

EXCHANGE REVIEW

CryptoCompare

July 2018



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Executive Summary

Volume, Pairs and Coins

Top exchanges by average 24H volume are Binance OKEX and CoinBene. Exchanges with the highest number of coins are EtherDelta, Yobit, Cryptopia. Exchanges with the highest number of pairs are Yobit, Cryptopia and CCEX. Exchanges with the highest 24h volume-to-coins are FCoin, Coinbase and bitFlyer.

Country Analysis

By legal jurisdiction, Maltese based exchanges (Binance and OKEX) generate the highest 24 volume (~2 billion USD), followed by those in China, Vanuatu and the United Kingdom (all ~500 million USD). The highest number of exchanges are legally based in the United Kingdom (13), followed by the United States and Japan (~9 each), whereas the lowest count of exchanges includes those in Vanuatu (1), British Virgin Islands (2), Malta (3).

Pair Offerings

Crypto-Crypto only exchanges produce the highest 24h volume (~2 billion USD), followed by those that offer both Crypto-Crypto and Fiat-Crypto (1.7 billion USD) and finally those that offer only Fiat-Crypto Pairs (200 million USD). Fiat-Crypto only exchanges constitute the lowest count of total exchanges (23) compared to those that offer only crypto-crypto (45) and both fiat and crypto pairings (47).

Decentralised Exchanges

Top exchanges including Binance, HuobiPro, OKEX have all stated plans to initiate a decentralised exchange on their own respective blockchains at some point in the future. Barriers to this include but are not limited to cross chain trading limitations, security risks of smart contracts, front running risks, inefficient orderbooks and relatively high fees due to blockchain bloat.

Basic Exchange Security Indicators

The most secure exchanges based on public cold wallet policies are itBit, Coinfloor, and Quoine (100% funds in cold storage). Out of all exchanges in our dataset (~115), approximately 10.5% have been hacked at some point since their existence. Approximately 14.5% of exchanges are missing either a basic terms & conditions or privacy policy pages on their sites.

Main Exchange News in July

Transfee mining takes off, major players include FCoin, CoinEx and CoinBene reaching the top of 24h volume ranking tables. Bitfinex announces partnership with Market Synergy. Binance and OKEx announce partnerships with the Malta Stock Exchange to build a security token exchange. Bithumb recovers 14 million USD from June 20th hack. FCoin voting system inundates the Ethereum Blockchain. Bancor hacked for 23.5 million USD worth of funds on July 9th.

Trans-Fee Mining

Trans-Fee Mining (TFM) is a recent phenomenon where an exchange rebates 100% of transaction fees in the equivalent value of their own native exchange token. FCoin, CoinEx and CoinBene are top TFM players with an average 24h volume in July of 524, 438, and 407 million USD, for CoinBene, CoinEx and FCoin respectively. Criticisms include the risk of inflated volumes, scope for price manipulation, the risk of runaway funds, and likeness to an ICO.

Native Exchange Tokens

Top exchanges with their own native exchange tokens include Binance (BNB), HuobiPro (HT) and OKEX (OKB), with their tokens trading at 50.8, 31.0, 29.7 million USD respectively across all pairs. Features of native exchange tokens in general appear similar to that of TFM tokens such as transaction-fee discounts, voting rights, and buy-backs. The major distinction is the means of token creation.

Summary of Changes to CCCAGG

What Happened in July?	New exchanges added to Cryptocompare (17):	CoinHub, Tokenomy, IDAX, CryptoBulls, Nexchange, Hikenex, HADAX, Qryptos, Independent Reserve, Coinbene, BigOne, FCoin, WorldCryptoCap, Bitexbook, CryptoCarbon, Kuna, ABCC
	Exchanges shut down (ceased trading completely): (2)	Bluebelt, Foxbit
Result of Current Review:	New exchanges to be Included in CCCAGG (7):	Kuna, Bitexbook, CryptoBulls, Hikenex, IDAX, CryptoCarbon, WorldCryptoCap
	Existing exchanges to be included in CCCAGG (1):	BitMart
	Exchanges to be Removed from CCCAGG (12):	BXinth (Pricing and Volume), BigONE (Pricing), BitFlip (Pricing), WEX (Pricing), ExtStock (Pricing), CoinCorner (Pricing), FCoin (Pricing), CoinBene (Pricing), ABCC (Pricing), BitflyerFX (Pricing and Volume), Simex (Pricing), CoinEx (Pricing)
Implementation Date	1 st August 2018	

General CCCAGG Inclusion/Exclusion Methodology

This review is conducted on a monthly basis in order to maintain a minimum exchange standard among constituent CCCAGG exchanges. Given the growing number of cryptocurrency exchanges, as well as those that shutdown due to regulation, bankruptcy and so on, it is necessary to evaluate whether prices and volumes are representative of the market so that investors and fund managers using the CCCAGG indices can be assured that they receive the most accurate information for their purposes.

We are not in the business of policing cryptocurrency exchanges, but simply set a guideline based on how the majority of cryptocurrency exchanges operate. These majority figures are used as a standard with which to assess whether a cryptocurrency exchange is operating in line with most of its industry. Having said this, the industry is constantly evolving and often times one cryptocurrency exchange might not reflect the patterns demonstrated by the majority, for reasons that might related to innovation, an alternative business model etc. In these cases, CryptoCompare attempts to use our best judgement with preference towards a hands-off approach so that industry developments are accurately reflected. Over time, our guiding standards with which to assess cryptocurrency exchanges will also develop in line with the industry to produce the most representative group of CCCAGG exchanges.

Data Processing Procedure

Cryptocompare currently assesses exchanges on the basis of 24-hour volume and pricing data. Every exchange within the CCC database is assessed in this review, with additional exchanges being added or excluded on a monthly basis for a variety of reasons. The 24-hour volume and price of every live trading pair from every exchange is recorded. Each pair volume is compared to the total market volume for that specific pairing and assigned a market share ranking. Pricing for each pair is compared to that of the CCCAGG pair, and a percentage price difference is calculated. Finally, a volume weighted % price difference per pairing is calculated to produce a figure for how close the overall exchange pricing differences are to that of the CCCAGG.

% Price Difference vs CCCAGG

As a general guideline, CryptoCompare assumes that exchanges with an overall percentage pricing difference of under 10% is within acceptable boundaries. The reasons for pricing differences across exchanges may be related to a number of factors that include exchange fees, jurisdiction, tax considerations among a series of other factors. It is however, the first indicator of acceptability within the CCCAGG exchange list.

Assessment Period

For new exchanges added to the platform, CryptoCompare assigns a period of time in which to gather data on the exchange before adding it directly to the CCCAGG calculations. Up to the next monthly exchange review, as long as there is positive volume and pricing data the

exchange will be assessed in the same way as all the existing exchanges and added to the CCCAGG if guidelines are met.

Dead Exchanges

Frequently, exchanges will stop trading for a variety of reasons that include bankruptcy, hackings, regulatory reasons and so on. Contingent upon sufficient market data being provided (usually one month), if an exchange has minimal to no trading volume it will be excluded from the CCCAGG and will be assigned an inactive status.

Market Share for Specific Pairs

There are many cases in which significant pricing differences occur relative to the CCCAGG for a number of pairs that only trade on very few exchanges. The reason for this often points to a lack of liquidity for specific pairs or perhaps a decentralized exchange. If this is the case, then there is usually an exception to the 10% pricing guideline vs CCCAGG pricing. Providing that a specific pair on an exchange represents at least 20% of the market volume or ranks at least 3rd for market share, and prices are within a reasonable boundary, this pair would be deemed acceptable. In addition, for certain pairs that are unique to only a handful of exchanges, pricing will vary considerably the lower the liquidity of the pair in question. In this case, more flexibility is given to pricing differences on low liquidity pairs.

Current Cryptocompare Policy Towards Zero-Fee and TFM Exchanges

Zero-fee exchanges as well as transaction-fee mining exchanges present a problem when it comes to assessing whether trading volume as well as pricing is legitimate due to the well-known criticisms of exchanges engaged in these practices. When it comes to zero-fee exchanges, traders are able to trade freely without fees regardless of how many trades are made; hence, volumes might become inflated. In a similar fashion transaction fee mining exchanges rebate 100% of transaction fees in the form of their own exchange tokens. This might give traders an incentive to trade more to receive more tokens which often have valuable features such as voting rights on the platform or a dividend. Both of the above can effectively lead to wash trading. Nonetheless, regardless of the incentives or risks to those trading on the platform, it is not up to CryptoCompare or within our means at present to judge whether trading volume is legitimate or not. For this reason, transaction-fee mining volume is included within the CCCAGG in the current policy, but excluded from the average price calculation, as these exchanges pose the risk of runaway or market crash. This policy will be reviewed and improved for the next exchange review when more in-depth analysis has been conducted.

Futures Trading

Despite the significant volumes witnessed for bitcoin futures trading on platforms such as BitflyerFX and BitMex, these volumes represent futures trading volume, and not spot trading volumes. For this reason, they are excluded from CCCAGG calculations.

Summary of Volumes, Coins and Pairs

Table 1 – Top 15 Exchanges Ranked by 24H Volume in USD

RANK	EXCHANGE	24HVOLUME (USD)	COINS	PAIRS
1	Binance	1,112,472,695	150	382
2	OKEX	977,656,172	171	511
3	CoinBene	775,010,164	67	81
4	Bitfinex	568,942,988	66	196
5	FCoin	558,190,415	16	17
6	CoinEx	556,575,025	36	79
7	Upbit	420,847,400	132	260
8	HuobiPro	414,894,343	112	257
9	BigONE	276,953,375	78	108
10	HitBTC	250,052,386	418	873
11	ZB	228,666,495	42	129
12	Bithumb	217,116,978	13	13
13	LBank	181,300,434	73	108
14	Kraken	143,880,545	20	74
15	Coinbase	136,212,711	4	13

Table 2 – Top 15 Exchanges Ranked by Number of Pairs

RANK	EXCHANGE	24HVOLUME (USD)	COINS	PAIRS
1	Yobit	28,304,609	1128	6652
2	Cryptopia	4,148,009	773	4279
3	CCEX	284,456	629	2145
4	EtherDelta	583,799	2058	2059
5	HitBTC	250,052,386	418	873
6	TradeSatoshi	93,314	190	774
7	BitTrex	98,976,660	504	625
8	WavesDEX	7,665,120	163	592
9	LiveCoin	16,613,061	246	586
10	IDEX	8,253,163	511	511
11	OKEX	977,656,172	171	511
12	Kucoin	18,114,096	176	411
13	Binance	1,112,472,695	150	382
14	Gateio	40,053,914	169	354
15	Tidex	10,077,836	113	264

Table 3 – Top 15 Exchanges Ranked by Number of Coins

RANK	EXCHANGE	24HVOLUME (USD)	COINS	PAIRS
1	EtherDelta	583,799	2058	2059
2	Yobit	28,304,609	1128	6652
3	Cryptopia	4,148,009	773	4279
4	CCEX	284,456	629	2145
5	IDEX	8,253,163	511	511
6	BitTrex	98,976,660	504	625
7	HitBTC	250,052,386	418	873
8	LiveCoin	16,613,061	246	586
9	TradeSatoshi	93,314	190	774
10	Kucoin	18,114,096	176	411
11	Poloniex	37,034,900	173	214
12	OKEX	977,656,172	171	511
13	Gateio	40,053,914	169	354
14	WavesDEX	7,665,120	163	592
15	Binance	1,112,472,695	150	382

Table 4 - Top 15 Exchanges Ranked by 24H Volume/Number of Coins

RANK	EXCHANGE	24HVOLUME (USD)	COINS	PAIRS	24HVOLUME/COINS
1	FCoin	558,190,415	16	17	34,886,901
2	Coinbase	136,212,711	4	13	34,053,178
3	bitFlyer	64,562,031	3	4	21,520,677
4	Bitstamp	109,280,781	6	15	18,213,463
5	Bithumb	217,116,978	13	13	16,701,306
6	CoinEx	556,575,025	36	79	15,460,417
7	Simex	112,883,522	8	11	14,110,440
8	Quoine	131,167,935	10	58	13,116,793
9	CoinBene	775,010,164	67	81	11,567,316
10	itBit	11,422,575	1	3	11,422,575
11	Coincheck	11,324,408	1	1	11,324,408
12	TrustDEX	40,039,884	4	16	10,009,971
13	BitMart	97,700,160	10	19	9,770,016
14	Coinroom	76,721,362	8	32	9,590,170
15	Bitfinex	568,942,988	66	196	8,620,348

Volume Analysis

Figure 1 – Proportion of Historical 24h Volume Among Top Exchanges for July 2018

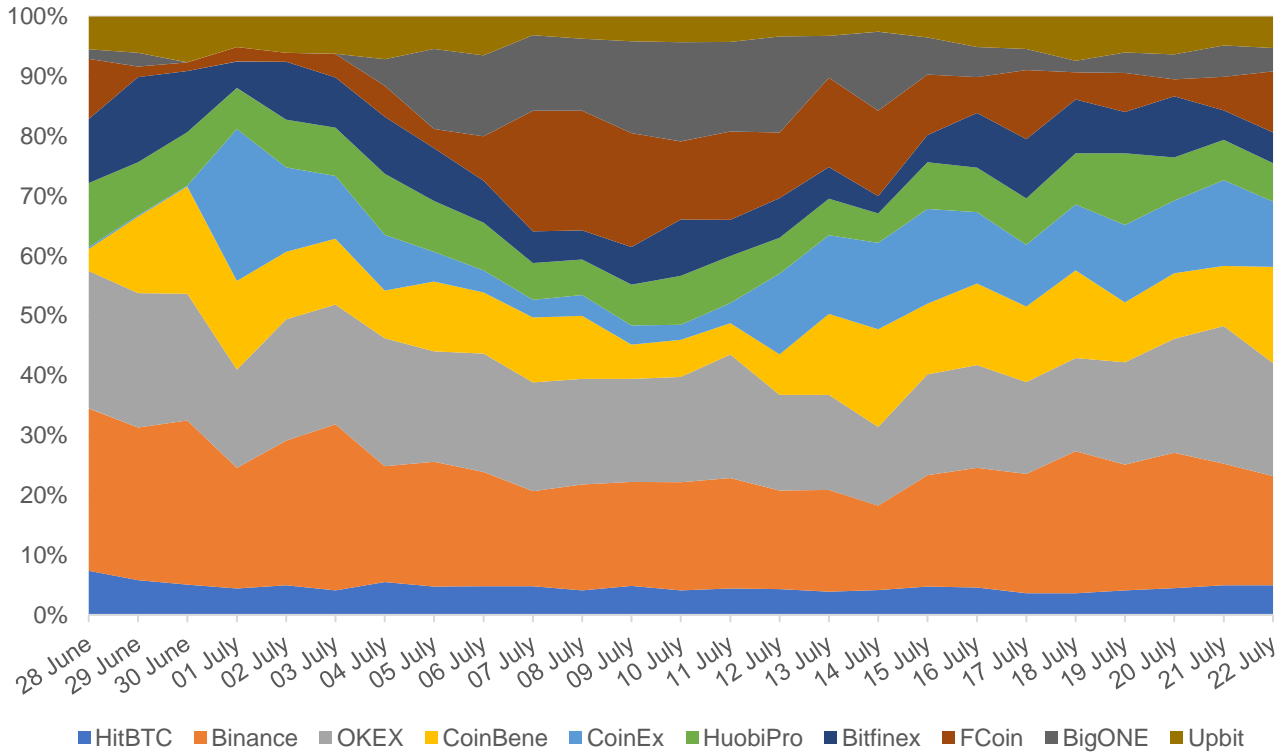
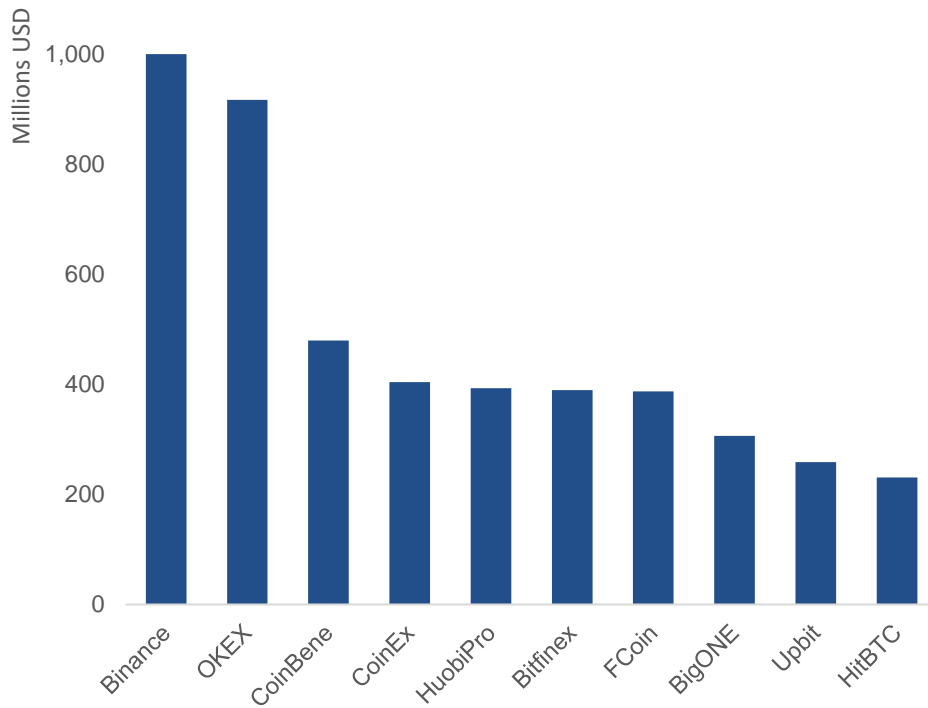
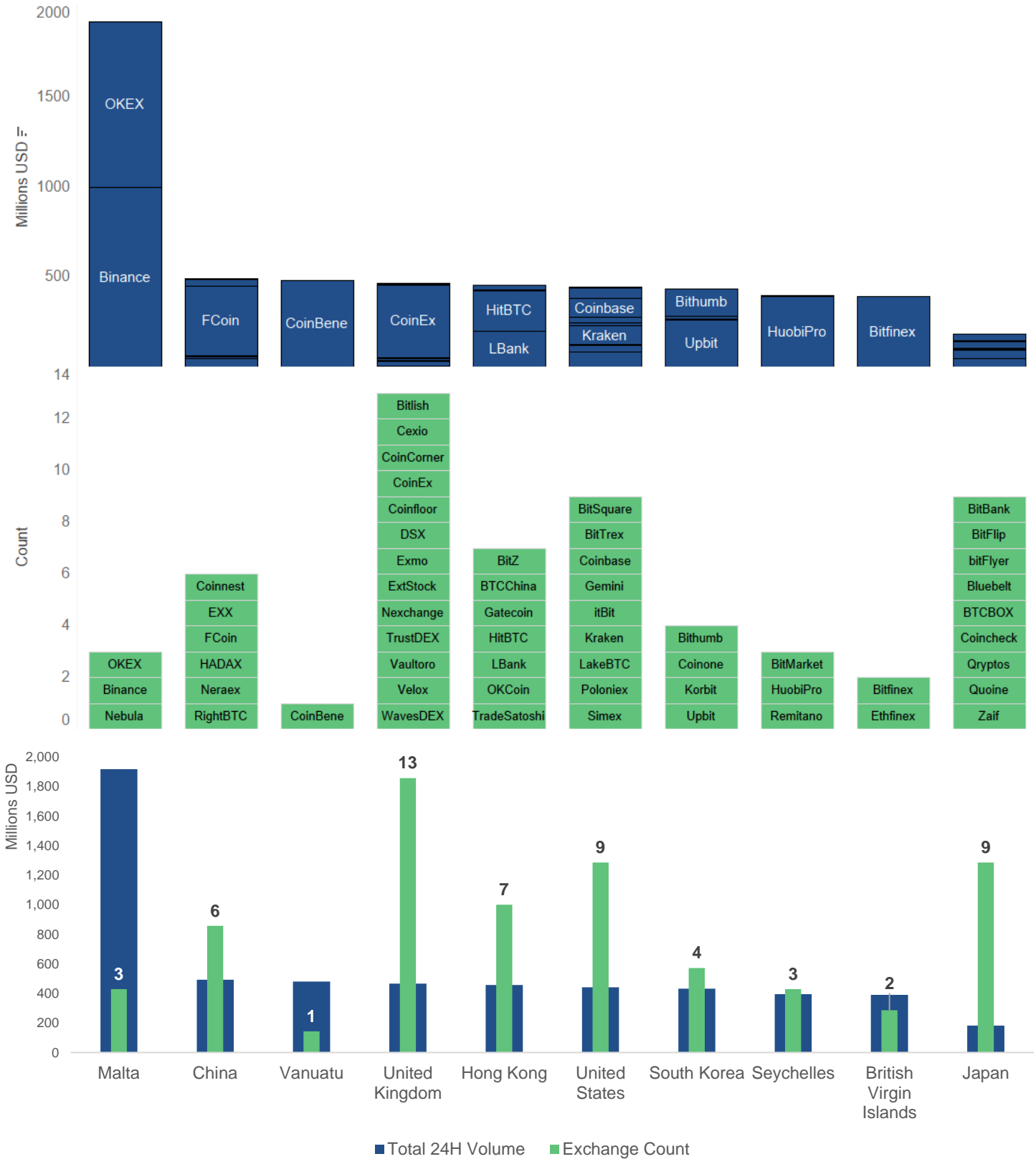


Figure 2 – One Month Average 24H Trading Volume Among the Top 10 Exchanges for July



Country Analysis

Figure 3 –Top 10 Exchange Legal Jurisdictions by Average 24H Volume and Major Exchanges



Pair Offering Analysis

Figure 4 –Pair Offering Monthly Average 24H Volume (USD) vs Exchange Count

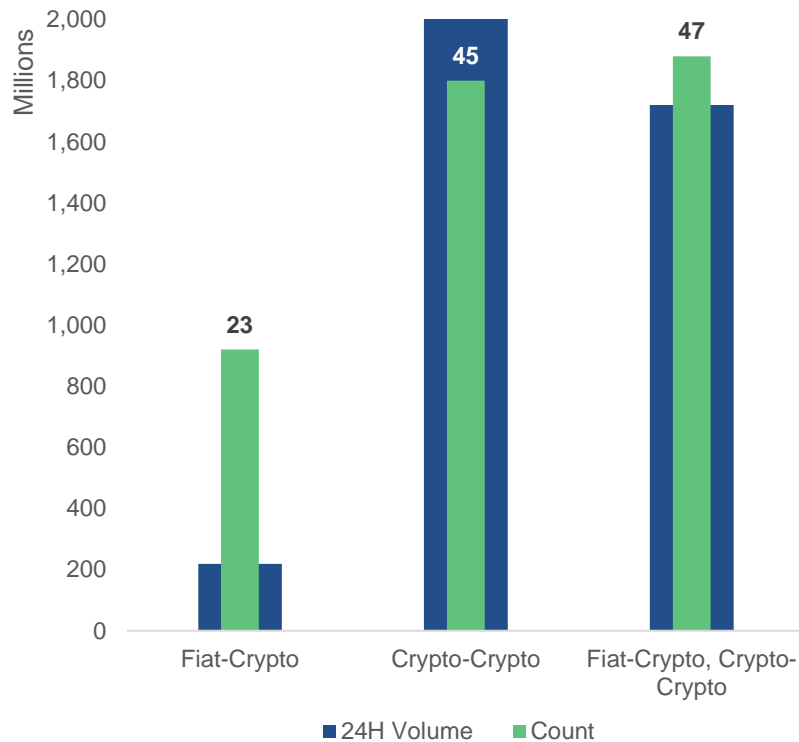


Table 5 - Fiat-Crypto Exchanges by 24H Volume (USD)

RANK	EXCHANGE	24H VOLUME (USD)	PAIRS	FIAT OFFERED	COLD WALLET POLICY	EVER BEEN HACKED?	JURISDICTION
1	Bithumb	147,337,983	13	KRW	Undisclosed	Yes	South Korea
2	Coinone	18,118,955	12	KRW	Undisclosed	No	South Korea
3	itBit	16,031,578	3	USD, EUR, SGD	100% of Funds	No	United States of America
4	Coinroom	10,321,493	32	EUR, PLN, USD, GBP	100% of Funds	No	Poland
5	Coincheck	8,667,819	1	JPY	Undisclosed	Yes	Japan
6	Korbit	7,188,710	4	KRW	Majority of Funds	No	South Korea
7	LocalBitcoins	4,821,953	118	USD, JPY, EUR & Several Others	Majority of Funds	Yes	Finland
8	Remitano	1,665,237	33	AUD	Operational, Proportion Unknown	No	Seychelles
9	Coinnest	1,167,628	23	KRW	Undisclosed	No	China
10	Coinfloor	936,950	5	USD, EUR, GBP	100% of Funds	No	United Kingdom

Table 6 - Fiat-Crypto and Crypto-Crypto Exchanges by 24H Volume (USD)

RANK	EXCHANGE	24H VOLUME (USD)	PAIRS	FIAT OFFERED	EXCHANGE COIN	TRANS-FEE MINING	COLD WALLET POLICY	EVER BEEN HACKED?	JURISDICTION
1	Bitfinex	389,635,900	196	USD, EUR, GBP, JPY	No	No	99.5% of Funds	Yes	British Virgin Islands
2	Upbit	258,856,119	260	KRW	No	No	Undisclosed	No	South Korea
3	Coinbase	108,499,653	13	USD, EUR, GBP	No	No	98% of Funds	No	United States of America
4	Kraken	107,868,766	74	USD, EUR, GBP, JPY, CAD	No	No	Majority of Funds	No	United States of America
5	Simex	84,697,684	11	USD, EUR, GBP, JPY, RUB	No	No	Operational, Proportion Unknown	No	United States of America
6	Bitstamp	73,832,097	15	USD, EUR	No	No	Majority of Funds	Yes	Luxembourg
7	BitTrex	58,064,081	625	USD	No	No	Majority of Funds	No	United States of America
8	Quoine	50,969,091	58	USD, EUR, JPY & 7 Others	Yes	No	100% of Funds	No	Japan
9	Zaif	46,469,219	143	JPY	Yes	No	Operational, Proportion Unknown	No	Japan
10	bitFlyer	38,470,850	4	JPY	No	No	Operational, Proportion Unknown	No	Japan

Table 7 - Crypto-Crypto Only Exchanges by 24H Volume (USD)

RANK	EXCHANGE	24H VOLUME	PAIRS	EXCHANGE COIN	TRANS-FEE MINING	COLD WALLET POLICY	EVER BEEN HACKED?	JURISDICTION
1	Binance	999,989,077	382	Yes	No	Undisclosed	No	Malta
2	OKEX	916,857,602	511	Yes	No	Operational, Proportion Unknown	No	Malta
3	CoinBene	479,756,762	81	Yes	Yes	Undisclosed	No	Vanuatu
4	CoinEx	404,213,876	79	Yes	Yes	Majority of Funds	Yes	United Kingdom
5	HuobiPro	392,895,032	257	Yes	No	98% of Funds	No	Seychelles
6	FCoin	387,432,540	17	Yes	Yes	95% of Funds	No	Unknown
7	BigONE	306,575,186	108	Yes	Yes	Majority of Funds	No	Unknown
8	HitBTC	245,217,541	873	No	No	Operational, Proportion Unknown	No	Hong Kong
9	LBank	199,778,309	108	No	No	Undisclosed	No	Hong Kong
10	ZB	178,211,928	129	Yes	No	Undisclosed	No	Samoa

Individual Exchange Weighted Average Pricings vs CCCAGG

Table 8 – Top 15 Exchanges with Lowest Volume Weighted % Price Difference vs CCCAGG

RANK	EXCHANGE	ABSOLUTE % DIFFERENCE	24H VOLUME (USD)	VOLUME and PRICE INCLUDED IN CCCAGG?	INCLUDE PRICE AND VOLUME FOLLOWING CURRENT REVIEW?
1	BTCMarkets	0.00%	2,537,330	YES	YES
2	Coinbase	0.01%	108,499,653	YES	YES
3	WavesDEX	0.01%	5,637,577	YES	YES
4	Bibox	0.01%	154,721,972	YES	YES
5	CoinEx	0.01%	404,213,876	YES	Exclude price due to high volume and further assessment required for trans-fee mining exchanges
6	OKEX	0.02%	916,857,602	YES	YES
7	RightBTC	0.02%	46,653,205	YES	YES
8	Bitso	0.02%	1,309,610	YES	YES
9	Bitstamp	0.02%	73,832,097	YES	YES
10	itBit	0.02%	16,031,578	YES	YES
11	BTCTurk	0.03%	2,884,010	YES	YES
12	Bithumb	0.04%	147,337,983	YES	YES
13	Binance	0.05%	999,989,077	YES	YES
14	HuobiPro	0.05%	392,895,032	YES	YES
15	Simex	0.06%	84,697,684	YES	Exclude Price due to major BTC price crash on July 2 nd

Table 9 – Top 10 Existing Exchanges by Highest Volume Weighted % Price Difference vs CCCAGG

RANK	EXCHANGE	ABSOLUTE % DIFFERENCE	24H VOLUME (USD)	WITHIN 10% BOUNDARY?	VOLUME INCLUDED IN CCCAGG?	PRICE INCLUDED IN CCCAGG?	RESULT
1	BXinth	>100%	Incorrect API Values: QRK/BTC	NO	YES	YES	Exclude Both
2	BigONE	84.35%	306,575,186	NO	YES	NO	Exclude Pricing
3	BitFlip	49.51%	500,817	NO	YES	YES	Exclude Pricing
4	WEX	21.44%	28,412,138	NO	YES	YES	Exclude Pricing
5	ExtStock	14.63%	1,015,313	NO	YES	YES	Exclude Pricing
6	CoinCorner	10.15%	133,486	NO	YES	YES	Exclude Pricing
7	CCEX	6.16%	295,952	YES	YES	YES	Further Assessment
8	Cryptopia	5.49%	4,016,875	YES	YES	YES	Further Assessment
9	BTCBOX	5.02%	-	YES	NO	NO	Exclude due to Zero Volume
10	BitMart	4.98%	127,101,027	YES	NO	NO	Further Assessment

Table 10 - Evaluation of Existing Exchanges within the 10% Price Boundary

EXCHANGE	ABSOLUTE % DIFFERENCE	24H VOLUME (USD)	NOTES	RESULT
CCEX	6.16%	295,952	2145 pairs pricing diff range from 0-16636166927%. for illiquid coins, %diff high low trading volume in general, often makes up entire pair market. for most liquid pairs (>16k), %price difference <6%.	INCLUDE PRICING AND VOLUME IN CCCAGG
CRYPTOPIA	5.49%	4,016,875	pricing differences <1% for the highest trading pairs. only illiquid pairs have higher % difference. often higher % difference pairs constitute 100% of market	INCLUDE PRICING AND VOLUME IN CCCAGG
BITMART	4.98%	127,101,027	Most pairs <4% price difference vs CCCAGG. Good volume. Three pairs (from BMX to BTC, ETH, USDT) 37-45%, but constitute 100% of total market volume.	INCLUDE PRICING AND VOLUME IN CCCAGG

Table 11 - Initial Assessment of New Exchanges Recently Added to CryptoCompare in July

RANK	EXCHANGE	ABSOLUTE % PRICE DIFFERENCE	24H VOLUME (USD)	WITHIN 10% BOUNDARY?	INCLUDE VOLUMES IN CCCAGG?	INCLUDE PRICES IN CCCAGG?
1	BigOne	84.35%	306,575,186	NO	YES	NO
2	Kuna	6.93%	234,422	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
3	Bitexbook	6.49%	1,338	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
4	CryptoBulls	4.16%	1,089,317	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
5	ABCC	2.55%	30,260,895	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
6	Kryptos	1.38%	-	YES	NO	NO
7	HADAX	1.20%	-	YES	NO	NO
8	Tokenomy	1.15%	-	YES	NO	NO
9	Independent Reserve	0.95%	-	YES	NO	NO
10	Hikenex	0.27%	83,555	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
11	Coinbene	0.24%	479,756,762	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
12	IDAX	0.18%	32,295,806	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
13	CoinHub	0.13%	-	YES	NO	NO
14	FCoin	0.12%	387,432,540	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
15	CryptoCarbon	0.07%	7,427	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT
16	WorldCryptoCap	0.00%	30,493	YES	CLOSER ASSESSMENT	CLOSER ASSESSMENT

Table 12 - Closer Assessment of New Exchanges Considered for CCCAGG

EXCHANGE	ABSOLUTE % DIFFERENCE	24H VOLUME (USD)	WITHIN 10% BOUNDARY?	NOTES	INCLUDE PRICES AND VOLUMES IN CCCAGG?
KUNA	6.93%	234,422	YES	23 pairs, almost all within 4% price rel. CCCAGG. R_BTC 2% market share and 43% price difference, 16k USD volume. BTC_UAH highest trading pair and 100% abs difference vs CCCAGG, represents 24% market. Most pairs represent significant market share.	YES, BOTH
BITEXBOOK	6.49%	1,338	YES	Generally, an illiquid exchange. 12 pairs show zero 24h volume out of total 17. Pairs with volume trade within 10% of CCCAGG on average. Highest trading pairs are BTC/RUB ETH/RUB, BTC/USD. 4-7% difference.	YES, BOTH
CRYPTOBULLS	4.16%	1,089,317	YES	35 Pairs. Only 6 pairs out of the 10% price boundary, however they constitute a large amount of the market volume.	YES, BOTH
ABCC	2.55%	30,260,895	YES	Only 7 pairs out of 41 have non-zero volume. Of these, only REP_BTC outside of pricing boundary at 12% price difference vs CCCAGG. The only sizeable trading pair is BCH_BTC at 50k USD, with a 2% price difference vs CCCAGG. Although prices are consistent with CCCAGG, volumes are currently high and more time is required to assess trans-fee mining exchanges given potential influence on the market.	PRICING EXCLUDED GIVEN HIGH VOLUMES AND TFM MINING, PENDING FURTHER ASSESSMENT
HIKENEX	0.27%	83,555	YES	Average % price difference of non-zero volume pairs is <3%. Only 3 pairs/22 zero volume.	YES, BOTH
COINBENE	0.24%	479,756,762	YES	Majority of pairs within 2% of CCCAGG. Only more illiquid pairs exceed 10% price differences but they represent high market share. Highest trading pairs are BTC_USDT, ETH_USDT and ETH_BTC with volumes exceeding 150m USD each and % price differences of <1% compared to CCCAGG. Although prices are consistent with CCCAGG, volumes are currently very high and more time is required to assess trans-fee mining exchanges given potential influence on the market.	PRICING EXCLUDED GIVEN HIGH VOLUMES AND TFM MINING, PENDING FURTHER ASSESSMENT
IDAX	0.18%	32,295,806	YES	60/75 pairs within 3% of CCCAGG prices. For those outside of the 10% boundary, they represent a significant proportion of the market have no liquidity.	YES, BOTH
FCOIN	0.12%	387,432,540	YES	Only two pairs show a price difference >3%, AE_ETH (6%), and RTE_ETH (14%). By ranking they represent high proportions of the total market. Although prices are consistent with CCCAGG, volumes are currently very high and more time is required to assess trans-fee mining exchanges given the potential influence on the market.	PRICING EXCLUDED GIVEN HIGH VOLUMES, PENDING FURTHER ASSESSMENT
CRYPTOCARBON	0.07%	7,427	YES	or the only liquid pair CCRB_BTC, (out of 4 total), % price difference is <1% and the pair represents almost all the market share.	YES, BOTH
WORLDCRYPTOCAP	0.00%	30,493	YES	Only one pair traded (WCG_USD), positive volume (37k USD), this constitutes 100% of the market and the price is equal to the CCCAGG price.	YES, BOTH

Changes to CCCAGG Exchange List Following Review

Exchange Pricing Additions to CCCAGG from Existing Exchanges (1)

Exchanges: BitMart

Exchange Additions to CCCAGG from New Exchanges (7)

Exchanges: Kuna, Bitexbook, CryptoBulls, Hikenex, IDAX, CryptoCarbon, WorldCryptoCap

Exchange Removals from Current CCCAGG (12)

Exchanges: BXinth (Pricing and Volume), BigONE (Pricing), BitFlip (Pricing), WEX (Pricing), ExtStock (Pricing), CoinCorner (Pricing), FCoin (Pricing), CoinBene (Pricing), ABCC (Pricing), BitflyerFX (Pricing and Volume), Simex (Pricing), CoinEx (Pricing)

Exchanges that have Shutdown (No trading activity) (2)

Bluebelt, Foxbit

New Exchanges Pending Further Review ():

Overview of Transaction-Fee Mining Exchanges

What is Transaction-Fee Mining?

Transaction-fee mining, or “trans-fee” mining involves reimbursing 100% of transaction fees traders pay to an exchange with the equivalent market value of the exchange’s native coin. Trans-fee mining originates from an April white paper announcing the exchange FCoin. In June, CoinBene, CoinEx, Bit-Z and ABCC announced Trans-fee mining would take place for dispensation of their respective exchange coins.

Analysis of Top Transaction-Fee Mining Exchanges by 24H Volume

The recent implementation of TFM on previously small exchanges has led to a surge in exchange trading volumes. For instance, the 24h volume of CoinEx exchange spiked 14780% from \$8.2 million (30th June 2018) to \$1.28 billion (1st July 2018) after their trans-fee mining model went live. Over recent weeks, CoinEx’s 24 volumes have maintained a position at the top of exchange rankings with an average daily volume of 438 million USD since the 12th of July. In comparison, Binance, one of the largest cryptocurrency exchanges, boasts a regular 24h volume exceeding \$1 billion on average. This raises a question of whether trans-fee mining is a legitimate practice given the sizeable volumes generated from relatively small exchanges in such a short space of time.

Figure 5 - 24H Volumes (USD) of Transaction-Fee-Mining Exchanges Compared to Binance

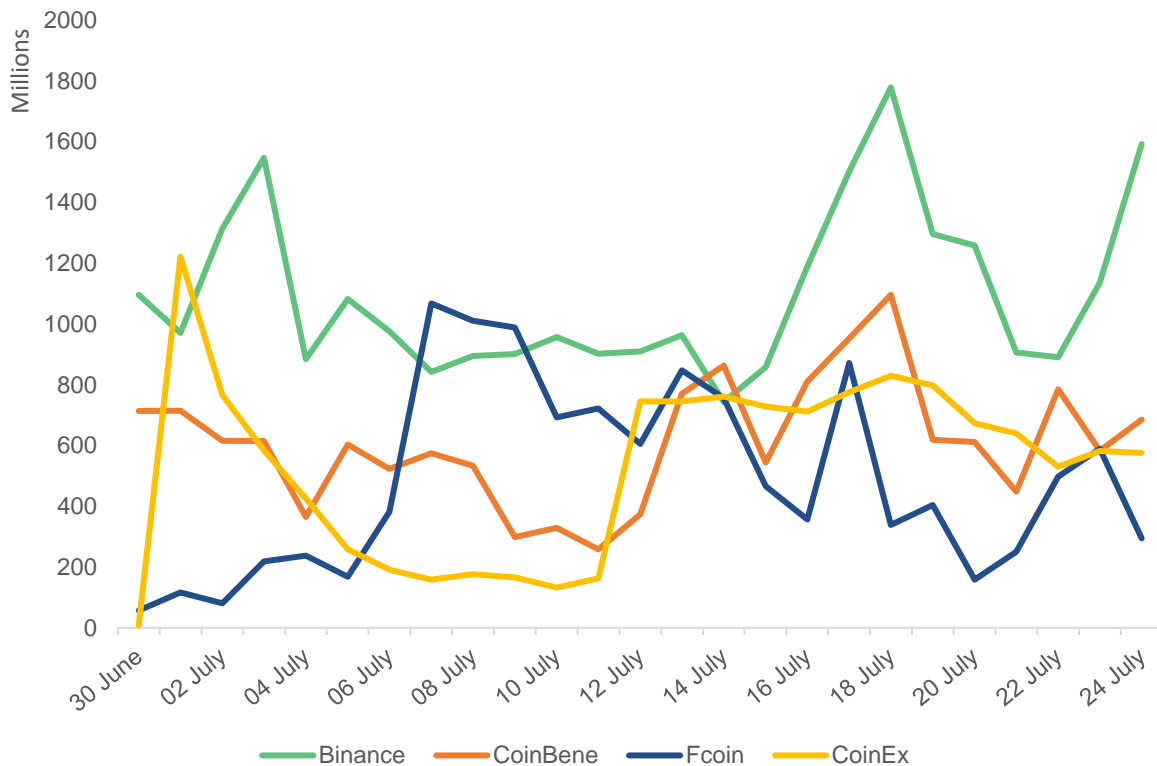


Figure 6 - Average July 24H Volumes for Top TFM Exchanges Compared to Binance

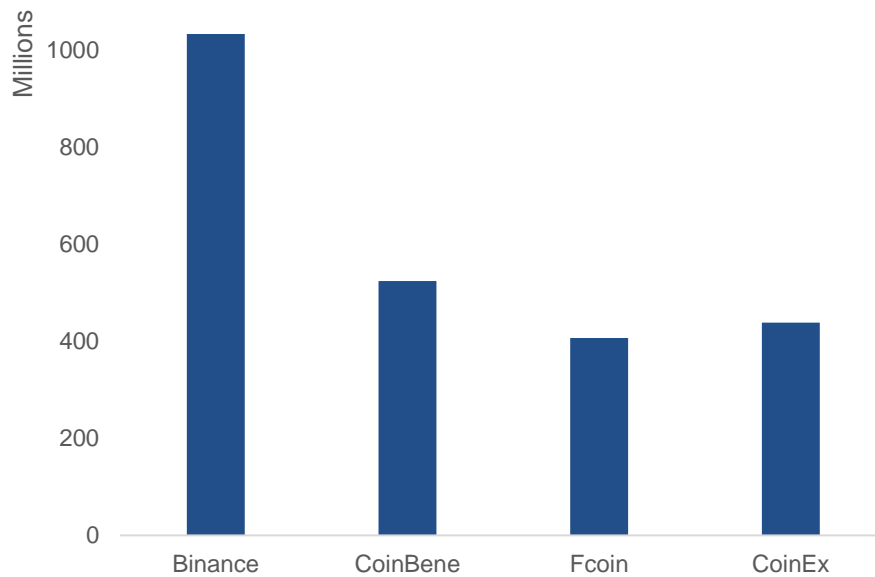


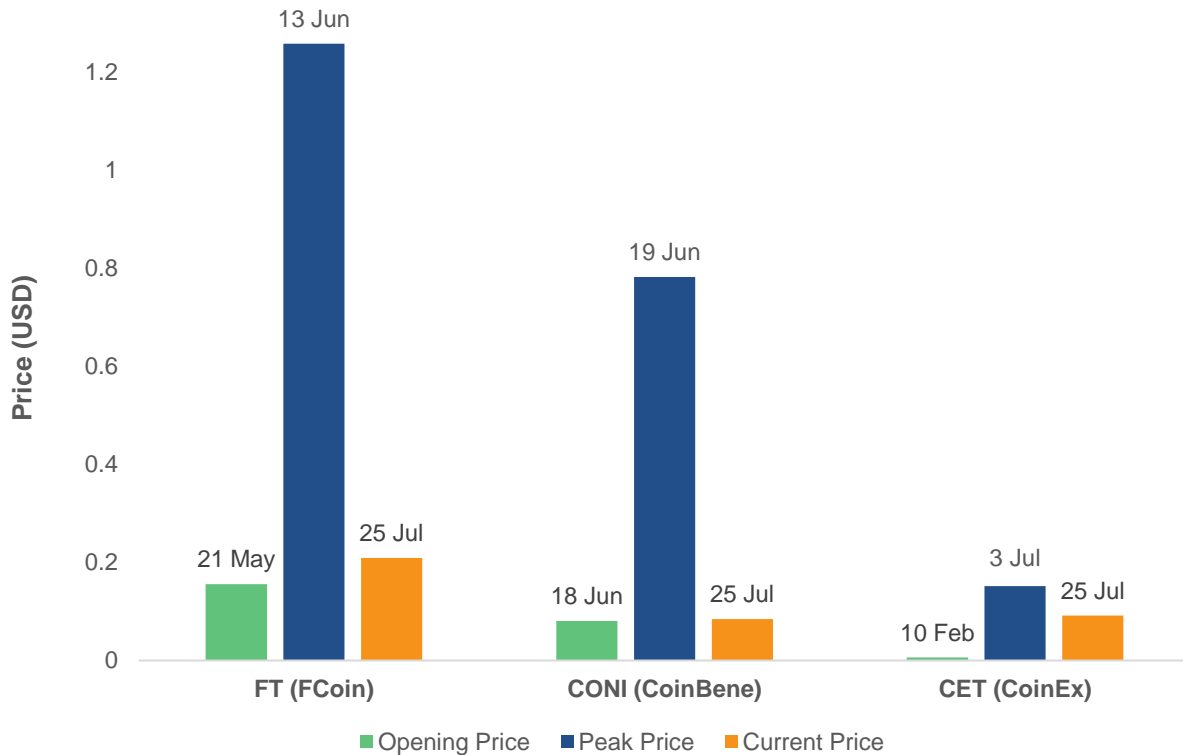
Table 13 - Transaction-Fee Mining Token Features

EXCHANGE	COIN	TIME-INDEFINITE	TF DISCOUNT	CAN PAY TFS	BUY-BACK	VOTING RIGHTS	PERIODIC DIVIDEND
Fcoin	Fcoin (FT)	✓	X	X	X	✓	✓
CoinEx	CoinEx Token (CET)	✓	X	X	✓	✓	✓
CoinBene	Coni (CONI)	X	X	X	X	✓	✓
ABCC	ABCC Token (AT)	✓	✓	X	X	X	✓
Bit-Z	Bit-Z Token (BZ)	X	✓	X	✓	X	X
BigONE	ONE	X	X	X	X	✓	✓

Table 14 - Transaction-Fee Mining Token Pricing and Volumes

EXCHANGE	COIN	TFM START	EST. 24H VOLUME (USD) 25/07/2018	PRE-TRADING PEG	PEAK PRICE	PRICE 25/07/2018	EXCHANGE TRANSACTION FEES (EST.)
FCoin	FCoin Token (FT)	21 May 2018	\$66.4m	0.156 USDT (\$0.1557)	13 June: 1.2567USDT (\$1.2567)	0.2100 USDT (\$0.2089)	2.1%*
CoinBene	Coni (CONI)	22 June 2018	\$60.3m	0.0000133 BTC (\$0.08045)	19 June: 0.0001159 BTC (\$0.7813)	0.0000103 BTC (\$0.0844)	0.2%
CoinEx	CoinEx Token (CET)	1 July 2018	\$206.1m	CET pre-dates Trans-fee Mining	3 July: 0.0002008 BCH (\$0.1518)	0.00010917 BCH (\$0.0914)	0.2%

Figure 7 - TFM Token Pricing Comparison Since Release



Criticisms of Transaction-Fee Mining and Potential Risks

An ICO in Disguise

Some critics argue that TFM is effectively an ICO in disguise. Users that trade on the platform receive 100% of their transaction fees in the equivalent value of the TFM token. In effect, they are transferring ETH or BTC in exchange for tokens.

Inflated Volumes

An additional issue is that the higher the transaction fees, the higher the number of tokens received in exchange. This creates an incentive to increase trading volumes, and for some, this may suggest wash trading as a means to quickly generate the maximum number of tokens. The result of this would be inflated exchange volumes.

Scope for Price Manipulation

Given that exchanges rebate 100% of transaction fees in the form of tokens, some argue that there is scope for price manipulation. The reason for this is that without any income via exchanges fees, the only other avenue would be for the price of an exchange token to inflate.

Risk of Runaway

Transaction fee mining companies effectively issue their own tokens in return for funds (ETH/BTC for example). Unless these funds are locked by some other control mechanism, they may now be under the control of the exchange team who can do with them as they wish.

Overview of Exchanges with Native Exchange Tokens

Overview of Exchange with Exchange Tokens

Several prominent exchanges have chosen to release their own native exchange tokens. These tokens often have a number of features such as transaction fee discounts, voting rights, and buy-backs to name a few. They may also be used as a means to facilitate liquidity on exchanges and to offer a more stable safehaven during market downturns for some of the larger exchanges. For exchanges, native exchange tokens can be an efficient way to raise funds for future development. For instance, Binance Coin (BNB) is now worth over 43 million USD.

By 24 volumes across all pairs, the three highest trading tokens are BNB, OKB and HT with their tokens trading at 50.8, 31.0, 29.7 million USD respectively. For exchanges that have plans to eventually start a decentralised exchange, these native exchange tokens will be used to facilitate the process.

Figure 8 - Average July Exchange Token 24H Volume (USD)

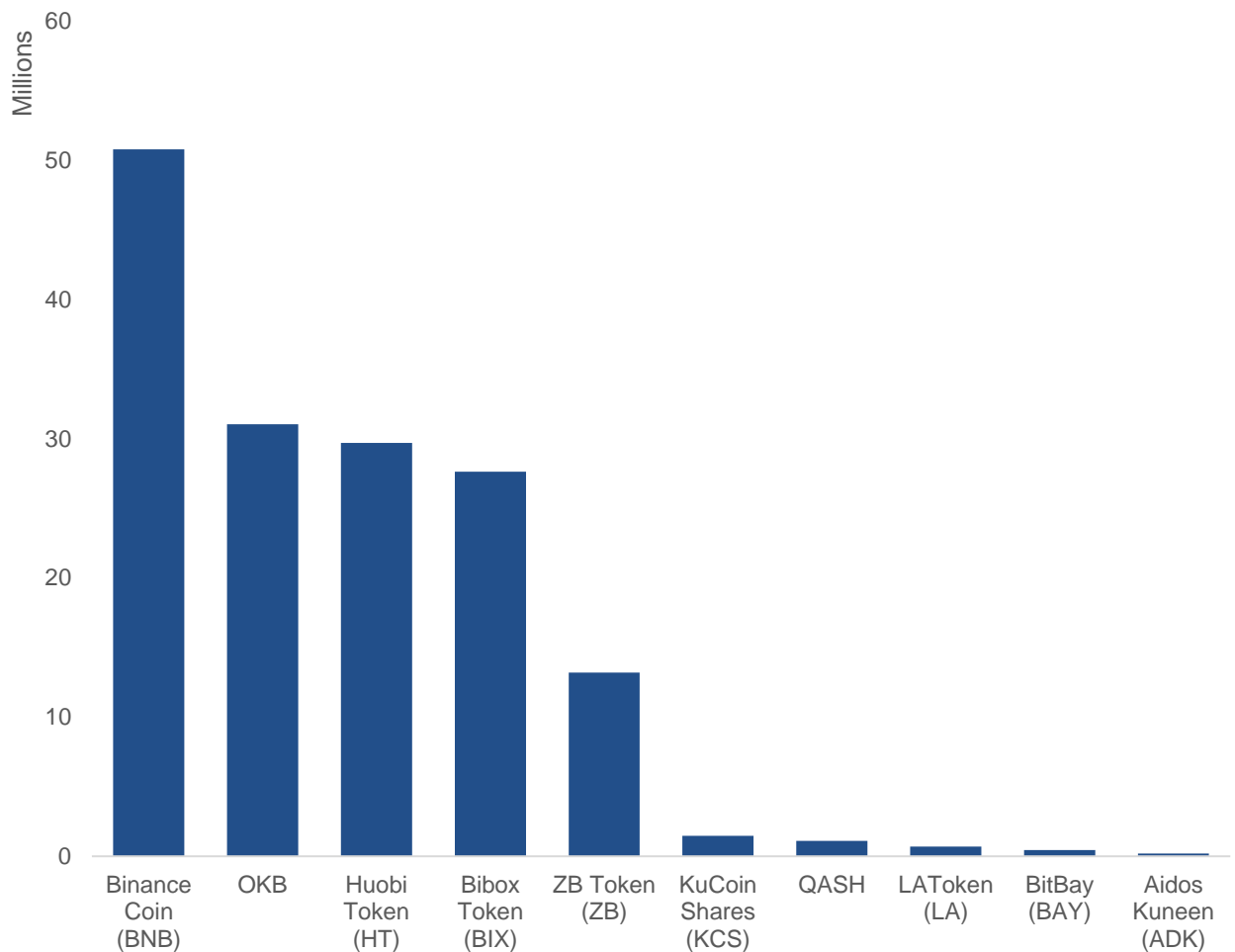


Table 15 - Exchange Token Feature Comparison

Exchange Token	TF Discount	Buy-Back	Voting Rights	Periodic Dividend
BINANCE COIN (BNB)	✓	✓	✓	X
OKB TOKEN	✓	✓	✓	X
HUOBI TOKEN (HT)	✓	X	✓	X
BIBOX TOKEN (BIX)	✓	X	✓	X
ZB TOKEN (ZB)	✓	✓	X	X
KUCCOIN SHARES (KCS)	X	X	X	✓
QASH	X	X	X	X
LATOKEN (LA)	X	X	X	X
BITBAY (BAY)	X	X	✓	X
AIDOS KUNEEN (ADK)	X	X	X	X

Decentralised Exchanges

Decentralised exchanges are exchanges that facilitate purely peer-to-peer cryptocurrency transactions which circumvent the need for an exchange-provided escrow wallet. Users hold coins in private wallets such that there are no “exchange” holdings to hack; however, there is evidence of smart contracts being a clear security vulnerability.

Table 16 - 24H Decentralised Exchange Volumes (USD)

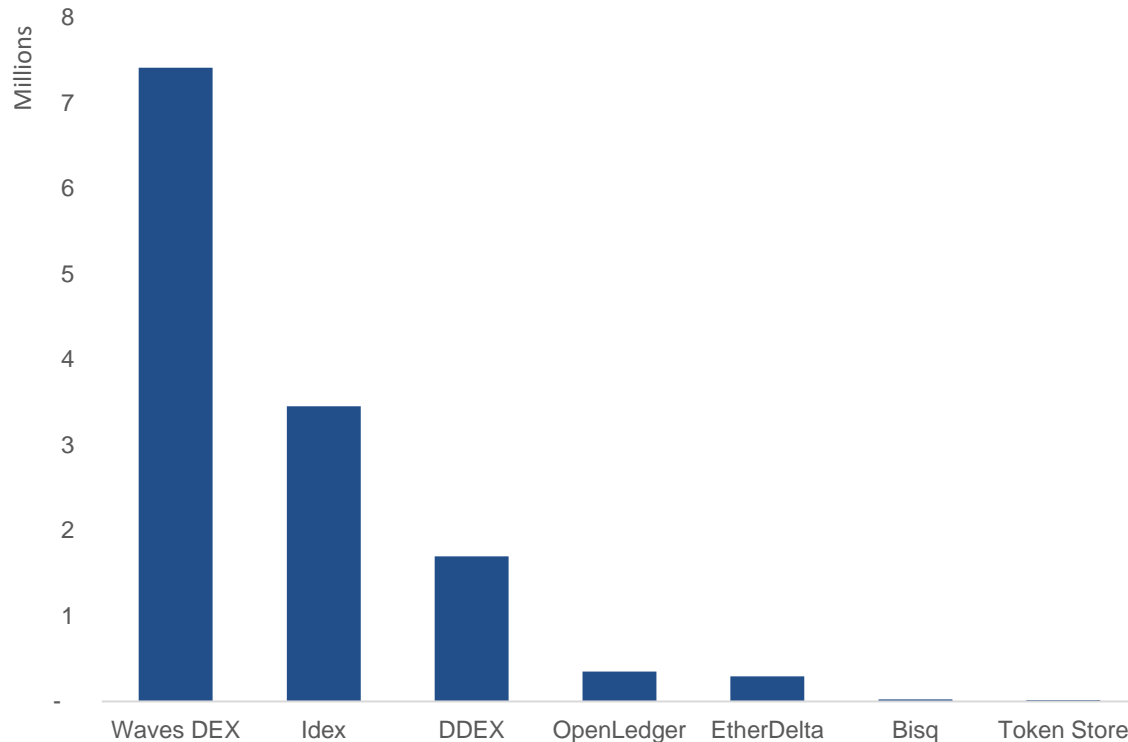


Table 17 - Decentralised vs Centralised Exchange Statistics

	EXCHANGE	24H VOLUME AVG. (USD) (PAST 7 DAYS)	TRADING PAIRS	PLANS TO OPEN DEX	CHAIN (POTENTIAL)
CENTRALISED	Binance	1,265,092,000	382	Yes	Binance Chain
	OKEx	1,078,516,000	511	Yes	TBA
	Bitfinex	530,511,400	196	Yes	Eos.io
	HuobiPro	500,873,800	257	Yes	Huobi Chain
DECENTRALISED	WavesDEX	6,615,551	592	-	Waves Platform
	DDEX	1,029,243	95	-	0x
	EtherDelta	422,435	2059	-	0x
	OpenLedger	179,117	44	-	Graphene

Table 18 - Pros and Cons of Decentralised Exchanges

Pros	Cons
No single point of attack	Inefficient Orderbook, and Slower Transactions – TXs need to be validated onchain
Greater anonymity	Lower Liquidity
Access to token markets	Higher fees due to blockchain bloat
Trustless – user is in charge of all personal info	Front Running Risk
For exchange, protection against regulation	If you lose your private key, there is usually nothing that can be done to retrieve this
Potentially lower security costs vs centralized exchanges	Potential for more scammy coins due to the unregulated nature of decentralised exchanges
	Limited Interoperability between chains
	Possibly difficult to implement fiat-crypto pairs due to regulation and infrastructure requirements
	Volatile Prices and Volumes
	Potential security vulnerabilities of smart contracts

Notable Centralised Exchanges with Decentralised Exchange Plans

1. Binance – Binance Chain - Decentralised
2. HuobiPro – Own Chain - Decentralised
3. Bitfinex – Ethfinex, Based on Ethereum – Hybrid Exchange
4. Coinbase – Acquired Paradex – Hybrid Exchange Based on Ethereum
5. OKEX – plans to migrate to own blockchain with a decentralised exchange

Basic Exchange Security Overview

Figure 9 - Cold Wallets - Cold Storage Policy Disclosure - 102 Exchanges

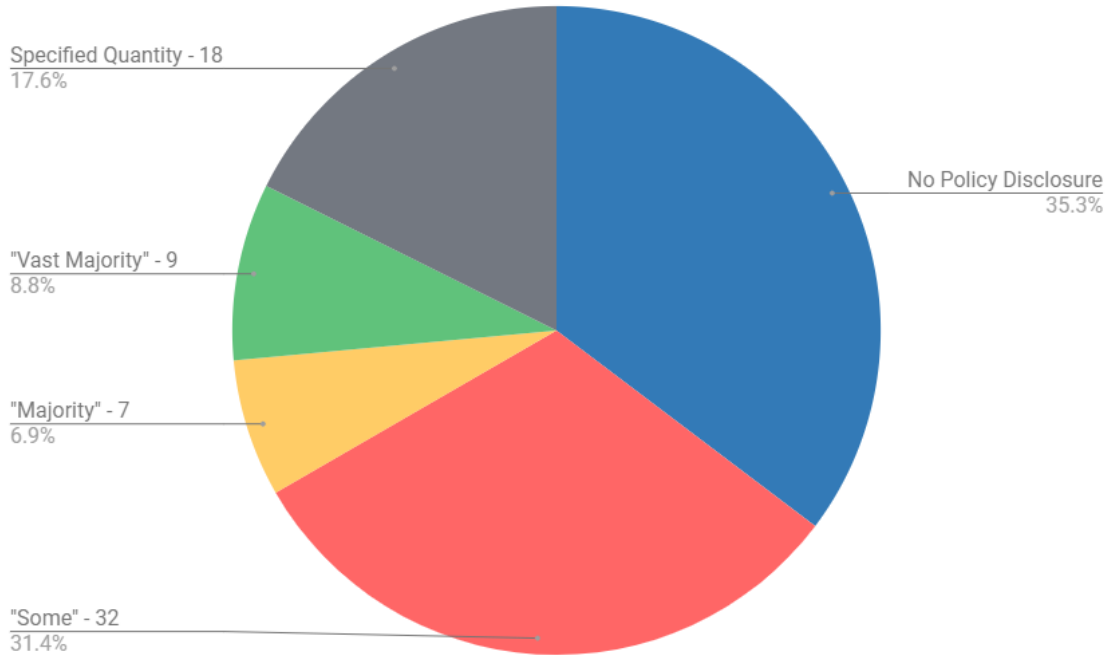


Figure 10 – Highest Proportion of Assets in Cold Storage as Stated Publicly by Exchanges

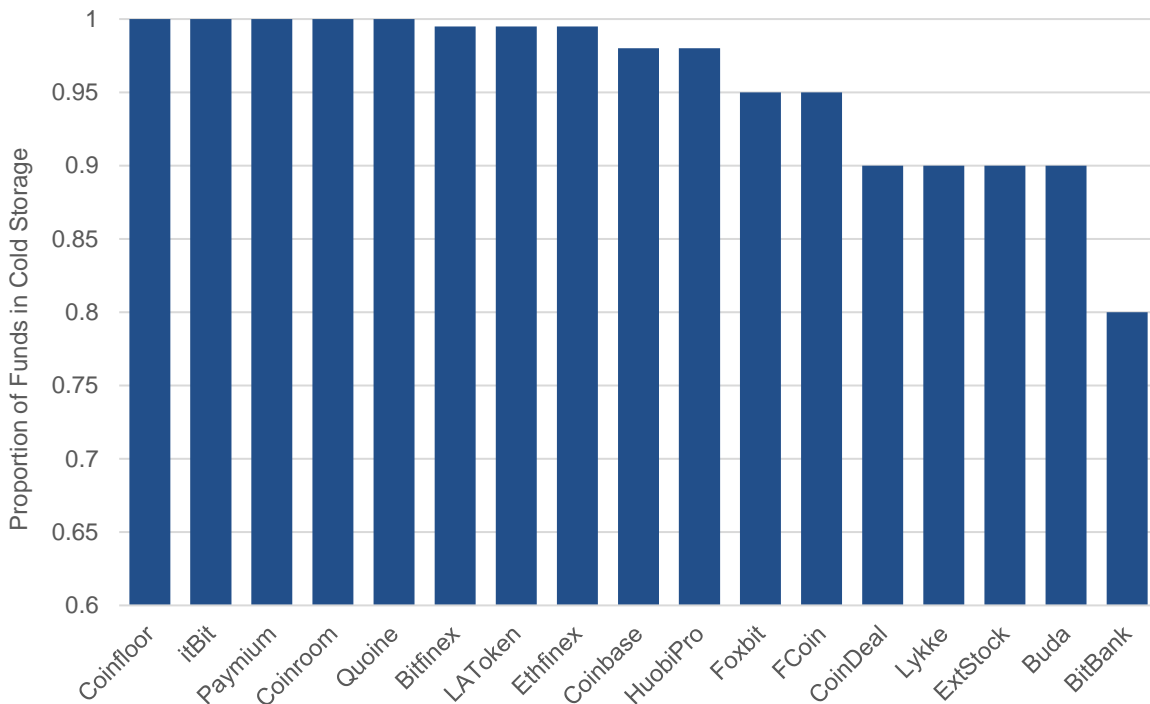


Figure 11 - Proportion of Exchanges with Both a Public Terms & Conditions and Privacy Policy

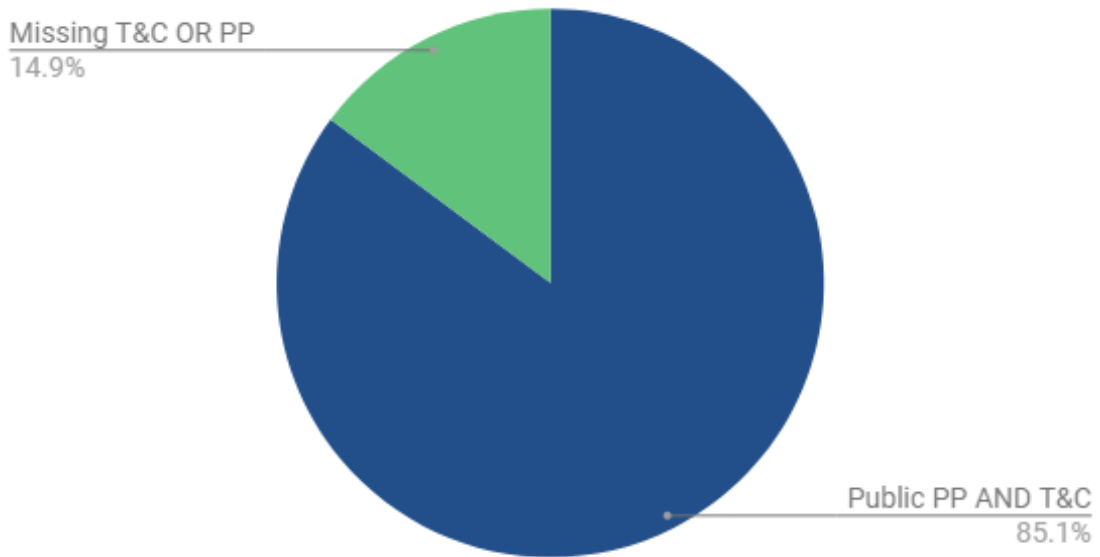


Figure 12 - Proportion of Exchanges that have Been Hacked in the Past

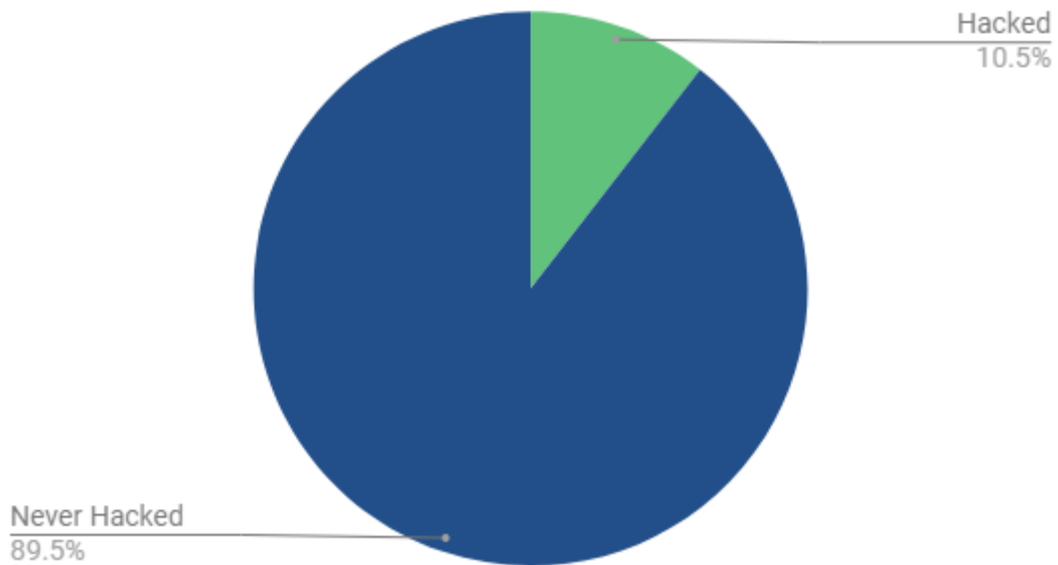


Table 19 - Hacked Exchanges History – Those within CryptoCompare’s Exchange List to Date

EXCHANGE	VALUE	DATE	WHAT HAPPENED	OFFICIAL RESPONSE
BITSTAMP	19k BTC (5m USD)	4 Jan 15	Communication through Skype with employees put malware on their machines, 18000 BTC stolen from hot wallet	Acknowledged, Waived Commission Fees for Short Period. Extent of hack mitigated by cold wallet policy
BITFINEX	120k BTC (72m USD)	2 Aug 16	System compromised whereby Bitfinex (and BitGo) developed alternative to cold-wallet storage that allowed users' wallets to remain segregated.	Bitfinex now holds 99.5% of funds in cold wallets
BITFINEX	0	5 Jun 18	DDos Attack, nothing stolen, trading ceased.	Acknowledgement.
POLONIEX	97 BTC (60k USD)	4 Mar 14	Exploited fault in software that allowed more to be withdrawn than the user had - withdrawals were reviewed simultaneously, not sequentially, thus withdrawals in the same instant were executed at once without being considered as a whole	Acknowledged. Lost BTC partially refunded, system changed to sequential withdrawals.
BITTHUMB	30m USD	20 Jun 18	Undisclosed	Acknowledgement, Refund
COINEX	All BTC in possession	19 Mar 14	Wallet server compromised	Acknowledgement.
GATECOIN	185k ETH 250 BTC (2m USD)	16 May 16	Hot wallet breached and ETH deposits re-directed from cold wallet to hot wallet	Acknowledgement
ETHERDELTA	308 ETH (227k USD)	Dec 19 17	Phishing attack	Deleted Twitter
COINCHECK	523m NEM (500m USD)	26 Jan 18	Hot Wallet Breached	Acknowledgement
OKCOIN	600 BTC (3m USD)	1 Oct 17	Direct attack on user accounts	OKCoin claimed that the hacking was of individual users and had nothing to do with the platform.
LOCALBITCOINS	17 BTC (4k USD)	27 Jan 15	Malware attack through the company's LiveChat account.	Full refund

July 2018 Exchange News

EXCHANGE	STORY	ARTICLE LINK	DATE
Bitfinex	Partnership with financial services firm Market Synergy to serve institutional clients	CryptoGlobe	11 July
Binance	Partnership with Malta Stock Exchange (and Neufund) to build security token exchange	CryptoNinjas	19 July
Binance	Binance Suspends SysCoin on account of Irregular trading	CCN	4 July
Binance	Binance Launches in Uganda	CryptoGlobe	28 June
OKEx	Partnership with Malta Stock Exchange to build security token exchange	Coin Telegraph	20 July
Bithumb	Bithumb recovers \$14m from June 20th hack, outlines compensation plans	CryptoGlobe	28 June
TradeSatoshi	DDos attack brings site down for multiple days	Dippli	18 July
FCoin	FCoin voting system inundates the Ethereum Blockchain (mentioned by Tidex)	NewsBTC	5 July
Bancor	On July 9 th , decentralised exchange Bancor was hacked, with \$23.5m stolen	CryptoGlobe	9 July