Blockchain and Cryptocurrency

Blockchain – Definition

- Technical Definition
  - **A blockchain is a decentralized database that securely stores information and distributes it across a shared network of computers**
- Practical Definition
  - **Blockchains allow multiple parties to confidentially store and exchange information without the need for a trusted intermediary**
  - This exchange of information can come in different forms, including financial transactions, supply chain tracking, and record keeping
  - When used appropriately, blockchains can offer greater trust, security and efficiency versus traditional, centralized databases

Centralized System

- One party controls the information
- Lower security and greater risk of impropriety

Decentralized, Distributed System

- Each user has real-time access to the same information
- Changes can only be made with group consensus

Blockchain – Potential Use Cases and Application

- Blockchains are not appropriate solutions for every issue
- Potential use cases can generally be **segmented into two buckets: record keeping and transactional**
- **Currently, blockchain is primarily used to facilitate cryptocurrency transactions**

Example Use Cases	
Record Keeping	**Transactional**
Credentialing	Cross-border payments
Property records	Peer-to-peer lending
Supply chain management	Fractional investing
Insurance claim payouts	Online gaming

Source: McKinsey & Company

Overview

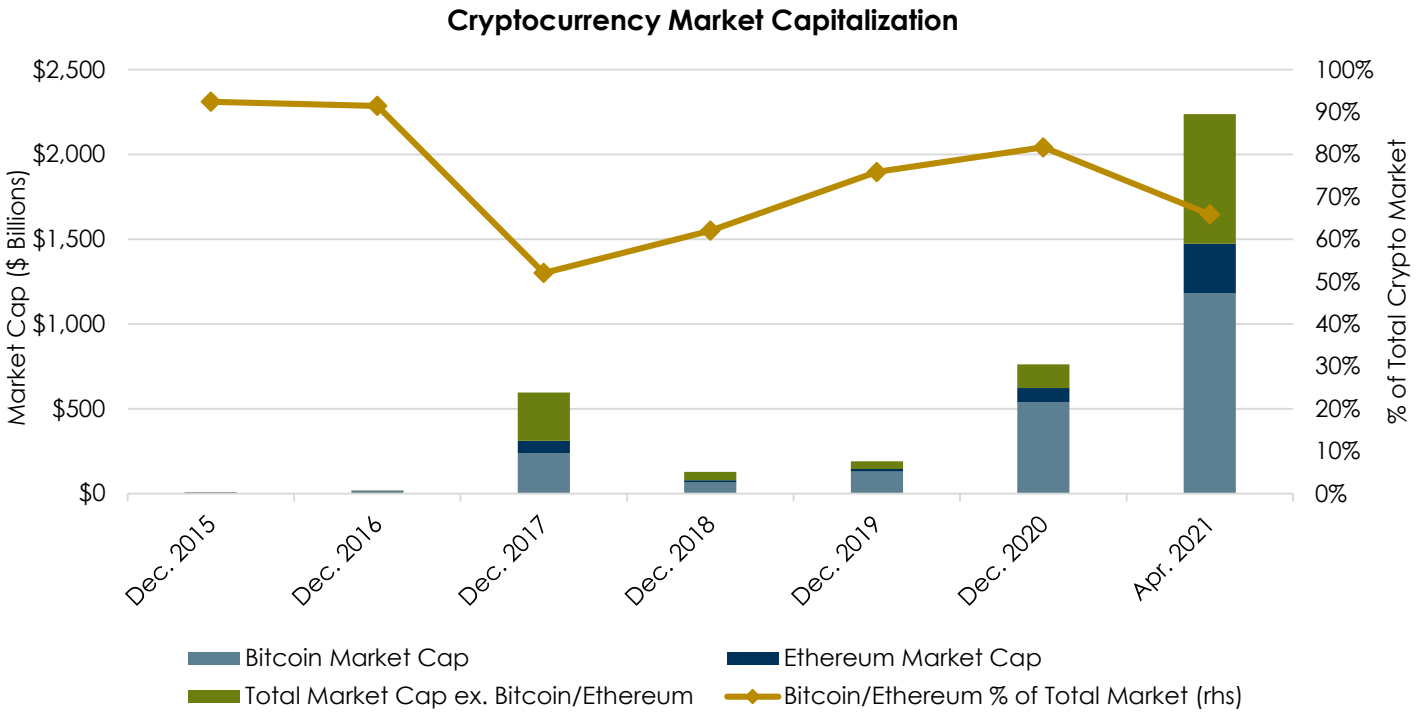
- **Cryptocurrency is digital money that is supported by blockchain technology**
- This technology means that crypto can provide an avenue for more consumers to access the global financial system, particularly in developing countries
- This possibility has helped drive strong investor interest in crypto, along with its high potential return and low correlation to traditional assets
- However, there are a number of risks that investors should also evaluate before considering an allocation to crypto

Arguments Supporting Cryptocurrency	
Non-Investment Related	**Investment Related**
Full control of your money and identity	High potential return
Faster, cheaper, more flexible transaction processing	Historically, low correlation to traditional assets
Use of blockchain technology can enhance security	True scarcity creates potential hedge against inflation

Arguments Opposing Cryptocurrency	
Non-Investment Related	**Investment Related**
Regulatory and competitive uncertainty	High realized volatility
No remedy for transaction errors or lost funds	Higher correlation to traditional assets in recent periods
Often not practical for routine daily transactions	Difficult to apply traditional valuation methodologies

Market Capitalization

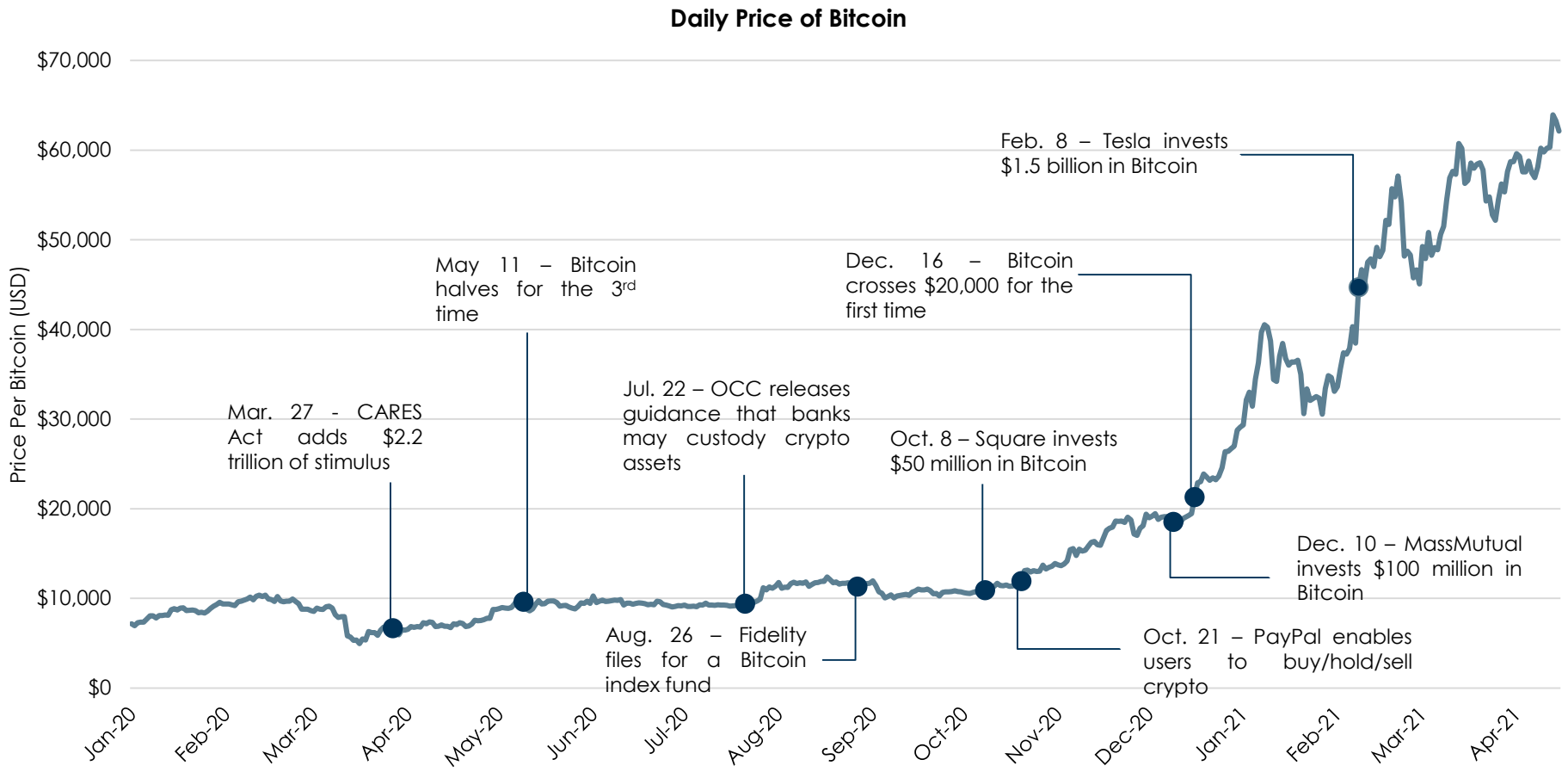
- **The cryptocurrency market has grown significantly** in the last two years, with a $2+ trillion market capitalization
- The combined share of Bitcoin and Ethereum has fallen in 2021, as **alternative currencies have surged in popularity**
- However, **Bitcoin continues to play a very influential role in overall market activity and return**



Source: CoinMarketCap, ACG Research; data as of April 15, 2021

Path to Adoption

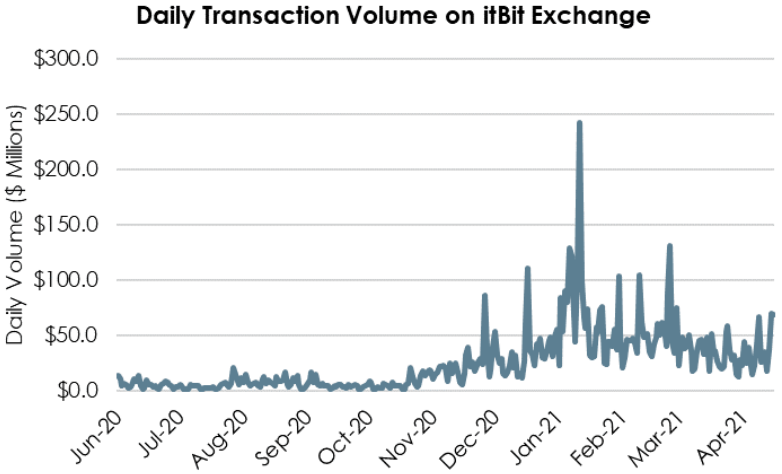
- **Broader market adoption and support for Bitcoin have helped drive substantial price appreciation since the beginning of 2020**
- However, **Bitcoin continues to exhibit high volatility** so far in 2021, with three separate drawdowns greater than 10%



Source: CoinDesk, ACG Research; data as of April 15, 2021

Retail Adoption

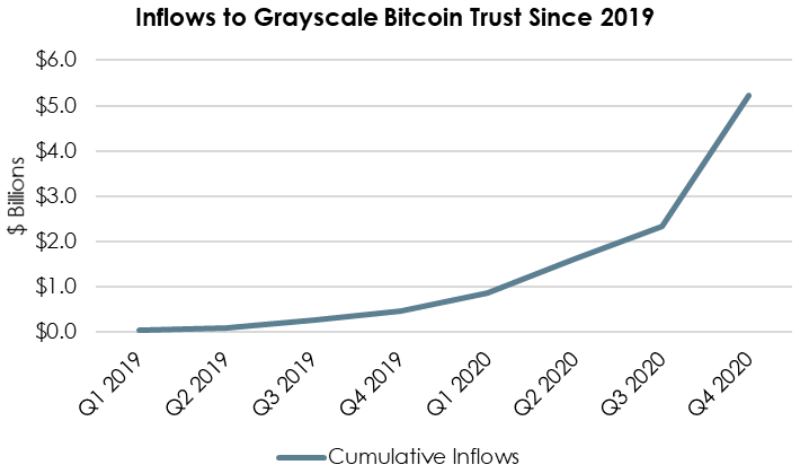
- Retail investors have long been active in cryptocurrency, but trading volumes increased dramatically starting in late 2020
- This initially coincided with PayPal enabling crypto services for its users in October 2020, with trades being processed exclusively on the itBit exchange
- **The elevated level of itBit trading volume since the PayPal announcement illustrates continued interest in crypto from retail investors, along with their desire to link digital currency to existing mainstream payment services**



Source: Nomics, ACG Research; data as of April 15, 2021

Institutional Adoption

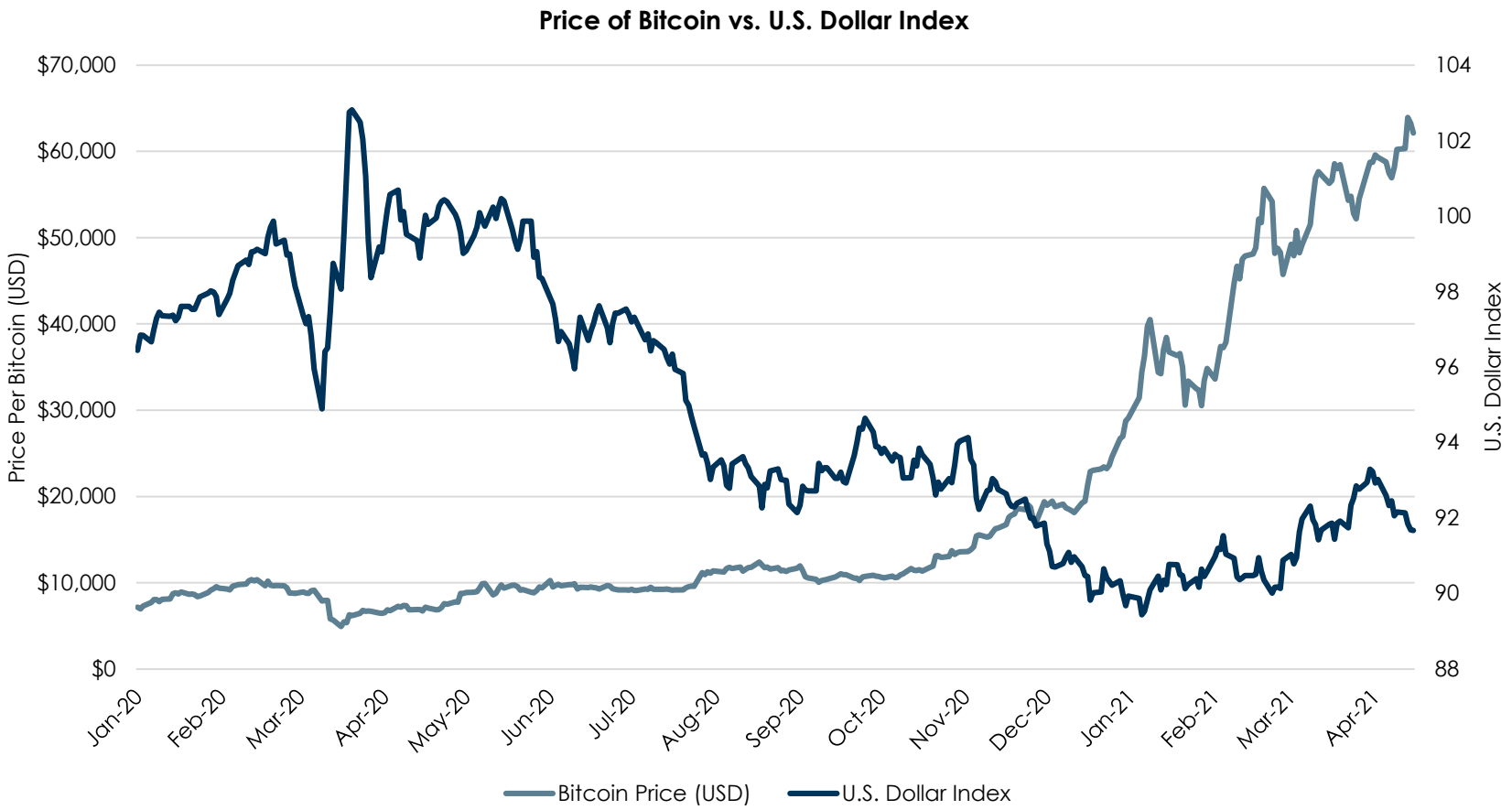
- More recently, institutions have also started to increase their exposure to cryptocurrency with a primary focus on Bitcoin
- This shift in sentiment is illustrated by Inflows to the Grayscale Bitcoin Trust, which took in $4.7 billion in 2020 (>4x the cumulative inflows of the previous six years)
- **Greater institutional adoption has coincided with an increase in professional custody solutions from companies such as Fidelity and Coinbase, which meet the SEC's definition of "qualified custodians"**



Source: Grayscale, ACG Research; data as of December 31, 2020

Store of Value – Relationship to the U.S. Dollar

- **Proponents of cryptocurrency tout its ability to function as a store of value**, an argument that has been supported by a steady decline in the value of the U.S. dollar

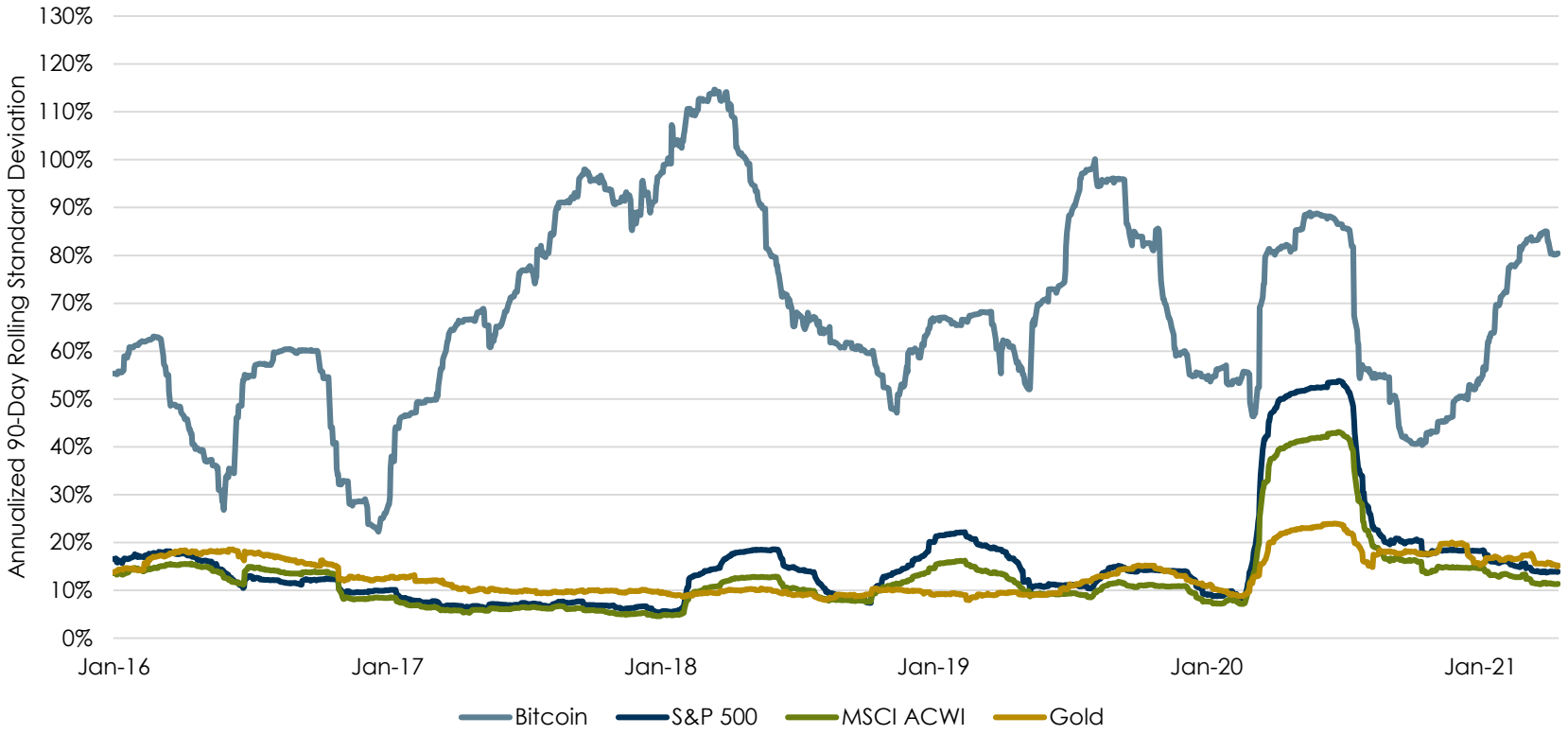


Source: CoinDesk, Bloomberg, ACG Research; data as of April 15, 2021

Store of Value – Volatility

- **Bitcoin continues to exhibit high realized volatility, particularly versus a traditional store of value such as gold**
- This can result in outsized losses during certain periods—in 2018, Bitcoin's price fell by 74% versus a 2% decline for gold and a 4% decline for the S&P 500
- While Bitcoin may still be a viable store of value for consumers in developing countries with high levels of inflation, its volatility likely remains too high for it to play this role for many investors today

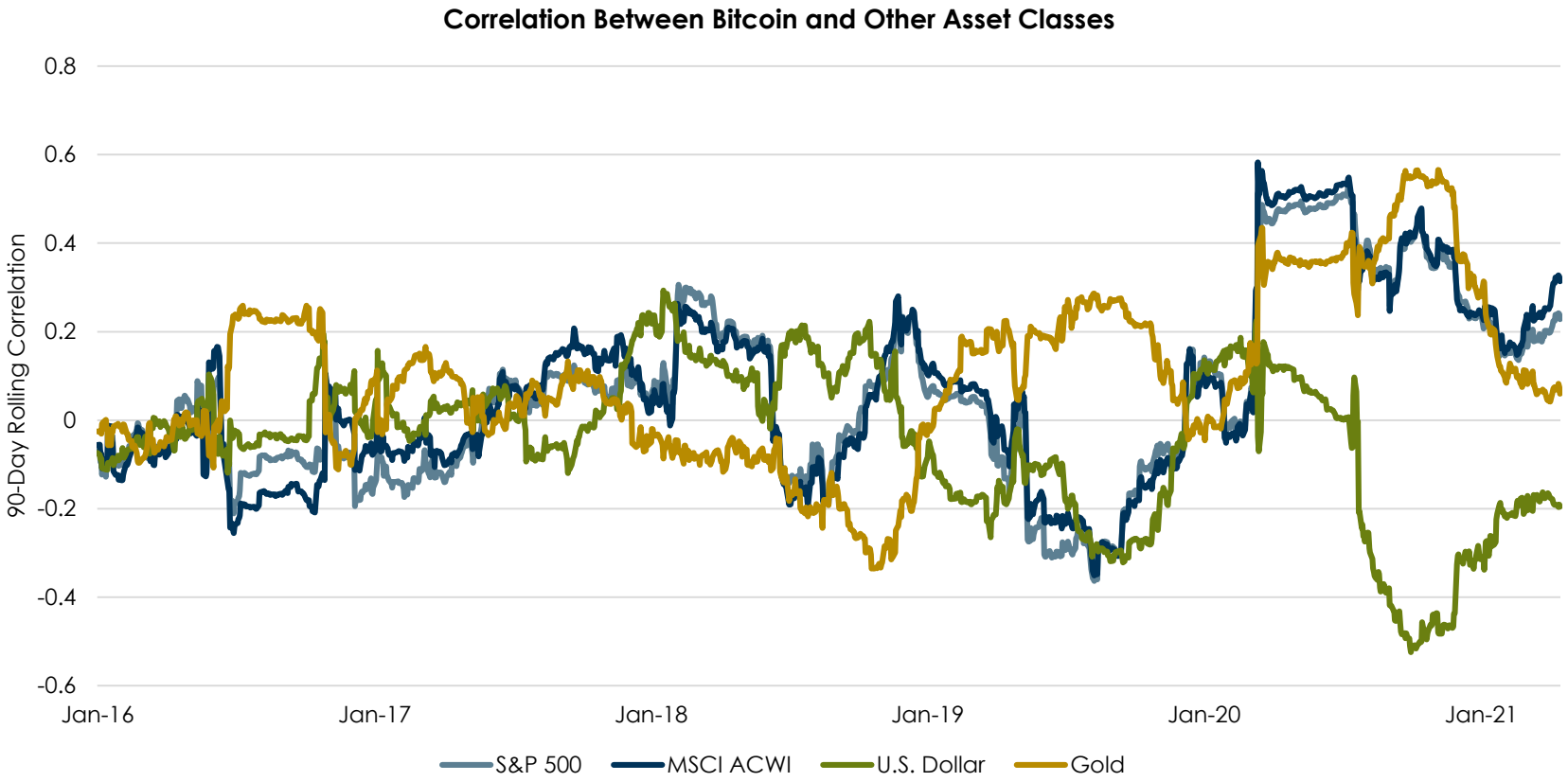
Volatility of Bitcoin vs. Other Asset Classes



Source: Bloomberg, ACG Research; data as of April 15, 2021

Portfolio Hedge – Correlation

- Proponents of Bitcoin also point to its low correlation with traditional risk assets and ability to act as a hedge in the portfolio
- **While Bitcoin has historically exhibited low correlation to other asset classes, its correlation has risen since the start of 2020**
- When paired with the relatively short performance history of Bitcoin, this recent rise in correlation suggests that, at the very least, crypto's hedging characteristics are still unproven



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