

# Quarterly Index Review - October 2019

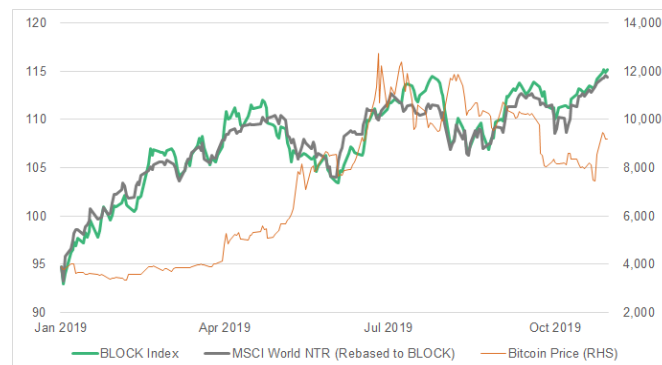
## Elwood Blockchain Global Equity Index (BLOCK Index)

### Performance overview

During the three months to the end of October 2019, the Elwood Blockchain Global Equity Index increased in value by 2.1%, in comparison to the MSCI World Net Total Return Index which increased in value by 2.6%.

Plus500, TSMC and Nomura Research Institute were the biggest positive contributors to performance for the quarter, while Overstock, Square and Monex, were the most significant detractors.

### Index Performance



(Source: Bloomberg, Elwood. Bitcoin price in USD. All figures in USD)

### Analyst Commentary

With a backdrop of strong equity markets, the Index continues to appreciate in value. The Index generated a small underperformance of 0.5% when compared to the MSCI World Net Total Return Index. The most positive blockchain business area by contribution in the quarter was mining hardware, boosted by a strong performance from the semiconductor names, due to stronger than expected earnings results. Stronger Bitcoin prices in the first half of the year dramatically boosted cryptocurrency mining earnings and resulted in new equipment orders, however this was not enough to make a significant contribution to the major foundries at this stage, and their earnings were primarily driven by other non-blockchain related factors.

Facebook's Libra project came under intense scrutiny in the quarter, with the CEO Mark Zuckerberg testifying before congress in the United States. In our view, the pressure from the US authorities may not prevent the system from launching, however it may encourage Facebook to pivot slightly, perhaps by pegging the token to the US dollar rather than a basket of global currencies. This may alleviate some regulatory and political concerns, such as Libra's capability to undermine the US dollar.

In October 2019, Google announced that it has achieved "quantum supremacy" for the first time, with a processor able to create quantum states on 53 qubits. Further significant technological breakthroughs may result in the potential to break some cryptographic systems, such as the elliptical curve digital signature algorithm used to manage control of Bitcoin. However, in general, cryptography can be thought of as an asymmetric field, where for any given level of technology, the resources required to break ciphers are far higher than those required to adopt strong systems, quantum computing should not change this dynamic. Therefore, quantum resistant cryptographic systems may be produced with relative ease, however there may be challenges with respect to rolling these upgrades out into live networks, such as Bitcoin and Ethereum.

In the quarter members of the Elwood Index team visited Singapore and Tokyo, where we met with representatives from some potential new constituents and blockchain industry experts. We also attended the Lightning Network conference in Berlin, to help us understand the potential impact of layer two blockchain technologies, which appear to be several years away from impacting any Index members. In the coming quarter our research will focus on blockchain payment systems and mining operations, where some recent corporate actions and improved liquidity could generate potential new investment candidates.

It is an exciting time in the blockchain space, with respect to potential initial public offerings (IPOs). Chinese cryptocurrency mining ASIC manufacturers Bitmain and Canaan have each filed for IPOs in the United States in the quarter, while cryptocurrency and blockchain focused bank Silvergate Capital also filed an S1 form with the SEC. This is Bitmain's second attempt at an IPO, after an application to list in Hong Kong lapsed at the start of the year. Whatever happens this time around, the trend of more companies in the space going public is set to continue, in our view. This should enable the Index to increase its exposure to the blockchain space in the coming quarters and provide new investment opportunities.

## Overall performance data

	1m	3m	2019 YTD
BLOCK Index	3.6%	2.1%	21.6%
MSCI World Net Total Return Index	2.5%	2.6%	20.6%
Bitcoin	11.5%	(8.3%)	150.1%

(Source: Bloomberg, Elwood. All figures in USD)

## BLOCK Index performance data by sector

Performance	1m	3m	YTD
Communication Services	4.9%	3.8%	10.5%
Consumer Discretionary	(0.9%)	(24.0%)	10.7%
Financials	1.1%	8.7%	12.6%
Information technology	5.7%	4.1%	37.0%
Materials	(0.5%)	(3.1%)	5.2%
Utilities	0.9%	1.7%	(19.7%)
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

Contribution	1m	3m	YTD
Communication Services	0.8%	0.6%	0.9%
Consumer Discretionary	(0.1%)	(1.9%)	1.3%
Financials	0.2%	1.8%	3.0%
Information technology	2.6%	1.9%	16.7%
Materials	(0.0%)	(0.3%)	0.6%
Utilities	0.0%	0.1%	(0.4%)
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

(Source: Bloomberg, Elwood. All figures in USD)

## BLOCK Index performance by country of domicile

Performance	1m	3m	YTD
United States	2.7%	(2.7%)	27.1%
Japan	0.3%	(0.3%)	16.2%
Taiwan	11.3%	8.1%	34.2%
South Korea	6.8%	9.6%	27.6%
United Kingdom	5.8%	8.6%	22.1%
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

Contribution	1m	3m	YTD
United States	1.0%	(1.0%)	10.2%
Japan	0.1%	(0.1%)	4.8%
Taiwan	1.3%	1.0%	3.7%
South Korea	0.8%	1.1%	1.2%
United Kingdom	5.8%	0.4%	1.5%
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

(Source: Bloomberg, Elwood. All figures in USD)

## Quarterly correlation and volatility metrics

Correlation	October 2019 Quarter
BLOCK Index vs MSCI World Net Total Return	0.68
BLOCK Index vs Bitcoin	(0.03)
Beta	October 2019 Quarter
BLOCK Index vs MSCI World Net Total Return	0.65
BLOCK Index vs Bitcoin	(0.01)
Realised Volatility	October 2019 Quarter
BLOCK Index	11.3%
MSCI World Net Total Return	11.4%
Bitcoin	84.1%

(Source: Bloomberg, Elwood)

(Notes: Based on daily percentage change. All figures in USD)

## Performance data by blockchain business area

Performance	1m	3m	YTD
Blockchain financial services	2.8%	5.6%	8.3%
Mining hardware	11.5%	10.8%	36.3%
Blockchain technology solutions	1.3%	2.3%	37.9%
Blockchain payment systems	0.4%	(17.6%)	11.3%
Energy	(0.7%)	(4.7%)	0.6%
Mining operations	(1.6%)	1.0%	32.1%
Token investments	2.5%	(3.8%)	15.9%
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

Contribution	1m	3m	YTD
Blockchain financial services	0.9%	1.9%	2.7%
Mining hardware	2.5%	2.3%	8.1%
Blockchain technology solutions	0.3%	0.5%	7.7%
Blockchain payment systems	0.0%	(2.2%)	1.4%
Energy	(0.1%)	(0.4%)	0.2%
Mining operations	(0.1%)	0.1%	1.7%
Token investments	0.0%	(0.1%)	0.4%
<b>Total</b>	<b>3.6%</b>	<b>2.1%</b>	<b>21.6%</b>

(Source: Bloomberg, Elwood. All figures in USD)

## Top five constituents by contribution - Quarter Ending October 2019

Best	Total return	Contribution
Plus500	45.8%	1.0%
TSMC	18.4%	0.9%
Nomura Research Institute	20.5%	0.6%
Naver	20.8%	0.6%
IG Group	23.3%	0.5%

Worst	Total return	Contribution
Overstock	(53.2%)	(1.6%)
Square	(23.6%)	(0.6%)
Monex	(17.1%)	(0.4%)
Riot Blockchain	(29.1%)	(0.4%)
Ceres	(22.0%)	(0.4%)

(Source: Bloomberg, Elwood. All figures in USD)

## Index members & performance

Name	Weight	2018	2019 YTD	Oct 2019 Quarter	Aug-19	Sep-19	Oct-19
TSMC	5.5%	(1.0%)	38.0%	18.2%	(0.9%)	6.7%	11.8%
GMO Internet Inc	5.1%	(20.5%)	28.6%	3.7%	6.9%	(2.1%)	(0.8%)
CME Group Inc	4.9%	32.1%	10.6%	6.2%	11.8%	(2.4%)	(2.6%)
Global Unichip Corp	4.8%	(20.0%)	33.0%	6.3%	(8.3%)	6.4%	9.0%
Kakao Corp	3.9%	(27.7%)	30.9%	12.7%	3.6%	1.6%	7.0%
NAVER Corp	3.2%	(32.5%)	28.1%	20.2%	3.8%	8.1%	7.0%
Nomura Research Institute Ltd	3.2%	(19.4%)	76.7%	20.7%	11.3%	0.8%	7.6%
LINE Corp	3.2%	(16.2%)	8.1%	15.5%	9.6%	1.9%	3.4%
Plus500 Ltd	3.0%	66.9%	(35.2%)	46.0%	17.0%	13.1%	10.3%
IG Group Holdings PLC	2.7%	(20.2%)	21.2%	23.5%	(6.0%)	18.3%	11.0%
NVIDIA Corp	2.7%	(30.8%)	51.1%	19.3%	(0.6%)	3.9%	15.5%
Samsung Electronics Co Ltd	2.7%	(24.7%)	27.0%	13.2%	(5.1%)	13.3%	5.3%
Nippon Gas Co Ltd	2.6%	0.2%	(19.1%)	1.9%	7.3%	(6.1%)	1.1%
Intel Corp	2.5%	4.2%	22.8%	12.6%	(5.6%)	8.7%	9.7%
QUALCOMM Inc	2.5%	(7.6%)	45.4%	10.8%	6.3%	(1.2%)	5.5%
Intercontinental Exchange Inc	2.5%	8.1%	26.5%	7.7%	6.4%	(1.0%)	2.2%
Nasdaq Inc	2.4%	8.2%	24.1%	4.0%	3.6%	(0.0%)	0.4%
NTT Data Corp	2.4%	(7.1%)	23.1%	1.0%	(2.5%)	0.6%	2.9%
Advanced Micro Devices Inc	2.4%	79.6%	83.8%	11.4%	3.3%	(7.8%)	17.0%
Digital Garage Inc	2.4%	(13.7%)	47.5%	(4.6%)	(6.3%)	(2.5%)	4.4%
Oracle Corp	2.2%	(3.0%)	22.7%	(2.8%)	(7.5%)	5.7%	(0.5%)
Rio Tinto PLC	2.2%	(5.5%)	22.5%	(5.7%)	(8.4%)	2.5%	0.4%
Rakuten Inc	2.2%	(26.9%)	44.2%	(6.5%)	(8.4%)	4.6%	(2.4%)
Tul Corp	2.1%	(13.8%)	24.3%	(9.2%)	(13.0%)	(9.3%)	15.1%
Nexon GT Co Ltd	2.1%	(52.6%)	6.2%	(12.4%)	(13.8%)	(4.3%)	6.3%
Monex Group Inc	1.9%	20.7%	(25.4%)	(17.0%)	(5.1%)	2.1%	(14.3%)
Square Inc	1.8%	61.8%	9.5%	(23.6%)	(23.1%)	0.2%	(0.8%)
Overstock.com Inc	1.3%	(78.7%)	(22.5%)	(53.2%)	(30.2%)	(32.7%)	(0.6%)
Verizon Communications Inc	1.3%	11.3%	12.1%	10.5%	5.2%	3.8%	1.2%
Mitsubishi UFJ Financial Group Inc	1.3%	(31.7%)	13.0%	11.8%	(0.6%)	8.1%	4.1%
Microsoft Corp	1.2%	20.8%	42.8%	5.6%	1.5%	0.8%	3.1%
Barrick Gold Corp	1.2%	(5.4%)	29.2%	6.8%	19.2%	(10.8%)	0.4%
Alumina Ltd	1.2%	(2.6%)	12.0%	1.4%	(5.4%)	9.6%	(2.2%)
Ceres Inc/Japan	1.1%	(25.0%)	(23.8%)	(21.9%)	(21.3%)	0.2%	(0.9%)
Facebook	1.1%	(25.7%)	46.2%	(1.3%)	(4.4%)	(4.1%)	7.6%
Norsk Hydro ASA	1.1%	(38.9%)	(18.5%)	1.9%	(8.6%)	11.3%	0.2%
Signature Bank/New York NY	1.1%	(24.3%)	17.1%	(6.7%)	(8.5%)	2.2%	(0.3%)
General Motors Co	1.1%	(15.0%)	14.5%	(7.0%)	(8.1%)	2.0%	(0.9%)
Aluminum Corp of China Ltd	1.1%	(55.0%)	(7.6%)	(10.1%)	(11.3%)	7.4%	(5.7%)
International Business Machines Corp	1.1%	(22.5%)	21.9%	(8.7%)	(7.5%)	7.3%	(8.0%)
SBI Holdings Inc/Japan	1.1%	(3.4%)	16.8%	(3.6%)	(13.0%)	7.9%	2.7%
Amazon.com Inc	1.1%	28.4%	18.3%	(4.8%)	(4.8%)	(2.3%)	2.3%
Alcoa Corp	1.1%	(50.7%)	(21.8%)	(7.6%)	(20.3%)	11.9%	3.6%
Riot Blockchain Inc	0.9%	(94.7%)	3.3%	(29.1%)	(16.4%)	(3.3%)	(12.4%)
SoftBank Group Corp	0.9%	(16.1%)	18.1%	(24.8%)	(12.5%)	(13.1%)	(1.0%)
Hut 8	0.4%	n/a	38.5%	(20.6%)	(7.2%)	(7.4%)	(7.5%)
Metaps Inc	0.4%	(51.5%)	(31.7%)	(13.2%)	(9.2%)	1.2%	(5.6%)
<b>Elwood Blockchain Index</b>			<b>21.6%</b>	<b>2.1%</b>	<b>(2.7%)</b>	<b>1.3%</b>	<b>3.6%</b>
<b>MSCI World (NTR)</b>			<b>20.6%</b>	<b>2.6%</b>	<b>(2.0%)</b>	<b>2.1%</b>	<b>2.5%</b>
<b>New Index Constituent</b>							
Santander		(27.9%)	(6.9%)	(4.3%)	(12.1%)	7.8%	1.0%

(Source: Bloomberg, Elwood)

(Notes: Weighting as at 01 November 2019, performance is total return in USD)

## Valuation data

	2018 Q4	2019 Q1	2019 Q2	2019 Q3
<b>Elwood Blockchain Global Equity Index</b>				
PE	13.1	15.2	14.5	16.6
Price/Book	2.2	2.5	2.5	2.5
EV/Sales	1.3	1.6	1.8	1.9
Dividend Yield	3.0%	2.3%	2.9%	2.3%

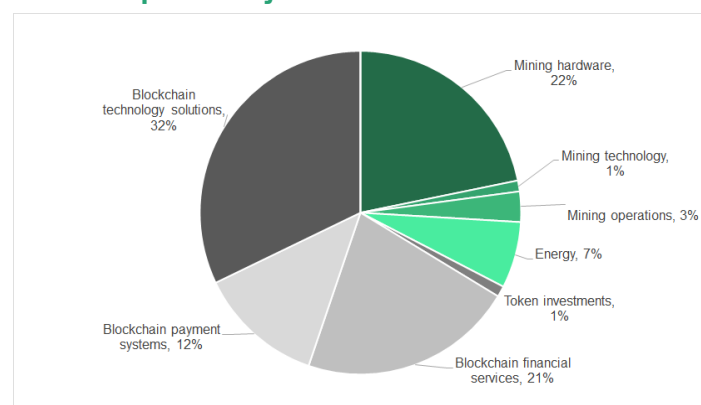
## MSCI World Net Total Return Index

PE	15.0	16.8	17.6	17.9
Price/Book	2.1	2.4	2.4	2.4
EV/Sales	1.8	2.0	2.1	2.1
Dividend Yield	2.7%	2.5%	2.5%	2.5%

(Source: Bloomberg, Elwood)

(Notes: PE ratio based on current market capitalisation, positive earnings only and sales, profits and dividends over last rolling 12 months. All figures in USD)

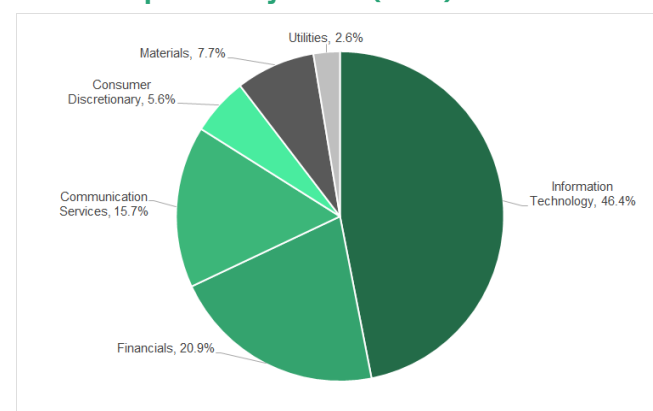
## Index composition by blockchain business area



(Source: Bloomberg, Elwood)

(Note: Data as at October 2019. All figures in USD)

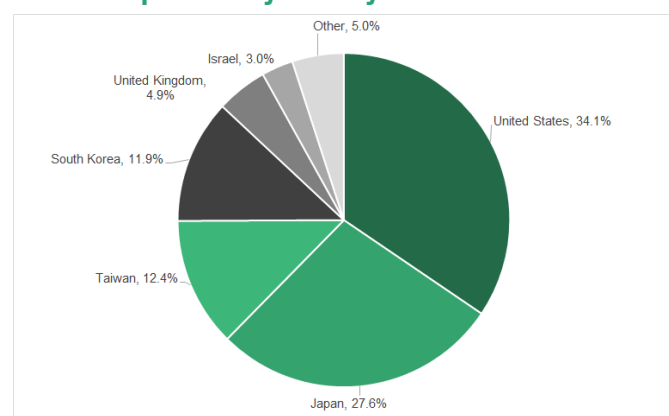
## Index composition by sector (GICS)



(Source: Bloomberg, Elwood)

(Note: Data as at October 2019. All figures in USD)

## Index composition by country



(Source: Bloomberg, Elwood)

(Note: Data as at October 2019. All figures in USD)

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