Memecoins Analysis

Web Scraping Project

coinmarketcap.com

Agenda

01. The project introduction

02. Summary of the project’s methodology

03. Visualization of analysis

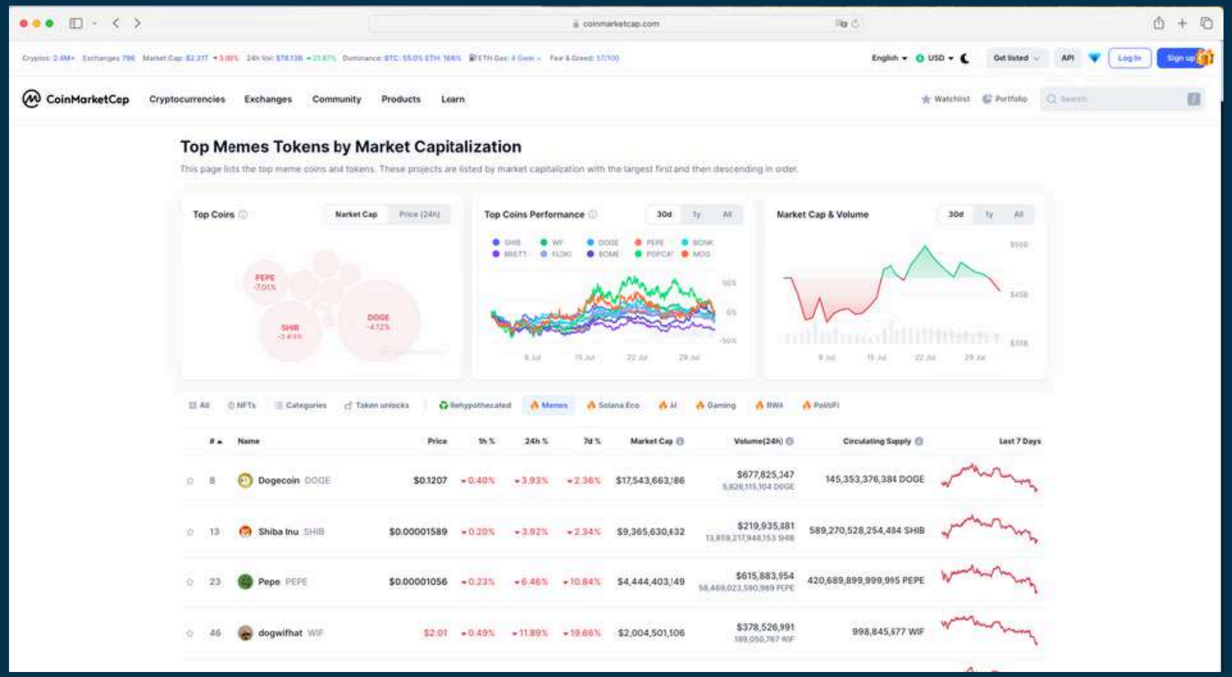
04. Summary & Conclusions

About Project's aim

- Examine the rapidly growing memecoin market.
- Assess the stability and reliability of memecoins.
- Explore insights and confirm the opinion that investing in memecoins can be similar to gambling.
- Compare memecoins with major cryptocurrencies (Bitcoin, Etherum, Solana) to identify differences, correlations and trends.

Data Collection

coinmarketcap.com/views/memes

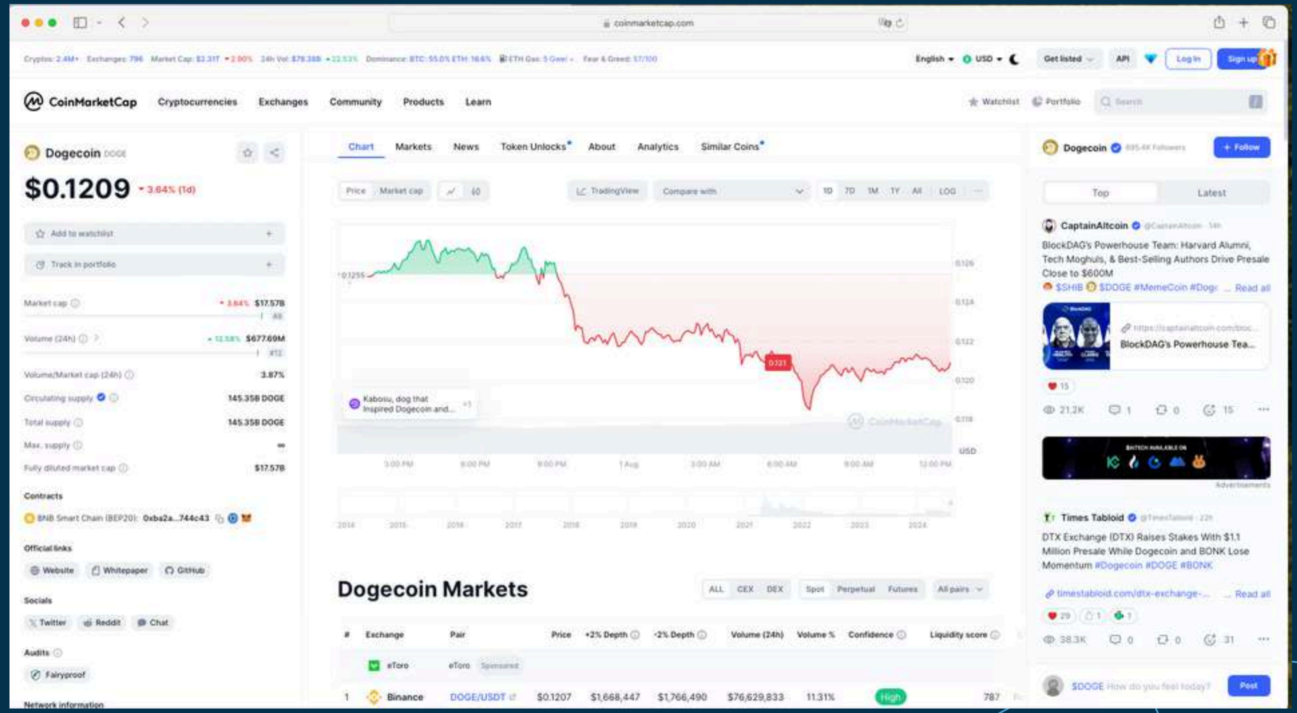


Data collection was made 1st of August

```python
def get_data(soup):
    '''
    This function parses the data based on Beautiful Soup object and extracts the required data from the meme coin page

    Args:
        object of the BeautifulSoup class

    Returns:
        List of the extracted data
    '''
    data = []
    # Checking if the required data is present on the page
    if not soup.find('div', {'class' : 'sc-65e7f566-0 DDohe flexStart alignBaseline'}):
        print("Required data not found, ending the function.")
        return None
    # Extracting the data using functions: format_replace() and extract_and_format_price()
    try:
        other_values = soup.find('dl', {'class' : 'sc-65e7f566-0 eQBACe coin-metrics-table'})
        name = soup.find('span', {'data-role' : 'coin-name'})['title']

        price = extract_and_format_price(soup.find('div', {'class' : 'sc-65e7f566-0 DDohe flexStart alignBaseline'}))
        market_cap = format_replace(other_values.find_all('dd')[0].text.split('%').pop(1))
        volume_24h = format_replace((other_values.find_all('dd')[1].text.split('%').pop(1)))
        circulating_supply = format_replace(other_values.find_all('dd')[3].text.split().pop(0))

        try:
            supply_verified = other_values.find('span', {'class' : 'sc-71024e3e-0 IERaG BasePopover_base__T5yOf'}).find('use')['href'].replace('#', '')
        except AttributeError:
            supply_verified = 'not verified'

        total_supply = format_replace(other_values.find_all('dd')[4].text.split().pop(0))
        max_supply = format_replace(other_values.find_all('dd')[5].text.split().pop(0))
        fully_diluted_market_cap = format_replace(other_values.find_all('dd')[6].text)
        low_price_24h = extract_and_format_price(soup.select_one('div.sc-65e7f566-0.eQBACe :has(div.label:-soup-contains("Low"))'))
        high_price_24h = extract_and_format_price(soup.select_one('div.sc-65e7f566-0.eQBACe.tlr:has(div.label:-soup-contains("High"))'))
        try:
            all_time_high = extract_and_format_price(soup.find_all('div', {'class' : 'sc-65e7f566-0 bWZaRS' })[0])
        except (IndexError, AttributeError):
            all_time_high = None

        try:
            all_time_low = extract_and_format_price(soup.find_all('div', {'class' : 'sc-65e7f566-0 bWZaRS' })[1])
        except (IndexError, AttributeError):
            all_time_low = None

        ucid = int(soup.find('div', {'data-role' : 'chip-content-item'}).text.strip())
        popularity_watchlists = format_replace(soup.find('span', {'class' : 'sc-65e7f566-0 loopdw base-text'}).text.split('x').pop(0))

        data.append([name, price, market_cap, volume_24h, circulating_supply, supply_verified, total_supply, max_supply, fully_diluted_market_cap, low_pri
```

&

Detailed memcoin's page



Project Structure

01 INTERACTING WITH SELENIUM

Navigating through multiple pages

02 PARSING AND COLLECTING DATA

Using Beautiful Soup to parse and collect data for each page and memecoin.

03 DATA FORMATTING

Preparing data during the collection process with custom functions.

04 DATA FRAME CREATION

Creating and saving data frame for further analysis

05 ANALYSIS & VISUALIZATION

Analyzing selected variables and visualize the result.

06 SELECTION TOP 6 MEMECOINS

using rank for examined and select the best memecoins for further analysis

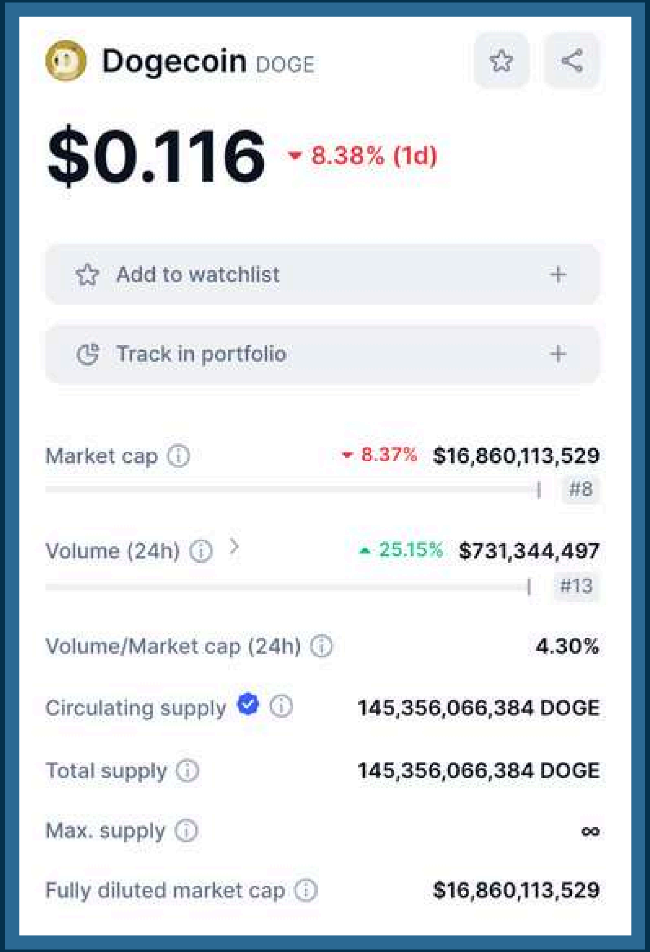
07 HISTORICAL DATA COLLECTION

using API endpoints to collect data (1-year period) for selected memecoins and major cryptocurrencies: Bitcoin, Etherum, Solana. Checking trends and visualize them

DATASETS

I Memecoins dataset:

- 1552 rows
- 15 variables scraped from the page
- Mainly current values
- Scraped with BS and Selenium



	price	volume	market_cap	name	date
0	29161.811946	1.278036e+10	5.671181e+11	Bitcoin	2023-08-03
1	29174.381837	1.203664e+10	5.673854e+11	Bitcoin	2023-08-04
2	29075.388956	6.598366e+09	5.654874e+11	Bitcoin	2023-08-05
3	29043.701980	7.269807e+09	5.649005e+11	Bitcoin	2023-08-06
4	29038.512846	1.361816e+10	5.648257e+11	Bitcoin	2023-08-07
5	29180.018862	1.757056e+10	5.676019e+11	Bitcoin	2023-08-08
6	29766.695596	1.837952e+10	5.790439e+11	Bitcoin	2023-08-09
7	29563.971837	1.186534e+10	5.751236e+11	Bitcoin	2023-08-10
8	29424.902575	1.019517e+10	5.724460e+11	Bitcoin	2023-08-11
9	29399.786655	6.194358e+09	5.719875e+11	Bitcoin	2023-08-12
10	29416.593599	7.329897e+09	5.723390e+11	Bitcoin	2023-08-13
11	29283.262943	1.401370e+10	5.697765e+11	Bitcoin	2023-08-14
12	29408.048590	1.264020e+10	5.722360e+11	Bitcoin	2023-08-15
13	29169.074020	1.494927e+10	5.676158e+11	Bitcoin	2023-08-16
14	28699.802840	3.112085e+10	5.585113e+11	Bitcoin	2023-08-17
15	26636.078402	2.402624e+10	5.183722e+11	Bitcoin	2023-08-18
16	26047.832979	1.063144e+10	5.069483e+11	Bitcoin	2023-08-19
17	26096.861226	9.036580e+09	5.079292e+11	Bitcoin	2023-08-20
18	26188.690651	1.337156e+10	5.097435e+11	Bitcoin	2023-08-21
19	26130.748016	1.450382e+10	5.086381e+11	Bitcoin	2023-08-22
20	26040.473652	1.698527e+10	5.069053e+11	Bitcoin	2023-08-23
21	26431.519892	1.287153e+10	5.145411e+11	Bitcoin	2023-08-24
22	26163.680054	1.240605e+10	5.093486e+11	Bitcoin	2023-08-25
23	26047.235240	6.034817e+09	5.071037e+11	Bitcoin	2023-08-26
24	26008.241801	6.913769e+09	5.063637e+11	Bitcoin	2023-08-27
25	26089.614923	1.100281e+10	5.079666e+11	Bitcoin	2023-08-28
26	26102.485832	2.936839e+10	5.082438e+11	Bitcoin	2023-08-29
27	27726.084034	1.634366e+10	5.398788e+11	Bitcoin	2023-08-30
28	27301.929317	2.018100e+10	5.316441e+11	Bitcoin	2023-08-31

	name	current_price	market_cap	volume_day	circulating_supply	supply_verified	total_supply	max_supply
222	SMILEY	3.596000e-12	NaN	5.518148e+06	NaN	not verified	NaN	NaN
243	Arbi Pepe	1.060000e-05	NaN	1.860798e+06	NaN	not verified	1.000000e+11	NaN
259	DogeSwap	3.143000e-03	NaN	1.031007e+06	NaN	not verified	NaN	1.000000e+09
269	TON FISH MEMECOIN	4.053000e-08	NaN	8.895040e+05	NaN	not verified	4.206900e+14	NaN
342	APED	3.154000e-01	NaN	2.544720e+05	NaN	not verified	1.000000e+06	1.000000e+06
436	Feisty Doge NFT	1.296000e-04	NaN	1.092750e+05	NaN	not verified	1.000000e+11	NaN
537	Pig Finance	2.057000e-08	NaN	2.868500e+04	NaN	not verified	1.000000e+15	1.000000e+15
540	GM Wagmi	1.947000e-06	NaN	2.811000e+04	NaN	not verified	1.000000e+12	NaN
570	Alux Jownes	6.555000e-04	NaN	2.321900e+04	NaN	not verified	NaN	NaN
636	Fronk	1.035000e-08	NaN	8.150000e+03	NaN	not verified	5.098326e+13	NaN
651	Toad Killer	7.483000e-09	NaN	8.255000e+03	NaN	not verified	4.206900e+14	4.206900e+14
685	YES Money	4.140000e+00	NaN	6.658000e+03	NaN	not verified	6.449348e+07	NaN
695	UpSideDownCat	4.436000e-05	NaN	5.316000e+03	NaN	not verified	8.000000e+09	NaN
702	Pepe AI	2.401000e-13	NaN	5.341000e+03	1.000000e+09	not verified	1.000000e+09	1.000000e+09
717	Ryoshis Vision	7.050000e-09	NaN	1.466000e+03	NaN	not verified	4.783559e+14	9.783559e+14
787	Arbidoge	1.427000e-07	NaN	2.208000e+03	NaN	not verified	1.000000e+13	1.000000e+13
848	Cramer Coin	5.610000e-04	NaN	1.359000e+03	NaN	not verified	1.000000e+09	NaN
888	Potato	7.380000e-08	NaN	1.019000e+03	NaN	not verified	NaN	NaN
909	Akita Inu	3.435000e-05	NaN	3.730000e+02	NaN	not verified	1.000000e+00	NaN
917	Wagmi Coin	6.531000e-10	NaN	8.110000e+02	4.562041e+08	not verified	4.206900e+14	NaN
951	Kitty Coin Solana	4.977000e-04	NaN	6.260000e+02	NaN	not verified	5.400000e+08	NaN
962	CHILI	4.081000e-11	NaN	5.670000e+02	NaN	not verified	3.134793e+13	NaN
968	Dino	3.341000e-04	NaN	4.540000e+02	NaN	not verified	5.000000e+08	NaN

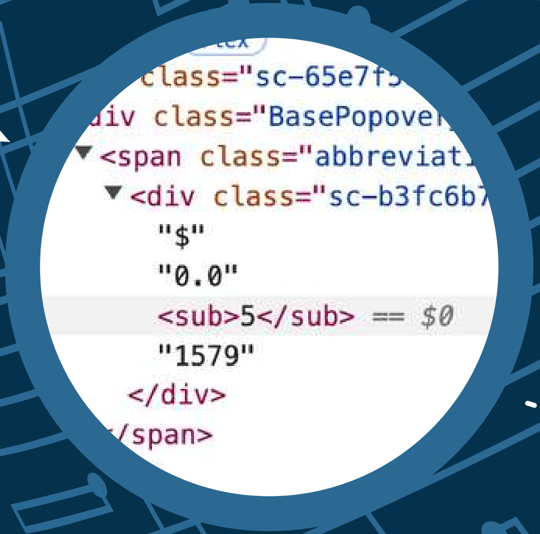
	fully_diluted_market_cap	low_price_day	high_price_day	all_time_high	all_time_low	ucid	popularity_watchlists
222	NaN	3.579000e-12	3.776000e-12	5.515000e-11	2.010000e-13	26994	3557.0
243	1060088.0	1.440000e-14	1.161000e-05	2.719000e-02	1.440000e-14	24549	1902.0
259	3142704.0	2.870000e-03	3.508000e-03	1.706000e-02	5.089000e-04	12078	1524.0
269	17048698.0	3.984000e-08	4.293000e-08	1.163000e-07	1.726000e-08	30117	5046.0
342	315409.0	3.113000e-01	3.305000e-01	1.322000e+01	2.076000e-01	24533	1372.0
436	12958865.0	4.001000e-06	1.537000e-04	1.614000e-03	4.001000e-06	11368	1954.0
537	20572135.0	2.057000e-08	2.139000e-08	5.509000e-06	NaN	8829	56683.0
540	1947868.0	1.894000e-06	1.966000e-06	9.851000e-04	1.658000e-06	14271	12933.0
570	NaN	6.510000e-04	8.003000e-04	1.024000e-02	3.988000e-04	31043	383.0
636	527904.0	1.035000e-08	1.202000e-08	1.952000e-07	5.199000e-10	23179	5675.0
651	3147898.0	7.483000e-09	7.753000e-09	4.113000e-08	2.902000e-09	25177	704.0
685	266951878.0	4.060000e+00	4.150000e+00	7.070000e+00	3.160000e+00	29620	1020.0
695	354852.0	4.356000e-05	5.535000e-05	3.813000e-03	2.820000e-05	29625	662.0
702	NaN	2.119000e-13	3.200000e-13	2.199000e-04	1.031000e-13	29747	773.0
717	6897155.0	7.050000e-09	7.685000e-09	5.647000e-06	2.219000e-09	11283	16680.0
787	1427112.0	1.427000e-07	1.544000e-07	1.510000e-03	5.071000e-09	11878	1039.0
848	560987.0	5.481000e-04	5.855000e-04	1.428000e-02	NaN	21946	816.0
888	NaN	4.765000e-08	8.373000e-08	1.749000e-06	2.611000e-09	11814	5568.0
909	NaN	3.262000e-05	3.480000e-05	1.255000e-04	2.742000e-05	30120	109.0
917	274753.0	6.531000e-10	6.885000e-10	4.823000e-08	2.231000e-10	25385	1745.0
951	268738.0	4.452000e-04	4.977000e-04	2.770610e+03	1.323000e-05	15892	3543.0
962	1279.0	3.999000e-11	4.671000e-11	5.427000e-07	2.080000e-13	23172	2493.0
968	167068.0	3.306000e-04	3.546000e-04	4.027000e-02	NaN	12513	1541.0

II Selected cryptocurrencies:

- 3621 rows
- 5 variables
- Fetched from API endpoint
- Period - 1 year (data updated in real time)

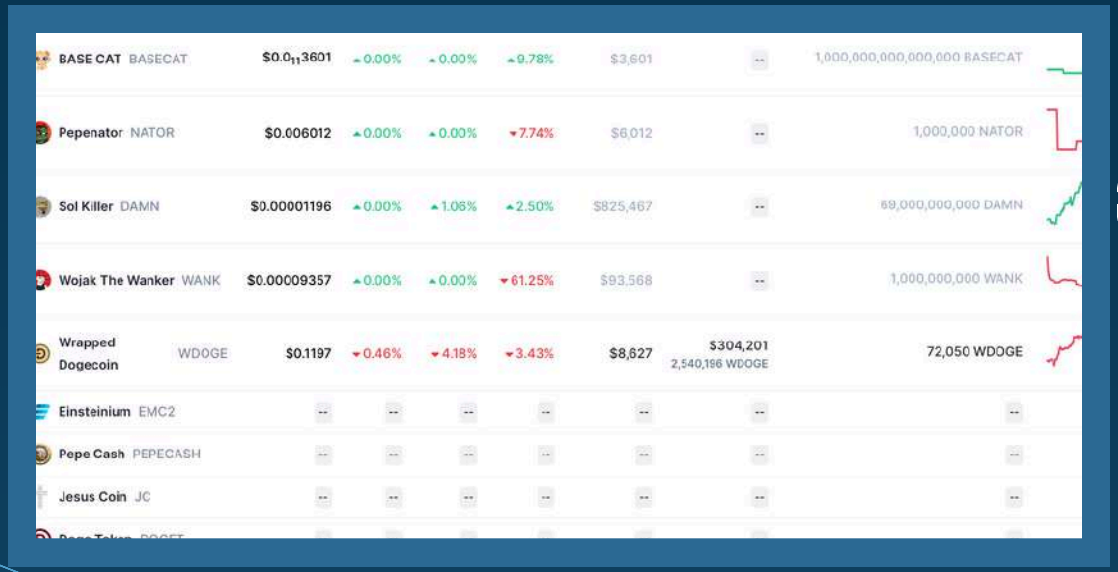
Technical considerations

and assumptions



In few variables for some memecoins the price was reflected like this, where 5 means how many 0 is after dots.

I was possible to collect information from the graphic sign if supply is verified or not



BASE CAT BASECAT	$0.0₁₁3601	▲0.00%	▲0.00%	▲9.78%	$3,601	--	1,000,000,000,000,000 BASECAT
Pepenator NATOR	$0.006012	▲0.00%	▲0.00%	▼7.74%	$6,012	--	1,000,000 NATOR
Sol Killer DAMN	$0.00001196	▲0.00%	▲1.06%	▲2.50%	$825,467	--	69,000,000,000 DAMN
Wojak The Wanker WANK	$0.00009357	▲0.00%	▲0.00%	▼61.25%	$93,568	--	1,000,000,000 WANK
Wrapped Dogecoin WDOGE	$0.1197	▼0.46%	▼4.18%	▼3.43%	$8,627	$304,201 2,540,196 WDOGE	72,050 WDOGE
Einsteinium EMC2	--	--	--	--	--	--	--
Pepe Cash PEPECASH	--	--	--	--	--	--	--
Jesus Coin JC	--	--	--	--	--	--	--

Only around 1,6k memecoins have data, when there is no data available scraping is finished.

Created Functions

URLS GATHERING

GET_LIST_LINKS()

Using Beautiful Soup it parses all urls from a single page and returns the list.

ALL_URLS()

Using Selenium it navigates through all pages and using get_list_link() it creates the final list with urls for all memecoins.

FORMATTING AND ADJUSTING

FORMAT_REPLACE()

It replaces some symbols with NaN, delets useless symbols and convert all for floats.

EXTRACT_FORMAT_PRICE()

Using regular expressions it extracts elements of prices with number reflecting appearances of 0 after dot. Returns float.

DATA GATHERING

GET_DATA()

Using Beautiful Soup and formatting functions it extracts all detailed variables.

GET_PAGE()

It iterrates through all urls and gather data by get_data() function.

VISUALIZATION

PLOT_ANNOTATE()

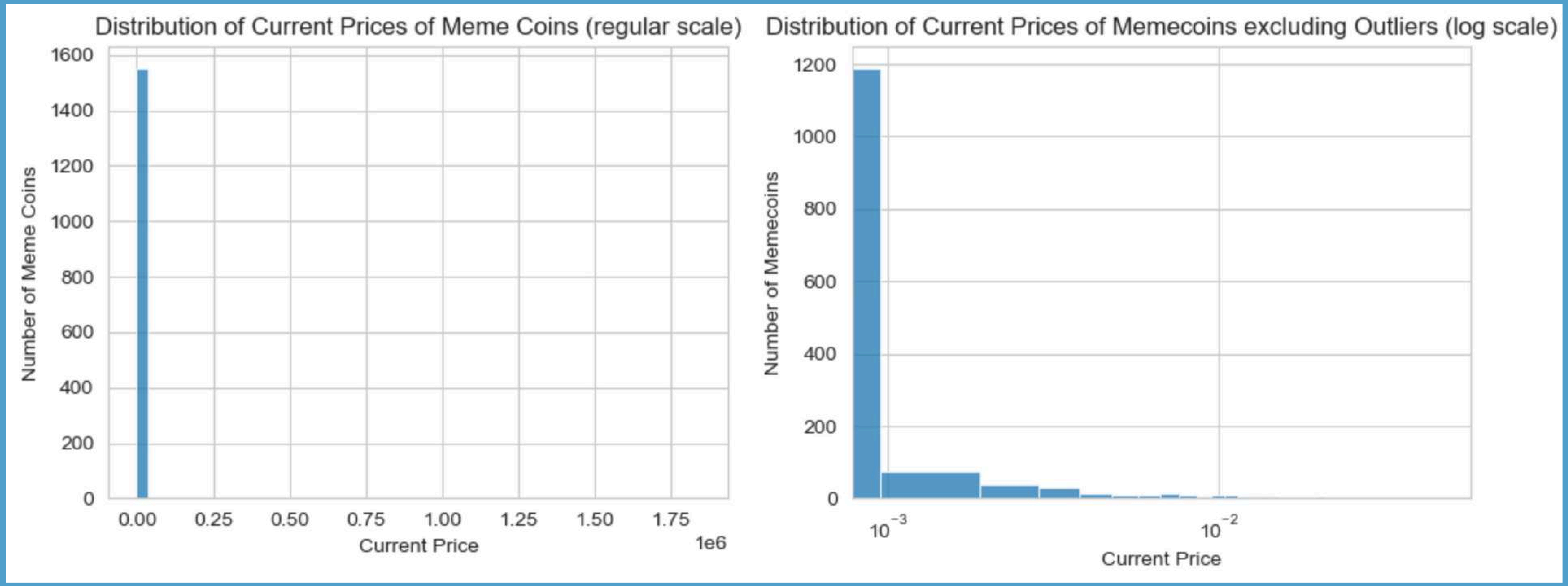
It plotting two stacked bar graphs with annotations about share for each patch.

API DATA

FETCH_API_DATA()

It gathers data from API endpoint and extracts from json variables. Returnes data frame.

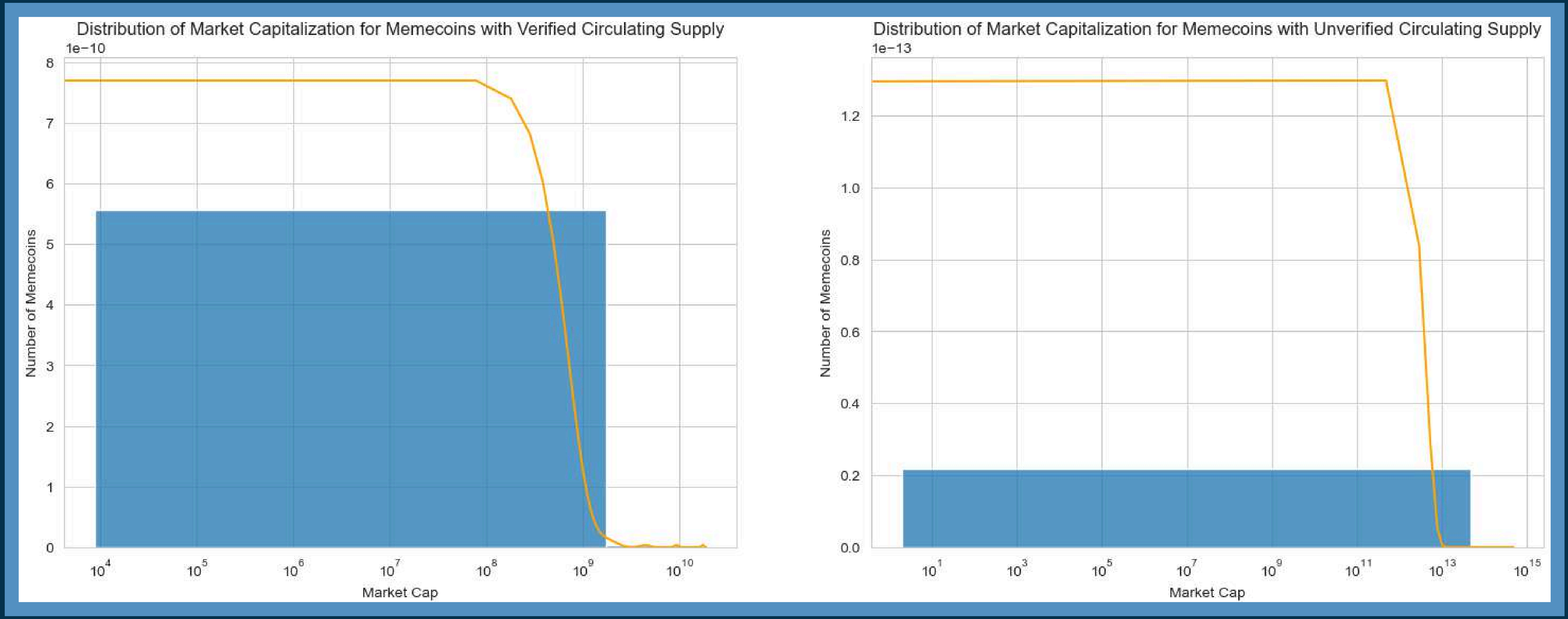
Distribution of Current Price



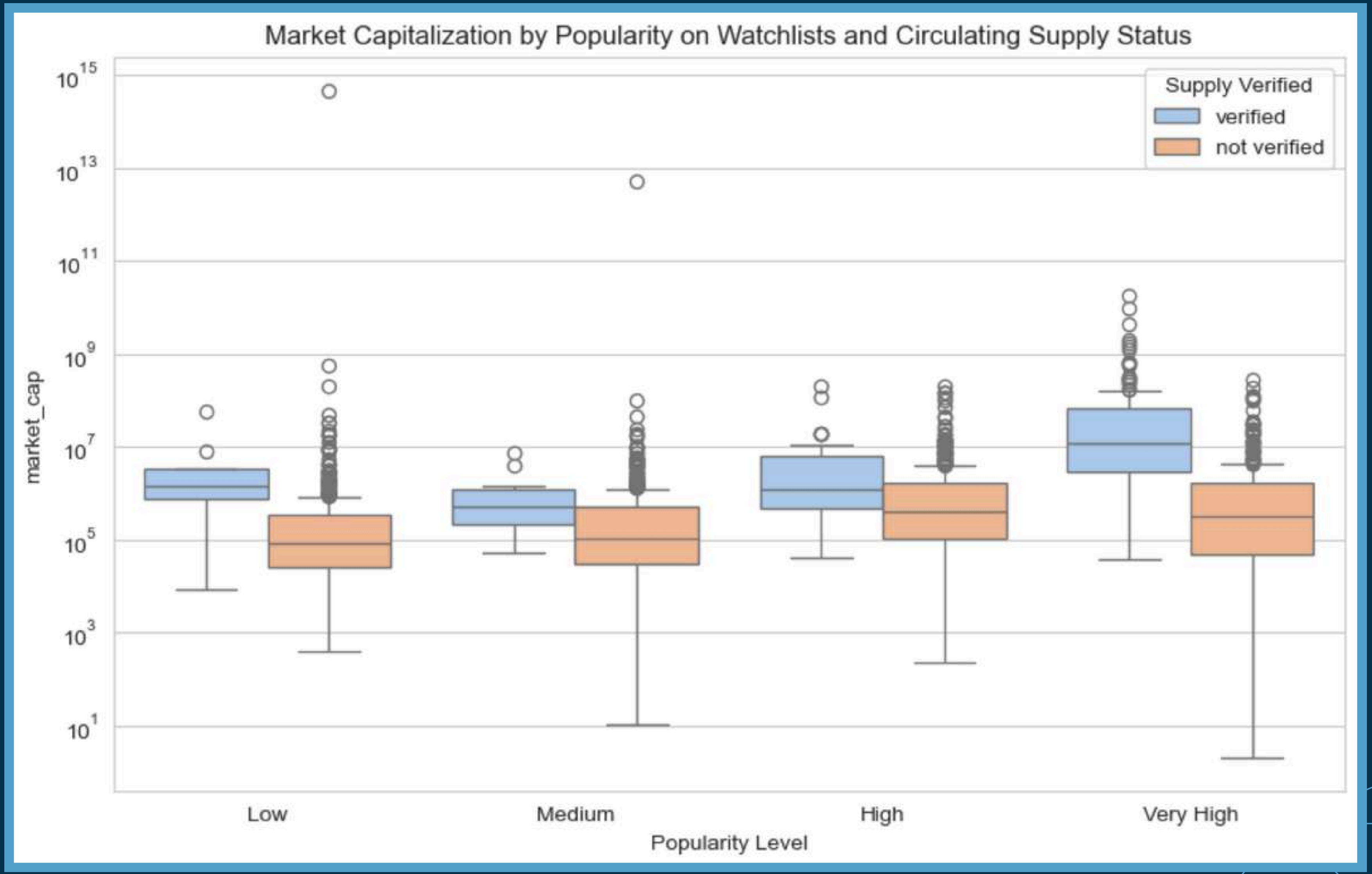
	count	mean	std	min	25%	50%	75%	max
Current price	1552.0	1209.942706	46877.503234	3.130000e-22	2.052750e-08	0.000022	0.000823	1846533.47

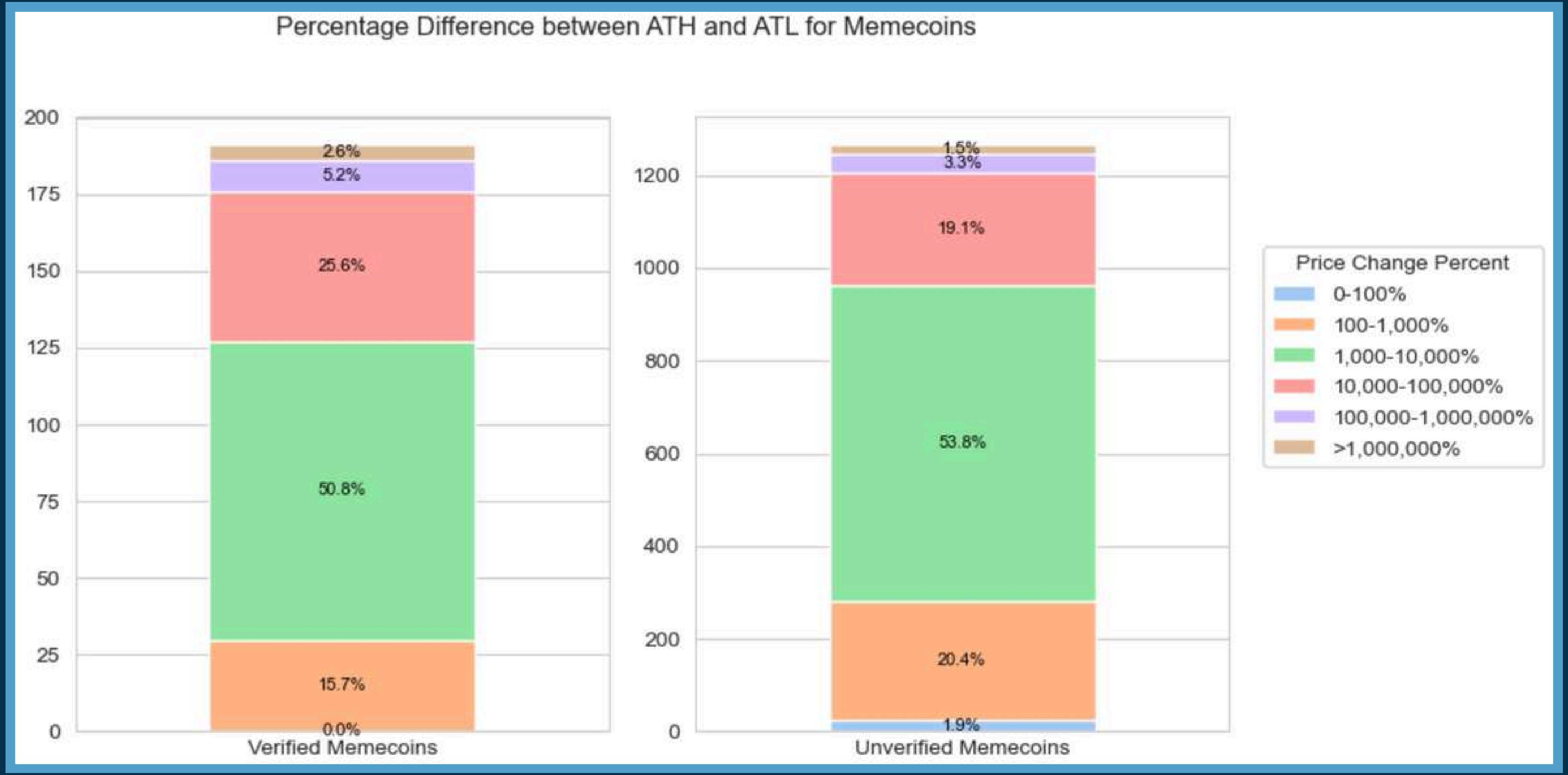
Memecoins with Verified and Unverified supply

Market Cap vs. Volume(24h)	Verified	Unverified
Correlation	0.811	-0.005



Memecoins with Verified and Unverified supply

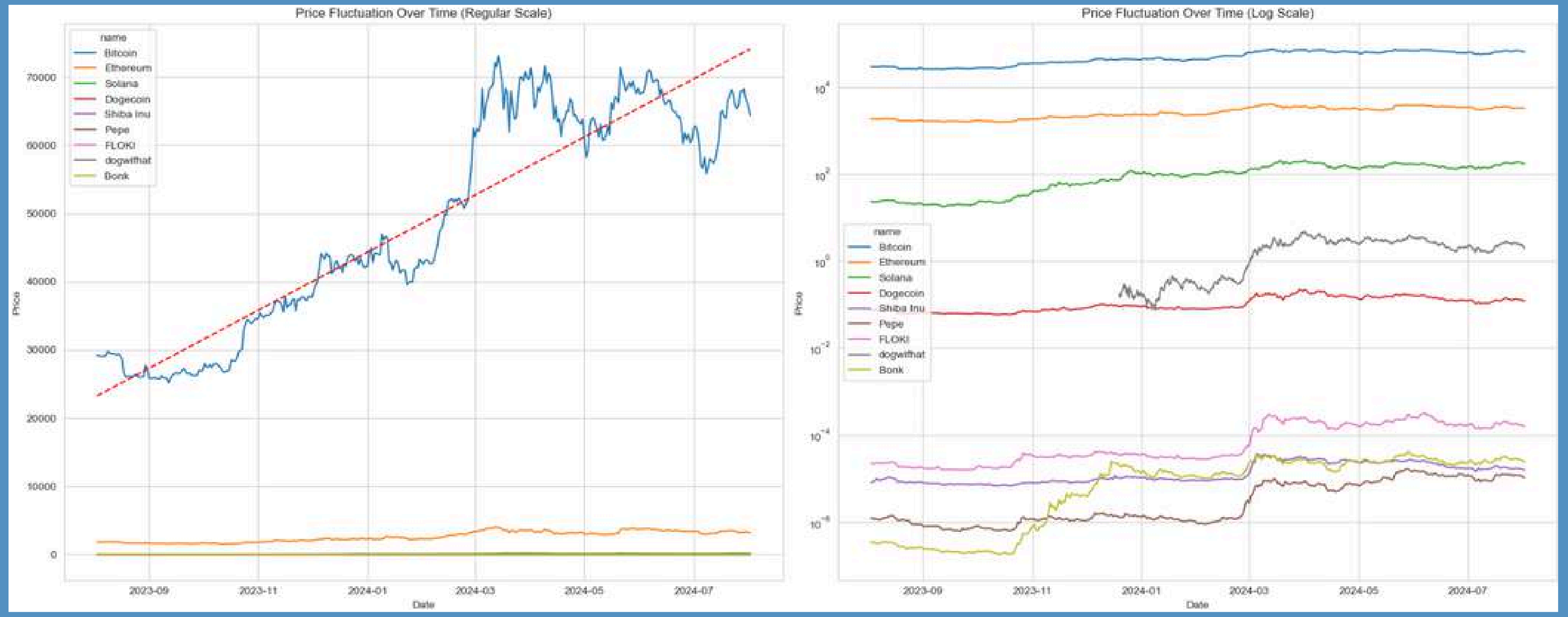


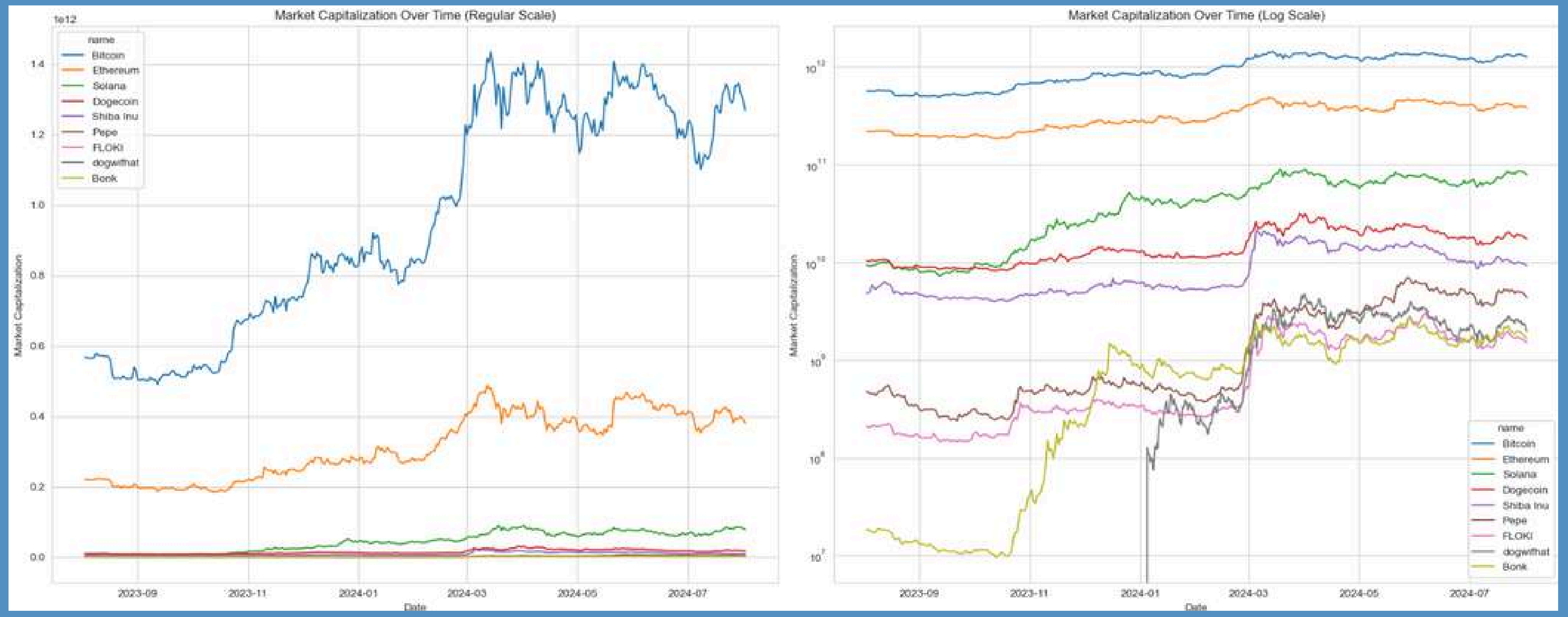


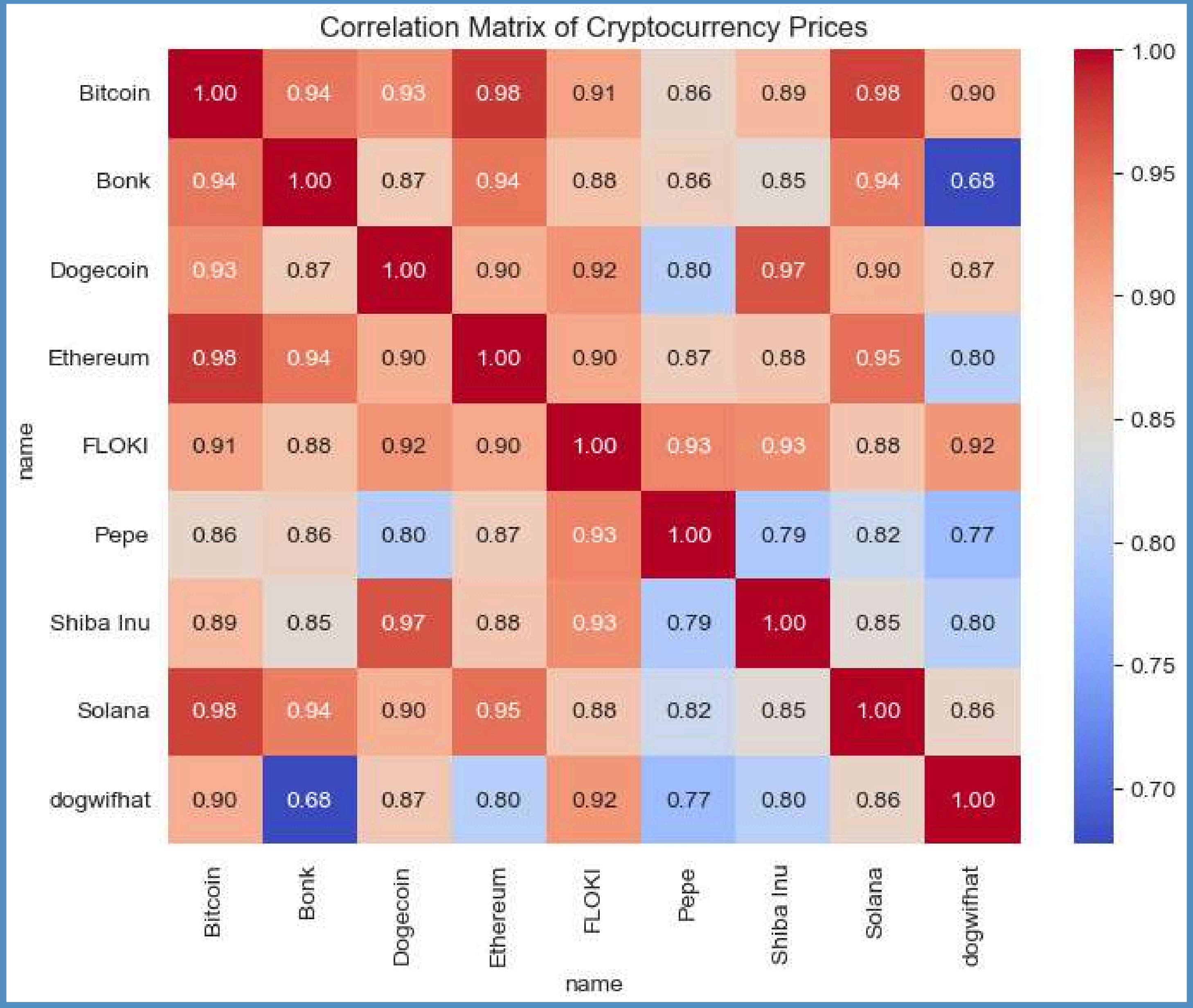
Selected Memecoins for further Analysis

	name	market_cap	volume_day	popularity_watchlists	rank_market_cap	rank_volume	rank_popularity	total_rank
0	Dogecoin	1.760678e+10	675443576.0	1931564.0	1.0	1.0	3.0	5.0
1	Shiba Inu	9.394850e+09	229218347.0	2074704.0	2.0	5.0	2.0	9.0
2	Pepe	4.461763e+09	610203547.0	437401.0	3.0	2.0	6.0	11.0
5	FLOKI	1.508927e+09	185934507.0	423008.0	6.0	6.0	7.0	19.0
3	dogwifhat	1.997920e+09	371202832.0	155667.0	4.0	3.0	13.0	20.0
4	Bonk	1.656968e+09	183254549.0	266408.0	5.0	7.0	8.0	20.0

Comparison of Top Memecoins with Bitcoin, Etherum, Solana





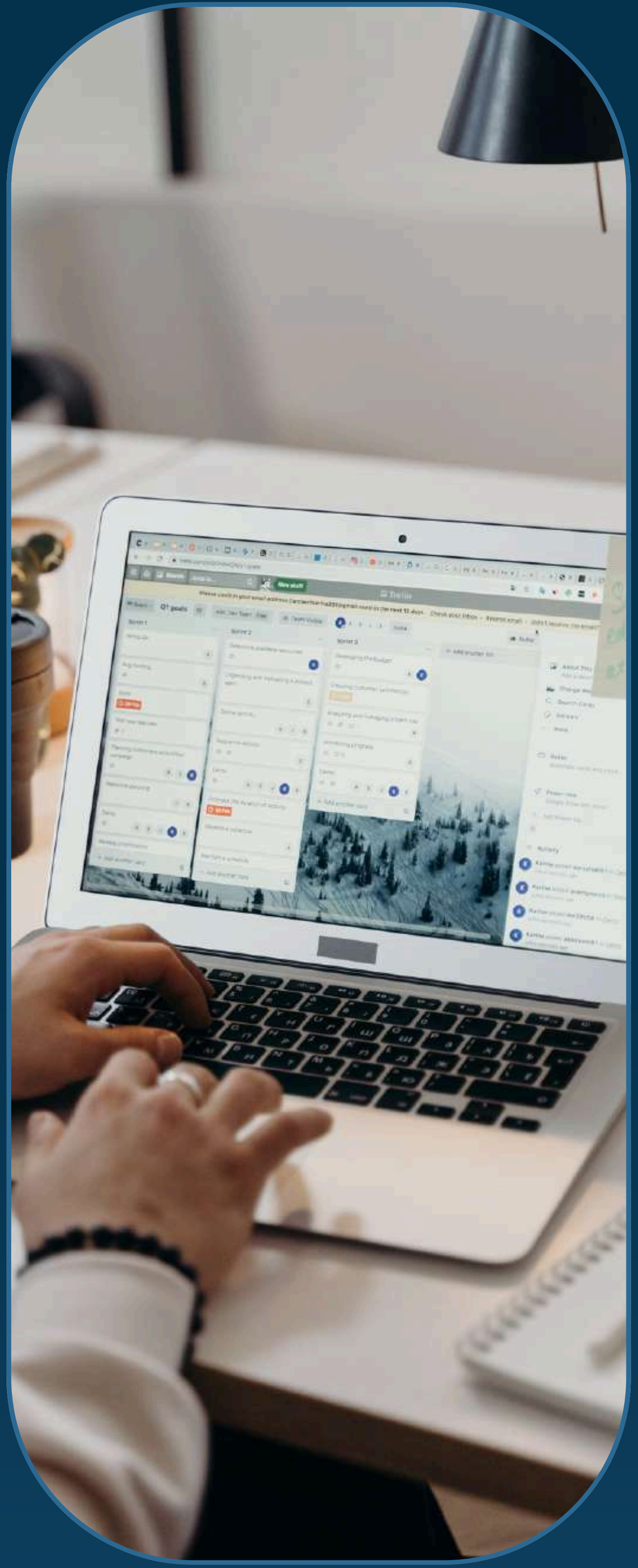


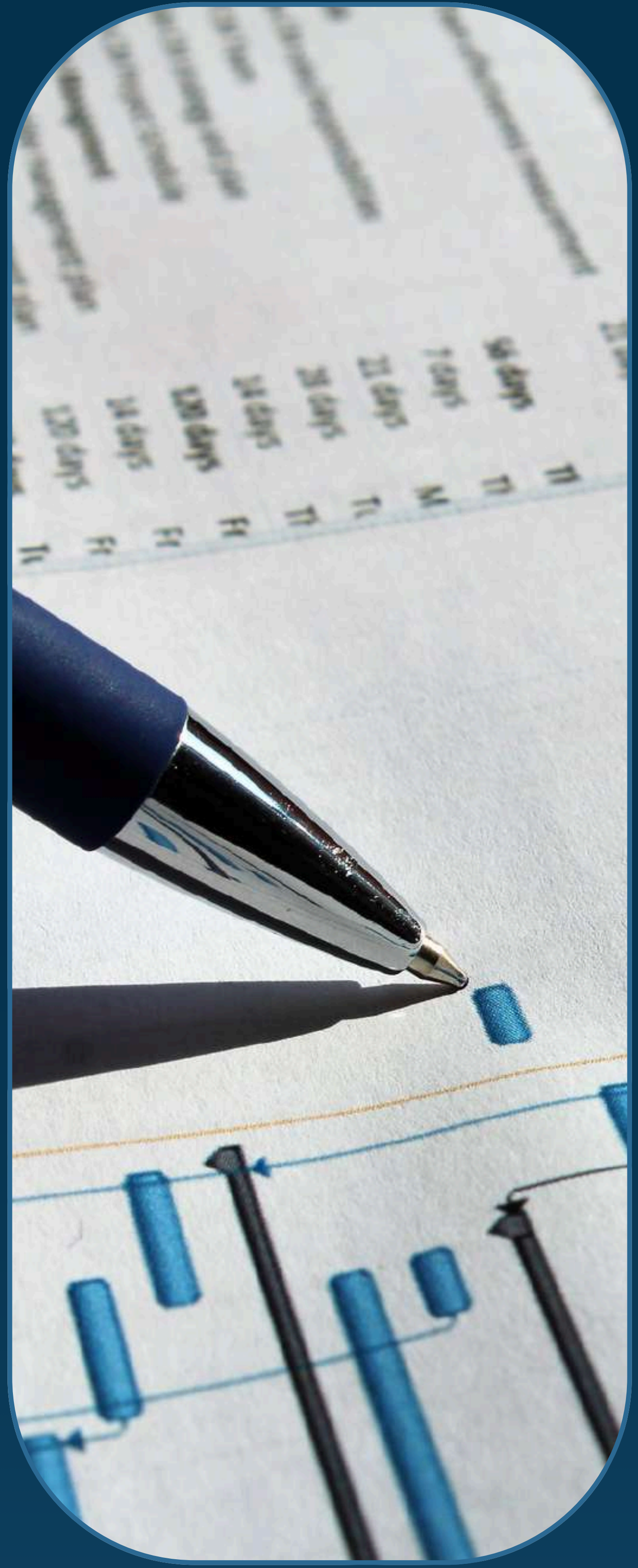
Summary & Coclusions

Difficulties
- Frequent website changes.
- Changing HTML code.
- Hidden elements.
- Changes in displaying elements.

Conclusions
- Memecoins are connected with high risk.
- Verified vs unverified memecoins - useful analysis.
- Higher stability of major cryptocurrencies.
- High correlation between major cryptocurrencies.

Next Steps
- Using API.
- Expanding analysis.
- Analysis of sentiment.





Thank You

Karina Oborska-Balkowiec