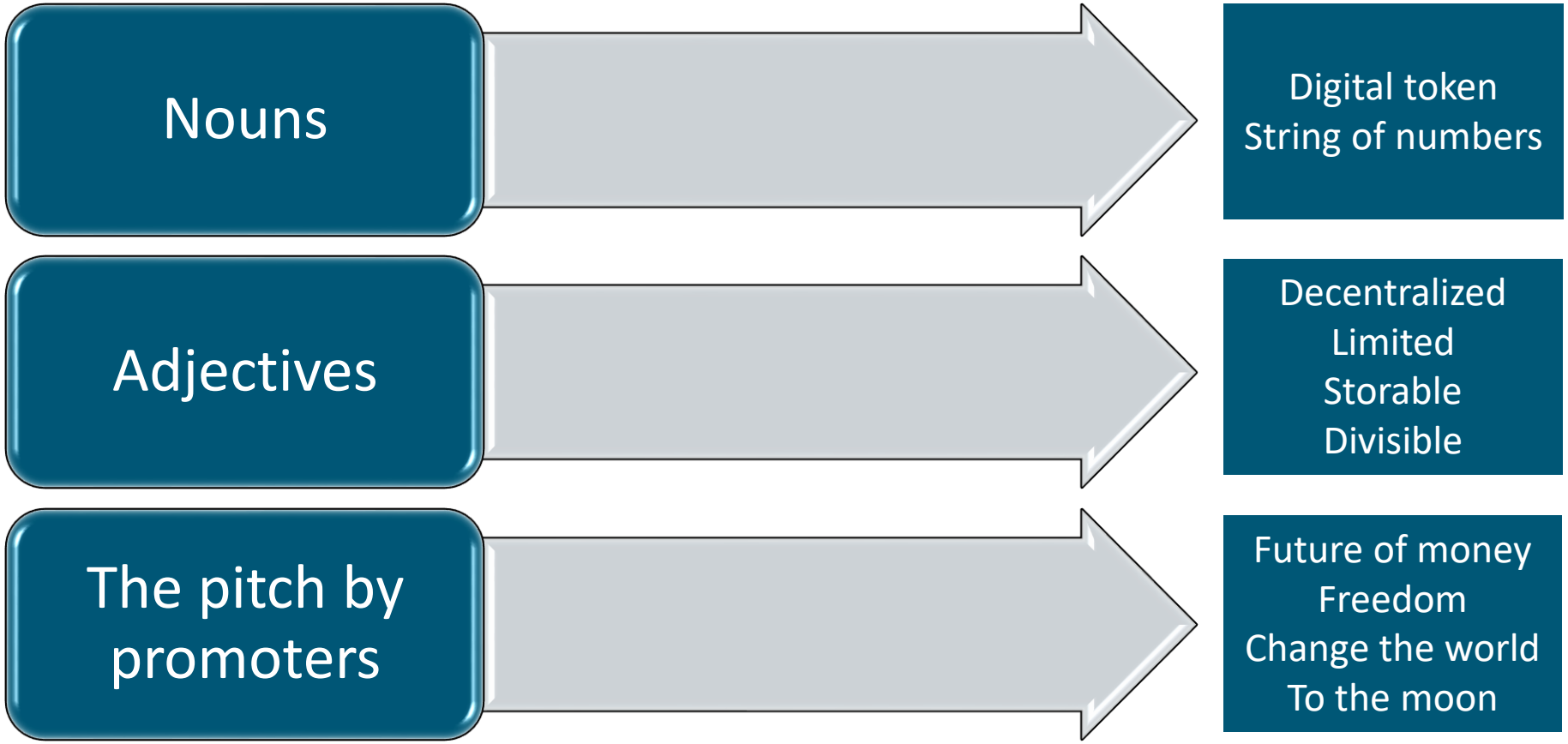
Investing Requires a Way to Estimate Value

What may appear to be an investment may be a collectable

- How much cash will it generate in the future?
- What is the cost to obtain it i.e. oil or copper?
- What is a reasonable substitute and what is its value?
- Is a collectable – art, baseball cards, beanie babies (Bitcoin?)

Listen for Key Words Used to Describe Bitcoin and Cryptocurrencies

How is the value proposition being communicated?



How Do You Decide What Belongs in Your Portfolio?

Some pieces (investments) may just not fit, and that is ok

Considerations for Long Term Investors

Staying on the right path is critical

- What is your investment horizon?
- What type of investments make sense for you?
- What level of risk are you comfortable with?
- Does professional advice make sense for you?

The Value of Advice

Professional guidance can be a powerful tool

The financial professional can

- Help you define and develop long term goals and objectives
- Help you determine your overall comfort level with risk
- Allocate, diversify and rebalance your assets accordingly
- Create the best possible financial strategy for pursuing your long-term financial goals

Conclusions

- Currencies have always been in flux, digital currencies are the next step
- Developments on the regulatory front will be key - central banks will not give up control over their currency
- Recognize the difference between investing and speculation – there are tried and true approaches
- Professional investment advice can be a valuable tool in helping to achieve your goals

Thank You

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