

BITCOIN & BLOCKCHAIN

creating investment opportunities beyond the digital payment system



BITCOIN BASICS



First digital decentralized currency, mined from code instead of physical commodities.



Peer to peer transfer without involvement of governments or banks.



Usable in any country. Sophisticated encryption secures transactions.

HOW IT WORKS



Bitcoins can be generated by anyone on the internet running bitcoin mining software.

New bitcoins are released to miners at a fixed, but periodically declining, rate; total supply limited to 21million.

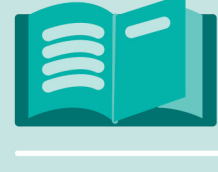


Bitcoins are stored in an online e-wallet, similar to cash

Bitcoins can also be traded for traditional currencies.



GLOBAL MATHEMATICAL SECURITY



Blockchain is a virtual public ledger recording the entire history of Bitcoin transactions.

$$\sum f_x$$

$$\% \pi$$

Transactions are organised into "blocks" which are then digitally verified by miners using complex algorithms.

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A new block is mined approximately every 10 minutes. Its "hash", or code-like confirmation, is followed by that of the previous block, making them immutable.

A BRIEF HISTORY



2008

The domain name Bitcoin.org is registered

The pseudonym "Satoshi Nakamoto," introduces Bitcoin as a fully peer-to-peer electronic cash system



2009

First Bitcoin block is mined, Block 0



2010

Pizzas are the first material bitcoin purchase

Expedia and WordPress accept bitcoin



2011

Bitcoin price hits \$1.00 USD



2012

First investment made in blockchain startup



2013

Total bitcoin value in circulation surpasses \$1 billion

Chinese government bans bank use of Bitcoin

Tesla Model S purchased with bitcoin



2014

Bitcoin ATMs debut in the U.S. and Canada

Microsoft and Dell accept bitcoin



2015

VISA, Nasdaq, and other players invest \$30 million in blockchain tech startup

30 of world's largest banks join "R3" consortium to identify how blockchain technology can be applied in financial markets

Bitcoin is declared a commodity by U.S. regulators

Nasdaq tests Bitcoin for the trading of shares in private companies



2016

Dow / S&P / Nasdaq / European markets fall at Trump election; value of gold and bitcoin increase

Bitcoin registers 65% surge over the course of a year

Dunkin' Donuts accepts Bitcoin payments

More than \$1 billion in venture capital is invested in blockchain technology

Intel develops Hyperledger, an open source effort to advance cross-industry blockchain technologies



2017

Bitcoin passes USD value of one troy ounce of gold

Japan's largest market, Forex, opens bitcoin exchanges

\$35 billion invested in cryptocurrency

6.5 million Bitcoin users

Bitcoin price breaks \$1,000 USD

Bitcoin bifurcates, resulting in new currency, Bitcoin Cash

EU regulates digital currency businesses

In August 2017, Bitcoin breaks \$4,000 USD

Chinese bitcoin exchanges resume

Chinese Government reportedly cracks down on bitcoin exchanges.

JP Morgan CEO describes Bitcoin as "a fraud"

Price briefly slumps below USD 3,000, but recovers to over USD 4,000 by mid-September

BLOCKCHAIN: MOVING BEYOND BITCOIN



The greatest investment in Bitcoin may be in its infrastructure. Disruptive blockchain technology carries value across various industries.



For financial institutions, blockchain will reduce internal paperwork, expedite transactions, create a more efficient infrastructure (e.g. trading & settlement), and deliver cost reductions.



Blockchain could help hospitals and insurance companies comply with the regulatory and privacy demands related to global healthcare.



The IT industry will reap significant reward as a result of blockchain technology, primarily in the areas of software, the financial industry, healthcare, and the Internet of Things.

CHALLENGES OF BLOCKCHAIN TECHNOLOGY



Bitcoin/blockchain networks are entirely digital and, as with any virtual system, are at risk from hackers, malware and operational glitches.



Bitcoins are a rival to government currencies and may be used for black market laundering, illegal activities or tax evasion.



Bitcoin uses private key encryption to verify orders and register transactions, but fraudsters and scammers may attempt to sell false bitcoins.

ATTRACTIVE LONG-TERM INVESTMENT OPPORTUNITIES

Businesses and governments are spending ever more on cybersecurity, but are still playing catch-up; some would say they are struggling not to fall even further behind their attackers.

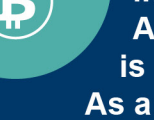


There are a number of applications of blockchain technology which make it of particular interest to the information security world.

Identity verification and management is of significant interest, and there are a now a number of companies which seek to use elements of blockchain technology to allow users to create tamper-proof digital identities.



As long-term oriented investors we at Credit Suisse Asset Management think this is an attractive growth area. As a consequence, we are shareholders in leading companies with a special focus on data protection, data analytics and automation as well as payment and security.



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