MARKET RESEARCH: CRYPTOCURRENCY
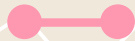
Marketing analysis of cryptocurrencies during the period 2013-2018 and providing recommendations for investors.

TABLE OF CONTENTS

01

CONTEXT

The context of the cryptocurrency market from 2013 to 2018

Promient features of the cryptocurrency market

During the period from 2013 to 2018, the cryptocurrency market experienced **significant development** but also faced **various fluctuations and challenges.**

Particularly in 2017, **there was a surge in Initial Coin Offerings (ICOs).**

However, the cryptocurrency market also encountered numerous risks and challenges. **The security and legality** of exchanges and ICO projects became **major** concerns during this period, especially after Mt.Gox incident. Additionally, many countries **imposed regulations and restrictions on cryptocurrencies.**

02

DATASET AND TOOLS
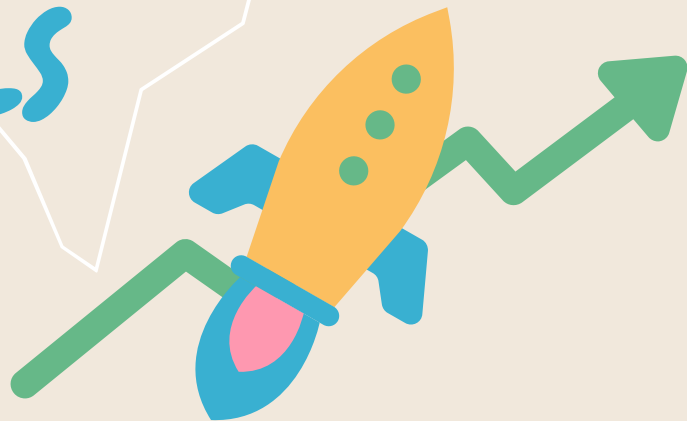
DATASET

The cryptocurrency market dataset includes the following fields of information:

1. **Date** – date of recording the value
2. **Open** – opening price (in USD)
3. **High** – highest price of the day (in USD)
4. **Low** – lowest price of the day (in USD)
5. **Close** – closing price (in USD)
6. **Volume** – total trading volume of the day (in USD)
7. **Market.Cap** – total market capitalization (in USD)
8. **Coin** – name of the cryptocurrency

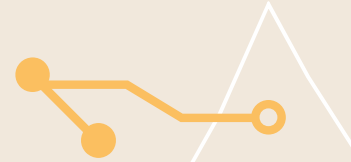**Source:** Cryptocoins Historical Prices - Kaggle

03

QUESTION

Pose directional questions for the problem and utilize corresponding metrics.

Cryptocurrency market analysis

The trend of price increase or decrease of the cryptocurrency during this period

Moving average price

Price volatility

Delta Price: The difference between the closing price and the opening

Highest (lowest) price ratio compared to the opening price.

Assessing the liquidity of the cryptocurrency during this period

Trading volume

Market Ratio: The ratio of market capitalization to trading volume

Assessing the intrinsic value of the cryptocurrency in the market

Market capitalization

Market Share: The ratio of the market capitalization of a coin to the total market capitalization of the market

04

DATA PROCESS

Data processing and
analysis steps

Cleaning data with Python

```python
import pandas as pd
```

```python
cl = pd.read_csv('/content/CoinList.csv')
```

```
cl.head(5)
```

	Unnamed: 0	X.	Name	Symbol	Market.Cap	Price	Circulating.Supply	Volume..24h.	X..1h	X..24h	X..7d	Var.11	
0	1	1	BTC\nBitcoin	BTC	$108,535,652,690	$6305.82	17,211,975	$4,862,506,303	0.23%	1.15%	-0.58%	Add to Watchlist\nRemove from Watchlist\nWatch...	https://coinmarketcap.com/curre
1	2	2	ETH\nEthereum	ETH	$28,700,537,068	$283.18	101,350,111	$1,834,058,037	0.34%	0.32%	-21.46%	Add to Watchlist\nRemove from Watchlist\nWatch...	https://coinmarketcap.com/curren
2	3	3	XRP\nXRP	XRP	$11,154,318,415	$0.283303	39,372,399,467\n*	$323,281,519	0.69%	0.13%	-16.83%	Add to Watchlist\nRemove from Watchlist\nWatch...	https://coinmarketcap.com/curre
3	4	4	BCH\nBitcoin Cash	BCH	$8,936,018,598	$516.68	17,294,913	$369,691,847	0.89%	0.01%	-12.56%	Add to Watchlist\nRemove from Watchlist\nWatch...	https://coinmarketcap.com/curre
4	5	5	EOS\nEOS	EOS	$4,203,946,968	$4.64	906,245,118\n*	$665,409,721	0.16%	-1.43%	-17.92%	Add to Watchlist\nRemove from	https://coinmarketcap.com/curre

```
[ ] cl1.info()

    <class 'pandas.core.frame.DataFrame'>
    RangeIndex: 1843 entries, 0 to 1842
    Data columns (total 8 columns):
     #   Column              Non-Null Count  Dtype
    ---  ------              --------------  -----
     0   Name                1843 non-null   object
     1   MarketCap           1843 non-null   object
     2   Price               1843 non-null   object
     3   Circulating_Supply  1843 non-null   object
     4   Volume24h           1843 non-null   object
     5   X_1h                1843 non-null   object
     6   X_24h               1843 non-null   object
     7   X_7d                1843 non-null   object
    dtypes: object(8)
    memory usage: 115.3+ KB
```

- Check for null values and data types

- Removing unnecessary columns

- Change column names

- Removing inappropriate characters

- Modifying data types

```
[ ] cl1 = cl.iloc[:,3:11]
```

```
[ ] cl1 = cl1.rename(columns={'Symbol' : 'Name', 'Market.Cap' : 'MarketCap', 'Circulating.Supply': 'Circulating_Supply', 'Volume..24h.' : 'Volume24h', 'X.
```

```python
[ ] cl1['MarketCap'] = cl1['MarketCap'].transform(lambda x: x.replace('$',''))
    cl1['MarketCap'] = cl1['MarketCap'].transform(lambda x: x.replace(',',''))
    cl1['MarketCap'] = cl1['MarketCap'].transform(lambda x: x.replace('?','0'))
    cl1['MarketCap'] = cl1['MarketCap'].astype(int)


[ ] cl1['Volume24h'] = cl1['Volume24h'].transform(lambda x: x.replace('$',''))
    cl1['Volume24h'] = cl1['Volume24h'].transform(lambda x: x.replace(',',''))
    cl1['Volume24h'] = cl1['Volume24h'].transform(lambda x: x.replace('Low Vol','0'))
    cl1['Volume24h'] = cl1['Volume24h'].transform(lambda x: x.replace('?','0'))
    cl1['Volume24h'] = cl1['Volume24h'].astype(int)


[ ] cl1['X_1h'] = cl1['X_1h'].transform(lambda x: x.replace('Low Vol','0.00'))
    cl1['X_1h'] = cl1['X_1h'].transform(lambda x: x.replace('?','0.00'))
    cl1['X_1h'] = cl1['X_1h'].transform(lambda x: x.replace('%',''))
    cl1['X_1h'] = cl1['X_1h'].astype(float)


[ ] cl1['X_24h'] = cl1['X_24h'].transform(lambda x: x.replace('Low Vol','0.00'))
    cl1['X_24h'] = cl1['X_24h'].transform(lambda x: x.replace('?','0.00'))
    cl1['X_24h'] = cl1['X_24h'].transform(lambda x: x.replace('%',''))
    cl1['X_24h'] = cl1['X_24h'].astype(float)
```

```
[ ] cl1
```

	Name	MarketCap	Price	Circulating_Supply	Volume24h	X_1h	X_24h	X_7d
0	BTC	108535652690	6305.82	1.721198e+07	4862506303	0.23	1.15	-0.58
1	ETH	28700537068	283.18	1.013501e+08	1834058037	0.34	0.32	-21.46
2	XRP	11154318415	0.283303	3.937240e+10	323281519	0.69	0.13	-16.83
3	BCH	8936018598	516.68	1.729491e+07	369691847	0.89	0.01	-12.56
4	EOS	4203946968	4.64	9.062451e+08	665409721	0.16	-1.43	-17.92
...	...	...	...	...	...	...	...	...
1785	PWR	0	0.000002	0.000000e+00	0	0.00	0.00	0.00
1786	BIG	0	0.982123	0.000000e+00	0	0.00	0.00	0.00
1787	CET	0	0	0.000000e+00	0	0.00	0.00	0.00
1788	CHEX	0	0	0.000000e+00	0	0.00	0.00	0.00
1789	LFT	0	0.102842	0.000000e+00	0	0.00	0.00	0.00

1790 rows × 8 columns

```
[ ] cl1.to_csv('CoinList_Clean.csv',index = False)
```

Building data with Python

```
[ ]  import pandas as pd

[ ]  cp1 = pd.read_csv('/content/CoinPrices_CleanFinal.csv')

[ ]  cp1['Date']= pd.to_datetime(cp1['Date'])

[ ]  cp1['DateDiff']=cp1.groupby('CoinName')['Date'].transform(lambda x: (x.max() - x.min()).days)
```

```
▶  cp1.head(5)
```

	Date	Open	High	Low	Close	Volume	MarketCap	CoinName	DateDiff
0	2018-08-14	6287.66	6287.94	5971.05	6199.71	5301700000	108199097492	BTC	1934
1	2018-08-13	6341.36	6537.05	6225.72	6297.57	4083980000	109111523954	BTC	1934
2	2018-08-12	6283.65	6409.85	6237.50	6322.69	5665250000	108106451582	BTC	1934
3	2018-08-11	6185.79	6455.74	6109.03	6295.73	4047850000	106409456302	BTC	1934
4	2018-08-10	6571.42	6591.26	6124.52	6184.71	4528680000	113028788092	BTC	1934

```
[ ]  cp1.sample(5)
```

	Date	Open	High	Low	Close	Volume	MarketCap	CoinName	DateDiff
792735	2017-10-16	0.000155	0.000156	0.000056	0.000116	58	0	ACES	725
573472	2017-02-15	0.004742	0.004749	0.003578	0.004630	14	0	AIB	1202
242287	2016-05-23	0.000095	0.000106	0.000093	0.000097	295	125543	XMY	1620
13818	2017-03-08	45.550000	45.600000	42.150000	42.330000	7640390	325712000	DASH	1642
536637	2017-10-20	16.910000	18.050000	16.230000	16.940000	175	149106	BITSILVER	1266

- DateDiff: Number of days the cryptocurrency has been in circulation in the market during the period 2013-2018
- Check: The credibility level of the cryptocurrency

```
[ ]  cp1_onlyDateDiff = cp1.iloc[:,7:9]
```

```
[ ]  cp1_onlyDateDiff = cp1_onlyDateDiff.drop_duplicates(subset=['CoinName'])
```

```
[ ]  cl1 = pd.read_csv('/content/CoinList_CleanFinal.csv')
```

```
[ ]  cp1_onlyDateDiff = cp1_onlyDateDiff.rename(columns={'CoinName':'Name'})
```

```
[ ]  cl1_add_DateDiff = pd.merge(cp1_onlyDateDiff,cl1, how = 'outer', on = 'Name')
```

```
[ ]  cl1_add_DateDiff['DateDiff'] = cl1_add_DateDiff['DateDiff'].fillna(0)
```

```
[ ]  cl1_add_DateDiff['DateDiff'] = cl1_add_DateDiff['DateDiff'].astype(int)
```

```
[ ]  def Check(x):
         if x['DateDiff'] < 90 and x['Volume24h'] == 0:
             val = 'Scam'
         else:
             val = 'Legit'
         return val

[ ]  cl1_add_DateDiff['Check'] = cl1_add_DateDiff.apply(Check, axis=1)

[ ]  cl1_add_DateDiff.groupby('Check').agg(Coin=('Name','nunique')).reset_index()
```

- Cryptocurrencies with days in circulation less than 90 days and total trading volume value equal to 0 will be labeled as 'Scam'
- All other cases will be labeled as 'Legit'

	Name	DateDiff	MarketCap	Price	Circulating_Supply	Volume24h	X_1h	X_24h	X_7d	Check
0	BTC	1934	108535652690	6305.82	1.721198e+07	4862506303	0.23	1.15	-0.58	Legit
1	ETH	1103	28700537068	283.18	1.013501e+08	1834058037	0.34	0.32	-21.46	Legit
2	XRP	1836	11154318415	0.283303	3.937240e+10	323281519	0.69	0.13	-16.83	Legit
3	BCH	387	8936018598	516.68	1.729491e+07	369691847	0.89	0.01	-12.56	Legit
4	EOS	409	4203946968	4.64	9.062451e+08	665409721	0.16	-1.43	-17.92	Legit
...	...	...	...	...	...	...	...	...	...	...
1785	BIG	205	0	0.982123	0.000000e+00	0	0.00	0.00	0.00	Legit
1786	LFT	3	0	0.102842	0.000000e+00	0	0.00	0.00	0.00	Scam
1787	CEN	0	0	0	0.000000e+00	0	0.00	0.00	0.00	Scam
1788	CET	0	0	0	0.000000e+00	0	0.00	0.00	0.00	Scam
1789	CHEX	0	0	0	0.000000e+00	0	0.00	0.00	0.00	Scam

1790 rows × 10 columns

```
cl1_add_DateDiff.to_csv('New_CoinList_Clean.csv',index = False)
```
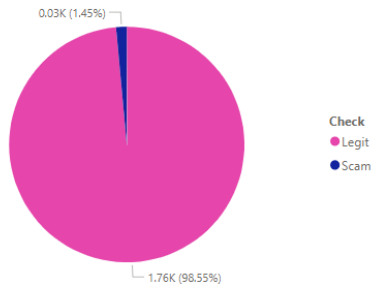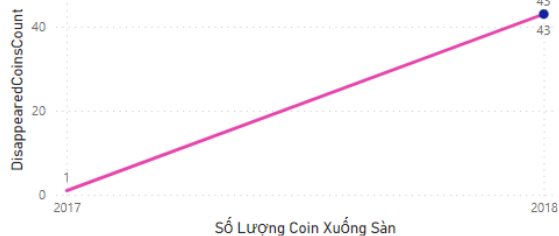
05

FINDING

Data visualization và insights

Overview of the market from 2013 to 2018
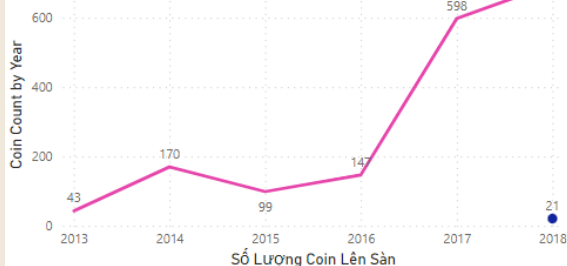
Phân bố lượng coin theo loại coin

0.03K (1.45%)

1.76K (98.55%)

Check
● Legit
● Scam

Tổng số coin rời khỏi thị trường mỗi năm

Check ● Legit ● Scam

DisappearedCoinsCount

43
43

1

2017 — 2018

Số Lượng Coin Xuống Sàn

Tổng số coin mới xuất hiện mỗi năm

Check ● Legit ● Scam

Coin Count by Year

697
598
170
147
99
43
21

2013 2014 2015 2016 2017 2018

Số Lượng Coin Lên Sàn

Number of coins listed on exchanges by year:
- Starting from 2017, coins started to be listed on exchanges.
- **By the end of 2016,** to meet the growing demand, two US exchanges, **CME and CBOE,** opened platforms for customers to trade Bitcoin futures contracts. The market became active, and many **altcoins emerged.**

Overview of the market from 2013 to 2018

Tổng khối lượng giao dịch thị trường 2013-2018

Check ● Legit ● Scam

Sum of Volume

$1.0T
$0.5T
$0.0T

2014 2015 2016 2017 2018

Year

Tổng giá trị vốn hóa trên thị trường 2013- 2018

Check ● Legit ● Scam

1.0T
0.5T
0.0T

Total Market Cap

2014 2015 2016 2017 2018

Year

Insights:

- **From 2013-2016:** The total market capitalization and trading volume of the cryptocurrency market remained relatively **stable**.
- **From 2016-2018:** The cryptocurrency market experienced **significant growth** in terms of both total market capitalization and trading volume during this period.

Why did the market experience such significant growth from 2016 to 2018 ?

1. One of the important factors is the increasing interest and involvement of **large investors and traditional financial institutions in the cryptocurrency market**. Events such as Ethereum evolving into an advanced smart contract platform, along with support from major technology companies like Microsoft and IBM, have helped increase the acceptance of cryptocurrencies and enhance the understanding of their potential.

2. Furthermore, **the increase of Initial Coin Offerings** (ICOs) is also an important factor contributing to the development of the cryptocurrency market. This is a new form of fundraising that allows starts up to attract capital by issuing tokens. Significant investments in ICOs have helped increase the value of cryptocurrencies and attract the attention of investors.

3. **The development of blockchain technology** is also an important factor contributing to the growth of the cryptocurrency market. The applications of this technology have opened up numerous opportunities for new projects and have helped improve processes in various fields.

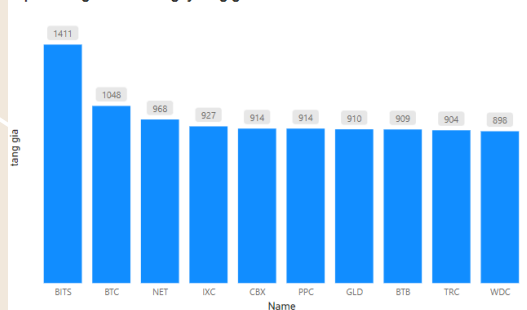# Overview of the market from 2013 to 2018

Top 10 Coin có tổng khối lượng vốn hóa thị trường lớn nhất
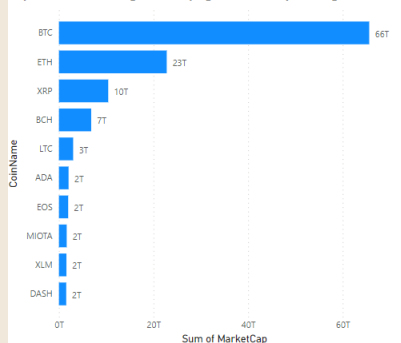
Top 10 Coin có tổng khối lượng giao dịch lớn nhất
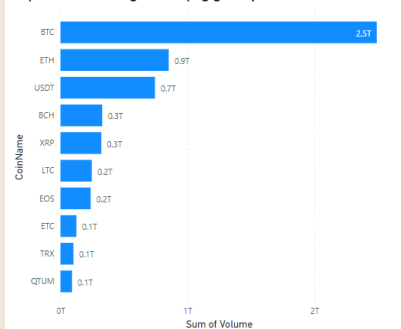
Top 10 đồng tiền có số ngày tăng giá nhiều nhất


The largest market capitalization cryptocurrencies include **BTC, ETH, XRP, BCH, LTC.**

Among them, **Bitcoin (BTC) holds the largest market capitalization and trading volume** (approximately 46% and 37% respectively) Therefore, any changes in Bitcoin can potentially lead to market fluctuations in the cryptocurrency market.

The reason Bitcoin holds such a significant share is that it was **the first cryptocurrency** and widely accepted worldwide. It has even become a standard and used as a form of currency.

The trend of increasing or decreasing coin prices in this period
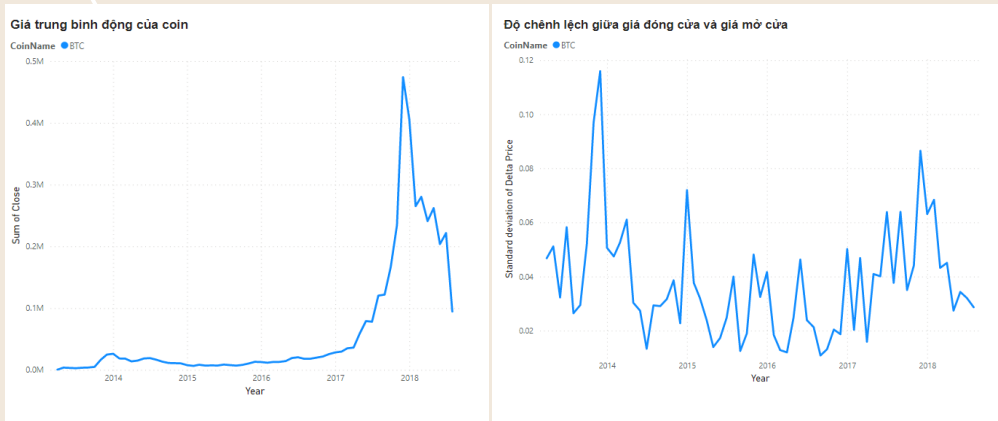
The average price of Bitcoin reached its highest value **around the end of 2017, with a price of approximately $0.5 million USD per coin per month.**

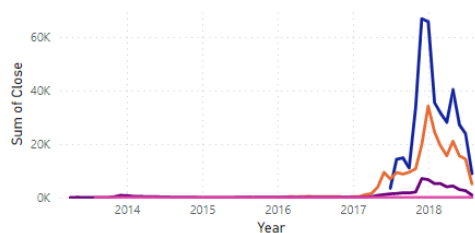**The highest price volatility** within a session is approximately **0,12%**.
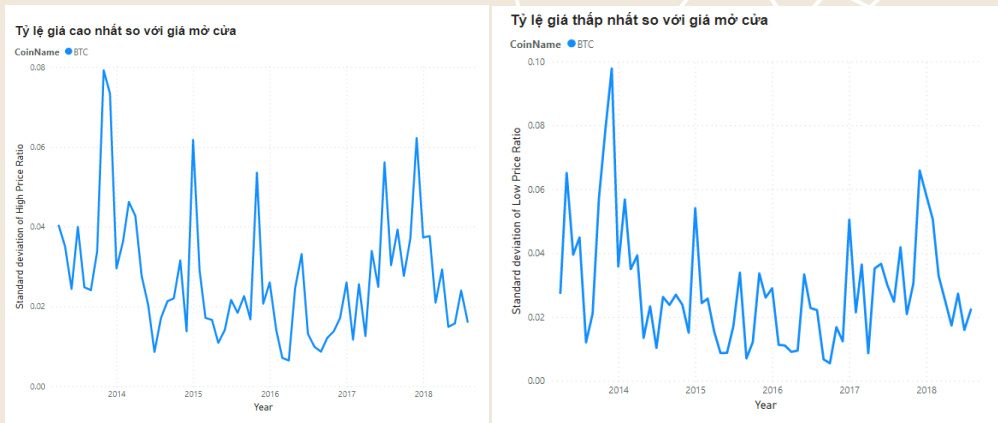
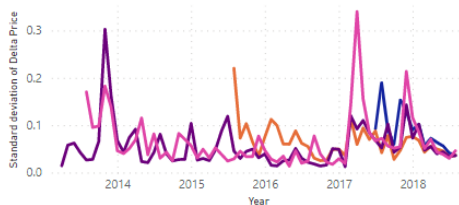# The trend of increasing or decreasing coin prices in this period
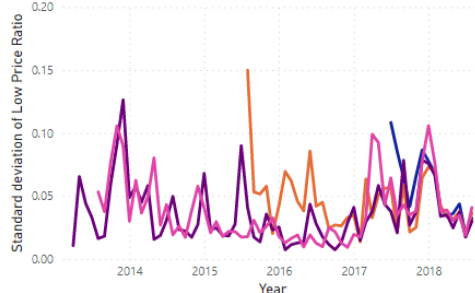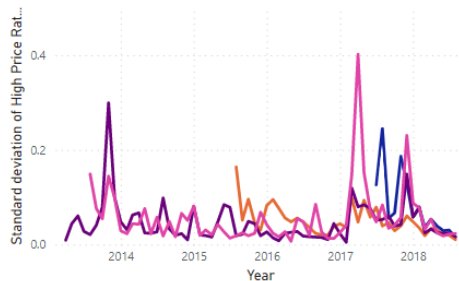
The average price of Bitcoin Cash (BCH) reached its highest value **around the end of 2017**, with a price of approximately $60.000 USD per coin per month.

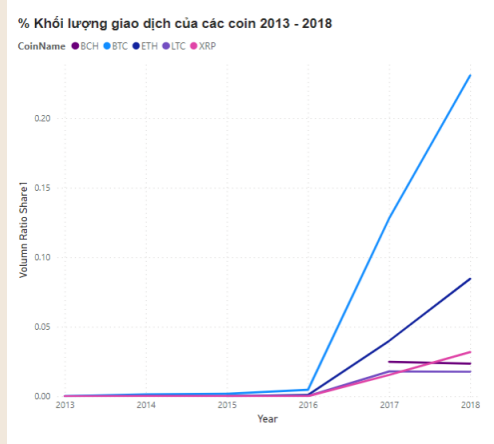**The price volatility** of these coins ranges from **20% - 40% per session**.
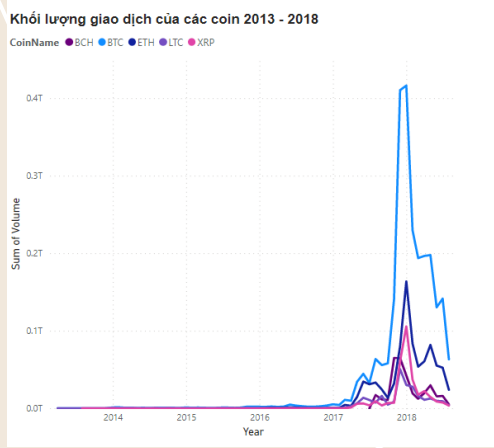
INSIGHTS

Therefore, all cryptocurrencies experienced **significant increases in value towards the end of 2017**, which could be attributed to:
- Investor interest and attention.
- Benefit from the price increase in 2016.
- Positive events related to blockchain technology.
- Inflation and currency value concerns.

However, they **later experienced a sharp decline**, potentially due to concerns over government regulations and controls, cyberattacks on Bitcoin exchanges, market differentiation and risks in the cryptocurrency market, and natural market corrections.

Among them, **Bitcoin has a higher average price and significantly lower price volatility** compared to other cryptocurrencies. This indicates that Bitcoin is perceived as a safer asset in the market, provides fast and convenient global money transfers, and offers higher transparency compared to other cryptocurrencies.

Assessing the liquidity of the coin during this period.

Khối lượng giao dịch của các coin 2013 - 2018

CoinName ● BCH ● BTC ● ETH ● LTC ● XRP

% Khối lượng giao dịch của các coin 2013 - 2018

CoinName ● BCH ● BTC ● ETH ● LTC ● XRP

The liquidity of a coin is measured by its trading volume.

The trading volume of the coins started to **increase in early 2017**, then reached its **peak towards the end of 2017** before declining.

The trading volume percentage of major cryptocurrencies such as BTC, ETH, and XRP **increased from 2016**, while coins like LTC, BCH, etc., tended to decrease. Bitcoin still dominates the highest percentage of trading volume, indicating that it has the **highest liquidity**.

This can be explained by the late 2017 period when the price of Bitcoin skyrocketed. Many investors focused on investing in Bitcoin to take advantage of the price surge. This could lead to a decrease in trading volume and price of other cryptocurrencies such as Litecoin and Bitcoin Cash.

Assessing the intrinsic value of a coin in the market

% giá trị vốn hóa của các đồng xu từ 2013 -2018

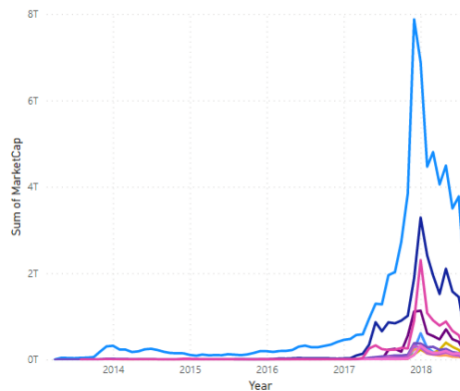Giá trị vốn hóa của các đồng xu từ 2013-2018
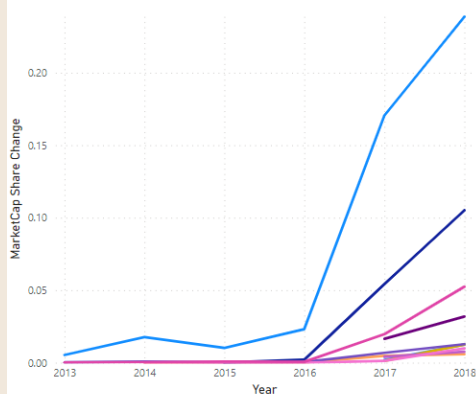
The intrinsic value of a coin is measured by its market capitalization.

The market capitalization began to increase in early 2017 and reached its peak towards the end of 2017, followed by a gradual decline. The market capitalization of Bitcoin reached its all-time high of $325 billion on December 17, 2017.

The market capitalization percentage of the top 5 cryptocurrencies with the largest share also experienced **significant growth from 2016 to 2018**, with **Bitcoin still holding the largest percentage of market capitalization**.

06. Conclusion and recommendation

- From 2013 to 2018, there was significant development in this market. From 2013 to 2016, the cryptocurrency market primarily focused on Bitcoin and had a small number of coins. However, from 2016 to 2018, the cryptocurrency market experienced strong growth with a substantial increase in the number of coins as well as the market capitalization.

- However, during this growth period, the cryptocurrency market also faced numerous difficulties and challenges, including hacking incidents, exchange collapses, and market-dominating events. The year 2017 was particularly volatile, with the prices of Bitcoin and many other coins skyrocketing and reaching their peak in December, followed by a sharp decline in 2018.

06. Conclusion and recommendation

- For investors, investing in cryptocurrencies also requires knowledge and careful investment experience. Investors should ensure that they have thoroughly researched the coins and projects they intend to invest in before making a decision. Additionally, they should carefully evaluate the risks and potential of investing in cryptocurrencies.

- For the government, managing and overseeing the cryptocurrency market is essential to ensure transparency, safety, and the protection of citizens' rights. Collaborating with international organizations and implementing reasonable regulations regarding cryptocurrencies is necessary to ensure the sustainable development of this market and mitigate potential risks.

THANK YOU FOR LISTENING