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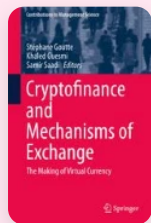
Cryptocurrencies as an Asset Class

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[Cryptofinance and Mechanisms of Exchange](#)

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Abstract

Cryptocurrencies are a new emergence at the intersection of technology and finance. It is therefore of particular interest whether cryptocurrencies can form a new asset class or need to be subsumed under an existing one. We find that cryptocurrencies show characteristics of a distinct asset class based on strong internal correlation, an absence of correlation with any traditional asset class as well as sufficient market liquidity, while market stability has room for improvement. Adding cryptocurrency to traditional portfolio structures may lead to significant and persistent risk-adjusted outperformance. These results support

the careful introduction of cryptocurrencies into the asset management mainstream.

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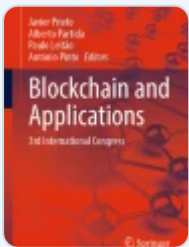
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Notes

1. Bleeding edge alternatives such as the ‘Tangle’ and ‘Hashgraph’ are emerging, see Popov ([2017](#)) and Baird ([2016](#)) respectively.

2. While alternative timeframes of 6, 9 and 12 months have been examined, results of the 3 month window are robust to such changes. Therefore, we limit our analysis to the three most recent months.
3. The organizations participating in the SRO are: BATS Exchange, Inc.; BATS Y-Exchange, Inc.; NASDAQ OMX BX, Inc.; Chicago Board Options Exchange, Incorporated; C2 Options Exchange, Incorporated; Chicago Stock Exchange, Inc.; EDGA Exchange, Inc.; EDGX Exchange, Inc.; Financial Industry Regulatory Authority, Inc.; International Securities Exchange LLC; The NASDAQ Stock Market LLC; New York Stock Exchange LLC; NYSE Amex LLC; NYSE Arca, Inc.; National Stock Exchange, Inc. and NASDAQ OMX PHLX LLC.
4. We also performed a check on Minimum-Variance optimization. Due to the high volatility levels of cryptocurrencies, we did not find any significant volatility reduction.

References

Ackert LF (2012) The impact of circuit breakers on market outcomes. Technical report. Economic Impact Assessment EIA9. UK Government Office for Science – Foresight Project.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/289039/12-1070-eia9-impact-circuit-breakerson-market-outcomes.pdf

Allen M (2017) Chiasso accepts tax payments in Bitcoin. swissinfo.ch.

https://www.swissinfo.ch/eng/business/swiss-fintech_chiasso-accepts-taxpayments-in-bitcoin/43503464

Back A (2002) Hashcash-a denial of service counter-measure.

<ftp://sunsite.icm.edu.pl/site/replay.old/programs/hashcash/hashcash.pdf>

Baird L (2016) The Swirlds hashgraph consensus algorithm: fair, fast, Byzantine fault tolerance. Technical report Swirlds-Tr-2016-01

Briere M, Oosterlinck K, Szafarz A (2015) Virtual currency, tangible return: portfolio diversification with Bitcoin. J Asset Manag 16(6):365–373

Buterin V (2013a) A next-generation smart contract and decentralized application platform. Technical report. Ethereum project white paper.

<https://github.com/ethereum/wiki/blob/master/drafts/%5Benglish%5D-old-ethereumwhitepaper.md>

Buterin V (2013b) Bitcoin network shaken by blockchain fork.

bitcoinmagazine.com. <https://bitcoinmagazine.com/articles/bitcoin-network-shaken-by-blockchainfork-1363144448/>

Buterin V (2016) “Ethereum 2.0”. Ethereum project mauve paper.

<https://cdn.hackaday.io/files/10879465447136/Mauve%20Paper%20Vitalik.pdf>

Buterin V (2017a) On medium-of-exchange token valuations.

<http://vitalik.ca/general/2017/10/17/moe.html>

Buterin V (2017b) The meaning of decentralization. Technical report. Medium.

<https://medium.com/@VitalikButerin/the-meaning-of-decentralization-a0c92b76a274>

CBOE (2017) XBT-Cboe Bitcoin futures. Technical report. Chicago Board Options Exchange. <http://cfe.cboe.com/cfe-products/xbt-cboe-bitcoin-futures>

CME (2017) Now available: Bitcoin futures. cmegroup.com.

<https://www.cmegroup.com/trading/bitcoin-futures.html>

Dougherty C, Huang G (2014) Mt. Gox seeks bankruptcy after 480 million Bitcoin loss. [bloomberg.com](https://www.bloomberg.com/news/articles/2014-02-28/mt-gox-exchange-files-for-bankruptcy). <https://www.bloomberg.com/news/articles/2014-02-28/mt-gox-exchange-files-for-bankruptcy>

Dwork C, Naor M (1992) Pricing via processing or combatting junk mail. In: Annual international cryptology conference. Springer, Heidelberg, pp 139-147. https://link.springer.com/chapter/10.1007/3-540-48071-4_10

Dyhrberg AH, Foley S, Svec J (2018) How investible is Bitcoin? Analyzing the liquidity and transaction costs of Bitcoin markets. *Econ Lett* 171:140-143

Eisl A, Gasser S, and Weinmayer K (2015) Caveat emptor: does Bitcoin improve portfolio diversification? Available at SSRN 2408997

Elendner H et al (2018) The cross-section of crypto-currencies as financial assets - investing in crypto-currencies beyond bitcoin. In: Handbook of blockchain, digital finance, and inclusion, vol 1. Elsevier, Amsterdam, pp 146-170

EOSProject (2017) EOS.IO technical white paper. Technical report EOS Project. <https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md>

Fink C, Johann T (2014) Bitcoin markets. Available at SSRN 2408396

GolemProject (2016) The Golem project - crowdfunding whitepaper. Technical report. The Golem Project. <http://golemproject.net/doc/DraftGolemProjectWhitepaper.pdf>

Higgins S (2014) Hal Finney on Bitcoin: in his own words. [coindesk.com](https://www.coindesk.com). <https://www.coindesk.com/hal-finney-bitcoin-words/>

Jakobsson M, Juels A (1999) Proofs of work and bread pudding protocols. In: Secure information networks. Springer, Berlin, pp 258–272.

https://link.springer.com/content/pdf/10.1007/978-0-387-35568-9_18.pdf

Johnston D et al (2015) The general theory of decentralized applications, DApps. GitHub 9. <https://github.com/TarantulaTechnology/Documents-Blockchain/blob/master/The%20General%20Theory%20of%20Decentralized%20Applications%2C%20DApps.pdf>

Juels A, Brainard JG (1999) Client puzzles: a cryptographic countermeasure against connection depletion attacks. In: NDSS, vol 99, pp 151–165.

<http://www.isoc.org/isoc/conferences/ndss/99/proceedings/papers/juels.pdf>

Kalla S (2017) A framework for valuing crypto tokens. Technical report. Acupacy.

<https://www.coindesk.com/framework-valuing-crypto-tokens/>

Lee DKC, Li G, Wang Y (2018) Cryptocurrency: a new investment opportunity? J Altern Invest 20(3):16–40

Merkle RC (1980) Protocols for public key cryptosystems. In: Security and privacy, 1980 IEEE Symposium on. IEEE, pp 122–134.

https://www.researchgate.net/profile/Ralph_Merkle/publication/220713913_Protocols_for_Public_Key_Cryptosystem/links/00b495384ecda07784000000/Protocols-for-Public-Key-Cryptosystems.pdf

Merkle RC (1990) A certified digital signature in Conference on the theory and application of cryptology. In: Brassard G (ed) Advances in cryptology. CRYPTO'89 LNCS 435. Springer, Heidelberg, pp 218–238.

https://link.springer.com/content/pdf/10.1007/0-387-34805-0_21.pdf

Nakamoto S(2008) Bitcoin: a peer-to-peer electronic cash system. Technical

report. <https://bitcoin.org/bitcoin.pdf>

P4Titan (2014) Slimcoin - a peer-to-peer crypto-currency with proof-of-burn.
Technical report. slimcoin

Popov S (2017) The tangle. Technical report. IOTA Project.
https://iota.org/IOTA_Whitepaper.pdf

ProtocolLabs (2017) Filecoin: a decentralized storage network. Technical report.
Protocol Labs. <https://filecoin.io/filecoin.pdf>

Rosenfeld M (2012) Analysis of hashrate-based double spending. arXiv preprint
arXiv:1402.2009. <https://arxiv.org/pdf/1402.2009.pdf>

SEC (2012) Approval order. Technical report Release 34-67090. Securities and
Exchange Commission. <https://www.sec.gov/rules/sro/bats/2012/34-67090.pdf>

Sharpe WF (1992) Asset allocation: management style and performance
measurement. J Portf Manag 18(2):7-19

Swissinfo (2016) Zug first to accept Bitcoin for government services. swissinfo.ch.
https://www.swissinfo.ch/eng/business/crypto-valley_zug-firstto-accept-bitcoin-for-government-services/42143908

Szabo N (2008) Bit gold. <http://unenumerated.blogspot.de/2005/12/bitgold.html>

Trimborn S, Li M, Härdle WK (2018) Investing with cryptocurrencies - A liquidity
constrained investment approach

Ummelas O (2018) Estonia scales down plan to create national cryptocurrency.

[bloomberg.com. https://www.bloomberg.com/news/articles/2018-06-01/estonia-curbs-cryptocurrency-plan-that-drew-rebuke-from-draghi](https://www.bloomberg.com/news/articles/2018-06-01/estonia-curbs-cryptocurrency-plan-that-drew-rebuke-from-draghi)

Voshmgir S, Kalinov V (2017) Blockchain - A beginners guide. Technical report Version 1.0. BlockchainHub. <https://blockchainhub.net/blockchaintechnology>

Wei WC (2018) Liquidity and market efficiency in cryptocurrencies. Econ Lett 168:21-24

WeiDai (1998) B-Money. <http://www.weidai.com/bmoney.txt>

Wood G (2014) Ethereum: a secure decentralised generalised transaction ledger. Ethereum project yellow paper EIP-150 revision.
<http://www.cryptopapers.net/papers/ethereum-yellowpaper.pdf>

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