Sherwin Dowlat
Sherwin@satisgroup.io
Michael Hodapp
Michael@satisgroup.io

SATIS GROUP

Powered by Analyst Hub

CRYPTOASSET MARKET COVERAGE INITIATION: VALUATION
AUGUST 30, 2018

Overview

We will expand on Valuation of cryptoassets, using the following models:

- **Top Down:** using the quantity theory of money to deduce the value of cryptoassets needed to support a forecasted economy
- **Peer-Based:** using multiples of network-specific metrics to arrive at relative valuations
- **Bottom-Up:** using discounted cash flow models to estimate value of networks that provide yield

Key Takeaways

- **We estimate the amount of cryptoasset market value needed to support economic activities to expand from ~$500B next year to $3.6T in 2028**
- **90%+ of cryptoasset value will be derived from penetration of offshore deposits** in the next decade
- **Currency and Privacy networks will be the largest beneficiaries,** as most fundamental value will stem from store of value use cases
- **Upside (5-yr) In BTC ($96k), XMR ($18k), and DCR ($535),** cryptoassets which apply unique value propositions within deep and viral markets
- **Downside in BCH ($268),** and cryptoassets which attempt to inherit brand recognition and provide minimal technological advantage to incumbents
- **Little value in XRP ($0.01),** and cryptoassets which are misleadingly marketed, not needed within their own network, and have centralized ownership/validation
- **Most "Other Utility" application-specific networks hold very little value**, in their current construct

Name	Price	ATH	% from ATH	Days Since ATH
BTC	$7,038	$20,089	(65%)	255
ETH	$290	$1,432	(80%)	228
XRP	$0.35	$3.84	(91%)	237
BCH	$557	$4,330	(87%)	252
EOS	$6.24	$22.89	(73%)	122
LTC	$61.84	$375.29	(84%)	253

** Refers to Market Capitalization estimate, calculated using 2050 estimated supply using respective network inflation schedules*

Name	Market Cap ($MM)		30D % G/L	90D % G/L	52-Wk % G/L	Launch Year
	Current	2050 Implied*				
BTC	$121,332	$147,690	(13.47)	(6.16%)	107.8%	2009
ETH	$29,475	$42,625	(36.83)	(49.3%)	(24.38%)	2015
XRP	$13,733	$34,663	(22.78)	(43.08)	100.19%	2013
BCH	$9,639	$11,678	(31.72)	(44.37)	(2.15%)	2017
EOS	$5,655	$9,111	(22.06)	(49.23)	373.79%	2018
LTC	$3,591	$5,188	(25.3%)	(47.97)	(1.45%)	2011

** Refers to Market Capitalization estimate, calculated using 2050 estimated supply using respective network inflation schedules.*

This Is part four of a five-piece series initiating coverage on the cryptoasset universe. In our next note, we will cover Custody & Trading.

Our prior notes can be found here:
Market Composition
Network Creation
Technical Underpinnings

Satis Group Crypto Research will eventually move to a password protected subscription model. To be sure you can continue to access our research and inquire about pricing please contact: sales@analysthub.com. This report was prepared by the Satis Group research team led by Sherwin Dowlat assisted by Michael Hodapp. Please note, Satis Group Crypto Research is powered by Analyst Hub and their robust institutional compliance program. Please contact them for more details.

PLEASE SEE LAST PAGE FOR IMPORTANT DISCLOSURES

Introduction

Within the cryptoasset space, valuation has been a hotly debated topic for many years. During 2016 and particularly 2017 it was a relatively simple discussion, which in the parlance of the space was “when moon”, reflecting the market’s upward trajectory and an ever-hopeful voice that 10x or even 100x could be possible in the span of a month (which it sometimes was, especially in December ‘17/January ‘18). This optimism was not surprising in a year where Bitcoin began at ~$1,000 and saw an end of year peak of ~$20,000. Nonetheless, there were many grappling with how to look more deeply at the fundamentals of valuation of a cryptoasset and/or its related project and how those two could be considered to intersect.

Much of 2018 has been a rather different year and a question we often hear now is "when tulips" or more precisely "what tulips" and a much stronger focus on valuation. While we cannot answer the "when," we can provide a range of options as to the "what," and the lens that we provide certainly can paint a picture of certain areas of cryptoassets as having relatively strong fundamentals; while others appear heavily skewed, driven by speculation and not necessarily justifiable valuations. We would further note that these aspects will continue to have real world consequences beyond market price, including standards around disclosure practices and GAAP reporting which do not currently have a well-fitting framework. These are issues that we will continue to explore in later notes.

Overview to Methodology

In an entirely new asset class, consensus around valuation methodology is still evolving. Traditional securities like stocks and bonds are often valued based on their cash streams to securities’ holders, typically using either a DCF or multiples approach relative to the cash streams. On the other hand, cryptoassets offer an expanded range of rights to their holders, and as a result valuation methodologies must vary based on the nature of each network.

Some networks have coins/tokens backed by real-assets (e.g. real-estate or commodity-backed) or distribution of cash flows from an underlying entity (e.g. exchange tokens, which return value via a token burn/buyback or distribute dividends using trading operations profits from the underlying exchange). As such, these can be valued using incumbent methodologies.

However, many cryptoassets are not backed by cash flows or real-assets. Instead, they resemble commodities within the networks they power, pushing appropriate valuation methodologies towards supply and demand of the cryptoassets. Searching further into supply and demand of the cryptoassets, their versatility in use exposes them to multiple valuation options. In 2014, we helped develop one of the first fundamental valuation models for cryptoassets. We have now built upon the previous construct to develop a modified model and comprehensive view to be applied to our previously established coverage universe.

Broadly speaking, we believe there are seven buckets today in which cryptoassets can be grouped (pg. 3), which we have previously described in our initiation coverage. Through this report, we will show examples of the following valuation methodologies (excluding stablecoins) from select coverage sectors:

- **Top-Down:** Currency, Platform, Privacy, Other Utility Sectors
- **Peer-Based:** Platform Sector, Exchange Sector
- **Bottom-Up:** Currency / Privacy Sector hybrid (e.g. DASH), Exchange Sector (e.g. BNB), Other Utility Sector (e.g. REP)

We acknowledge that in the short-term markets are a voting machine, and reflect the price at which two parties were most recently willing to execute a trade, and as such do not necessarily represent the fundamental value of the asset. However, we do believe over a longer time period, and especially as the industry matures, fundamental valuation techniques will begin to more closely approximate trading prices. Our goal in this report is to outline several conceptual frameworks to understand the value capture and retention within cryptoassets based on market opportunity and usage.

Top-Down
(Example – Currency, Platform, Privacy, Other Utility)

Methodology & Assumptions

One approach for cryptoassets which have traditionally been called "utility tokens" (broadly, ones that do not entitle the holder to a cash stream nor are backed by a real-asset) is to posit that their value is directly correlated with the size of the use case / economy it supports. If we take BTC, as an example, the value of BTC should be directly correlated with dollar volume of the economy it supports. On the other hand, the value of BTC is inversely related to the frequency with which it trades, i.e. its velocity. For example, if we have an economy in which $1,000 is exchanged each year by trading 10 coins, assuming each coin is traded only once per year, each coin will represent $100 in value; however, if each were traded 100 times per year, the value per coin would be $1. Moreover, as the above example suggests, the value of the crpytoasset is also inversely related to its supply, i.e. the number of coins that are in circulation.

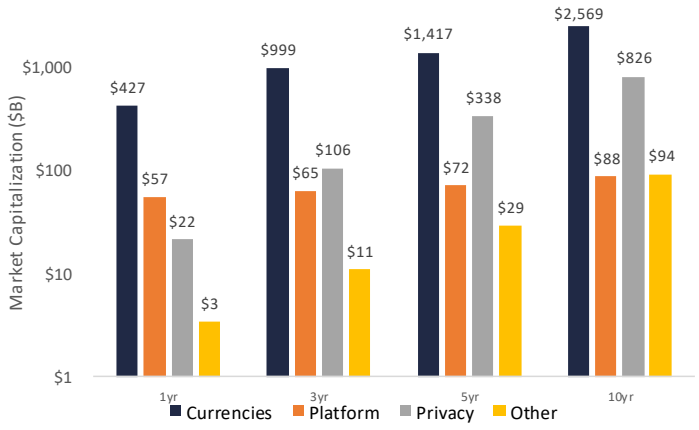
The technique we have described above is an approach based on the quantity theory of money, which succinctly states that the price of currency is directly related to the dollar volume of the economy it supports and inversely correlated to its velocity and supply, that is: P = T / (M * V), where

M = supply (or the number of units of the cryptocurrency)
V = velocity (or how many times the cryptocurrency is used per year)
P = price per unit of the cryptocurrency
T = size of the economy in which the cryptoasset is used as a means of exchange

To estimate the size of the economy supported by cryptoassets, we build out a ten-year model for use cases most relevant to the strengths of particular networks. We then estimate a penetration rate, or the percentage of the economy's value that will be traded using cryptocurrencies vs. fiat currencies. This addressable market is then divided by the coin's / token's velocity to arrive at the market capitalization of cryptocurrencies. The market capitalization attributed to particular coin / token is further divided by its supply to arrive at the market capitalization per coin / token, i.e. its price. We have conservatively used fully diluted figures for all networks, and forecast supply rates for networks with perpetual inflation for our forecast period**.** We estimate prices of the cryptoassets on a 1, 3, 5, and 10-year time series. This is based on our estimated size of economies they support and their respective share within that. Therefore, we did not discount the respective prices to the present, for the same reason a TAM forecast would not be discounted.

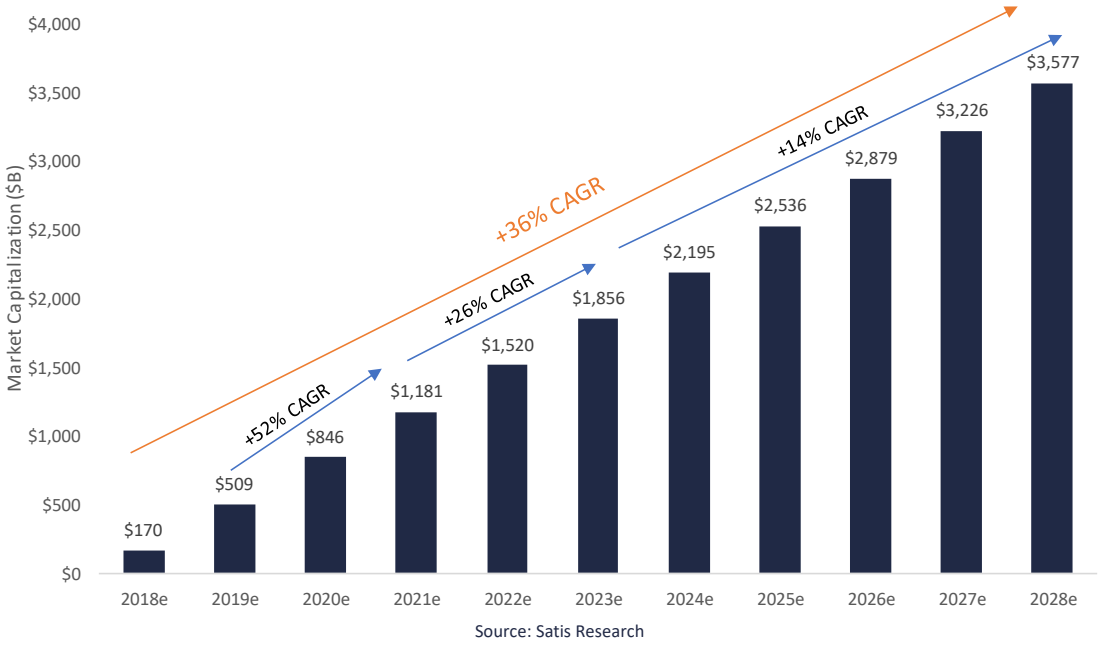
This approach can be used for most cryptoassets that may or may not generate yield.

Figure 1: Estimated Market Capitalization of Cryptoassets by Sector



Source: Satis Research

Figure 2: Estimated Cryptoasset Market Capitalization Over Time



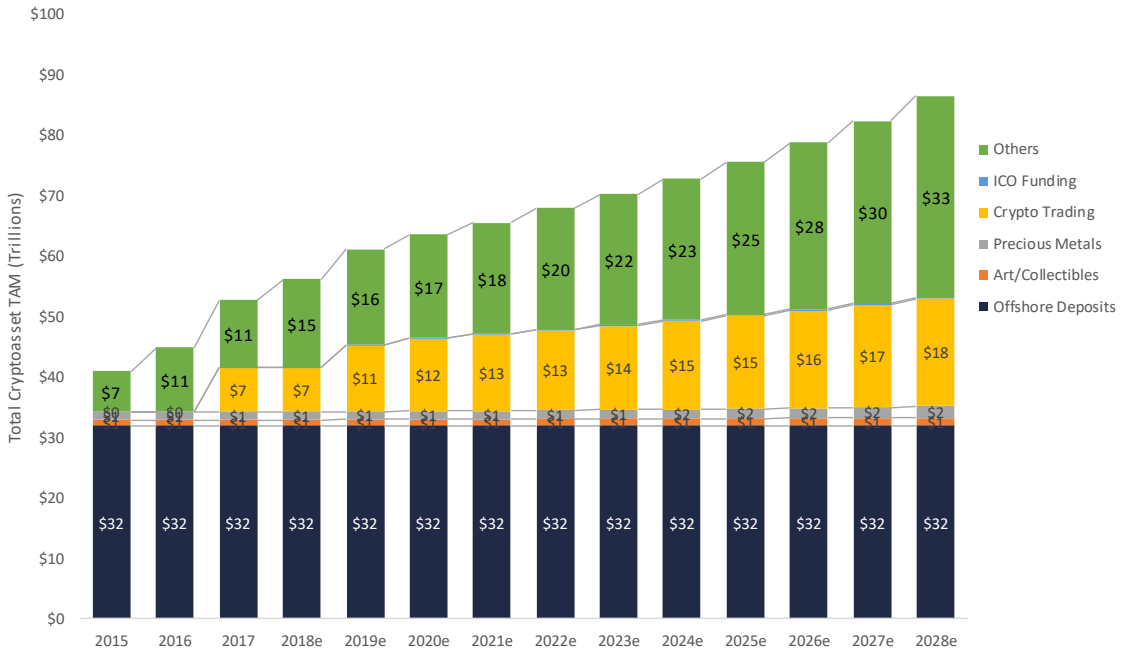
Source: Satis Research

Figure 3: Estimated Penetration of Cryptoassets, as a Means of Exchange for Each Addressable Market

	Year-1	Year-3	Year-5	Year-10
ICO Funding	90%	80%	70%	45%
Crypto Trading	72%	86%	86%	86%
Gaming	6%	8%	10%	15%
Gambling	6%	8%	10%	15%
Remittances	3%	3%	4%	4%
Unbanked	3%	5%	7%	12%
Digital Commerce	2%	2%	3%	3%
Videogames	2%	4%	6%	11%
Precious Metals	2%	2%	2%	3%
IT Spend	1%	2%	3%	4%
Mobile POS	1%	1%	2%	2%
Interoperability	1%	3%	5%	10%
Offshore Deposits	1%	2%	3%	5%
Storage	1%	2%	3%	5%
Loan Market	1%	2%	3%	5%
Art/Collectibles	1%	1%	1%	1%
Compute Services	0%	0%	1%	1%

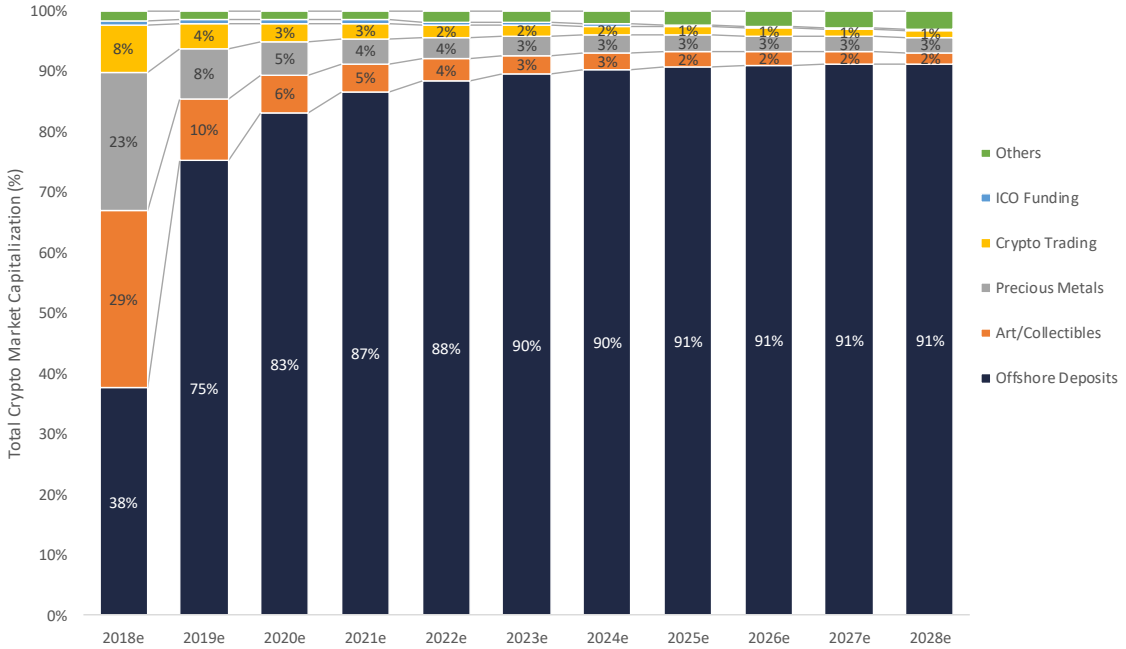
Source: Satis Research

Figure 4: Cryptoasset Total Addressable Market (TAM)



Source: Gartner, IDC, Forrester, Tax Justice Network, Statista

Figure 5: Cryptoasset Market Penetration of TAM by Use Case (as % of Total Cryptoasset Market Capitalization)



Source: Gartner, IDC, Forrester, Tax Justice Network, Statista

Currently, the vast majority of the total cryptoasset market capitalization is held in traditional store of value markets, with offshore deposits accounting for nearly 40% of the total. Despite TAM growth residing in the "Other" category (compute, storage, lending), the necessary cryptoasset market capitalization needed to support usage of those economies falls once adjusted for higher velocity. As a result, cryptoasset market capitalization growth is primarily from increased store of value use case penetration. We see

penetration of the offshore deposits market by cryptoassets jumping dramatically in the next 1-2 years as custody solutions come online, while stabilizing to ~91% through the next decade.

Although we have conservatively forecasted no growth for the amount of deposits stored offshore (amid rising crypto penetration of the market), and as a result the addressable market opportunity for crypto, we could see upside to this figure driven by increasing: 1) capital restraints by governing bodies, 2) devaluation of fiat currencies, 3) unfavorable domestic fiscal policy and 4) budget deficit and national debt. This would provide considerable upside to the cryptoasset market, notably in the most liquid and stable names within the Currency and Privacy peer groups.

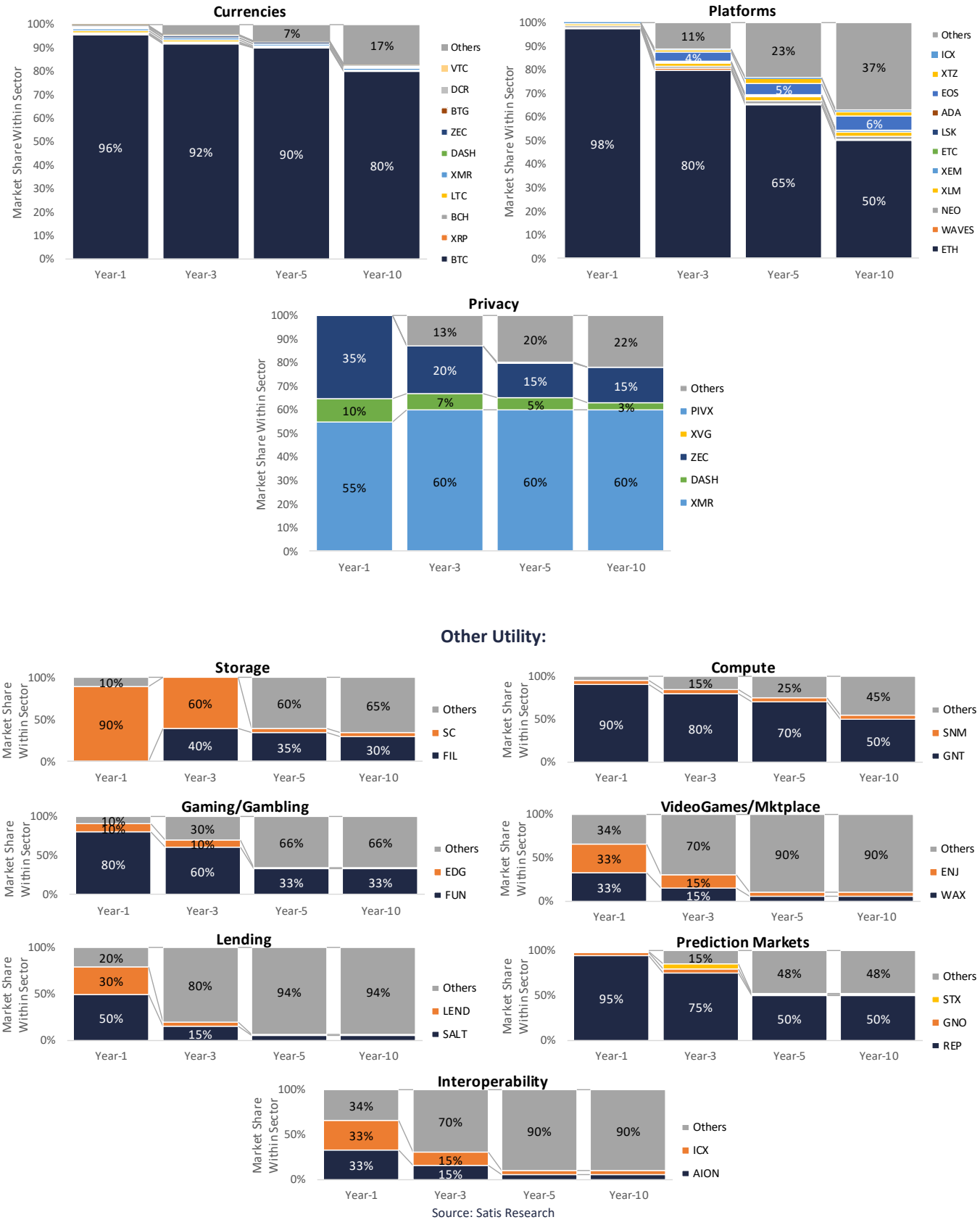
Below, our sensitivity table shows that for every additional 5 percentage points of offshore deposits growth, our 2028 cryptoasset Currency and Privacy aggregate sector market capitalization increases by ~60%.

Figure 6: Sensitivity to Offshore Deposits Growth (2028)

TAM Growth	-10%	-5%	0%	5%	10%
Currency + Privacy Market Cap (Chg, $B)	$1,268	$2,085	**$3,394**	$5,447	$8,596

Source: Satis Research

Figure 7: Estimated Share of Total Cryptoasset Penetration by Respective Sectors



Source: Satis Research

For networks that are not mutually exclusive and fall into more than one category (like DASH, ZEC, and XMR), we've combined the market capitalization they accumulate from each of the respective sectors. Our estimated market capitalization reflects currently trading cryptoassets as well as a share allocated for competition from future new entrants (in the "Other" category).

Results

Figure 8: Estimated Value of Top 10 Cryptoassets

	Current	Year-1		Year-3		Year-5		Year-10	
		Est.	Upside	Est.	Upside	Est.	Upside	Est.	Upside
BTC	$7,050	$32,914	367%	$71,746	918%	$96,378	1267%	$143,900	1941%
ETH	$292	$882	202%	$788	170%	$686	135%	$588	101%
XRP	$0.3	$0.0	-90%	$0.04	-88%	$0.01	-97%	$0.004	-99%
BCH	$558	$258	-54%	$312	-44%	$268	-52%	$180	-68%
EOS	$6	$0.05	-99%	$3.6	-42%	$4.5	-29%	$4.8	-24%
XLM	$0.2	$0.01	-96%	$0.01	-95%	$0.02	-91%	$0.02	-90%
LTC	$62	$65	4%	$146	135%	$134	115%	$225	262%
ADA	$0.1	$0.00	-99%	$0.001	-99%	$0.001	-99%	$0.001	-99%
XMR	$103	$1,476	1336%	$6,497	6218%	$18,498	17887%	$39,584	38391%
DASH	$188	$291	55%	$905	382%	$1,896	910%	$2,927	1459%

Source: Satis Research

Based on our forecasted growth of targeted markets by cryptoassets and defined share within each peer group, we believe the largest opportunity for cryptoassets will be in store of value markets (which drives substantial upside in particular for XMR and BTC in the above table).

Within the Currency networks, we continue to see upside in networks that have cultivated relatively organic growth and community (such as LTC), meaningful downside from networks that have inherited brand recognition and potentially short-lived adoption during hiccups from their fork-parent (such as BCH), and very little value in networks that are misleadingly marketed and not even required for use within their own network (such as XRP). Additionally, we believe residual share within the sector will move toward cryptoassets with subtle (yet meaningful during times of contention) differences in governance and technical reputation (such as DCR). Despite a lack of appeal during retail frenzies, we continue to believe that BTC and its network effect will dominate end-market share within Currencies and the overall cryptoasset market, driven by: 1) increasing liquidity and purchasing avenues, 2) increasing brand recognition, 3) its position as the default base-pair within the crypto markets, 4) declining relative volatility, 5) relative lack of attack vectors, 6) network capacity alleviation through the maturity of layer-2 solutions, and 7) an increasingly high attack and overthrow cost.

Within the Platform networks, we forecasted ETH losing share (from nearly entire share to half share in 2028). While we do acknowledge the strong community around the ETH network, minor flaws in design and governance (which we believe will result in contention leading up to the future network upgrades, notably the move to Proof-of-Stake consensus) can expose the relatively low switching costs of overlying networks built on top of it (the ICO's, and tokens). However, at current levels we still believe ETH to be undervalued relative to the share of the cryptoasset market's TAM it targets, considering the reputation and liquidity it has built around it (which we do not think will dissipate as quickly). Although we anticipate newer entrants emerging at the expense of ETH share, we continue to see the largest driver of value accrual to Platform networks stemming from store of value use cases. Once the networks are used and substantial ecosystems are built around and on top of them, value should accrue to the Platform cryptoasset (as we have seen in ETH). Although Platform networks have high velocity use cases (typically being used to pay for code execution of overlying token networks and/or bandwidth on the network), we see this being minimized as velocity-sinks are incorporated: on a large single coin network like ETH, this could mean staking, while on a two-token structured network like NEO, this could mean isolating the high velocity use-coin from the main coin. Although speculation will remain and skew market valuations, we believe the fundamental value of Platforms will increase substantially once they have had time to establish a community and dependency around them (which most outside of ETH have not). Through the time horizon that we have forecasted, we do not believe any competitor will realize the same level of growth experienced by ETH during its ecosystem and value expansion over the past two years.

The largest upside we see in the entire cryptoasset market is in the Privacy sector. Although Privacy networks are newer entrants, we believe the network effects seen from the likes of BTC earlier on will be repeated within dominant coins here. Not only do these coins target the same large and lower velocity store of value market as BTC and Currencies, they present a much deeper value proposition within those markets. As we stated above, the largest drivers of adoption within these networks will be continued pressure from capital controls, currency devaluation, and broader global turmoil. The use cases within the Privacy markets are incredibly sticky and feed on adoption, especially when regulators and law enforcement are making efforts to increase forensic penetration into public networks like BTC. Privacy networks do lack liquidity when compared to more commonly used Currencies, but they excel in and push the extremes of each use case within Currency networks. Recently, we have already seen early signs of adoption by some of these cryptoassets; ransoms being posted to large corporations where even BTC could be tracked and was not the preferred method, money laundering, and asset shielding. Looking into the space, we believe the use cases that target the largest end-markets will primarily use XMR (~60%) and ZEC (~20%). Despite developers and executives associated with these projects declining to comment upon illegal use (to avoid legal ramifications), the largest opportunity within the Privacy networks will be unlawful activities. Considering the nature of the use cases, the Privacy market user base will most likely rely on networks that have more active codebase development, more resistance to centralized control (possibly through mining), a growing ecosystem, and growing user base. Not only is XMR far more active in codebase development (prior report, pg. 20) and resistant to centralized mining efforts, it is fungible. While ZEC has an easier time being traded in regulated markets (since it has privacy features by request, not by default), we believe this will be a setback to adoption by darker markets, which prefer networks that are fungible (where more addresses use privacy than those which do not, making it more difficult to track down/blacklist tainted addresses). Only ~5% of the ZEC network uses “shielded” (or private) addresses currently, with the rest of the addresses being used for transactions functionally and technically no different than BTC.

Although we believe that **specifically-defined (Other Utility) cryptoassets** will further penetrate larger markets (such as IT spend, gambling, and gaming), the high velocity of these applications combined with a lack of value-retaining construct will result in them either: 1) being not used and sinking in value, or 2) having high use, and in turn lower value as a result of the high velocity. We believe an exception to this will be networks targeted at larger markets with lower velocity (such as the loan market), although early entrants have work to do in order to develop network structures to take advantage of this. In-line with the excitement in early stages of market trading, many “utility” cryptoassets reflect valuations that assume value will be captured at the application level. By breaking out not only the targeted market but also important variables in value capture, such as the velocity of the cryptoassets, our valuation metrics suggest most application-specific networks will ultimately hold very little value. For example, even with our conservative assumptions of only needing compute services 2x times per day, the actual value held in the asset will remain low if the frequency of use is high. As a result, the cryptoassets with exposure to the largest market opportunities with the lowest velocity will capture the most value. Not only do we believe Currency cryptoassets will have substantial exposure here, but also Privacy networks and to a lesser extent Platform networks.

Figure 9: Estimated Value Stored Across Sectors

Year-1

Name	Sector Share	TAM ($B)	Value (USD)	Upside
Currencies				
BTC	95.5%	$408	$32,914	367%
XRP	0.50%	$2	$0.0	-90%
BCH	0.8%	$3	$258	-54%
LTC	0.8%	$3	$65	4%
XMR	0.8%	$3	$1,476	1336%
DASH	0.3%	$1	$291	55%
ZEC	0.8%	$3	$873	473%
BTG	0.01%	$0	$2	-92%
DCR	0.3%	$1	$103	146%
VTC	0.0%	$0	$0.1	-89%
Others	0.4%	$2		
Total	100%	$427		
Platforms				
ETH	97.6%	$55	$882	202%
WAVES	0.2%	$0	$2	-12%
NEO	1.0%	$1	$10	-53%
XLM	1.0%	$1	$0.0	-96%
XEM	0.1%	$0	$0.0	-95%
ETC	0.0%	$0	$0.0	-100%
LSK	0.0%	$0	$0.3	-94%
ADA	0.0%	$0	$0.0	-99%
EOS	0.1%	$0	$0.0	-99%
XTZ	0.0%	$0	$0.0	-100%
ICX	0.0%	$0	$0.0	-97%
Others	0.0%	$0		
Total	100%	$57		
Privacy				
XMR	54.9%	$12	$1,476	1336%
DASH	10.0%	$2	$291	55%
ZEC	35.0%	$8	$873	473%
XVG	0.1%	$0	$0.0	-92%
PIVX	0.1%	$0	$0.3	-75%
Others	0.0%	$0		
Total	100%	$22		
Storage				
FIL	0.0%	$0	$0.0	-100%
SC	90.0%	$0	$0.0	-68%
Others	10.0%	$0		
Total	100%	$0		
Compute				
GNT	90.0%	$0	$0.0	-97%
SNM	5.0%	$0	$0.0	-99%
Others	5.0%	$0		
Total	100%	$0		
Gaming/Gambling				
FUN	80.0%	$0	$0.0	-51%
EDG	10.0%	$0	$0.1	-65%
Others	10.0%	$0		
Total	100%	$0		
VideoGames/Mktplace				
WAX	33.0%	$0	$0.0	-96%
ENJ	33.0%	$0	$0.0	-87%
Others	34.0%	$0		
Total	100%	$0		
Lending				
SALT	50.0%	$2	$23	3440%
LEND	30.0%	$1	$1	8890%
Others	20.0%	$1		
Total	100%	$3		
Prediction Mkt				
REP	95.0%	$0	$0.0	-100%
GNO	3.0%	$0	$0.0	-100%
STX	1.0%	$0	$0.0	-100%
Others	1.0%	$0		
Total	100%	$0		
Interoperability				
AION	33.0%	$0	$0.0	-100%
ICX	33.0%	$0	$0.0	-100%
Others	34.0%	$0		
Total	100%	$0		

Year-3

Name	Sector Share	TAM ($B)	Value (USD)	Upside
Currencies				
BTC	92.0%	$919	$71,746	918%
XRP	0.25%	$2	$0.0	-88%
BCH	0.4%	$4	$312	-44%
LTC	0.8%	$7	$146	135%
XMR	0.8%	$8	$6,497	6218%
DASH	0.3%	$3	$905	382%
ZEC	0.8%	$8	$2,283	1397%
BTG	0.00%	$0	$1	-97%
DCR	0.5%	$5	$390	829%
VTC	0.0%	$0	$0.2	-75%
Others	4.2%	$42		
Total	100%	$999		
Platforms				
ETH	80.0%	$52	$788	170%
WAVES	0.5%	$0	$5	143%
NEO	1.2%	$1	$13	-38%
XLM	1.2%	$1	$0.0	-95%
XEM	0.5%	$0	$0.1	-46%
ETC	0.1%	$0	$0.2	-98%
LSK	0.1%	$0	$0.4	-92%
ADA	0.1%	$0	$0.0	-99%
EOS	4.0%	$3	$3.6	-42%
XTZ	1.0%	$1	$1.2	-14%
ICX	0.5%	$0	$0.7	-27%
Others	11.0%	$7		
Total	100%	$65		
Privacy				
XMR	60.0%	$64	$6,497	6218%
DASH	7.0%	$7	$905	382%
ZEC	20.0%	$21	$2,283	1397%
XVG	0.1%	$0	$0.0	-64%
PIVX	0.1%	$0	$1.4	10%
Others	12.9%	$14		
Total	100%	$106		
Storage				
FIL	40.0%	$0	$0.1	-99%
SC	60.0%	$0	$0.0	-32%
Others	0.0%	$0		
Total	100%	$0		
Compute				
GNT	80.0%	$0	$0.0	-100%
SNM	5.0%	$0	$0.0	-78%
Others	15.0%	$0		
Total	100%	$0		
Gaming/Gambling				
FUN	60.0%	$0	$0.0	-47%
EDG	10.0%	$0	$0.1	-51%
Others	30.0%	$0		
Total	100%	$0		
VideoGames/Mktplace				
WAX	15.0%	$0	$0.0	-96%
ENJ	15.0%	$0	$0.0	-88%
Others	70.0%	$0		
Total	100%	$0		
Lending				
SALT	15.0%	$2	$22	3214%
LEND	5.0%	$1	$1	4576%
Others	80.0%	$9		
Total	100%	$11		
Prediction Mkt				
REP	75.0%	$0	$0.0	-100%
GNO	5.0%	$0	$0.0	-100%
STX	5.0%	$0	$0.0	-100%
Others	15.0%	$0		
Total	100%	$0		
Interoperability				
AION	15.0%	$0	$0.0	-100%
ICX	15.0%	$0	$0.0	-100%
Others	70.0%	$0		
Total	100%	$0		

Year-5

Name	Sector Share	TAM ($B)	Value (USD)	Upside
Sector Share				
BTC	90.0%	$1,275	$96,378	1267%
XRP	0.05%	$1	$0.0	-97%
BCH	0.3%	$4	$268	-52%
LTC	0.5%	$7	$134	115%
XMR	0.8%	$11	$18,498	17887%
DASH	0.4%	$6	$1,896	910%
ZEC	0.5%	$7	$4,369	2765%
BTG	0.00%	$0	$1	-95%
DCR	0.5%	$7	$535	1175%
VTC	0.0%	$0	$0.1	-83%
Others	7.0%	$99		
Total	100%	$1,417		
Platforms				
ETH	65.0%	$47	$686	135%
WAVES	0.5%	$0	$6	162%
NEO	1.2%	$1	$14	-33%
XLM	2.0%	$1	$0.0	-91%
XEM	0.5%	$0	$0.1	-42%
ETC	0.1%	$0	$0.2	-98%
LSK	0.1%	$0	$0.5	-91%
ADA	0.1%	$0	$0.0	-99%
EOS	5.0%	$4	$4.5	-29%
XTZ	2.0%	$1	$2.3	66%
ICX	0.5%	$0	$0.7	-21%
Others	23.2%	$17		
Total	100%	$72		
Privacy				
XMR	60.0%	$203	$18,498	17887%
DASH	5.0%	$17	$1,896	910%
ZEC	15.0%	$51	$4,369	2765%
XVG	0.1%	$0	$0.0	9%
PIVX	0.1%	$0	$3.9	215%
Others	19.9%	$67		
Total	100%	$338		
Storage				
FIL	35.0%	$0	$0.1	-97%
SC	5.0%	$0	$0.0	-87%
Others	60.0%	$0		
Total	100%	$1		
Compute				
GNT	70.0%	$0	$0.0	-100%
SNM	5.0%	$0	$0.0	-65%
Others	25.0%	$0		
Total	100%	$0		
Gaming/Gambling				
FUN	33.0%	$0	$0.0	-59%
EDG	1.0%	$0	$0.0	-93%
Others	66.0%	$0		
Total	100%	$0		
VideoGames/Mktplace				
WAX	5.0%	$0	$0.0	-98%
ENJ	5.0%	$0	$0.0	-92%
Others	90.0%	$0		
Total	100%	$0		
Lending				
SALT	5.0%	$1	$19	2773%
LEND	1.0%	$0	$0	2332%
Others	94.0%	$27		
Total	100%	$29		
Prediction Mkt				
REP	50.0%	$0	$0.0	-100%
GNO	1.0%	$0	$0.0	-100%
STX	1.0%	$0	$0.0	-100%
Others	48.0%	$0		
Total	100%	$0		
Interoperability				
AION	5.0%	$0	$0.0	-100%
ICX	5.0%	$0	$0.0	-100%
Others	90.0%	$0		
Total	100%	$0		

Year-10

Name	Sector Share	TAM ($B)	Value (USD)	Upside
Sector Share				
BTC	80.0%	$2,055	$143,900	1941%
XRP	0.01%	$0	$0.0	-99%
BCH	0.1%	$3	$180	-68%
LTC	0.5%	$13	$225	262%
XMR	0.8%	$21	$39,584	38391%
DASH	0.5%	$13	$2,927	1459%
ZEC	0.5%	$13	$9,573	6177%
BTG	0.00%	$0	$2	-92%
DCR	0.5%	$13	$899	2042%
VTC	0.0%	$0	$0.1	-88%
Others	17.1%	$439		
Total	100%	$2,569		
Platforms				
ETH	50.0%	$44	$588	101%
WAVES	0.5%	$0	$7	198%
NEO	1.2%	$1	$16	-23%
XLM	2.0%	$2	$0.0	-90%
XEM	0.5%	$0	$0.1	-34%
ETC	0.1%	$0	$0.3	-98%
LSK	0.1%	$0	$0.5	-90%
ADA	0.1%	$0	$0.0	-99%
EOS	6.0%	$5	$4.8	-24%
XTZ	2.0%	$2	$2.0	45%
ICX	0.5%	$0	$0.8	-10%
Others	37.2%	$33		
Total	100%	$88		
Privacy				
XMR	60.0%	$495	$39,584	38391%
DASH	3.0%	$25	$2,927	1459%
ZEC	15.0%	$124	$9,573	6177%
XVG	0.1%	$0	$0.0	148%
PIVX	0.1%	$0	$7.5	509%
Others	21.9%	$181		
Total	100%	$826		
Storage				
FIL	30.0%	$1	$0.7	-87%
SC	5.0%	$0	$0.0	-37%
Others	65.0%	$2		
Total	100%	$3		
Compute				
GNT	50.0%	$0	$0.0	-100%
SNM	5.0%	$0	$0.0	-25%
Others	45.0%	$0		
Total	100%	$0		
Gaming/Gambling				
FUN	33.0%	$0	$0.0	-28%
EDG	1.0%	$0	$0.0	-88%
Others	66.0%	$0		
Total	100%	$0		
VideoGames/Mktplace				
WAX	5.0%	$0	$0.0	-93%
ENJ	5.0%	$0	$0.0	-77%
Others	90.0%	$0		
Total	100%	$0		
Lending				
SALT	5.0%	$5	$55	8308%
LEND	1.0%	$1	$1	7018%
Others	94.0%	$85		
Total	100%	$90		
Prediction Mkt				
REP	50.0%	$0	$0.0	-100%
GNO	1.0%	$0	$0.0	-100%
STX	1.0%	$0	$0.0	-100%
Others	48.0%	$0		
Total	100%	$0		
Interoperability				
AION	5.0%	$0	$0.0	-100%
ICX	5.0%	$0	$0.0	-100%
Others	90.0%	$0		
Total	100%	$0		

Source: Satis Research

Peer-Based
Velocity – Speculative, Economic, Blended
(Example – Platforms)

Methodology & Assumptions

Zoning in on the frequency of use within cryptoasset networks, we will focus on velocity. Velocity is the average number of times a coin / token changes hands, i.e. is traded, per year. We calculate it by dividing the annual trading volume with its price standardized to a 1-year period. Velocity can deliver important insight into activity levels in cryptoasset networks, with the potential drawback of not knowing the actual quality of the activity. In-line with our calculations in our last report (pg. 4), we have broken out volume quality a step further to distinguish between economic volume and speculation volume. This approach is slightly different than our previous top-down model, which has outcomes that rely heavily upon the velocity denominator. We note that although theoretically higher velocity should imply lower asset valuation, in the crypto markets this could feed into the growth of network effects and vary widely depending on the network. As a result, comparing a peer group's economic and speculative velocity can offer a different view.

Using a simple peer-based comparable approach on our example group, Platform networks, we use the group median to calculate the implied value for each network asset as if it were valued in-line with its peers. Below we will show peer-based valuations from economic, speculative, and a weighted blend of each volume category.

This approach can be used for most cryptoassets that may or may not generate yield.

Since each network has limited age, with many younger (and with less data) than others, we've modified our velocity calculations to reflect this. Our calculations reflect the 30-day rolling average of annualized velocity on daily transaction volume and market capitalization figures. Economic volume is calculated as on-chain transaction volume, while speculative volume uses off-chain transaction volume (trading, etc).

Results

Figure 10: Speculative Velocity, Implied Values

	Price (Current)	Speculative Velocity	Price (Implied)	Upside
ADA	$0.1	10x	$1.807	1614%
NEO	$20	15x	$23	15%
ETC	$13	53x	$10.4	-20%
ETH	$292	16x	$172	-41%
EOS	$6	39x	$1.4	-78%
ICX	$0.9	19x	$0.171	-81%
LSK	$5	5x	$0.7	-87%
WAVES	$2	16x	$0.25	-88%
XEM	$0.1	4x	$0.01	-95%
XLM	$0.2	7x	$0.00	-100%
Median		**15.2x**		

Source: Satis Research, Coinmetrics

Figure 11: Economic Velocity, Implied Values

	Price (Current)	Economic Velocity	Price (Implied)	Upside
ADA	$0.1	16x	$6.667	6224%
NEO	$20	9x	$87	325%
ETC	$13	10x	$38	193%
ETH	$292.0	6x	$633	117%
EOS	$6	6x	$5.1	-19%
ICX	$0.9	1x	$0.632	-30%
LSK	$5	1x	$2	-52%
WAVES	$2	2x	$1	-57%
XEM	$0.11	0.7x	$0.02	-81%
XLM	$0.23	0.0x	$0.00	-100%
Median		**4.1x**		

Source: Satis Research, Coinmetrics

Figure 12: Blended Velocity, Implied Values

	Economic	Speculation	Blended Target	Upside
ADA	49%	51%	$4.17	4270%
NEO	47%	53%	$53	226%
ETC	13%	87%	$14	16%
ETH	28%	72%	$300	7%
ICX	13%	87%	$0.23	-59%
LSK	27%	73%	$1.14	-59%
EOS	7%	93%	$1.62	-65%
WAVES	20%	80%	$0.39	-79%
XEM	13%	87%	$0.01	-93%
XLM	0.2%	99.8%	$0.0002	-100%
Median	**20%**	**80%**		

Source: Satis Research, Coinmetrics

Peer-Based
Overlying Multiples
(Example – Platforms)

Methodology & Assumptions

Recall, in our prior report we discussed relative valuations of platform networks in proportion to their overlying tokens (pg. 13). Specific to Platform networks, we will calculate and value cryptoassets by their peer group median. Multiples are calculated as the total value of the underlying (issuing) network cryptoasset relative to the total value of all overlying cryptoassets. For example, the multiple for the Ethereum network would be the total market capitalization of ETH (underlying cryptoasset) relative to the total market capitalization of all tokens built upon it (overlying cryptoassets).

This approach can be used only on Platform networks.

We have excluded younger networks, which may have few or no projects on the network that are currently trading.

Results

Figure 13: Underlying vs Overlying Multiple, Implied Values

Platform	Market Cap		Premium Multiple	Price (Current)	Price (Implied)	Upside
	Underlying	Overlying				
Ethereum Tokens (ETH)	$29,662,463,285	$12,584,930,288	2.4x	$292	$2,441	736%
Waves Tokens (WAVES)	$218,903,413	$63,467,940	3x	$2	$13	472%
NEO Tokens (NEO)	$1,321,059,016	$205,811,913	6.4x	$20	$62	207%
NEM Tokens (XEM)	$983,413,701	$29,795,031	33.0x	$0.11	$0.07	-40%
Stellar Tokens (XLM)	$4,294,995,068	$54,477,390	79x	$0.23	$0.06	-75%
Ethereum Classic Tokens (ETC)	$1,362,539,496	$295,111	4,617x	$13	$0.06	-100%
Median	**$1,341,799,256**	**$58,972,665**	**20x**			

Source: Satis Research, Coinmarketcap

Figure 14: Underlying vs Overlying Multiple, Implied Values (ex-ETC, outlier)

Platform	Market Cap		Premium Multiple	Price (Current)	Price (Implied)	Upside
	Underlying	Overlying				
Ethereum Tokens (ETH)	$29,662,463,285	$12,584,930,288	2.4x	$292	$795	172%
Waves Tokens (WAVES)	$218,903,413	$63,467,940	3.4x	$2	$4.08	86%
NEO Tokens (NEO)	$1,321,059,016	$205,811,913	6.4x	$20	$20	0%
NEM Tokens (XEM)	$983,413,701	$29,795,031	33.0x	$0	$0	-81%
Stellar Tokens (XLM)	$4,294,995,068	$54,477,390	78.8x	$0.23	$0.02	-92%
Ethereum Classic Tokens (ETC)	$1,362,539,496	$295,111		$13.08	$0.02	-100%
Median	**$1,341,799,256**	**$58,972,665**	**6.4x**			

Source: Satis Research, Coinmarketcap

Peer-Based
Volume Multiples
(Example – Exchanges)

Methodology & Assumptions

In our prior note we went over exchanges tokens, and the price they trade at relative to their underlying exchange's daily volume (pg. 26). One way to view exchange-related network valuations is by comparing the price attributed to each unit of volume on the exchange. For example, the Binance Coin (BNB) has a market capitalization of ~$1.1B. Its underlying exchange, where the token is used (Binance) trades ~$1.1B in volume per day. The token multiple is ~1.0x, in-line with its daily trading volume.

Results

Figure 15: Exchange Multiples

Source: Satis Research, Coinmarketcap

Figure 16: Exchange Multiples, Implied Values

Network	Exchange Volume (Daily, $M)	Market Capitalization ($M)	Exchange Volume Multiple	Price (Current)	Price (Implied)	Upside
HT	$540	$115	**0.2x**	**$2.3**	**$41**	**1679%**
BIX	$193	$53	**0.3x**	**$0.5**	**$7.12**	**1266%**
QASH	$101	$79	**0.8x**	**$0.2**	**$1.09**	**383%**
BNB	$1,107	$1,064	**1.0x**	**$11.1**	**$44**	**292%**
IDXM	$2	$2	**1.2x**	**$1,224**	**$3,849**	**214%**
CET	$292	$892	**3.1x**	**$0.0**	**$0**	**23%**
COB	$3	$11	**3.3x**	**$0.0**	**$0.03**	**13%**
AURA	$2	$9	**4.2x**	**$0.1**	**$0.06**	**-10%**
KCS	$15	$135	**8.9x**	**$1.5**	**$0.63**	**-58%**
COSS	$1	$7	**10.0x**	**$0.1**	**$0.02**	**-62%**
BCO	$2	$27	**16.8x**	**$1.0**	**$0.22**	**-78%**
BNT	$3	$90	**35.6x**	**$1.7**	**$0.18**	**-89%**
KNC	$0	$75	**502.1x**	**$0.6**	**$0.00**	**-99%**
AST	$0	$16	**810.3x**	**$0.1**	**$0.00**	**-100%**
Median	**$3.0**	**$63**	**4x**			

Source: Satis Research, Coinmarketcap

Bottom-Up
Currency, Privacy
(Example – DASH)

Methodology & Assumptions

Below we use traditional, bottom-up valuation methodology to calculate the net present value of the future stream of yield from several example cryptoassets. In the first example we will use DASH, a network which rewards masternodes (special miners who stake/deposit 1,000 DASH) with additional passive income. For DASH, we assume yield degradation of 0.1% per year for 10 years (conservative, historically) and a heavy 40% discount rate (WACC) to account for the risk of the network. Assuming a stable DASH price and 40% discount rate to reflect the heavy uncertainty of the network paying out future rewards, the DASH network would need to yield 17%+ per year (over double its current payout) in order to arrive at its current valuation of ~$188. Considering the risk of the underlying asset moving +/- ~40% (which we have assumed here), the yield alone is not compelling. Upside to our model would include a rising price of DASH, since our model is only considering network yield and no forecast of the coin price.

This approach can be used for cryptoassets that generate yield, whether it be through the substantial return of coins to validators (through masternodes and staking), or savings (in exchange-tokens).

Results

Figure 17: Net Present Value of a DASH Masternode

DASH	Total	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e
Yield		**6.80%**	**6.70%**	**6.60%**	**6.50%**	**6.40%**	**6.30%**	**6.20%**	**6.10%**	**6.00%**	**5.90%**	**5.80%**
Y/Y Growth			*-1.5%*	*-1.5%*	*-1.5%*	*-1.5%*	*-1.6%*	*-1.6%*	*-1.6%*	*-1.6%*	*-1.7%*	*-1.7%*
DASH Required	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
DASHUSD		$188	$188	$188	$188	$188	$188	$188	$188	$188	$188	$188
Y/Y Growth			*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Annual PMT (DASH)		68	67	66	65	64	63	62	61	60	59	58
Annual PMT (USD)	$0.00	$12,765	$12,577	$12,390	$12,202	$12,014	$11,826	$11,639	$11,451	$11,263	$11,075	$10,888
PV (Yrs 1-10)	**$42,151**	**$12,765**	**$8,984**	**$6,321**	**$4,447**	**$3,127**	**$2,199**	**$1,546**	**$1,086**	**$763**	**$536**	**$376**
Terminal Value	**$4,636**											

PV	$46,786
Masternode Value	**$46,786**
Current	*$187,720*
Upside	*-75%*

Assumptions	Value
Yield Chg	-0.1%
Growth Taper	-10%
DASHUSD	$188
DASH Growth	0%
Discount Rate	40%

Figure 18: Sensitivity to Inputs

DASH Masternode Value

WACC \ Yield	5%	7%	9%
10%	$124,721	$151,544	$178,368
40%	$33,970	$46,786	$59,602
70%	$21,732	$30,823	$39,914

Implied DASH Value

WACC \ Yield	5%	7%	9%
10%	$125	$152	$178
40%	$34	$47	$60
70%	$22	$31	$40

Source: Satis Research

Bottom-Up – Exchange (Example - BNB)

Methodology & Assumptions

In this example we will use BNB, which is used to pay for (discounted) fees on its native exchange (Binance) while simultaneously being exposed to the plan of the exchange to buy back and burn units with quarterly trading profits. We assume the value to be the net present value of the sum of savings in fees from using the token. Binance initially stated that they would eventually buy back and burn half of their initial 200m supply of tokens, using trading fee profits from the firm. Our supply reflects the fully diluted supply, net of the maximum amount the Binance stated they would buy back and burn. We assume a 20% annual volume growth rate, relatively conservative 3% terminal growth rate, and 40% discount rate (WACC) to reflect risk.

This approach can be used for cryptoassets that generate yield, whether it be through the substantial return of coins to validators (through masternodes and staking), or savings (in exchange-tokens).

Results

Figure 19: Net Present Value of BNB

BNB	Total	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e
Trade Volume (Millions)	**13,538,197**	**$556,000**	**$639,400**	**$735,310**	**$845,607**	**$972,447**	**$1,118,315**	**$1,286,062**	**$1,478,971**	**$1,700,817**	**$1,955,939**	**$2,249,330**
Y/Y Growth			*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*	*15%*
Total Fees (Normal)		$1,112	$1,279	$1,471	$1,691	$1,945	$2,237	$2,572	$2,958	$3,402	$3,912	$4,499
Total Fees (w/ BNB Discount)		$556	$639	$735	$846	$972	$1,118	$1,286	$1,479	$1,701	$1,956	$2,249
Total Fee Savings		$556	$639	$735	$846	$972	$1,118	$1,286	$1,479	$1,701	$1,956	$2,249
PV (Millions)	**$2,756**	**$556**	**$457**	**$375**	**$308**	**$253**	**$208**	**$171**	**$140**	**$115**	**$95**	**$78**
Terminal Value (Millions)	**$228**											

PV	$2,984
Token Price	**$30**
Current	*$11*
Upside	*167%*

Assumptions	Value
Annualized Growth	15%
Normal Fee	0.2%
Discount/BNB Fee	0.1%
Tokens (Fully Diiluted)	100,000,000
Terminal Growth Rate	3%
Discount Rate	40%

Figure 20: Sensitivity to Inputs

BNB Value

WACC	Annualized Growth 5%	15%	25%
30%	$29	$42	$66
40%	$22	$30	$42
50%	$19	$23	$31

Source: Satis Research

Bottom-Up – Other Utility (Example - REP)

Methodology & Assumptions

In this example we will use REP, a prediction network which rewards reporters/validators with passive income. We assume an initial-year annualized rate of volume in-line with its average since launch this year. Additionally, we assume fairly conservative annual volume growth of 10%, and a terminal growth rate of 3%. Again, we use a high 40% discount rate (WACC) to account for network risk. The REP network would need to grow at an annualized rate of ~100% to justify its current value, which is far higher than our already-aggressive estimate of 68%.

This approach can be used for cryptoassets that generate yield, whether it be through the substantial return of coins to validators (through masternodes and staking), or savings (in exchange-tokens).

Results

Figure 21: Net Present Value of REP

REP	Total	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e
Annual Volume (ETH)	**161,311,313**	**365,000**	**613,352**	**1,030,688**	**1,731,986**	**2,910,460**	**4,890,789**	**8,218,567**	**13,810,625**	**23,207,617**	**38,998,486**	**65,533,741**
Y/Y Growth			*68%*	*68%*	*68%*	*68%*	*68%*	*68%*	*68%*	*68%*	*68%*	*68%*
Annual Volume (Millions)	$47,103	$107	$179	$301	$506	$850	$1,428	$2,400	$4,033	$6,777	$11,388	$19,136
Service Fee (Margin)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Annual Yield (Fees)	$471	$1	$2	$3	$5	$8	$14	$24	$40	$68	$114	$191
PV (Millions)	**$34**	**$1**	**$1**	**$2**	**$2**	**$2**	**$3**	**$3**	**$4**	**$5**	**$6**	**$7**
Terminal Value (Millions)	**$19**											

PV	$54
Token Value	**$4.88**
Current	*$21*
Upside	*-76%*

Assumptions	Value
Annualized Growth	68%
Volume	365,000
Service Fee (Margin)	1%
Tokens (Fully Diiluted)	11,000,000
Terminal Growth Rate	3%
Discount Rate	40%

Figure 22: Sensitivity to Inputs

REP Value

WACC \ Annualized Growth	*58%*	*68%*	*78%*
30%	$6.1	$10.3	$17.0
40%	$3.0	$4.9	$7.8
50%	$1.8	$2.7	$4.1

Source: Satis Research

Conclusion

Through this report, we have laid out several conceptual frameworks used in the valuation of cryptoassets.

- **Top-Down:** Based on value captured through crypto market penetration, share of that penetration by individual sectors, and velocity of the underlying use cases
- **Peer-Based:** Comparative valuations, relative to cryptoassets with similar qualities in various sectors
- **Bottom-Up:** Traditional models, valuing cryptoassets that generate yield

We note that the cryptoasset markets are heavily skewed, driven by speculation. This research is intended to show fundamental valuation of the assets under various scenarios and models, however the values above do not reflect timed and targeted prices. The models do not reflect fluctuations associated with network operation, manipulation, technical modifications, technical flaws, government regulation, or market risk.

In our following reports, we will combine the fundamental valuation approaches above with quantitative network and trend-based models to arrive at plausible targets.

DISCLOSURES AND DISCLAIMERS

Analyst Certification

The analyst, Sherwin Dowlat, primarily responsible for the preparation of this research report attests to the following: (1) that the views and opinions rendered in this research report reflect his personal views about the subject companies or issuers; and (2) that no part of the research analyst's compensation was, is, or will be directly related to the specific recommendations or views in this research report.

Analyst Certifications and Independence of Research.

Each of the Satis Group analysts whose names appear on the front page of this report hereby certify that all the views expressed in this Report accurately reflect our personal views about any and all of the subject securities or issuers and that no part of our compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views of in this Report.

Satis Group (the "Company") is an independent equity research provider. The Company is not a member of the FINRA or the SIPC and is not a registered broker dealer or investment adviser. [Firm name] has no other regulated or unregulated business activities which conflict with its provision of independent research.

Limitations of Research and Information.

This Report has been prepared for distribution to only qualified institutional or professional clients of Satis Group. The contents of this Report represent the views, opinions, and analyses of its authors. The information contained herein does not constitute financial, legal, tax or any other advice. All third-party data presented herein were obtained from publicly available sources which are believed to be reliable; however, the Company makes no warranty, express or implied, concerning the accuracy or completeness of such information. In no event shall the Company be responsible or liable for the correctness of, or update to, any such material or for any damage or lost opportunities resulting from use of this data.

Nothing contained in this Report or any distribution by the Company should be construed as any offer to sell, or any solicitation of an offer to buy, any security or investment. Any research or other material received should not be construed as individualized investment advice. Investment decisions should be made as part of an overall portfolio strategy and you should consult with a professional financial advisor, legal and tax advisor prior to making any investment decision. Satis Group shall not be liable for any direct or indirect, incidental or consequential loss or damage (including loss of profits, revenue or goodwill) arising from any investment decisions based on information or research obtained from Satis Group.

Reproduction and Distribution Strictly Prohibited.

No user of this Report may reproduce, modify, copy, distribute, sell, resell, transmit, transfer, license, assign or publish the Report itself or any information contained therein. Notwithstanding the foregoing, clients with access to working models are permitted to alter or modify the information contained therein, provided that it is solely for such client's own use. This Report is not intended to be available or distributed for any purpose that would be deemed unlawful or otherwise prohibited by any local, state, national or international laws or regulations or would otherwise subject the Company to registration or regulation of any kind within such jurisdiction.

Copyrights, Trademarks, Intellectual Property.

Satis Group, and any logos or marks included in this Report are proprietary materials. The use of such terms and logos and marks without the express written consent of Satis Group is strictly prohibited. The copyright in the pages or in the screens of the Report, and in the information and material therein, is proprietary material owned by Satis Group unless otherwise indicated. The unauthorized use of any material on this Report may violate numerous statutes, regulations and laws, including, but not limited to, copyright, trademark, trade secret or patent laws.