WHAT IS BITCOIN WORTH?

Factory Banking & The Task of Calculating Unprecedented Value Chains

Daniel M. Harrison,
Coinspeaker, Editor-in-Chief

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The 6 Degrees of Value Evolution

(& How Financial Systems Attempt To Utilize Economies of Kardashev Scale)*

Type 0 Primitive Civilization
Core: Closed | Value: Survival

Type 0.5 Agricultural Civilization
Core: Selective | Value: Social

Type 0.75 Industrial Civilization
Core: Control | Value: Production

Type 1 Planetary Civilization
Core: Open | Value: Intelligence

Type 2 Stellar Civilization
Core: Random | Value: Innovation

Type 3 Galactic Civilization
Core: Creative | Value: Construction

*A method of measuring a civilization's level of technological advancement, based on the amount of energy a civilization is able to utilize. The scale has three levels of *intelligent* categorization: Level I (Planetary), Level II (Stellar), Level III (Galactic)
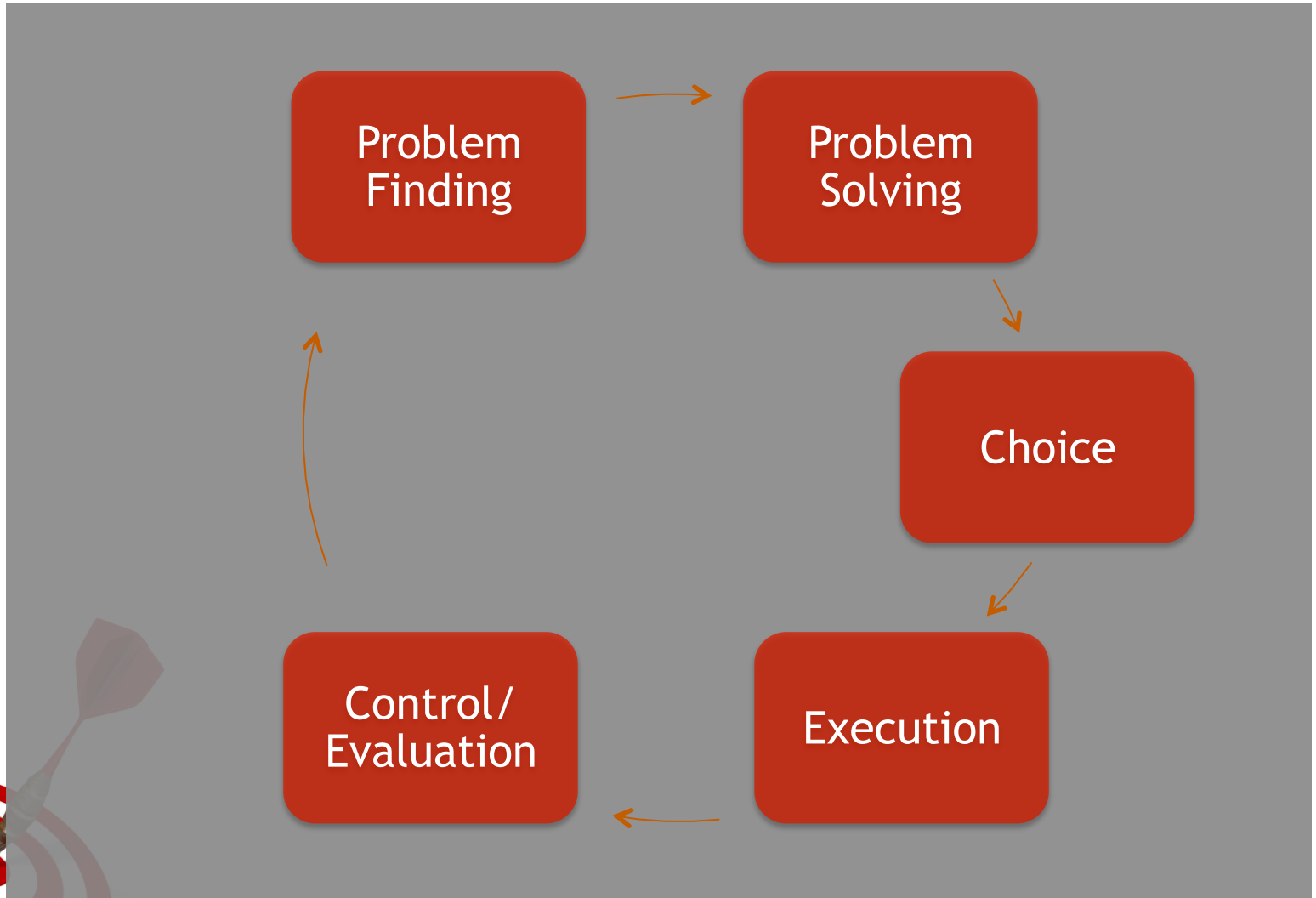
So what is financial innovation?
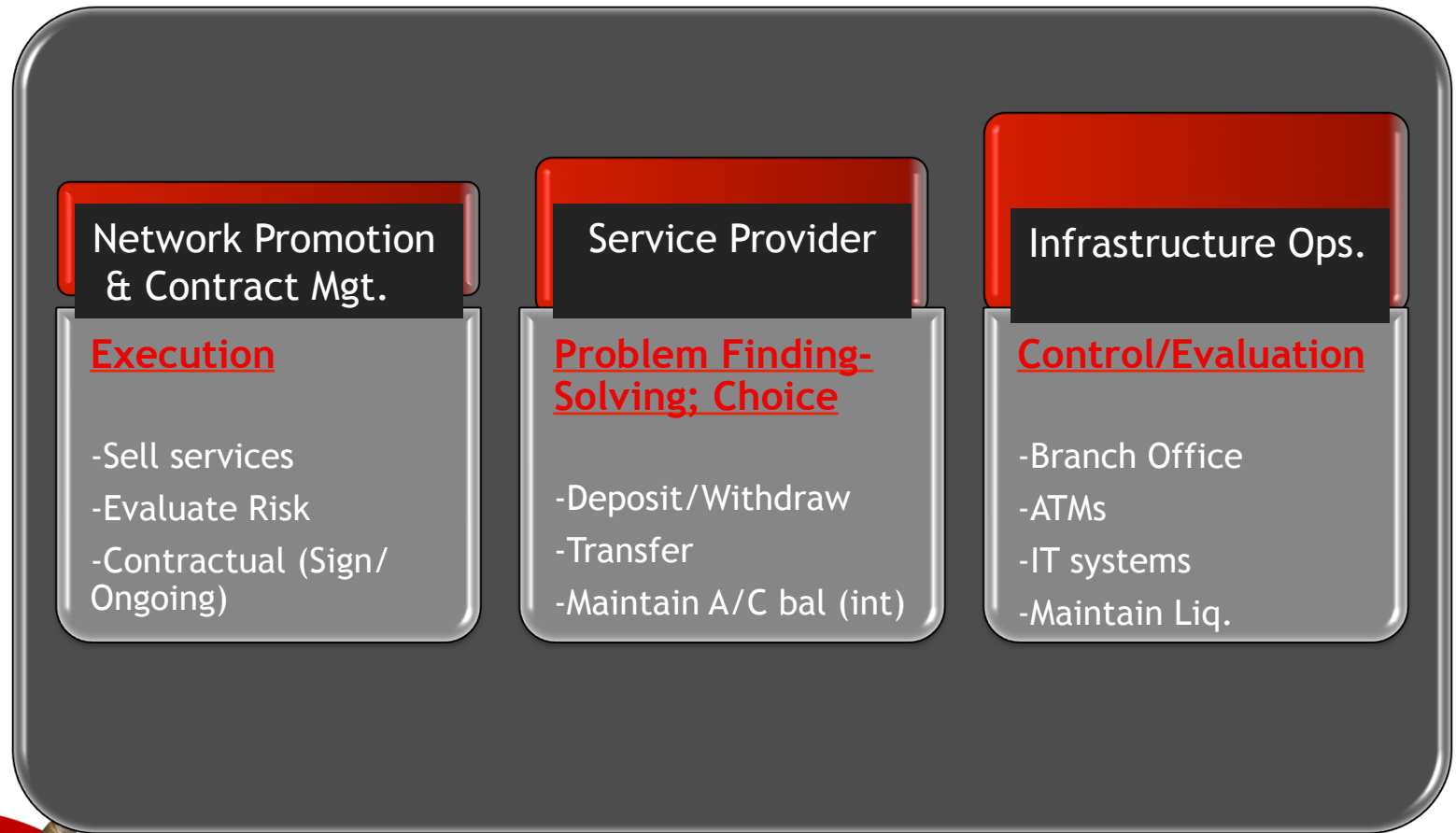
THE REAPPRAISAL OF ~~MONEY~~ VALUE

Context

◆ Financial value has shifted from a calculation with mostly industrial (value-chain) bias to one with intelligent (value-shop) bias in the past 2 decades.

◆ Pure technological innovation (smart value-networks) lies just beyond the role played by our future intelligent systems (SMVs). This is why all the technological innovation we have experienced to date has been disruptive (but not yet holistic).

◆ Further beyond the the bias of holistic innovation what lies ahead?

◆ How do we value .. A friendship we can never physically connect with? *(Is this not in practical terms much like a diamond we can never touch?)*

Value Shop*

Problem Finding → Problem Solving → Choice → Execution → Control/Evaluation → (back to Problem Finding)

Value Network*

Network Promotion & Contract Mgt.

Execution

- Sell services
- Evaluate Risk
- Contractual (Sign/Ongoing)

Service Provider

Problem Finding-Solving; Choice

- Deposit/Withdraw
- Transfer
- Maintain A/C bal (int)

Infrastructure Ops.

Control/Evaluation

- Branch Office
- ATMs
- IT systems
- Maintain Liq.

*http://www.peopleandprocess.com/resources/Stabell_chain_shop_net.pdf

Bitcoin: A New Value Chain Configuration?

It looks a bit like a value shop that gives power to the CUSTOMER:
- There is free data (become your own analyst)
- There is "best execution" (become your own stockbroker)

It looks a bit like a value network that gives power to the USER:
- There's a wallet (become your own bank manager)
- There's a method of design – open source (become your own innovator)

Is this a new kind of **value chain**?
- Virtual
- Integrated

Test: if this is a new kind of value chain for a new era of value configuration then we would expect to see some value chain attributes in the system (e.g. factory, middleman) and we would expect to see the 3 economic actors (operator, manager, speculator) …

Operator: Miner | Manager: CEO | Speculator: VC

Introducing Thomas Power & Penny Power O.B.E.

ORS 1. PRODUCTION VALUE CHAIN DYNAMICS

CLOSED, SELECTIVE & CONTROLLING

SYSTEM FUNCTIONALITY
1. High *Storage Value* Equation
2. *Limited* Accessibility/Convertibility
3. Low Volatility *But* High Social Impact

ORS 2.0: INTELIGENT & NETWORKED VALUE CHAIN DYNAMICS

OPEN, RANDOM & SUPPORTIVE

SYSTEM FUNCTIONALITY

1. High *Transactional Value* Equation
2. *Easy Accessibility*/Multiple Convertibility
3. Volatility High/Low *Depending On* System Functionality Efficiencies

INTRODUCING THE FACTORYBANK

... and finally beginning to understand the value configuration of the blockchain*

BLOCKCHAIN: A *FACTORYBANK* FOR MANUFACTURING FINANCIAL VALUE

BUILDING DIGITAL CURRENCIES: INSIDE THE VIRTUAL FACTORYBANK

SALES

OPERATIONS

USER

EDUMED

VC

PROBLEM FINDING

PROBLEM SOLVING

DIGITAL COIN

CHOICE

TECH

CONTROL/ EVALUATION

EXECUTION

INNOV.

MINER
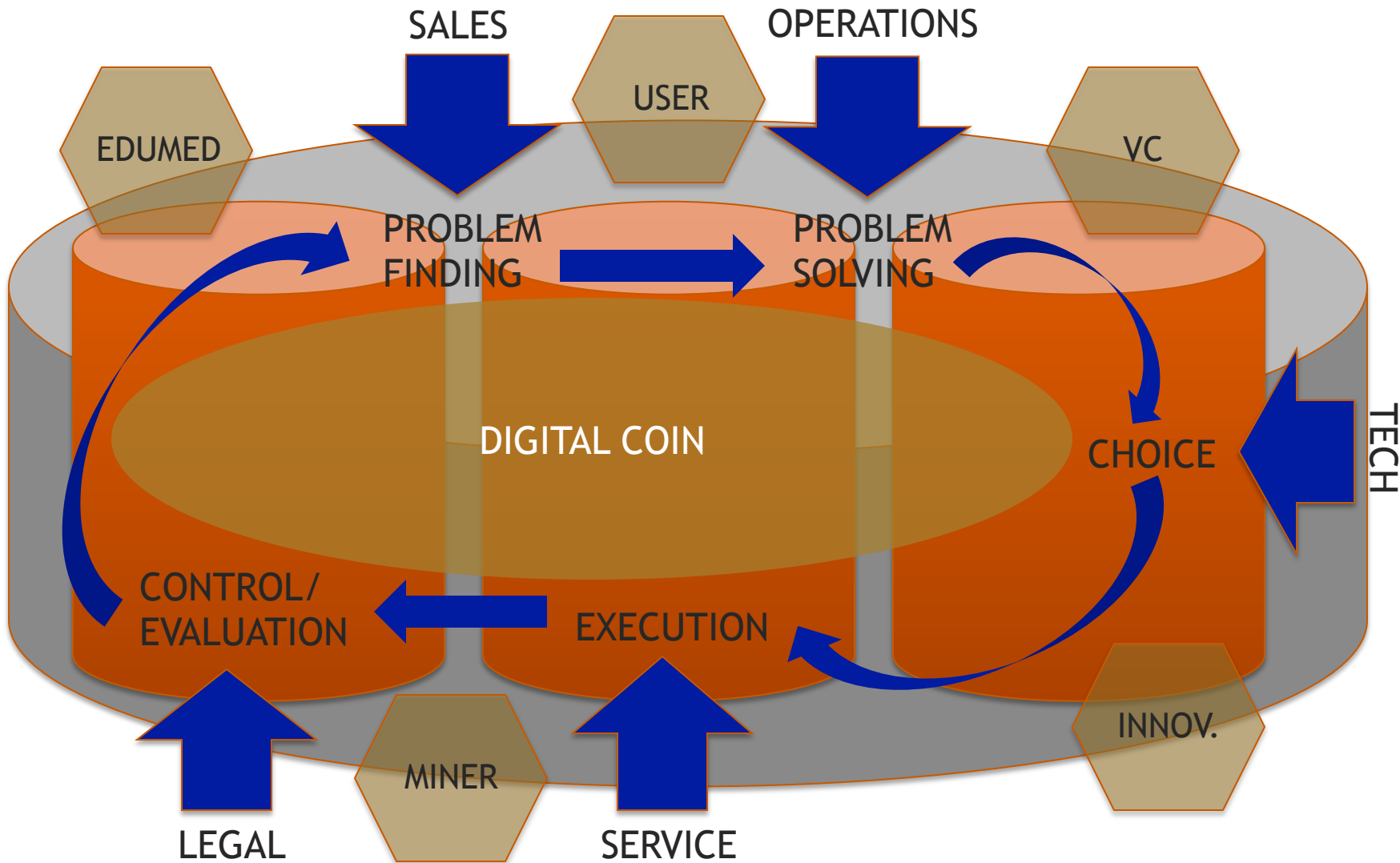
LEGAL

SERVICE

Sales & Operations = OPEN (Top Down) | Tech = RANDOM (MainFrame/Infrastructure) | Legal & Service = SUPPORTIVE (Bottom Up)

IN THE WORDS OF SATOSHI NAOKOMOTO ...

Value Process: Execution

Value Process: Problem Finding-Solving; Choice

Value Process: Control/ Evaluation

"The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work."

"The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers."

"The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone."

REAL LIFE TRADING

CASE STUDY: MARKET PRICE OF BITCOIN ON COINDESK BPI

Looking between the averages

In terms of the short-term scenario, data on trading prices when taken together with volume shifts, helps to uncover the true picture.

In the six-month period from 1st April 2013 to 1st November 2013, the average purchase price of bitcoin was $111.56 across the four exchanges participating in CoinDesk's BPI.

Year to date, the average purchase price shot up dramatically, to $563.68. For the whole 18-month period combined, however, the average purchase price is notably lower at $337.61.

Most sellers who bought at $337.61 or thereabouts over the past 18 months will have sold out at $452 (this is the price of the year-to-date purchase price average of $563.68 minus the six-month prior average of $111.56). This is the exact point at which the currency was sold – once on the way down, and then around a week ago in the course of rising back up.

Offloading in the mid-$400s today yields most 18-month holders an average capital gain of 34%. Buyers have openly said that they were hoping to catch another 10-fold rise in bitcoin. These customers, once they have sold out, appear to be repurchasing at slightly lower levels again.

If the price averages are to be used as a reliable proxy of value going forward, then bitcoin looks ready to fall to around $337.61, and then bounce back up suddenly to over $500.

Aug 21, 2014   to   Nov 21, 2014   ⬇ Export

Key Statistics
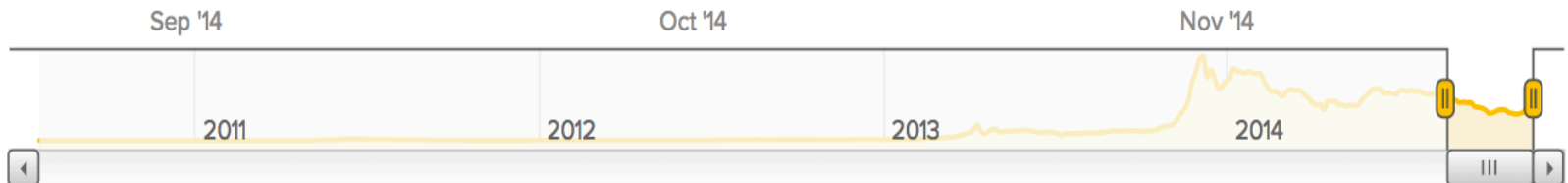Apr-Nov 2013: $111.56
YTD: $563.58
18-Mo: $337.61

$350

Sunday, Oct 5, 2014 UTC
CoinDesk BPI: $319.64

www.coindesk.com

Sep '14   Oct '14   Nov '14

2011   2012   2013   2014

CASE STUDY: BTC SOLUTIONS (CANADA) MARGIN TRADING BOOK

Date	Direction	Price	Strike	Vol ($)
25-10-14	SHORT	341.2401	383.8951	-10000
25-10-14	SHORT	341.4635	384.1464	-1697.255
25-10-14	SHORT	348.2149	391.7417	-4521.424
25-10-14	SHORT	348.98	392.6025	-84.8909
25-10-14	SHORT	354.07	398.3288	-80
25-10-14	LONG	355.85	284.68	-50
25-10-14	LONG	356.29	178.145	-20
25-10-14	LONG	356.29	305.3914	-70
25-10-14	LONG	356.28	296.9	-60
25-10-14	LONG	356.28	285.024	-50
25-10-14	LONG	356.28	267.21	-54.31351
25-10-14	LONG	356.26	237.5067	-30
25-10-14	LONG	356.42	178.21	-20
25-10-14	LONG	357.29	312.6288	-80
27-10-14	SHORT	354.7059	399.0442	-1373.421
27-10-14	SHORT	350.474	394.2832	-1333.687
27-10-14	SHORT	355.6243	400.0773	-4305.446
27-10-14	SHORT	352.5748	396.6467	-5533.998
27-10-14	SHORT	355.9984	400.4982	-1391.57
28-10-14	SHORT	354.3293	531.494	-1336.675
28-10-14	SHORT	354.3038	398.5918	-5059.583
28-10-14	SHORT	355.4548	399.8867	-1424.461
28-10-14	LONG	354.18	309.9075	-80
29-10-14	LONG	348	304.5	-4741.832
29-10-14	SHORT	334.2182	375.9955	-4745.26
29-10-14	SHORT	342.2968	385.0838	-1765.235
29-10-14	SHORT	346.1939	389.4682	-10000
29-10-14	SHORT	346.1939	389.4682	-10000
29-10-14	SHORT	346.0498	389.306	-10000
29-10-14	SHORT	346.0498	389.306	-10000
-	-	-	-	-89909.1

CASE STUDY: BTC SOLUTIONS (CANADA) MARGIN TRADING BOOK

BITCOIN, CRYPTOCURRENCIES, EDITOR'S CHOICE, NEWS, PRICE, SOCIETY, STORY OF THE DAY, TECHNOLOGY

The End of CoinDesk's Proxy Index?

BY **SIARHEI KAROTKI** ON TUESDAY, OCTOBER 28TH, 2014 4:53AM EDT 💬 LEAVE A COMMENT ✎ EDIT

It may be the beginning of the end for CoinDesk's foray into indexing as a whole new ballgame is being served up to the web's number one bitcoin publication.

Impatient when challenged to offer a real-life example of his frustration, Strajnar points out that in yesterday's trading (October 27, 2014) CoinDesk BPI represented less than three quarters (74.06%) of all USD trading volumes in its index price. Further, on that date, USD trading comprised just 10.76% of all trading volumes. According to those metrics, CoinDesk's BPI represents *at most* a puny 7% of the global bitcoin market.

CoinDesk's Bitcoin Price Index (BPI) makes the assumption that one half of the world quotes BTC in USD and the other quotes it in CNY. Photo: CoinDesk

CALCULATIONS

1. Savings & Spending Analysis
2. Sector (Dollar Par) Index Analysis
3. Investment Analysis
4. Final Analysis

1. Savings & Spending Analysis (BoA Formula*)

Calculating Bitcoin's Value (BoA Model)

*US Personal Expenditure (2014): $14.1064 trillion

*US Household Savings: $9.372 trillion

*HS/PE = 0.066 *Velocity Ratio*

*B2C E-Commerce Spending = $483.959 billion

*US B2C E-Commerce Spending Equal To VR = $32.153 billion E-Spend in Bitcoin (USBIT)

*US E-Spend In Bitcoin x 3.04 = $97.75 billion Worldwide E-Spend in Bitcoin (WorldBIT)

*WorldBIT/BTC units in circulation (2014) = $7518.90/BTC

*WorldBIT/BTC units all in issuance (2040) = $4654.56/BTC

US Spending	US Cash	Vel. Ratio	B2C World	B2C US	USBIT	WorldBIT	BTC (Undilluted)	BTC (Dilluted)	BTC (D) + Infl.
141064.1	9372	0.066437882	1471	483.959	32.15321083	97.74576093	7518.904687	4654.560044	7506.357465

*All Numbers in $US Billions Except For Velocity Ratio

*All ratios and rates are annual

*BTC Dilluted Inflation Number assumes (global inflation rate (4.1%) x global inflation growth rate (0.11%)) – (Bitcoin Inflation Rate (2%))/25 years

2. Sector (Dollar Par) Analysis*

Soft Cap	Mkt Cap ($m)	EQI	PI	Wght	% Wght	Index Cap	Actual	Index %	Index Units	Index
Formula:(Mcap*EQI)/(PI)										
Doge	21	5.00%	90.00%	378	32.35%	12.64	-1.95%	-0.63%	-0.079760831	-
Peer	16.8	2.50%	70.00%	470.4	40.26%	15.73	-1.35%	-0.54%	-0.085514518	-
Quark	1.28	0.40%	100.00%	320	27.39%	10.70	1.19%	0.33%	0.034883365	-
Total	39.08	-	-	1168.4	100.00%	39.08	-2.11%	-0.85%	-0.331577946	38.75

e.g. The Index was at 39.08 at 9am EST Nov 6, and had fallen to 38.75, down 0.9%, by the same time the following day (Nov 7).

Hard Cap	Mkt Cap	EQI	PI	Index	Price ($)
Bitcoin	4650	2828.43%	65%	106.8615123	8.220116331

*Hard Cap uses a penalty formula in place of EQI = STDEV(100-PI/Years in circulation, Annual Inflation)

How Do Companies Get SO Big?
And how do we invest in those companies early on?

THE COMPANY

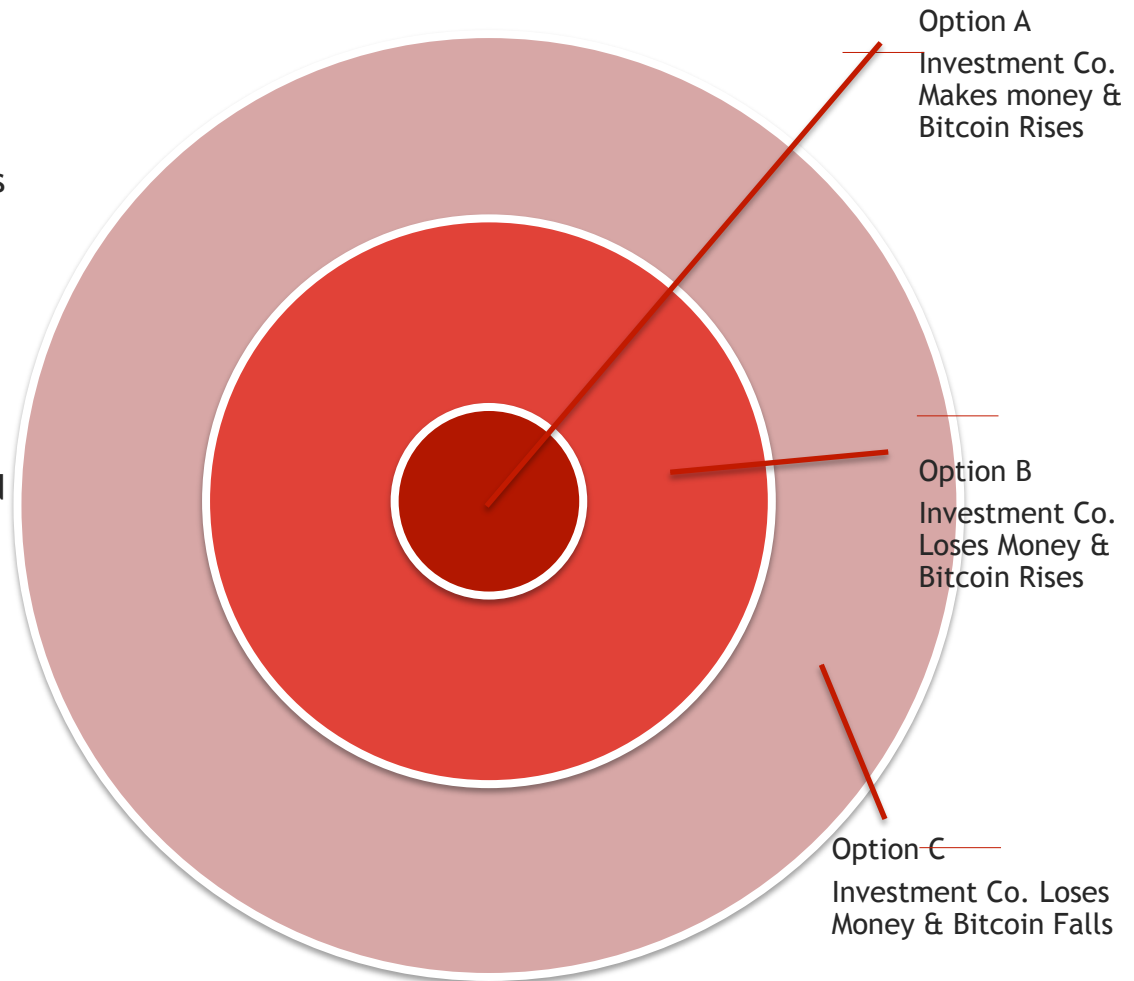1. Access to investment
2. Access to credit
3. Access to "investment x credit" (margin financing)

THE INVESTOR

1. Large resources <u>relative to the investment being made</u>
2. <u>Well diversified in hundreds of similar investments</u>. (Give me a bankrupt investor and I will show you a portfolio that is invested more than 10% in one single company/asset/project).
3. Access to hot-growing companies

✧ **MOST START-UPS FAIL SO YOU WILL PROBABLY LOSE YOUR MONEY ANYWAY.** This means, for a company that is keeping half its money in bitcoin, the risk is about the same that it's going to succeed or fail. BUT the return to the investor, who now holds shares in a START-UP with a massive stake in a rising asset class, is much higher.

✧ **WHEN START-UPS RETURN, THEY RETURN BIG TIME. BUT WHEN BITCOIN LOSES ITS VALUE, IT CAN ONLY GO DOWN 100% IN VALUE.** This means that the gains either a) offset the losses in BTC (which is restricted to 100% of capital investment) OR b) they are multiplied many times over

Option A
Investment Co.
Makes money &
Bitcoin Rises

Option B
Investment Co.
Loses Money &
Bitcoin Rises

Option C
Investment Co. Loses
Money & Bitcoin Falls

3. Investment Analysis

(BTC as Margin)
Formula for margin investing: where
*D*ROI (annual) = *discounted for the equity market rate of return*
C= Cash S = Ownership Stake *M* = Market Average

$$D(ROI)+(C*S)*M(NAV\ PREMIUM)$$

(Which is about $20 or so if you are investing with a P/E of 40 and if Bitcoin has gone up 2-3x in price in the same period)

4. Final Analysis

Savings & Spending
$7506.35
MODEL: EARNINGS X

-Considers total spend across the internet on consumer goods

-Represents value as a portion of savings invested in bitcoin continually in order to make purchases as a reduced transaction cost

Index (Par) Value
$8.22
MODEL: INTRINSIC

-Considers value of bitcoin only in relation to the market (trading) value of other alternative soft cap currencies

-This is the par value of the unit

-There is no market in which a trader can successfully obtain a unit of financial value at this value except at the very beginning

Invested Value
$22
MODEL: EPS

-Considers dynamic investible value of bitcoin

-Requires multiplier which is at best a guess using small-cap stock prices of innovative tech companies or growth trajectory of other digital currencies

-If we ascribe the current bitcoin market price ($350) as the multiplier we get $7,700 – not far from the BoA calculation

Final Analysis Results

- ➢ $22 (future returns) x $341.20 (current bitcoin price) = $7510.80 future earnings
- ➢ $7510.80/25 years = $300.43 earnings/year
- ➢ $300.43 earnings/year/BTC*$8.22 (par network value) = **$2469.55**

-By estimating future USD earnings per unit of dollar currency and then multiplying these earnings by the current price we achieve the **gross value** of bitcoin over 25 years.

-We then divide gross value by years holding of conventional value chain assets (e.g. factory, house) = 25 years. This gives us $2469.33.

-We can forecast a time period for this price indication by dividing the much higher 25 year save-spend value by this number since the network effect of the new value chain economy inside the blockchain is time-erosive (all this means is that time as normally expressed in equations where the risk-free rate is the prime denominator of value corrosion is effectively considered less important as a potential value deflator here due to the factors presented in Slide 11). Our forecast time period for this price expectation to materialize is: ($7510.8/$2469.55) = 3 years!

IS IT INTUITIVE?

Key Observations

- ✓ If invested in crowdfunding projects, 1 bitcoin is estimated to return $22 per $1 invested (22x).
- ✓ Blockchain has an estimated value of $7506.35 per bitcoin

Some Checks & Balances

- ✓ Blockchain value per bitcoin / investable return premium = $341.20
- ✓ Observation: this is very near the average 18-month purchase price = $337 considered as the market floor price
- ✓ If we use BoA's original (2012) estimate of $1500 and multiply it by (Invested/ Par) to see where our price projection should end up today we get a value of $3211. If we take this estimate and discount 1 year into our (3-year) projection forecast (since we are one year into the previous forecast already) we get $2649.63.
- ✓ We therefore might assume that the accurate price forecast number should be near this level if the methods are robust. There is negligible difference between our forecast right now of $2469.33 after the decline in the forecast headline. Note that it is intuitively correct our up-to-date forecast is slightly lower given that 2014 has been a year of decline for bitcoin's market price.
- ✓ Remember that this is a speculative price forecast for bitcoin! It depends on among other things, people investing in crowdfunding projects and in bitcoin!

2,469.55 USD/15,167.24 CNY

Estimated 3-Year

"What Is Bitcoin Worth?" by
Editor-in-chief: Daniel M. Harrison

Please go to my website at www.danielmarkharrison.com for more
about me, or e-mail me directly at dmh@danielmarkharrison.com