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Access the opportunities.

Facebook's Libra: Stablecoins Burst on the Scene



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VanEck's mission and philosophy



Founded in 1955, VanEck's mission is to offer investors forward-looking, intelligently designed strategies

- VanEck thinks outside the confines of financial markets as they exist today and identifies what major historical trends — e.g., geopolitical and technological — will change the opportunity set of these markets
- Being one of the first to offer investors access to international markets in 1955 set the tone for our drive to identify and define investment trends
- **Our story evolves with the early identification of asset classes and trends that went on to shape the investment management business:** in 1968 with monetary policy and gold, in 1993 with China and emerging markets, and in 2006 with exchange-traded funds

VanEck Digital Assets brings our best to clients and investors through:

Independence

- A history of putting clients' interests first in all market environments

Insight

- VanEck's formal involvement with Bitcoin dates to early 2017 as Bitcoin mustered enough potential as a form of "digital gold"
- Some Employees first engaged with Bitcoin as early as 2012

Accessibility

- Client access to portfolio management team sentiment and firm research

Execution

- Market-tested portfolio management teams and well-designed processes

VanEck thoughts



- First, going back to Bitcoin, we still think that Bitcoin has the potential to become a type of digital gold, a possible modern “store of value.” Bitcoin and digital assets are already a part of many investor portfolios, just not in traditional brokerage accounts.
- VanEck is excited to watch stablecoin and Bitcoin developments. We believe that the U.S. will benefit from embracing these innovative technologies. A market-led 10 year plan to upgrade U.S. payments, currency and capital markets infrastructure may further the public interest.
- We appreciate the thoughts of Mark Carney, Governor of the Bank of England, “It’s way too expensive to do domestic payments. It’s way too slow, and that hurts consumers and businesses. It stifles innovation, and it’s far too expensive to send money cross-border, and there are huge financial inclusion issues related to that and costs related to that. So, while we are trying to address all these issues, we have to absolutely acknowledge the problem that they’re [Facebook] trying to solve. And if it’s not this, we’d better have some answers for what else it is.”

See important disclosures at the beginning of the presentation.

Summary



- Bitcoin and Crypto Trading Ecosystem is Strong
- Stablecoins Act similar to a “Money Market Fund” for Crypto Exchanges
 - Tether
- Stablecoins Become Important Part of Payments Challenge
 - GUSD
 - Facebook’s Libra
- Sidechains are Where the Action is
- Identity is Up for Grabs
- Top Developments to Watch



Crypto exchanges are healthy: Not going away



- Bitfinex makes over \$400 million¹: Top 650 of U.S. companies; Binance in the same range
- Liquidity...Bitcoin daily volume over \$2 billion²
- Bitcoin and crypto became more available to retail investors
 - Swiss Exchange offers crypto trading (no Europe equity exchanges)
 - Robinhood, TD and Etrade offer trading in crypto
 - Etoro, large crypto broker, offers commission-free trading in ETFs
 - Exchange-standard surveillance software implemented by crypto exchanges
 - OTC crypto brokers offer price feed to market through MVIS
- CME futures contracts top 25,000 BTC open interest, \$350 million notional³
- Crypto exchanges use best practices, such as surveillance and accounting software
- Exchanges are the target of hackers but can reimburse losses (Binance refunds \$40 million in losses from insurance fund)⁴

¹ Bitfinex. Data as of 5/8/2019

² Cryptocompare. Data as of 7/10/2019

³ CME. Data as of 6/24/2019.

⁴ Binance.

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Quality crypto exchanges emerge



Top-Rated Crypto Exchanges as Ranked by CryptoCompare, June 2019

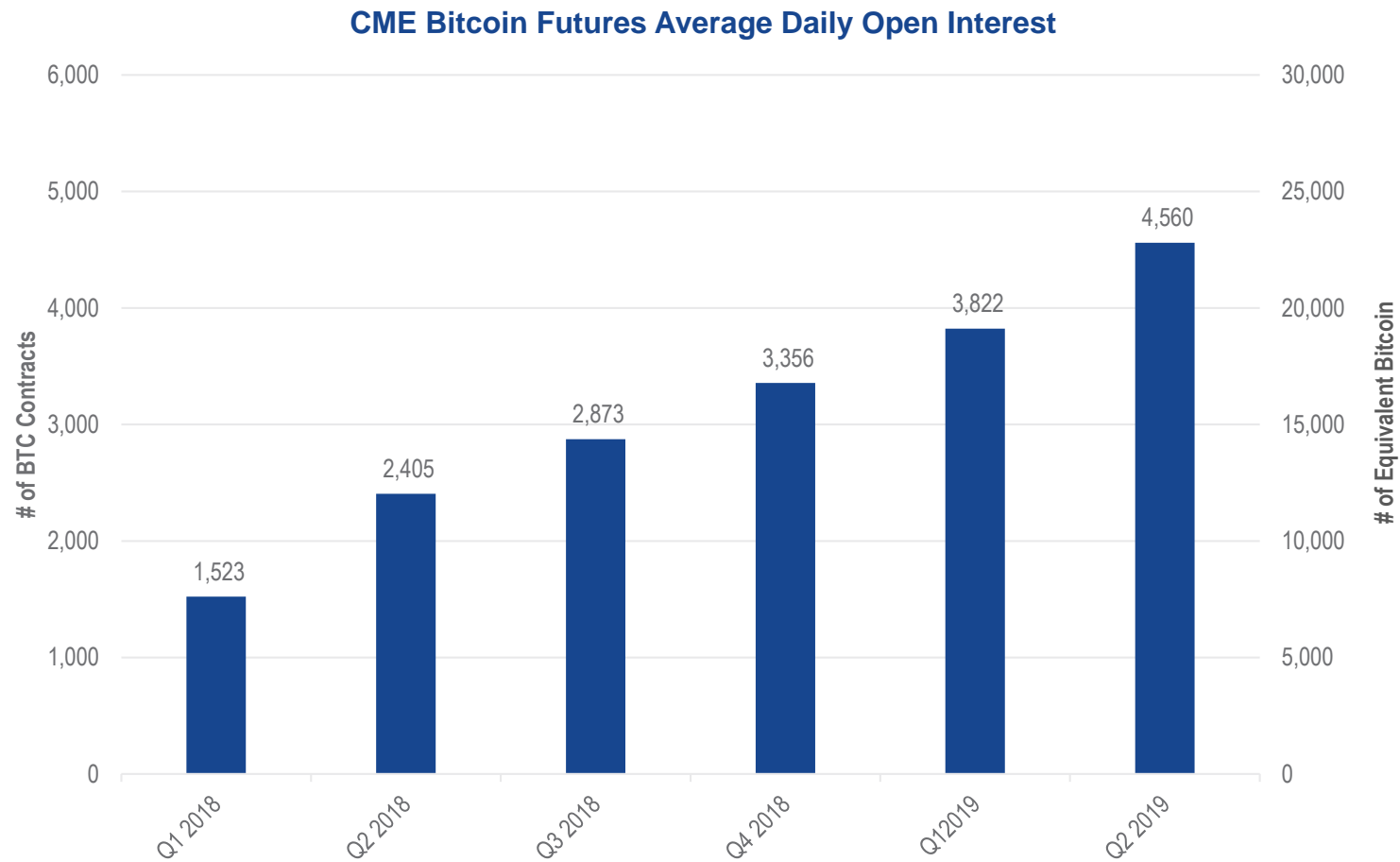
Exchange	Rank	Score	Grade	24 Hour Bitcoin Volume	Geographic Focus
Coinbase	1	60.30	AA	43,474.6	USA
Poloniex	2	59.90	AA	1,196.9	USA
Bitstamp	3	59.60	AA	18,575.7	Europe
bitFlyer	4	57.20	AA	6,685.1	Asia
Liquid	5	56.30	AA	41,326.6	Asia
itBit	6	56.00	AA	1,362.1	USA
Kraken	7	54.10	A	24,420.3	USA
Binance	8	54.00	A	163,332.4	Asia
Gemini	9	53.20	A	1,439.5	USA
Bithumb	10	53.10	A	62,155.4	Asia

Surprising new entrant



Source: Cryptocompare. Data as of 6/30/2019. See important disclosures at the beginning of the presentation.

CME Bitcoin futures contract sets new trading record



Source: CME Group. Data as of 6/24/2019.

Bitcoin adoption continues: Nodes and users



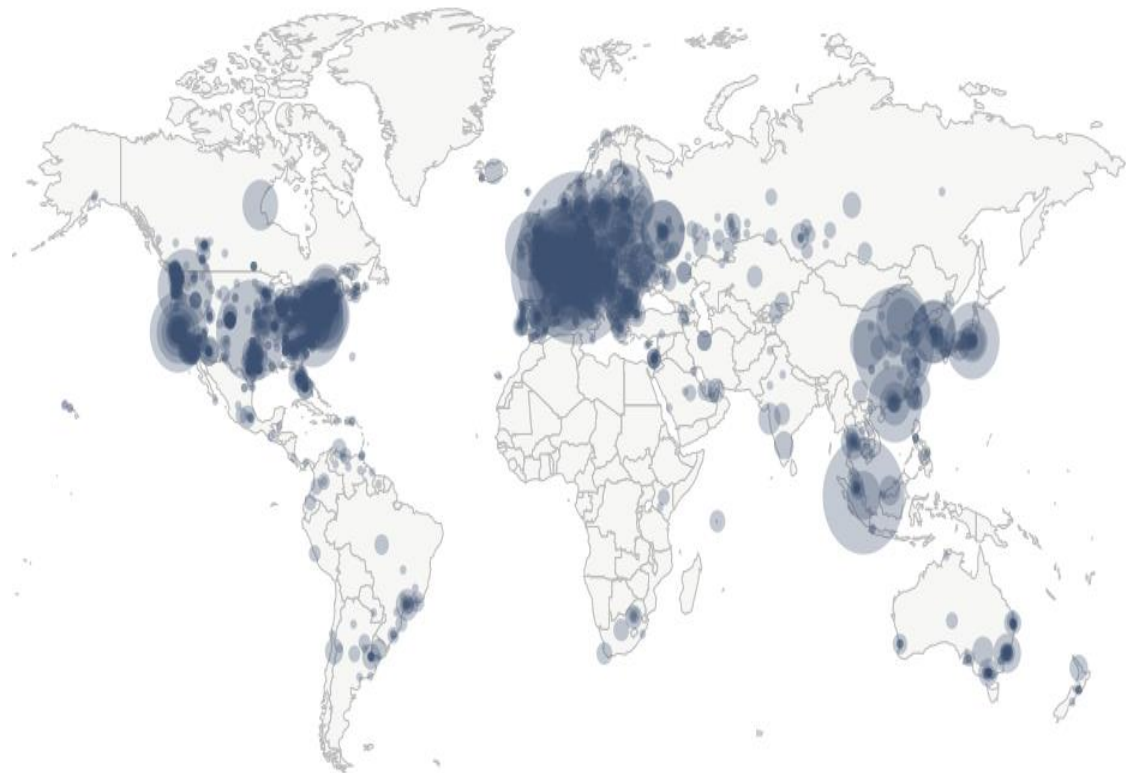
- A full-node is a computer that downloaded and continuously updates a full copy of the Bitcoin-blockchain (You can host your own full node with as little as 200GB! It's your own mini bank!)
- A mining node is a computer that participates in the verification of transactions on the Bitcoin-blockchain

10436 Nodes

Top 10 countries with their respective number of reachable nodes are as follows

Rank	Country	Nodes
1	United States	2,407 (23.07%)
2	Germany	1,849 (17.72%)
3	n/a	1,046 (10.02%)
4	France	600 (4.99%)
5	Netherlands	521 (4.99%)
6	China	411 (3.94%)
7	Canada	349 (3.34%)
8	United Kingdom	303 (2.90%)
9	Singapore	286 (2.74%)
10	Russian Federation	268 (2.57%)

10,000 Bitcoin Mining Nodes and 100,000 Full Nodes

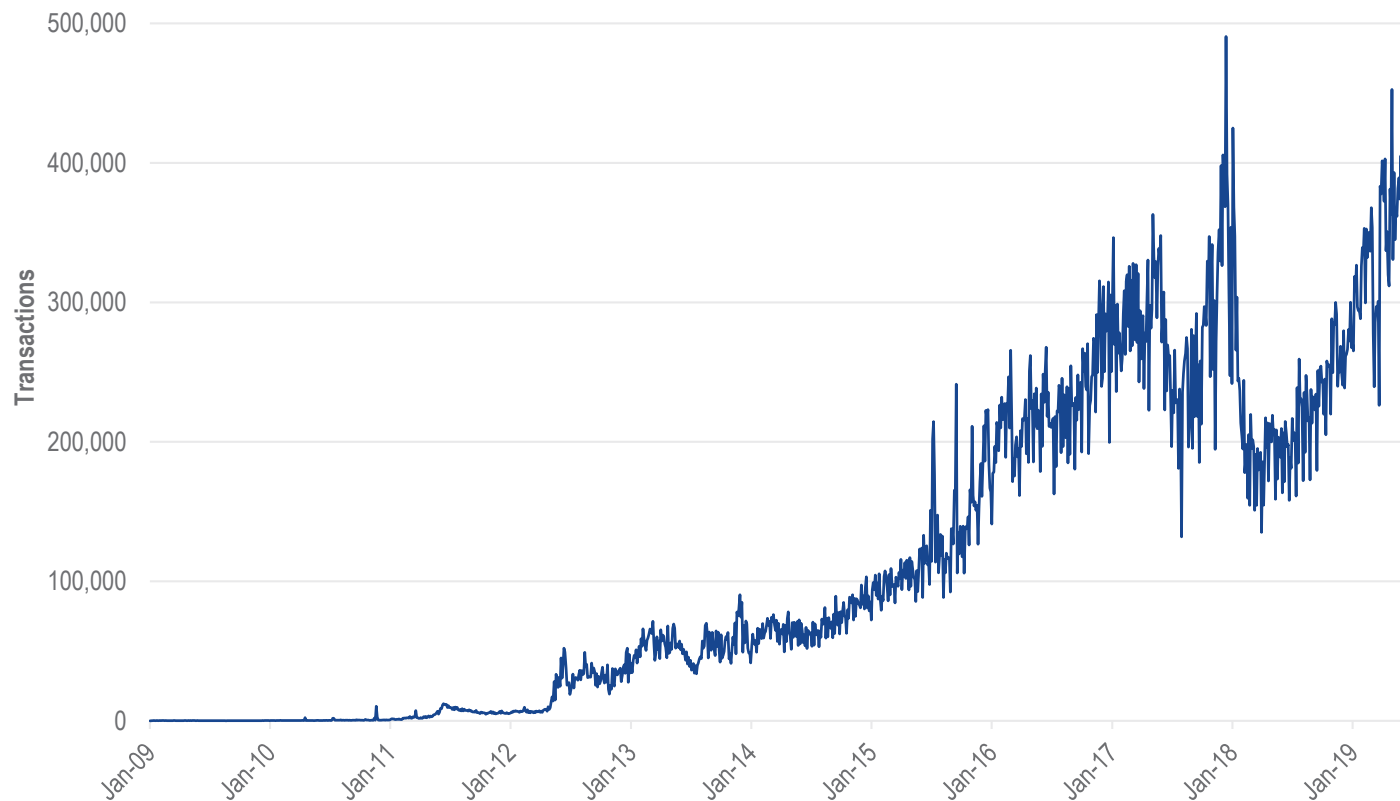


See important disclosures at the beginning of the presentation. n/a represents unknown locations, but likely are mining pools.

Bitcoin adoption continues: On-chain transactions

- Bitcoin transactions cross 400,000 permissionless transactions a day exhibiting significant network value
- Bitcoin on-chain transactions amount to 15% of SWIFT transactions¹

Daily Confirmed Bitcoin Transactions

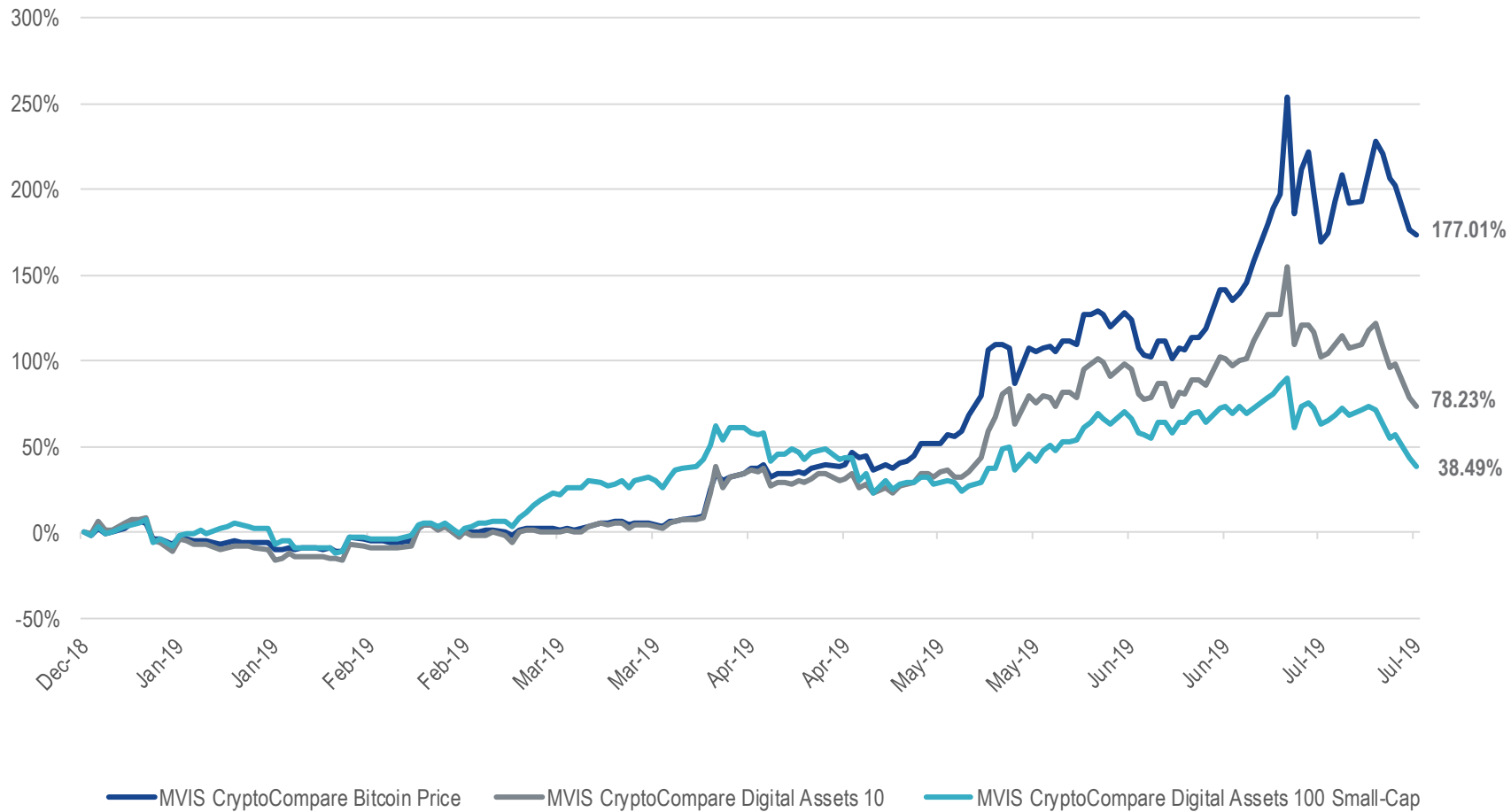


¹SWIFT is a global member-owned cooperative and the world's leading provider of secure financial messaging services. See important disclosures at the beginning of the presentation. Source: Blockchain.info. Data as of 7/13/2019.

Bitcoin and large-caps decouple from small-caps













Cumulative Performance



Source: Bloomberg/MVIS, Data as of 07/15/2019. See important disclosures at the beginning of the presentation.

10 Most liquid digital assets



Rank	Coin	Price	Direct Vol. 24 Hour	Total Vol. 24 Hour	Market Cap
1	 Bitcoin BTC	\$10,808.80	\$2.93 B	\$11.98 B	\$192.22 B
2	 XRP XRP	\$0.4013	\$173.77 M	\$1.64 B	\$40.13 B
3	 Ethereum ETH	\$289.34	\$581.94 M	\$5.08 B	\$30.86 B
4	 Bitcoin Cash BCH	\$402.07	\$143.65 M	\$936.55 M	\$7.18 B
5	 Litecoin LTC	\$114.80	\$222.12 M	\$1.98 B	\$7.17 B
6	 EOS EOS	\$5.764	\$83.64 M	\$2.20 B	\$5.87 B
7	 Binance Coin BNB	\$33.77	-	\$308.39 M	\$4.77 B
8	 Tether USDT	\$0.9875	\$55.18 M	\$215.68 M	\$3.54 B
9	 Bitcoin SV BSV	\$189.12	\$13.49 M	\$276.85 M	\$3.38 B
10	 Cardano ADA	\$0.08471	\$4.22 M	\$227.12 M	\$2.20 B

Source: CryptoCompare. Data as of 6/30/2019. See important disclosures at the beginning of the presentation.

Stablecoin use #1: Improved money market fund



- A “stablecoin” is a digital asset linked to a lower-volatility asset like the U.S. dollar, a basket of currencies or gold; a reaction to the volatility of digital asset prices
 - Stablecoins use a creation-redemption mechanism similar to ETFs
 - Stablecoin use #1: money market fund in super-fast digital exchange system (instant settlement)
- Tether is the largest and most-traded stablecoin¹
 - Founded in 2014 by Bitfinex founders
 - Over \$3.5 billion in assets linked to the USD
 - \$20 million+ in daily volume
 - Has traded at up to 8% discount from \$1, usually very tight to the dollar
 - Accused of “fraud” by NY Attorney General but didn’t affect use or value²
- Tether enjoys wide distribution across crypto exchanges and protocols
 - Tether trades across more than 25 of the largest crypto exchanges
 - Tether is issued on Bitcoin (Omni), Ethereum, Tron and EOS

¹ Tether. Data as of 7/10/2019..

² Yahoo Finance, “NY Attorney General sues Bitfinex and Tether to unearth “fraud being carried out” by the firms,” April 26, 2019.

See important disclosures at the beginning of the presentation.

Stablecoin use #2: Payments

- Stable coins can be used for payments with cost advantage
- Credit card payment system is expensive
 - Merchants have to pay 2.5% MDR (merchant discount rate) to use Visa, Mastercard, American Express¹
 - Gemini GUSD to USD daily spreads range between 10 basis points to 2%+²
 - Bitcoin is too slow and too volatile to be used for payments (by design)
- Gemini/Flexa allows real-time payments at retailers (Starbucks, Whole Foods/Amazon); eliminates much of MDR (merchant discount rate) and requires no point of sale (POS) upgrades
- Facebook announces Libra as a payments stablecoin (not ETF)
 - Multi-currency basket (SDR-like)
 - Permissioned blockchain technology (similar to Ethereum)
 - 30+ legitimate backers
 - Creation redemption mechanism like FX baskets
 - Dave Nadig calls it an “ETF”³



¹ Square, Inc

² Cryptocompare

³ ETF.com.

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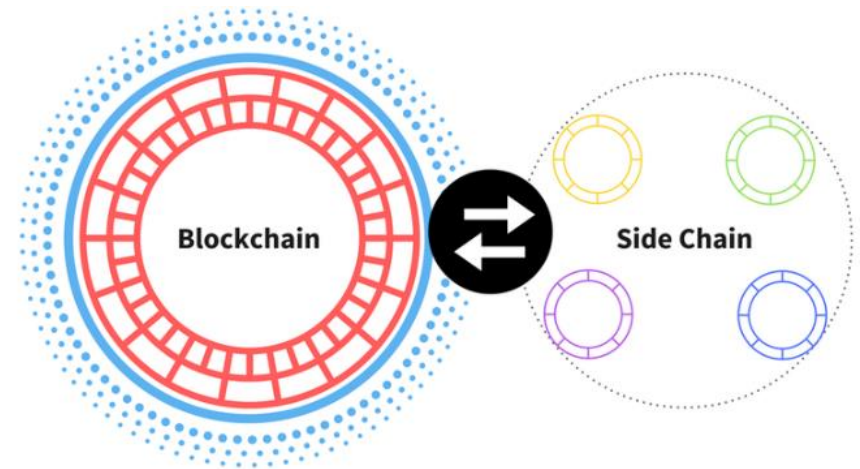
Tokenization: Will digital assets become securities?

- Crypto markets offer new “things” like bitcoin, but they also offer new ways of trading value
- The argument favoring tokenization
 - Instant-settling crypto markets are more efficient than traditional securities markets.
 - They eliminate the need for middlemen and settlement processes, including brokers, custodians and clearinghouses (transfer agency services like proxy voting still needed)
- The question is, when will crypto exchanges decide that they want to trade traditional securities? They would need to become regulated exchanges.
- So we are investigating tokenization to make sure that new techniques do not offer a superior technology to ETFs trading on traditional markets.



Most activity won't likely happen on Bitcoin but on sidechains

- **Established code base** – Sidechains are based on Bitcoin-blockchain architecture
- **Security** – Sidechains preserve the most important security properties of the Bitcoin-blockchain
- **Scalability** – Sidechain transactions make verification faster (Example: The Liquid sidechain supports Lightning enabling scalability, up to millions of transactions per second)
- **Privacy** – Confidential transactions increase privacy for network participants
- **Customization** – Possible to apply investor restrictions on sidechains, Bitcoin is permissionless



Lightning Network is a significant payments layer on Bitcoin

- **The Lightning Network** – Is a payment-focused layer 2 application built on top of the Bitcoin-blockchain (almost like a sidechain but different)
- **Scalability** – Millions of transactions per second vs Bitcoin (7 tx/sec) and Visa (45,000 tx/sec)¹
- **Cost** – Bitcoin transactions to reduce to fraction of a cent, instead of dollars
- **Privacy** – Retained from Bitcoin network; identity only posted when lightning channel closed
- **Importance** – Decentralized and trust-minimized transactions to compete with established centralized payment networks such as Visa, MasterCard, PayPal, etc...



¹Visa

See important disclosures at the beginning of the presentation.

Microsoft secures online identity using Bitcoin

- **What?** Decentralized online identity platform; secure trust-minimized login
- **Who?** Microsoft decides to build it on Bitcoin
- **Where?** Built on top of the Bitcoin-blockchain (layer 2)
- **Why?** Online identity is centralized, fragmented and prone to theft
- **When?** Launched on testnet in May 2019¹



¹Microsoft

See important disclosures at the beginning of the presentation.

VanEck's top developments to watch



- Bitcoin
 - Halving May 2020: New supply of bitcoin goes in half
 - Lightning Network and layer 2 solutions
 - Bitcoin ETF

- Libra potential launch in 2020

- Tether/stablecoin volume and merchant adoption

- Tokenization of real world assets

- Ethereum proof of stake transition in late 2019 (dividends)

- Algorithmic stablecoins (DAI, Dfinity) + Decentralized Finance (DeFi), Lending Ecosystem

- Gemini and other exchanges applying for broker-dealer/ATS licenses