CINDICATOR

KOREAN MARKET ANALYSIS

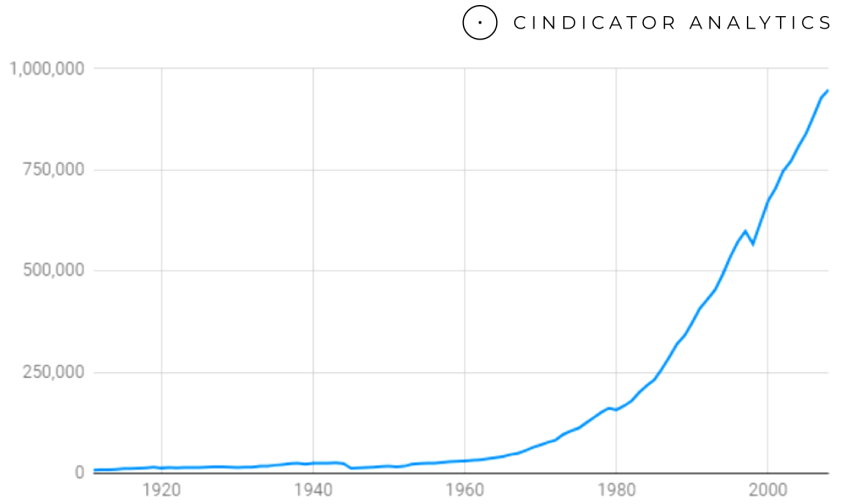
Contents

Macro overview

With respect to the good habit of not leaving things until the last minute, a popular Korean saying goes: “If you don’t walk today, you will have to run tomorrow”.

Looking at the exceptional economic growth shown by this Asian country over the last 60 years, however, it seems that Koreans are actually running every day, and there are no stop signs on the horizon.

After the war of 1950–53, the South Korean economy was in a very poor state and almost entirely reliant on agriculture. In the early 1960s, its per capita income levels were still around USD 100 a year, making it one of the world’s poorest countries[1]. As of today and per the IMF, the country ranks 12th worldwide in nominal GDP and 29th on a per capita basis. The graph below shows South Korea’s GDP evolution in the last century.



South Korea GDP evolution in the last century (PPP)

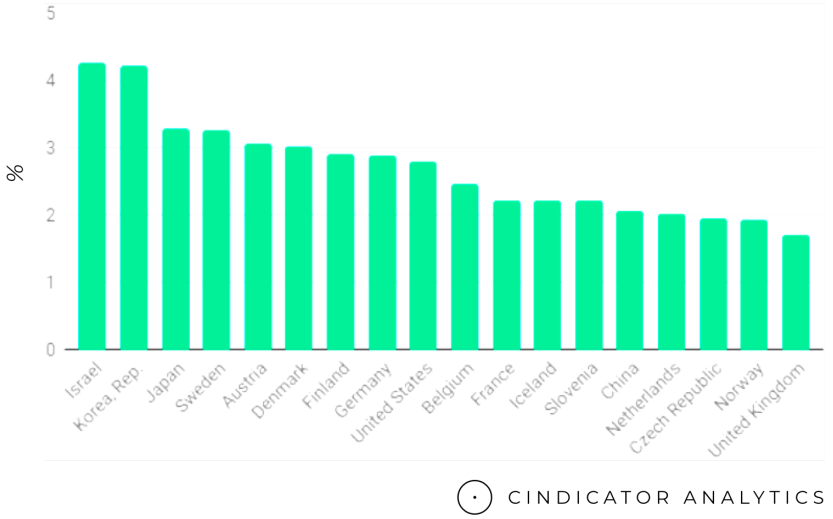
Maddison Project Database, version 2018. Bolt, Jutta, Robert Inklaar, Herman de Jong and Jan Luiten van Zanden (2018), “Rebasing ‘Maddison’: new income comparisons and the shape of long-run economic development”, Maddison Project Working paper 10

[1]Ann Sasa List-Jensen, Aalborg University, http://vbn.aau.dk/files/13994106/DIIPER_wp_5.pdf, page 8

The so called “miracle on the Han River” transformed the rural economy of South Korea into the powerhouse it is today through two different phases.

In the first one, spanning mainly the 1960s and 70s, the South Korean economy started its transformation from a rural based one to an industrialised one. South Korea opted for a rather peculiar solution when it came to developing industry, preferring long-term foreign loans over the more ‘typical’ foreign direct investment. The government itself took out those loans and then allocated funds in selected industries and to selected entrepreneurs, giving birth to the so called chaebols, industrial conglomerates active in various fields[2]. It is of vital importance to note how in this period, despite not being very rich in monetary terms, South Korea was already a highly advanced country with respect to education. In 1970, the school enrolment rate was already 100% for primary education[3] and the country was in general on a par with others that were twice as rich. This factor was crucial to the country’s development, given that it facilitated a process of reverse engineering on imported technologies.

R&D expenditures as % of GDP



Source: *World Bank*

[2] Innovation, Competitiveness and Growth: Korean Experiences, Sungchul Chung, Research Fellow Emeritus, Science and Technology Policy Institute (STEPI)

[3] http://siteresources.worldbank.org/EXTABCDE/Resources/7455676-1288210792683/Sungchul-Chung.pdf

South Korea refused to have foreigners directly investing in its economy for the most part, but subscribed to agreements in order to access technological goods, and was able to understand and assimilate them thanks to its very well educated population.

This peculiarity was also fundamental in the second phase of economic growth, when research and development expenditures became the main driver of expansion. In 1982, the government launched its national R&D programme, which was the first step in a huge trend that has lasted until today, when we can find South Korea at the top in a list of countries ranked by R&D expenditure as a percentage of GDP.

In the second phase, South Korea has been able to turn the assimilated foreign technologies into new indigenous technologies and economic growth. The country is now one of the world leaders for patents submitted and the world's leading country for internet penetration and smartphone ownership[4]. Perhaps more important is the fact that its ongoing efforts have paid off, resulting in it being ranked first in the Bloomberg Innovation Index, a ranking of the most innovative countries in the world based on R&D, manufacturing, high-tech companies, education, research personnel and patents submitted[5].

In this context, it is not a surprise that South Korea is like no other country when it comes to the adoption of new technologies. The country can count on the fastest internet in the world[6] and it gave birth to the social network Cyworld in 1999, five years before the launch of Facebook.

It is therefore a very good sign for the crypto movement that blockchain technology and cryptocurrencies have found such huge support in this Asian country.

[4] http://www.koreaherald.com/view.php?ud=20180624000197

[5] https://www.bloomberg.com/graphics/2015-innovative-countries/

[6] Per Akamai Technologies (Q1 2017)

Blockchain in South Korea

If you think about which is the most crypto-friendly country in the world, several places could come to mind: Singapore, Malta, Estonia, Japan and Switzerland among others are all valid candidates. On the other hand, if you are wondering which country has the most crypto-friendly population, there can only be one possible answer: South Korea.

South Koreans are estimated to account for 30% of total cryptocurrency trading worldwide, and 30% of all salaried workers in South Korea own and exchange cryptocurrencies. No one in the world is as "blockchain enthusiast" as them and, given their recent history of being ahead of the game with innovation, it is difficult to imagine a world in which cryptocurrencies could exist without the South Koreans' support.

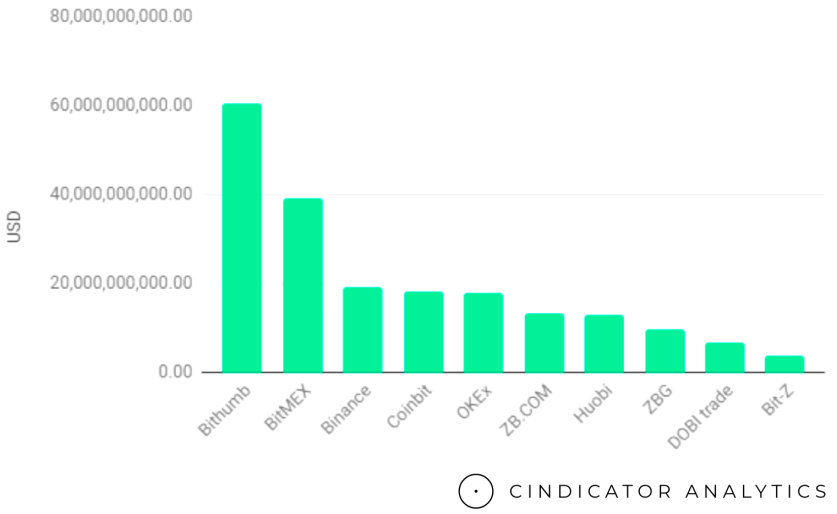
We will take a closer look at this country in order to better understand its recent economic history and we will try to describe the main features that make South Korea such a unicorn in the cryptocurrency world.

State of the art

We have already talked about how open to innovation South Koreans are. Cryptocurrencies, however, exploded as a mass phenomenon through a combination of factors. If enthusiasm for technology was surely a huge driving factor, even more important was perhaps a desire to realise huge profits. At first, Bitcoin did not catch the attention of South Koreans more than it did for any other population. After missing the first train, however, they made sure that this wouldn't happen a second time: Ethereum was coming and they were more than ready[7]. It is difficult to say whether the Ethereum boom, in terms of diffusion, was more the result of enthusiasm for its smart contracts and DApp possibilities or just faith in a positive price trend. What is certain, however, is that no other country saw such lightning fast widespread adoption.

Obviously, Ethereum was just the first step on a long road of alternative currencies. Today, South Korea hosts some of the biggest exchanges in the world in terms of trading volume.

Top exchanges by volume (30d)



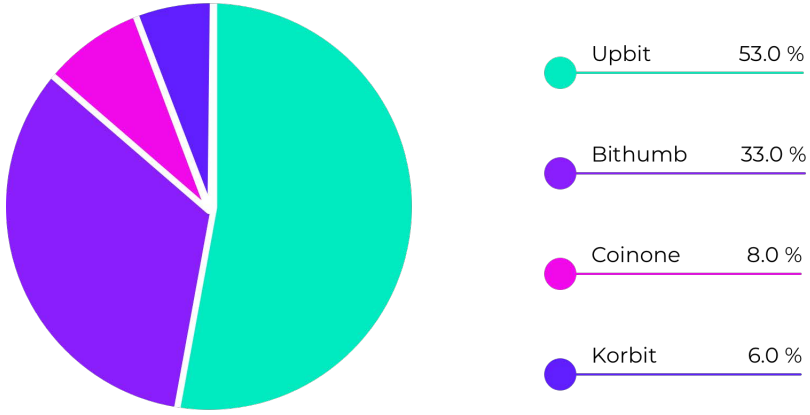
[7] https://steemit.com/kr/@sirwinchester/south-korea-is-crazy-about-crypto-why-koreans-dominate-ethereum-trading-and-local-crypto-community-keeps-growing

The two graphs below show volumes traded for all the major crypto exchanges worldwide[8]. Bithumb, the biggest South Korean exchange, ranks in the top position for the last 30 days by volumes in USD, with data taken on 22 November.

Other major Korean exchanges include Upbit, Korbit and Coinone. The market is concentrated around Bithumb and Upbit in particular, with the two exchanges representing an outstanding 86% of the total South Korean market share together[9].

There have been several cases where just the announcement of a quotation on a South Korean exchange was enough for an alt currency price to rise at a ridiculous pace. When TRX was listed on Bithumb in April 2018, its price grew from USD 0.03 to 0.05 in three hours following the announcement, a 66% rise. When Bithumb was visited by police in January 2018, fears of a possible lockup of crypto exchanges in the nation caused a dramatic dump of up to 21% in the price of BTC on the Korean exchanges[10].

Local market shares for Korean exchanges



[8] https://coinmarketcap.com/rankings/exchanges/reported/

[9] From https://www.coininsider.com/south-korea-cryptocurrency-exchanges/

[10] https://www.telegraph.co.uk/technology/2018/01/11/bitcoin-price-plummets-south-koreas-plan-ban-cryptocurrency/

Huge trading volumes on exchanges are often associated with short-term trading and the desire to make fast profits, given that an investor with genuine and deep faith in a project typically buys and hold the coins for a long period of time. If this is the case, then obviously we will face a difficult task in trying to identify which aspect of blockchain technology is most attractive to South Koreans. Indeed, the fact that one project is preferred over another in terms of responsiveness and trading volumes from the Asian market does not strictly indicate a preference for what that project is trying to accomplish.

There is no doubt that Korean exchanges are a key element in trying to analyse the crypto phenomenon in the Asian nation, but for a more comprehensive understanding we should also look at native South Korean crypto projects. These projects and their eventual success are obviously a great indication of what crypto believers in the country feel the new technology could do in the future.

First of all, exchanges do not only support crypto trading; but are proper crypto-based businesses as well, and big ones to boot. Upbit, Bithumb, Korbit and Coinone are more than successful startups at this point, and as mentioned are not just strictly limited to the crypto trading business. Coinone, for example, is developing a platform based on blockchain, Cross, that is trying to facilitate money transfers between people around the globe, and Bithumb has announced a payment service in partnership with Qoo10, known as the "Asian Amazon", and signed an agreement with series. One, an American fintech firm, to open a security token exchange.

Blockchain-based businesses also include project accelerators like Deblock, which aims to invest in blockchain-based projects and help them during the pre-ICO phase. Also, there are already projects using the potential of blockchain without necessarily being linked to coins. Mavlux is a project which has developed iChart, essentially a database of medical information that hospitals can share between each other. These kinds of projects can find an easier path for diffusion in South Korea when compared with other countries because of the population's interest in blockchain. The demographic characteristics of the country also help. Seoul's metropolitan area comprises 49% of the total South Korean population and boasts both a very high population density and a very technologically advanced

population. As already mentioned, it is home to the fastest internet in the world and the whole area is one of the most wired up and best connected globally. These factors allow for every technological development to spread quickly, both as an investment opportunity and as an actual tool.

There are also other cryptocurrency projects based in South Korea, the best known being ICON (ICX). The ICON project aims to build a decentralised global network, also providing a platform for smart contracts and DApps. Several institutions are already using the ICX blockchain sharing ledger, among them private companies like banks and insurance companies but also universities and hospitals. At the moment the project is backed by partnerships and projects with private and public institutions within the country[11], further proof that South Korea today is a unique environment for blockchain development.

Despite the very friendly environment for the blockchain industry and the projects described above, this enthusiasm comes at a price. Huge demand in particular leads to observed price distortion, a phenomenon which is far from negligible. Indeed, it has become well known enough, even in the rest of the world, to deserve a special name linked to South Korean culture: Kimchi Spread. In the next paragraph we are going to have a look at it in more detail.

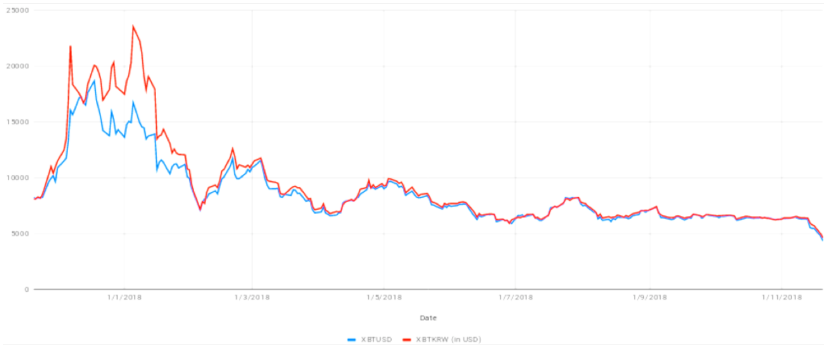
Kimchi Spread

The focus of South Koreans on innovative products and their predisposition to invest in these kind of markets has led them to be the country with the most crypto investors as a percentage of the total population.

The massive internal demand for cryptocurrencies and the current restrictions on fiscal freedom created the conditions for a price difference between bitcoins bought in South Korean won in South Korea and bitcoins bought in US dollars in the rest of the world. The very peculiar characteristics of this price difference are the reason for its designation as the 'Kimchi Spread' or 'Kimchi Premium', in reference to the traditional Korean side dish.

[11] https://icon.foundation/contents/projects

Bitcoin Composite Price and Bitcoin Price in South Korea



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Data: USDKRW and XBTUSD from Bloomberg and Bithumb's BTCUSD series from investing.com

As is clearly visible, the Kimchi Premium is a proxy for the hype in South Korea surrounding cryptocurrencies. Indeed, looking at the above chart, the highest differences were experienced during the crypto rally in the last months of 2017 and the first months of 2018, where hype and "fear of missing out" were two of the main drivers of this movement.

On 8 January the Kimchi Spread reached its maximum (~50%) as did the total market capitalisation of the crypto market (USD 800 billion), something that confirms how South Koreans have the power to influence the entire crypto market both positively and, unfortunately, negatively.

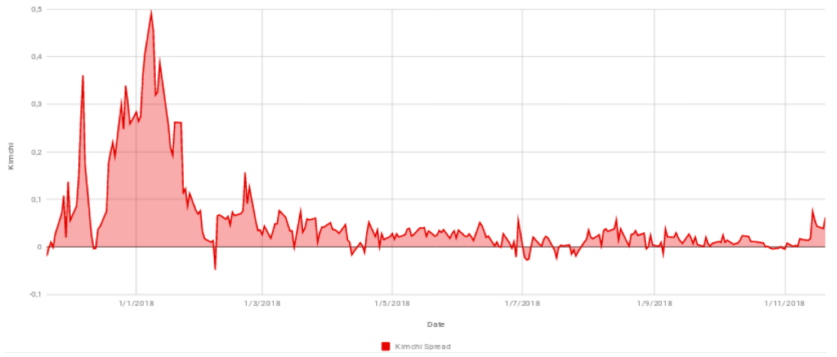
In any market, the presence of price differences for the same asset in different countries or on different exchanges lasts as long as it takes for arbitrageurs to make prices converge by collecting all possible risk-free gains through buying at lower prices and selling at higher prices almost instantaneously. This is the basis of the "law of one price" and it is something that usually holds true in free and unrestricted markets with low transaction costs.

South Korea therefore experienced the Kimchi Spread because of its very strong internal demand fuelled by hype, Koreans' continuous search for short-term profits and its country's specific economic characteristics. Indeed, South Korea is a relatively small country that overcame several difficult monetary crises, which forced the government to impose capital controls to stabilise its currency. This had the side effect of reducing its financial freedom.

In 2017, according to the last legal revision, an individual can send up to USD 3,000 per transaction and up to USD 20,000 in total between 1 January and 31 December in the same year through a particular financial institution to a recipient outside of the country. The maximum total amount is capped at USD 50,000 per year if making transactions through different institutions. In case somebody wants to send more, they will be subject to a tougher procedure.

This has created asymmetry in capital controls, with the fact that wealth is easier to bring in than take out from South Korea being another driver of the positive skew of the Kimchi Spread. Considering just the data from last year, this

Kimchi Spread



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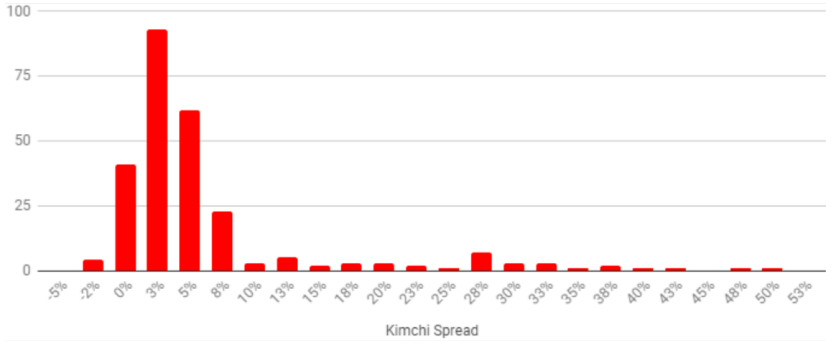
Kimchi Spread Distribution



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premium had an average size of 5.5% and a median of 2.6% (from 20 Nov 2017 to 20 Nov 2018).

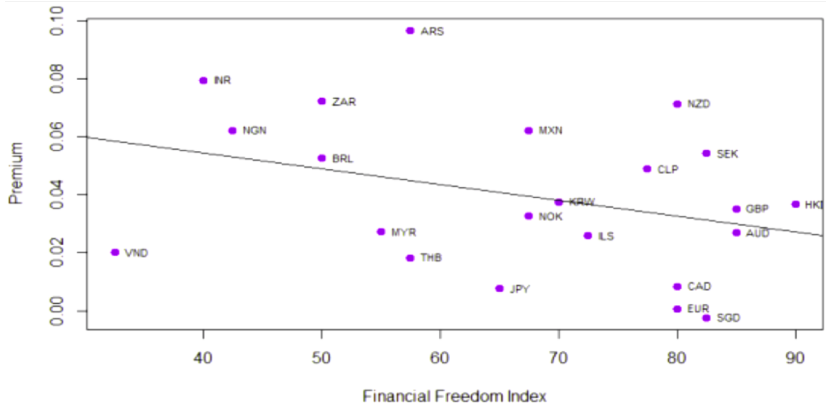
The lack of a definition of what Bitcoin is from the South Korean government and the complexity of offshore transactions has made arbitrages even more complicated, and resulted in the Kimchi Premium for South Koreans.

In South Korea, Bitcoin is not defined either as a currency, controlled by the Foreign Exchange Transaction Act or a good, controlled by the Foreign Trade Act. This legal interpretation issue is another source of risk and could be another blocking factor for domestic arbitrageurs. Moreover, offshore transactions are slow, complex and economically inefficient, so the vast majority of investors preferred to just hold cryptocurrencies in anticipation of positive swings in price, instead of trying to get the arbitrage profit given the risks associated. Similar explanations apply to other methods, such as the use of credit cards (which have a USD 10,000 limit and are equiparated to commodity purchase so taxable and banned for direct cryptocurrency purchases) or PayPal (in the USA for example the Internal Revenue Service (IRS) normally considers this money inflow to the receiver as taxable income

if the transfer amount is sufficiently large or the transfers occur on a regular basis).

Other solutions involving cash had the highest probability of success but involved higher risks and could not be done with relevant notionals. Furthermore, in order to additionally curb deals involving different individuals from different countries, the South Korean government prohibited foreign investments in South Korean crypto exchanges.

Nowadays, the Kimchi Premium is almost absent and since January has never reached 10% again, the Korean crypto fever has calmed down and the crypto space has lost volatility. The spread builds up during market crashes or bull trends, and a new bull trend could be possible with the market entry of institutional investors and a global and clearer recognition and regulation of cryptocurrencies, given that a set of regulatory restrictions makes arbitrage activity more complex. It is for these reasons, we believe, that during the market correction experienced over the last few days, the Kimchi Spread quickly rose above 6% again.



Indeed, the positive premium paid by investors is not an exclusively Korean phenomenon. As pointed out by Jin Choi, Lehar and Stauffer in their "Bitcoin Microstructure and the Kimchi premium", the financial freedom and positive premiums for buying Bitcoin tend to be positively related. They also found that the Bitcoin premiums are positively related to transaction costs, confirmation time in the blockchain, and to Bitcoin's price volatility. To sum up, the higher the risk for arbitrageurs the lower their willingness to try to profit from the price mismatches.

As shown in the chart above, Bitcoin premiums are quite common and, in addition to the other drivers already discussed, directly depend on the poor liquidity of Bitcoin when traded against less traded currencies.

This is expected considering that an imbalance between demand and supply in one specific country (especially in hyped markets) could force the price of Bitcoin in its native currency to move differently from prices in other countries and the corresponding difficulty for arbitrageurs to collect this difference impedes a quick price convergence.

This is why, unsurprisingly, South Korean authorities are constantly monitoring the Kimchi Spread, assigning it both a social and economic risk with likely strong negative impacts for Koreans.

Kim Dong-sup of BOK's payment systems research team pointed out that the Kimchi Premium depends on irrational and overheated domestic demand that is based on the false hope of price increases. He believes that this phenomenon could be dangerous for the local forex markets and could pose the basis for the possible infusion of illegally obtained funds into Korean crypto exchanges.

The involvement of the Korean authorities is therefore necessary to safely rule and model the Korean cryptocurrency market. Regulations and taxes are the two instruments they can deploy in order to definitively curb these risks. In the following two sections we will have a look at those two aspects of the Korean market.

Regulation

Overview

Regulation plays a big role in the Korean cryptocurrency market. Compared to other countries, South Korea has a relatively large interest in trading and investing in cryptocurrencies. This quickly sparked the attention of the country's top-level authorities and financial market regulators. From September 2017 to March 2018, Korean regulators took strict positions on cryptocurrency investments, such as banning ICOs and the anonymous trading of crypto.

These restrictions have resulted in many South Korean companies establishing subsidiaries in other countries such as Singapore to launch ICOs, something which can however incur costs to the project of around USD 180,000 to 270,000, as one CEO noted.[12]

The topic of crypto regulation became a part of South Korea's local elections in June 2018. Many election candidates aimed to attract voters' support through pro-blockchain and cryptocurrency proposals, hoping to achieve administrative goals such as environmental, welfare and youth allowances[13]. With central government taking a strict stance on regulating cryptocurrencies, the focus for crypto support has shifted to the local government level.

[12] http://www.businesskorea.co.kr/news/articleView.html?idxno=23221

[13] https://www.inverse.com/article/44766-south-korea-cryptocurrency-price

Korea's potential crypto hub

One notable example is the newly elected mayor of Jeju Island, Won Hee-ryong, who ran for and won the local election with pro-blockchain and cryptocurrency proposals[14]. Since 2000, Jeju Island has been a self-governing province, which operates autonomously from South Korea in terms of its economic and administrative framework.

In August 2018, the new governor requested that the central government classify Jeju Island as a special economic zone for Korea's blockchain companies to conduct fund-raising activities e.g. ICOs domestically. Should this proposal pass through, Jeju will become the new ICO hub of Korea, not only preventing capital outflow, but also attracting new international investments coming into the country.

[14] https://cryptonews.com/news/south-korean-mp-seeking-to-overturn-the-country-s-ico-ban-1708.htm

Regulatory development

September 2017 — the Financial Services Commission (FSC) prohibits all forms of cryptocurrency funding methods, effectively banning all ICOs in South Korea.

December 2017 — the government bans the use of anonymous cryptocurrency trading in order to control cryptocurrency speculation. The move was implemented to ensure that crypto exchanges have an adequate KYC process in place and promote market transparency.

March 2018 — South Korean government officials are banned from holding and trading crypto.

May 2018 — the South Korean National Assembly announces plans to re-legalise ICOs. As of October 2018, regulators are holding firm on the existing ICO ban.

July 2018 — the South Korean government is set to launch a blockchain classification system, which will effectively legitimise crypto exchanges and recognise them as regulated financial institutions.

Although the South Korean government has taken a harsh stance on cryptocurrency regulation, this was more a reaction to problems within the ecosystem, such as hacking, fraud allegations and scam ICOs. Recent developments suggest that this position might gradually reverse in the future. For example, the Korean government has announced a 1 trillion won (USD 880 million) package to be spent in 2019 on blockchain development as part of a 5 trillion won budget to stimulate economic growth through innovation. This shows that the government is shifting its stance in favor of blockchain technology and cryptocurrency, which may lead to further positive developments in the future.

Tax

Corporation tax

In South Korea, companies are taxed progressively based on the annual revenue generated by business activities, transfer of assets, and profits. The tax rates are explained in the table below.

Corporation tax bracket (KRW)	Corporation tax bracket (USD approximate)	Tax rate (%)
0–200 million	0–179,900	10
200 million–20 billion	179,000–18 million	20
20 billion–300 billion	18 million–268 million	22
Over 300 billion	Over 268 million	25

Source: Santander

All cryptocurrency exchanges operating in South Korea were subject to the progressive corporate income tax structure. This year Bithumb, one of Korea's largest exchanges, received a tax bill for 30 billion won (USD 28 million), after reporting 427 billion won (USD 397 million) in net profit in 2017.

Previously, the Korean government had offered tax exemptions for companies engaged in high-tech activities under the Tax Incentive Limitation Law (TILL). Under this law, crypto exchanges in South Korea were able to apply for "venture company" certification which gave them a 50–100% reduction in corporate tax paid for the first five years after inception[15]. From August 2018 onwards, crypto exchanges are excluded from the venture business industry, thus effectively relinquishing their right to TILL's tax benefits[16].

Income tax

In South Korea, cryptocurrencies not only created interest on the institutional/exchange level, but also allured retail traders across different age groups. Among the G20 nations, Korea is

[15] According to Deloitte's Korea Tax Guide 2017
[16] https://www.ccn.com/south-korea-rejects-crypto-exchanges-as-venture-firms-taxes-to-double/

the country with the 11th highest income tax rate (up to 42%). By comparison, Singapore has a GDP per capita twice the size of Korea's and a maximum personal tax rate of 22%. South Korea's personal income tax rates are set out in the table below.

Income tax bracket (KRW)	Income tax bracket (USD approximate)	Tax rate (%)
0–12 million	0–10,700	6
12 million–46 million	10,700–41,000	15
46 million–88 million	41,000–79,000	24
88 million–150 million	79,000–134,000	35
150 million–300 million	134,000–268,000	38
300 million–500 million	268,000–447,000	40
Over 500 million	Over 447,000	42

Source: *KPMG*

With its high progressive tax rates, and a youth unemployment rate of 9.8%, it is understandable that many South Koreans are attracted to investing in cryptocurrencies, or even trading them on a regular basis. Since 2013, bitcoins and cryptocurrencies have been exempted from capital gains tax, meaning that investors/traders are allowed to keep 100% of the profits made from their investments. Recently, there have been rumours that the South Korean government is working on plans to tax cryptocurrency but no official announcements have yet been made. The current outlook is that cryptocurrencies will remain tax free in South Korea until the government introduces new tax regulations, for which it has set out a tentative time frame[17].

[17] https://news.bitcoin.com/crypto-tax-free-korea-regulators-timeframe-taxation/

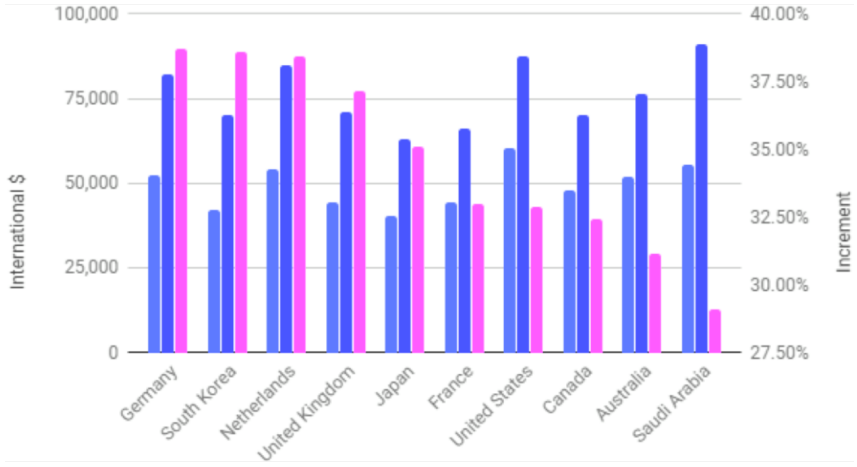
Future trends and developments

We have outlined the situation of a nation headed towards the future. While South Korea has certainly shown that it has acquired the right mindset to keep up with innovations and challenges, some of the latter still remain.

North Korea, despite recent positive developments in the relationship between the two countries, still limits its ability to trade. South Korea is only reachable by sea or air, not to mention the damage the political tension has caused to the perceived safety of investments in the south. Also, China and Japan exercise great political and economic influence in the region, which is not necessarily beneficial to South Korea.

Having said that, the economic outlook still looks positive for the nation. The chart below shows the top ten countries by GDP per capita in 2020 according to a study from PricewaterhouseCoopers made in 2017[18][19]. The red bars show GDP per capita estimates for 2020 and 2050 respectively,

GDP per capita evolution 2020-2050



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[18] Data in international dollars, adjusted for PPP
[19] https://www.pwc.com/gx/en/world-2050/assets/pwc-the-world-in-2050-full-report-feb-2017.pdf

while the golden bars show the incremental change as a percentage (right axis).

The countries are ordered from left to right according to the incremental change, and South Korea is anticipated to have the second highest growth of the analysed countries in the timespan under observation. This means that, according to the estimates, the nation's economy will keep growing even better than its current peers.

In this context, therefore, blockchain technology seems to be positioned both to benefit from the positive general economic improvement and to help in boosting it. The blockchain industry is still young and we have already seen several developments, both to cryptocurrencies themselves and to blockchain projects in general. No one can reliably say where the industry is headed, though it could potentially influence a number of sectors and have a disruptive impact.

At the moment, major developments are happening in the exchanges segment, where new 'mining exchanges' are disrupting the market with their policy on trading fees. Exchanges mainly gain from the trading fees they receive for each operation made on their markets. In the mining exchange format, those fees are distributed as tokens of the exchange and split between the exchange and the users. Users can then use them to lower their fees or keep them. In the latter case, users receive part of the exchange's profits and are therefore incentivised to keep raising the tokens' value, intensifying their trading activity.

Pyramid schemes

While the country has many great prospects concerning its blockchain sector we would also like to highlight the damaging area of pyramid schemes, which seem to enjoy some popularity in the South Korean market. A pyramid scheme is an illegal form of investment based on a network of participants in which early contributors recruit two or more new participants and gain a commission deducted from their freshly collected entry amounts. In fact, in order to enter the network each participant has to pay a quote. Despite the scheme being presented as an investment opportunity, what actually happens is that the initial quotes represent the majority of the cash flows of the illegitimate company. Essentially, returns correspond to participants using fees paid by others, and so entering the scheme as an early participant can provide short term returns, while being among the last participants will lead to severe losses. Numerous different kinds of pyramid schemes have been discovered and in all of them the common trait was the pivotal importance of new affiliates' quotes as a source of cash in contrast to the official stated economic activity.

Famous cases such as the Ponzi scheme and the Madoff case highlight the need for regulations able to limit this phenomenon, but also show how easy is for such illegal and unfair schemes to have a high probability of short-term success. The fake promise of making a lot of money in a short time frame, together with the "trust" factor provided by current participants recruiting new ones, can lead to the quick adoption of such schemes. These kinds of activities happen worldwide and are organised by companies of all sizes, from small investment firms or individuals to highly capitalised global conglomerates. Five of the biggest companies accused of being pyramid schemes are USANA Health Sciences, Nu Skin Enterprises, Mary Kay, Herbalife and Amway, all of which have billions in revenues.

To be sure, the crypto space is an ideal environment for these kinds of schemes to proliferate, given that huge gains in the short term are pretty common and it is therefore more difficult to identify a fraud. The biggest case in the crypto space was Bitconnect. Bitconnect was suspected of being a pyramid scheme given its multilevel marketing structure and exaggeratedly high payouts. After both crypto investors and US authorities cast doubts on the underlying activity,

Bitconnect shut down on 16 January 2018, officially destroying a USD 2.6 billion token economy.

South Korea is not immune to these kinds of illegal strategies and recently the Korean crypto movement experienced a significant number of crypto pyramid scheme discoveries. The search for short term profit, especially after the crash of the crypto market that caused huge losses, combined with the hope to be among the first participants in these kinds of multilevel schemes, as well as the large number of crypto investors in Korea made the local crypto community a fertile environment for malicious criminals and scammers.

Several cases of pyramid schemes, not necessarily based in Korea but preying on Koreans nonetheless, have already been stopped by South Korean justice. Last April, two people were sentenced with fines amounting to USD 15 million and USD 8 million respectively, after being found responsible for frauds amounting to 16 and 10.6 billion won. In this specific case, the business was run out of the Philippines, highlighting once again how South Korea is perceived as a fertile potential target by scammers.

In December 2017, several people were arrested in Incheon for building a pyramid scheme fraud to steal 270 billion won (USD 250 million). In this case, the project which was sold was described as an Ethereum mining facility, which would have operated from South Korea. Only a small part of the cash obtained was used to actually mine Ethereum and the system eventually collapsed. Again, the people arrested worked from a mining facility not in South Korea, but the US based Mining Max[20].

EthPhoenix, the largest scheme of this kind in operation, was believed to also have involvement from North Korean military officials and to be being used in order to fund North Korean military policies.

In this context, the South Korean government eventually proceeded to ban these schemes with a set of laws in March 2018. Obviously, crucial is the fact that not every pyramid scheme is immediately evident and recognisable. Therefore, banning those schemes and their participants will only have a limited impact on the safety of the whole market. In other words, there is always the risk that scammers will be a step

[20] https://www.coindesk.com/prosecutors-file-charges-alleged-250-million-crypto-mining-fraud

ahead of legislators and therefore a careful analysis is needed before investing in new projects, especially those that seem "too good to be true".

Spotting these activities in time is therefore fundamental, and the following list provides some red flags that are commonly observed in fraudulent schemes[21] [22] [23]:

- **Extraordinarily high guaranteed and consistent returns**
  Returns are very high compared with risk-free interest rates (US Government Bond yields can be a good guide to the level that can be considered risk-free) and are promoted as guaranteed and ongoing. Higher yields than the risk-free yield also means higher risks.

- **Vague and secretive business models and stated use of complex strategies**
  Avoiding being transparent about products, models or strategies is a key factor in creating a ponzi scheme. With the excuse of the discovery of a "secret sauce" able to produce fantastic returns, which the company cannot disclose in order to protect the business, they shield investment specifics from investors' control.

- **Investment products are usually foreign, issues exist with paperwork and failure to get a straight answer**
  In the case of requests for additional information, common answers can be:
  - the investment products are usually located far away from potential investors (the recipients of these strategies are usually normal people without the money or time to do the necessary due diligence);
  - answers are not straight and/or are formulated in a complex and confusing way;
  - there are issues in providing written paperwork or, in case it is provided, it contains errors and inconsistencies.

[21] https://fifthperson.com/5-red-flags-to-spot-a-ponzi-scheme/

[22] http://www.sequenceinc.com/fraudfiles/2018/05/typical-red-flags-of-ponzi-schemes/

[23] https://www.sec.gov/fast-answers/answersponzihtm.html

- **Unregistered investments and unlicensed sellers**
  These are two basic characteristics of pyramid schemes. Investments are not approved or monitored by authorities and sellers are not professionals. Unfortunately, even in the case of investments that are registered and sold by licensed sellers an extensive analysis should be done. Regulatory authorities have a fundamental role in finding and blocking illegal schemes but it is also impossible for them to detect the totality of fraudulent projects.

- **Sales personnel have attractive commissions, have an expensive lifestyle and are constantly looking for new people to get into the game**
  This is the continuation of the marketing part. Promoters seem to say: “The investment provides high returns and you should enter if you want to be like us”. This is a tremendous alarm bell. Why should rich people with the secret for making money risk-free be interested in continuously looking for new participants (and so sharing profits) and disposed to paying attractive commissions to promoters to do so?

- **These schemes usually involve some sort of innovative business or technology**
  Here is the strong link with the blockchain sector. The Bitcoin price rally has been an incredibly attractive example of the possibility of getting rich easily and quickly without a lot of perceived risk and can therefore act as a motivating factor for new market participants. As a result, a lot of projects sprung up in the following years surrounded by the hype and the hope of investors. The immaturity of the market, the complexity of the projects and the delay in regulatory action helped criminals to commit fraud and to create pyramid schemes quite easily and with outstanding results. Every new technology should be analysed deeply and carefully before entering an investment, avoiding speculation-driven trades.
  When analysing ICOs, it is recommended to invest time in:

- checking and studying the website and the whitepaper;
- conducting an analysis of the product and its current development status;
- evaluating the team, their competences and the actual probability of them respecting their declared roadmap;

- analysing the media channels and community;
- checking other online feedback and reviews.

- **Difficulty receiving payments**
  This is a late red flag but no less important. After investing in a new project that promises dividends of any kind, having difficulties in collecting the cash flows or facing restrictions on cashing out is a clear sign of something going wrong. Pyramid scheme promoters try to impede cashouts and usually encourage participants to roll over investments, ostensibly giving them the opportunity to earn an even higher return.

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Korean projects

We selected a shortlist of well-known Korean projects to have a look at their price developments. The ban on Korean ICOs has had an impact on the evolution and number of Korean blockchain businesses, though recent speculation about the decision of the Korean government to lift the ban has increased interest around the Korean blockchain industry. The following list represents examples of Korean projects in different stages of development:

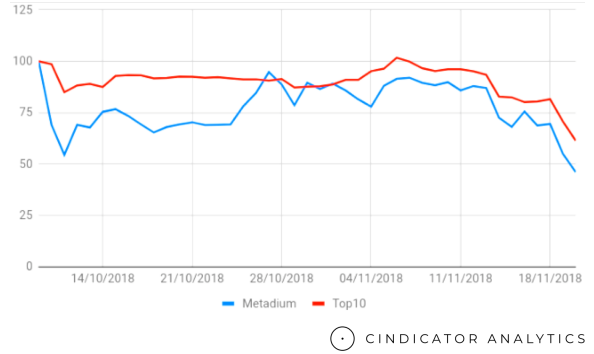
Project	Description
1. ICON	Blockchain technology and network framework designed to allow independent blockchains to interact with each other[24]
2. Metadium	Identity protocol powered by blockchain technology
3. MediBloc	Decentralised healthcare information system
4. Airbloc	Blockchain platform for personal data and data management market
5. EdenChain	Permission-based blockchain protocol focused on practical enterprise usage and security
6. Sentinel Protocol	Decentralisation to protect cyberspace with blockchain security
7. Hycon	Digital asset built on top of a faster and more scalable blockchain developed by the team
8. FuzeX	Payment solutions

[24] https://www.investopedia.com/terms/i/icon-cryptocurrency.asp

To get an overview of their price evolution, we analysed the past performances of ICOs of the quoted tokens in USD terms and compared them with a top 10 cryptocurrency index (equal weighted index comprising: Bitcoin, Ethereum, Ripple, Bitcoin Cash, EOS, Stellar, Litecoin, Cardano, Monero and TRON). Then we constructed an equal weighted portfolio of our selected listed projects (ICON, Metadium, MediBloc, Airbloc, EdenChain, Sentinel Protocol, Hycon and FuzeX) in order to evaluate aggregate performance with respect to the market during the last month[25].

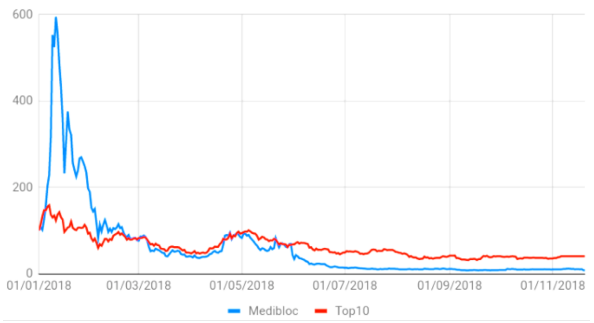
ICON vs Top10 Index

Metadium vs Top10 Index



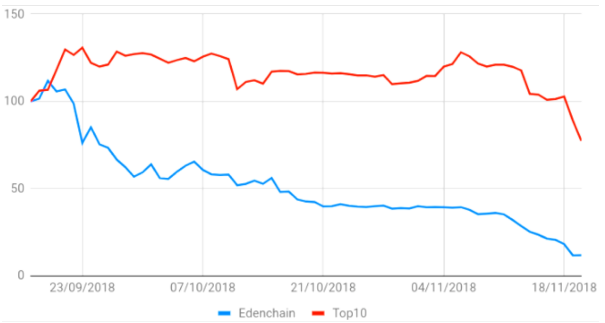
[25] Period of analysis: 09/10/2018–20/11/2018. This index started on 09/10/2018 because it was the first day that all tokens considered were tradable. Data from Coinmarketcap.com

Medibloc vs Top10 Index



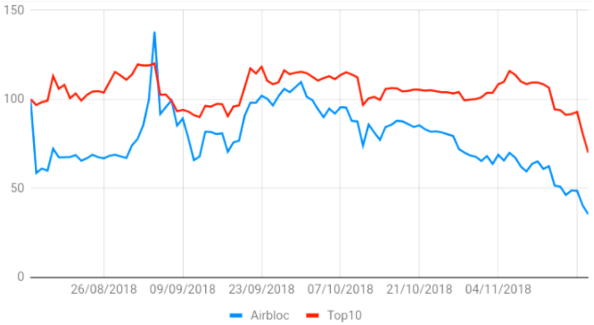
CINDICATOR ANALYTICS

Edenchain vs Top10 Index



CINDICATOR ANALYTICS

Airbloc vs Top10 Index

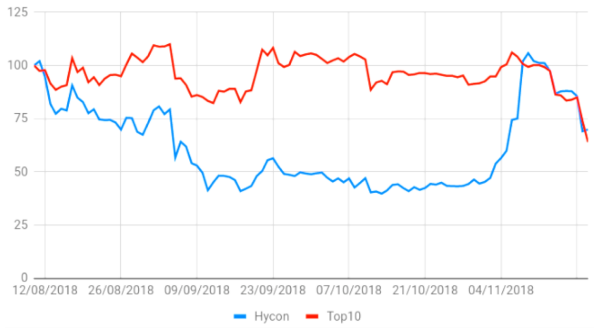


CINDICATOR ANALYTICS

Sentinel-Protocol vs Top10 Index

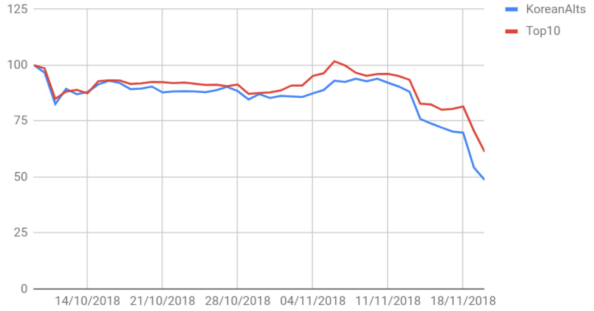
CINDICATOR ANALYTICS

Hycon vs Top10 Index



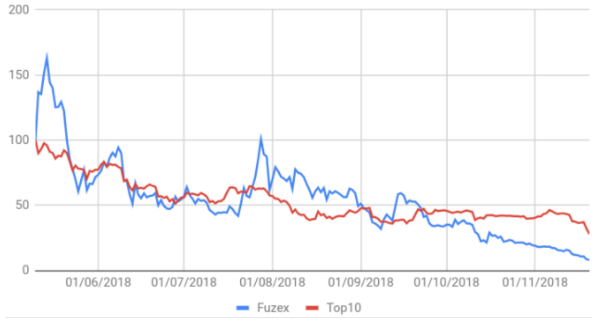
CINDICATOR ANALYTICS

KoreanAltsIndex vs Top10 Index



CINDICATOR ANALYTICS

Fuzex vs Top10 Index



CINDICATOR ANALYTICS

As clearly shown in the above charts, Korean projects suffered the bearish trend of the crypto market and all of them underperformed compared with the top 10 cryptocurrencies in recent months. The only two traded tokens during January, when the bullish trend was at its high, were ICON and MediBloc and both of them showed a strong performance with respect to the market in that month. What we can observe from the graphs is that Korean cryptocurrencies tend to be more volatile than the Top 10 index, given that they tend to fall below the index when the market is bearish and to outperform it when the market is bullish. This could be due to the fact that Korean projects are in an early phase of their life with respect to the constituents of the Top 10 index, and therefore they are more subject to consistent price swings. Indeed, if we look at ICON, which is the oldest project among the ones being considered, we see how its price trend looks pretty similar to the Top 10 one despite still looking more volatile. A similar case is MediBloc, the other project for which there is price data from the beginning of the year. In January 2018 it experienced a huge spike in price like the one observed for ICX. That spike, however, coincides with the peak performance registered for the Top 10 index.

There are no apparent underlying reasons to stress that the trends observed are due to the particular geographical origin of the projects considered. More enthusiasm due to a possible preference for projects coming from South Korea among investors could be a possible reason, however there are still too few projects and too little data to draw any sound conclusion.

Conclusion

We have analysed some aspects of South Korea and its crypto market. We tried to give a picture of both qualitative and quantitative factors related to it and highlighted both trends and national particularities. Aspects like exchanges, volumes and developments in legislation highlight the enthusiasm of the country for the technology and its attentiveness to it. Moreover, we have highlighted how South Korea is very open with respect to innovation and technology in general. Therefore, it is safe to say that the crypto space could positively benefit from this environment and from eventual positive combinations with other early stage technologies.

A responsive legislation is also very important in order to avoid negative phenomena such as ponzi schemes which compromise the soundness and safety of the whole market and potentially undermine blockchain technology development.

Blockchain itself is indeed still in its early stages of development and it is nearly impossible to predict what future lies ahead for it. Nevertheless, looking at the environment that we have described it is clear that, if the future will be successful for blockchain, South Korea is going to play a major part in embracing it.

About Cindicator

Cindicator is a fintech company that has been developing its Hybrid Intelligence platform since 2015. The platform is used by 120,000+ highly motivated decentralised analysts.

Collective forecasts on crypto and traditional markets are collected and enhanced with 30+ machine-learning models and a neural network. As a result of this symbiosis of humans and AI, Cindicator creates valuable trading indicators, predictive analytics and sentiments that improve investment decision-making amid high uncertainty for traders and investors.

To identify new investment opportunities and create relevant questions and indicators, Cindicator's internal team of financial analysts and quant researchers continuously explores the cryptocurrency market. While Cindicator's analytical products are available exclusively to CND token holders, we share some of our research with a wider audience to increase the general understanding of crypto assets.

Learn more about analytical products for traders and investors.

Test your understanding of the market by joining the collective intelligence platform with regular questions on 100+ crypto and traditional assets.

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