

# ANALISIS PENGARUH INDIKATOR MAKROEKONOMI & DATA PASAR GLOBAL

terhadap Pergerakan Harga  
Bitcoin

DISUSUN OLEH:

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KELOMPOK 16





# TURUN 35% DALAM 1 BULAN

Penurunan harga hampir 35% dari puncaknya pada Oktober sebesar \$126.000 telah menjebak banyak investor yang memasuki pasar selama reli akhir 2024 dan awal 2025

# WHY ?

- 1. Harga Bitcoin sangat tidak stabil**
- 2. Analisis saat ini terpisah**

## **ANALISIS POLA DATA HISTORIS (INTERNAL)**

**Memprediksi pergerakan harga Bitcoin berdasarkan data masa lalunya sendiri**

## **ANALISIS MACRO (EKSTERNAL)**

**Menguji pengaruh variabel luar (Inflasi, Suku Bunga, Indeks Saham) terhadap harga Bitcoin.**



# HOW?



## DATA HISTORIS KRIPTO (INTERNAL)

Binance adalah ekosistem blockchain terkemuka di dunia dan memiliki rangkaian produk yang mencakup bursa aset digital terbesar berdasarkan volume perdagangan. (Sumber: Binance)



## DATA EKONOMI US (EKSTERNAL)

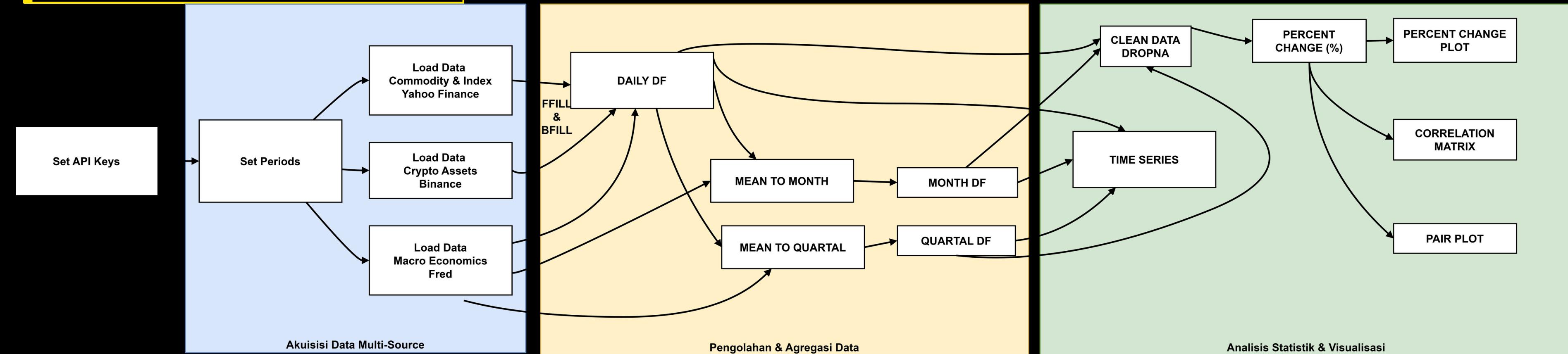
FRED adalah database online yang terdiri dari ratusan ribu deret waktu data ekonomi dari sejumlah sumber nasional, internasional, publik, dan swasta. (Sumber: The Fred)



## DATA PASAR GLOBAL (EKSTERNAL)

Yahoo Finance adalah properti media yang merupakan bagian dari jaringan Yahoo. Ini menyediakan berita, data, dan komentar keuangan termasuk kutipan saham, siaran pers, laporan keuangan, dan konten asli. (Sumber: Wikipedia)

# HOW?



FRED INDEX	Nama Variabel	Frekuensi Asli	YF INDEX	Nama	Kategori	BINANCE INDEX	Nama Aset
DTWEXBGS	Indeks_Dolar	Harian	GC=F	Emas_USD	Komoditas	BTCUSDT	Bitcoin
FEDFUNDS	Suku_Bunga_AS	Bulanan	SI=F	Perak_USD	Komoditas	ETHUSDT	Ethereum
CPIAUCSL	Inflasi_AS	Bulanan	CL=F	Minyak_WTI	Komoditas	BNBUSDT	BNB
UNRATE	Pengangguran_AS	Bulanan	^GSPC	SP500	Indeks	SOLUSDT	Solana
PPIACO	PPI_AS	Bulanan	^DJI	Dow_Jones	Indeks	DOGEUSDT	Dogecoin
RSXFS	Retail_Sales	Bulanan	^IXIC	Nasdaq	Indeks	ADAUSDT	Cardano
INDPRO	Industrial_Productio	Bulanan	USDIRD=X	USD_IDR	Mata Uang	XLMUSDT	Stellar_Lumens
HOUST	Housing_Starts	Bulanan					
M2SL	Money_Supply_M2	Bulanan					
GDP	GDP_AS	Kuartalan					

# HOW?

```

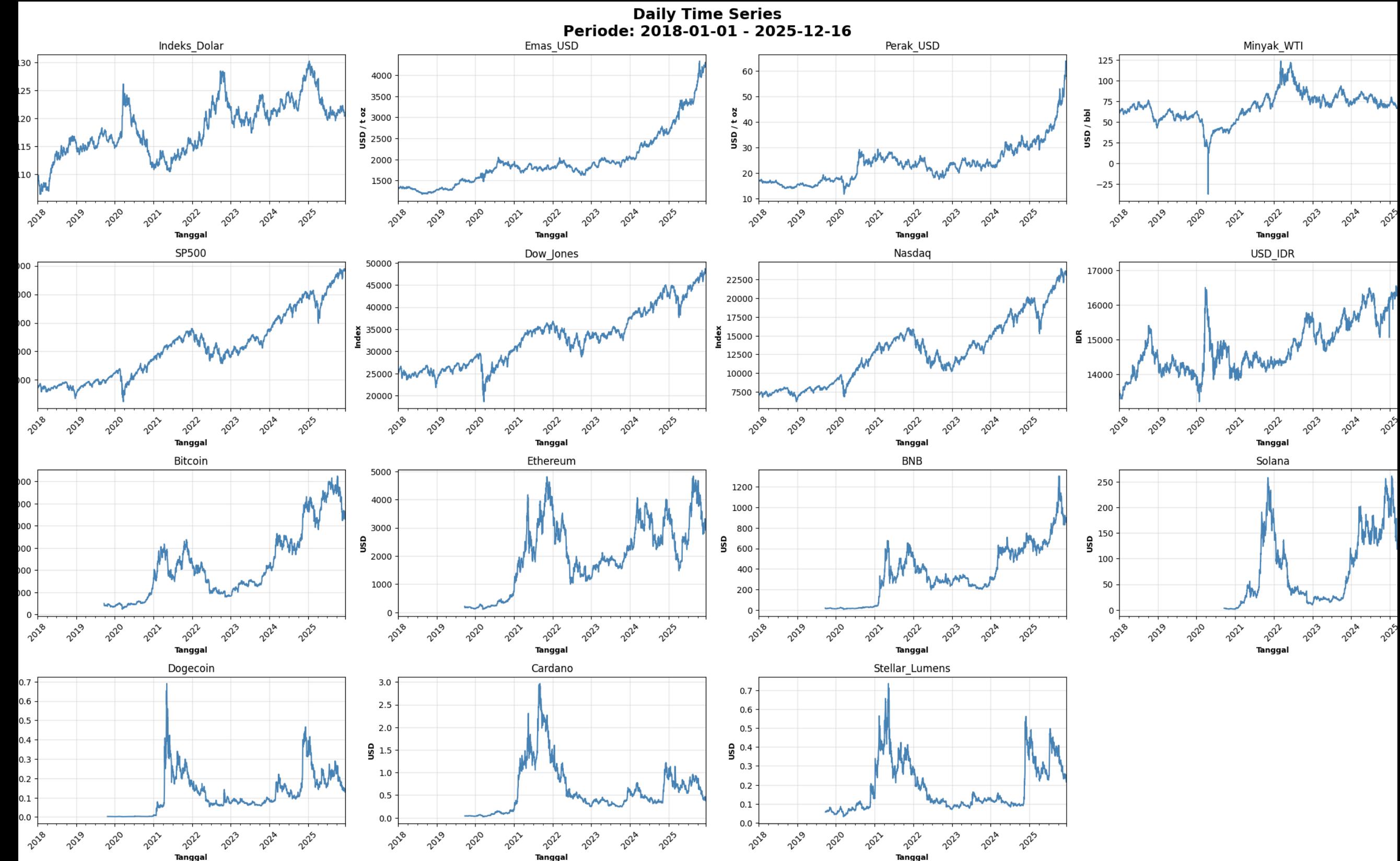
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        df_fred_D[col] = df_fred_D[col].fillna(method='bfill')

```

Indeks_Dolar		Emas_USD	Perak_USD	Minyak_WTI	SP500	Dow_Jones	Nasdaq	USD_IDR	Indeks_Dolar	
2018-01-01	NaN	2018-01-01	NaN	NaN	NaN	NaN	NaN	13542.0	2018-01-01	109.6444
2018-01-02	109.6444	2018-01-02	1313.699951	17.121000	60.369999	2695.810059	24824.009766	7006.899902	2018-01-02	109.6444
2018-01-03	109.6751	2018-01-03	1316.199951	17.184999	61.630001	2713.060059	24922.679688	7065.529785	2018-01-03	109.6751
2018-01-04	109.4779	2018-01-04	1319.400024	17.188999	62.009998	2723.989990	25075.130859	7077.910156	2018-01-04	109.4779
2018-01-05	109.3496	2018-01-05	1320.300049	17.205000	61.439999	2743.149902	25295.869141	7136.560059	2018-01-05	109.3496
2018-01-06	NaN	2018-01-06	NaN	NaN	NaN	NaN	NaN	NaN	2018-01-06	109.3496
2018-01-07	NaN	2018-01-07	NaN	NaN	NaN	NaN	NaN	NaN	2018-01-07	109.3496
2018-01-08	109.5678	2018-01-08	1318.599976	17.063999	61.730000	2747.709961	25283.000000	7157.390137	2018-01-08	109.5678
2018-01-09	109.9022	2018-01-09	1311.699951	16.936001	62.959999	2751.290039	25385.800781	7163.580078	2018-01-09	109.9022
2018-01-10	109.6277	2018-01-10	1317.400024	16.962999	63.570000	2748.229980	25369.130859	7153.569824	2018-01-10	109.6277
2018-01-11	109.4887	2018-01-11	1320.599976	16.893999	63.799999	2767.560059	25574.730469	7211.779785	2018-01-11	109.4887
2018-01-12	108.9011	2018-01-12	1333.400024	17.069000	64.300003	2786.239990	25803.189453	7261.060059	2018-01-12	108.9011
2018-01-13	NaN	2018-01-13	NaN	NaN	NaN	NaN	NaN	NaN	2018-01-13	108.9011
2018-01-14	NaN	2018-01-14	NaN	NaN	NaN	NaN	NaN	NaN	2018-01-14	108.9011

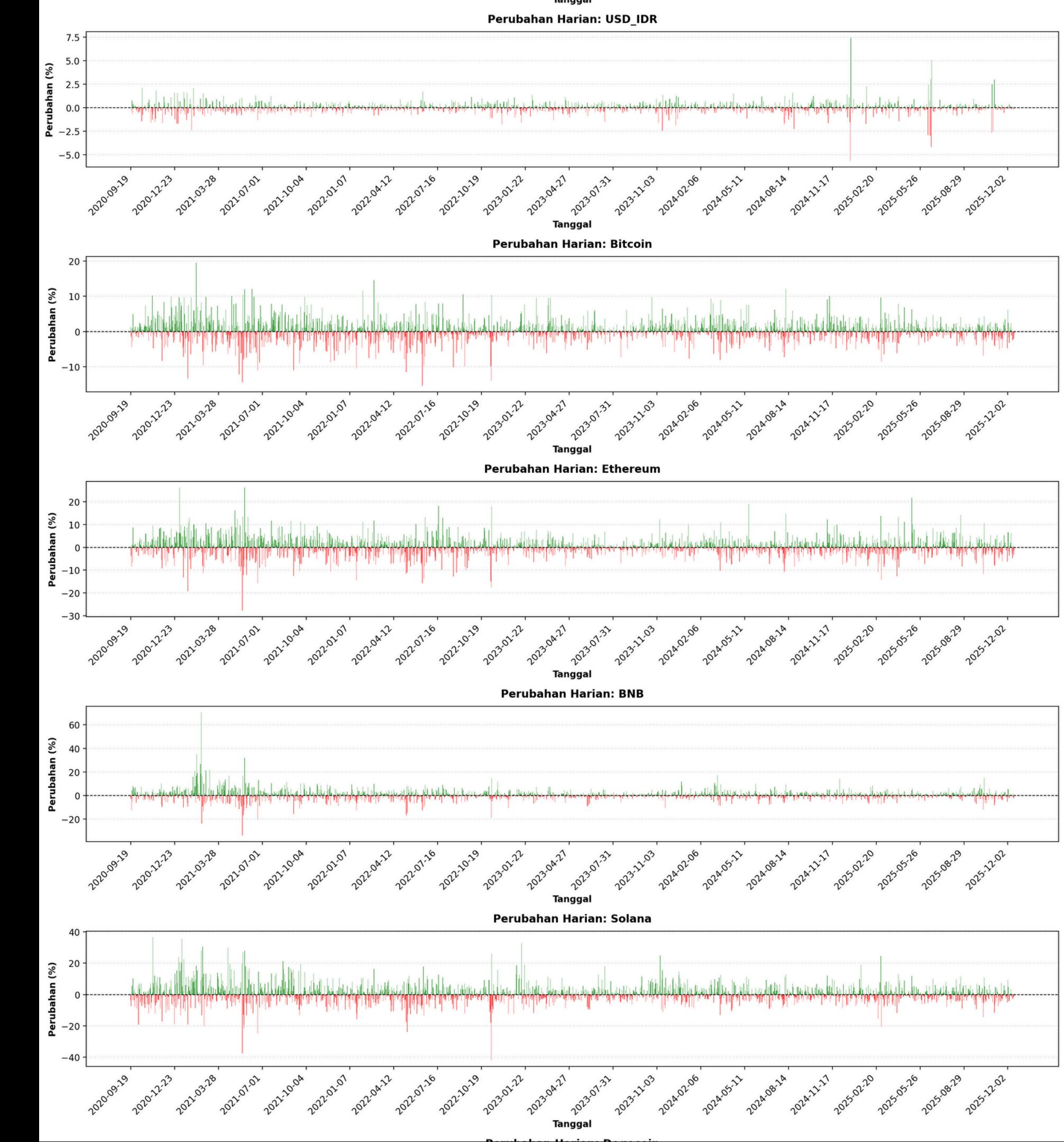
# OUTPUT

## DAILY DATASET



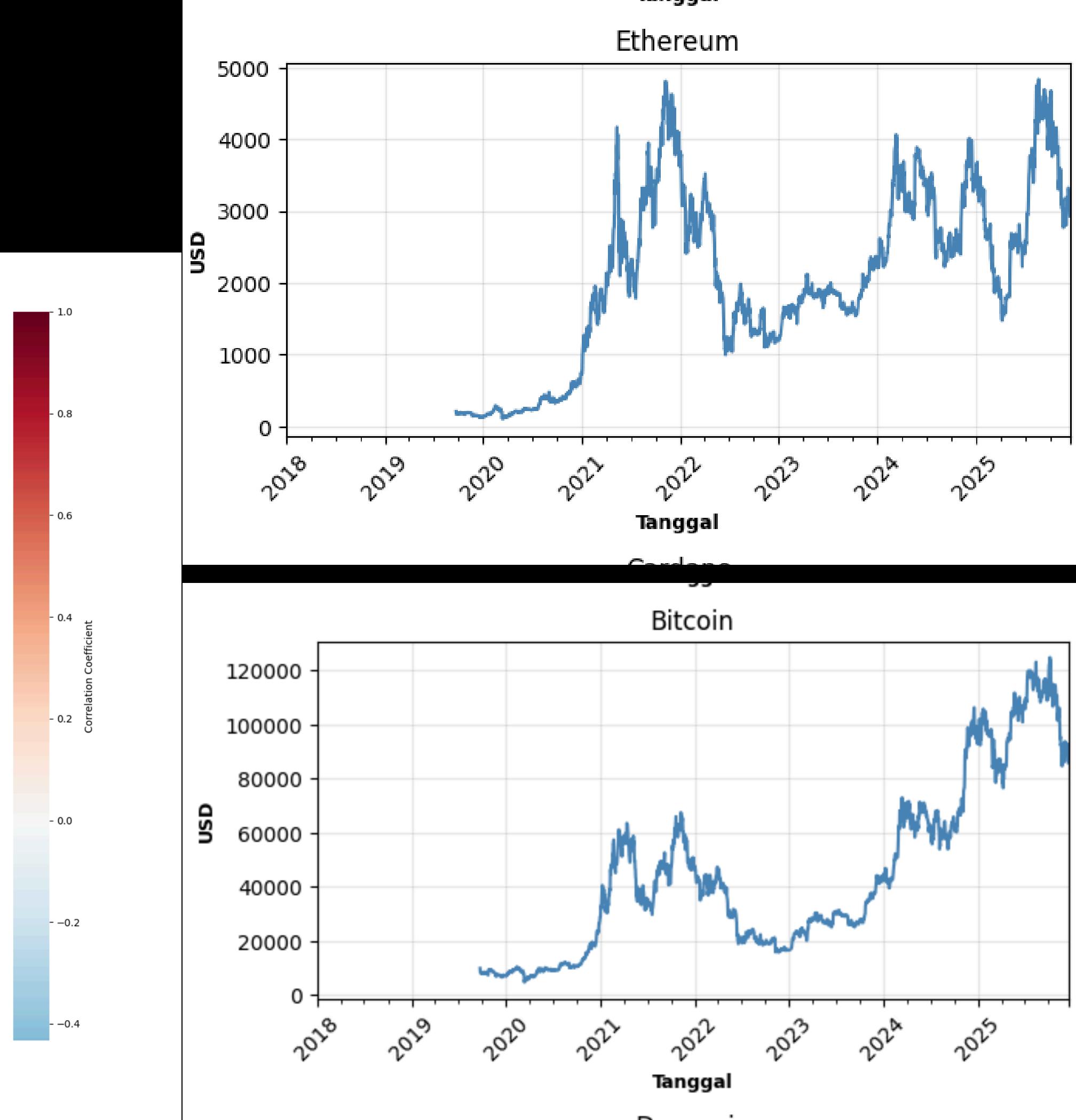
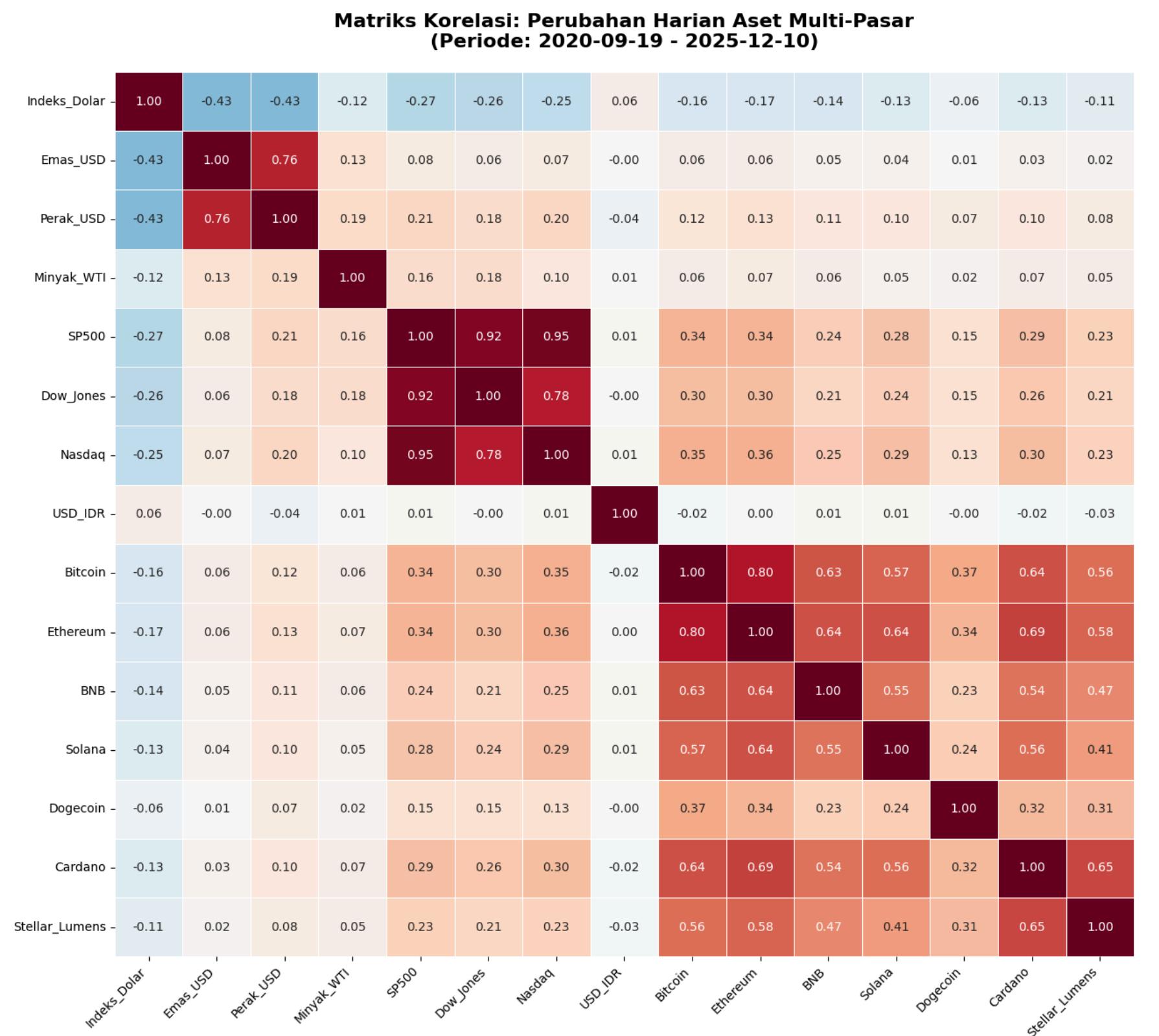
# WHAT?

# DAILY DATA CHANGE



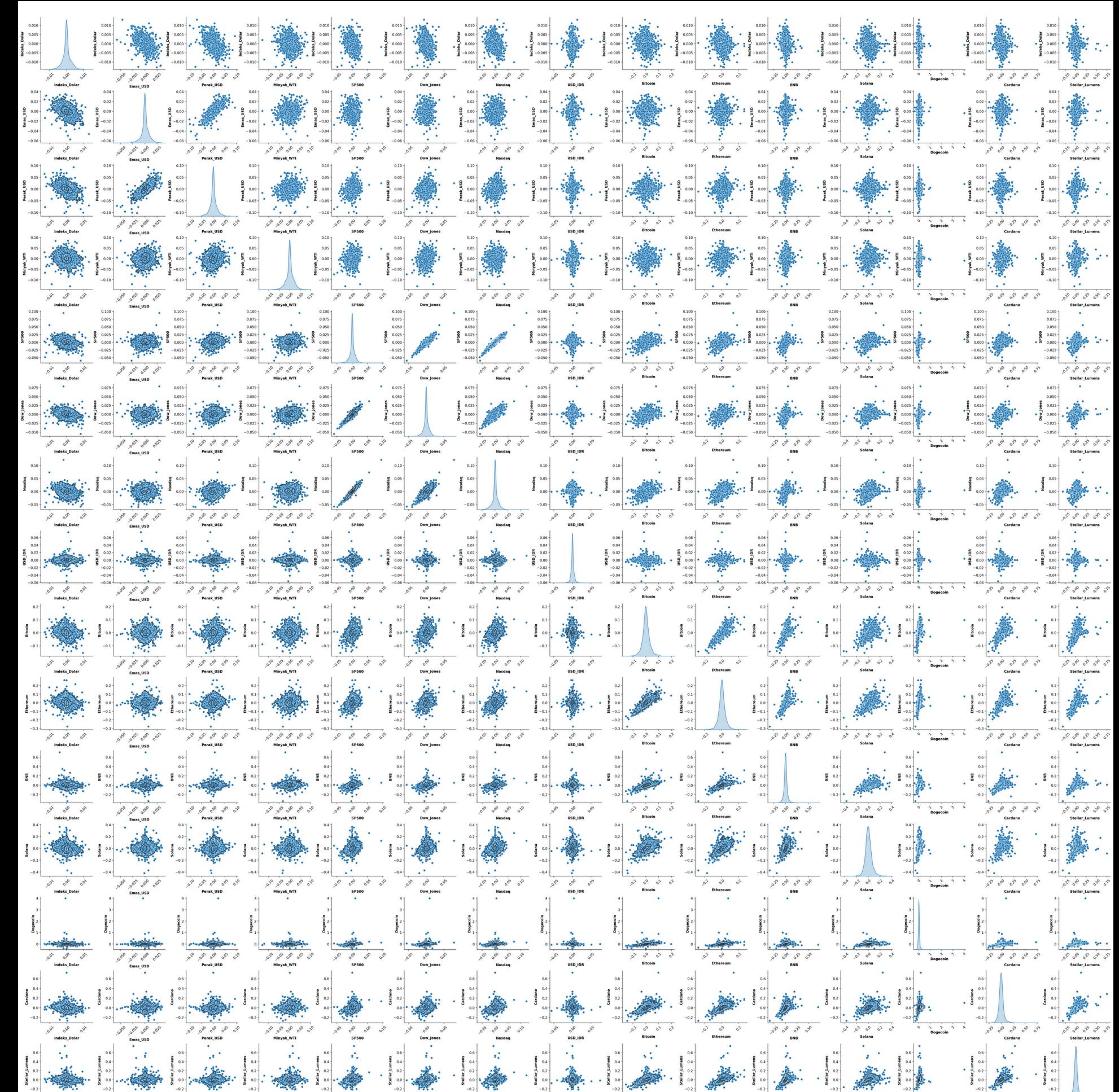
# WHAT?

# DAILY DATA CORRELATION



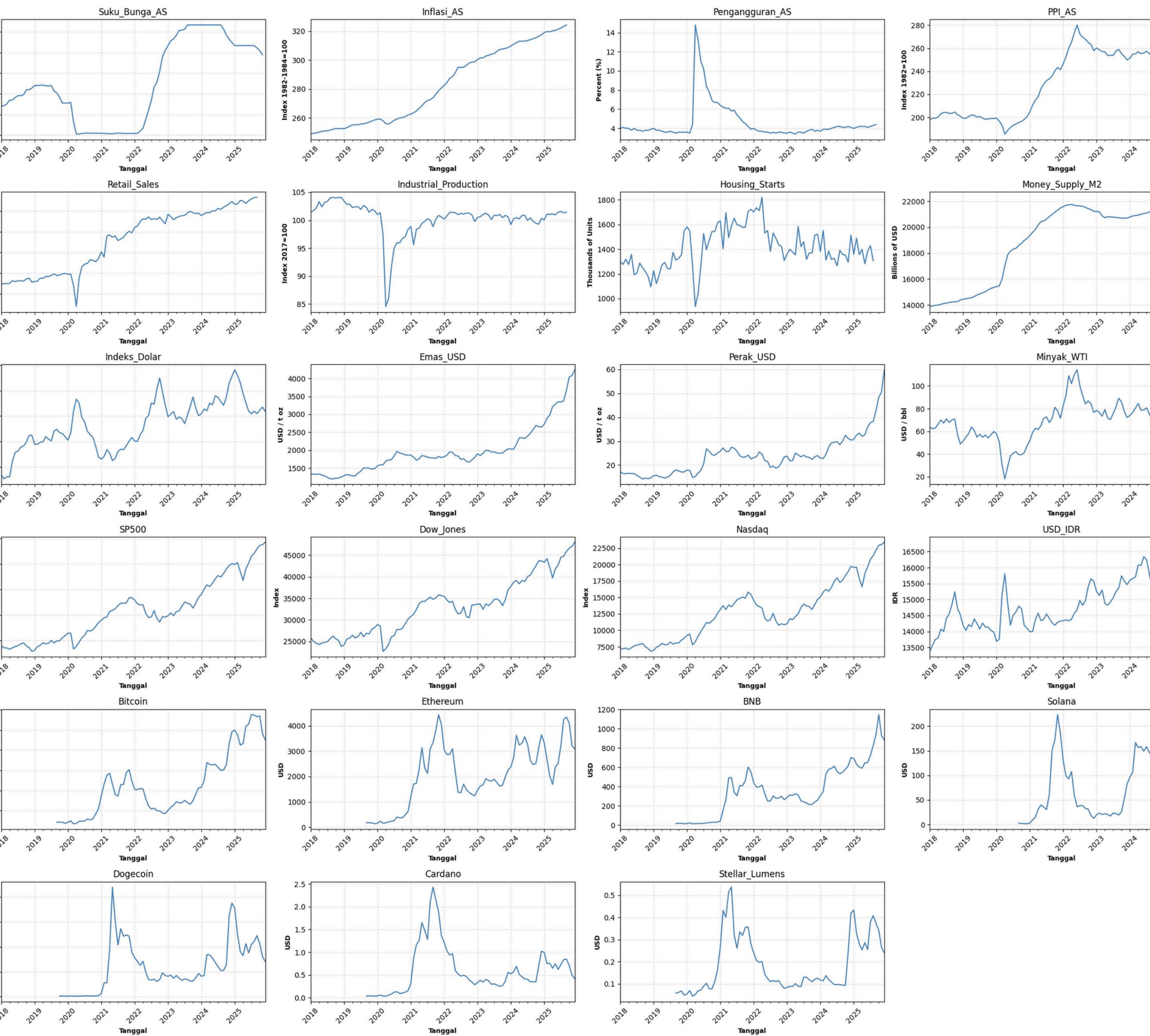
# WHAT?

# DAILY DATA PAIR PLOT



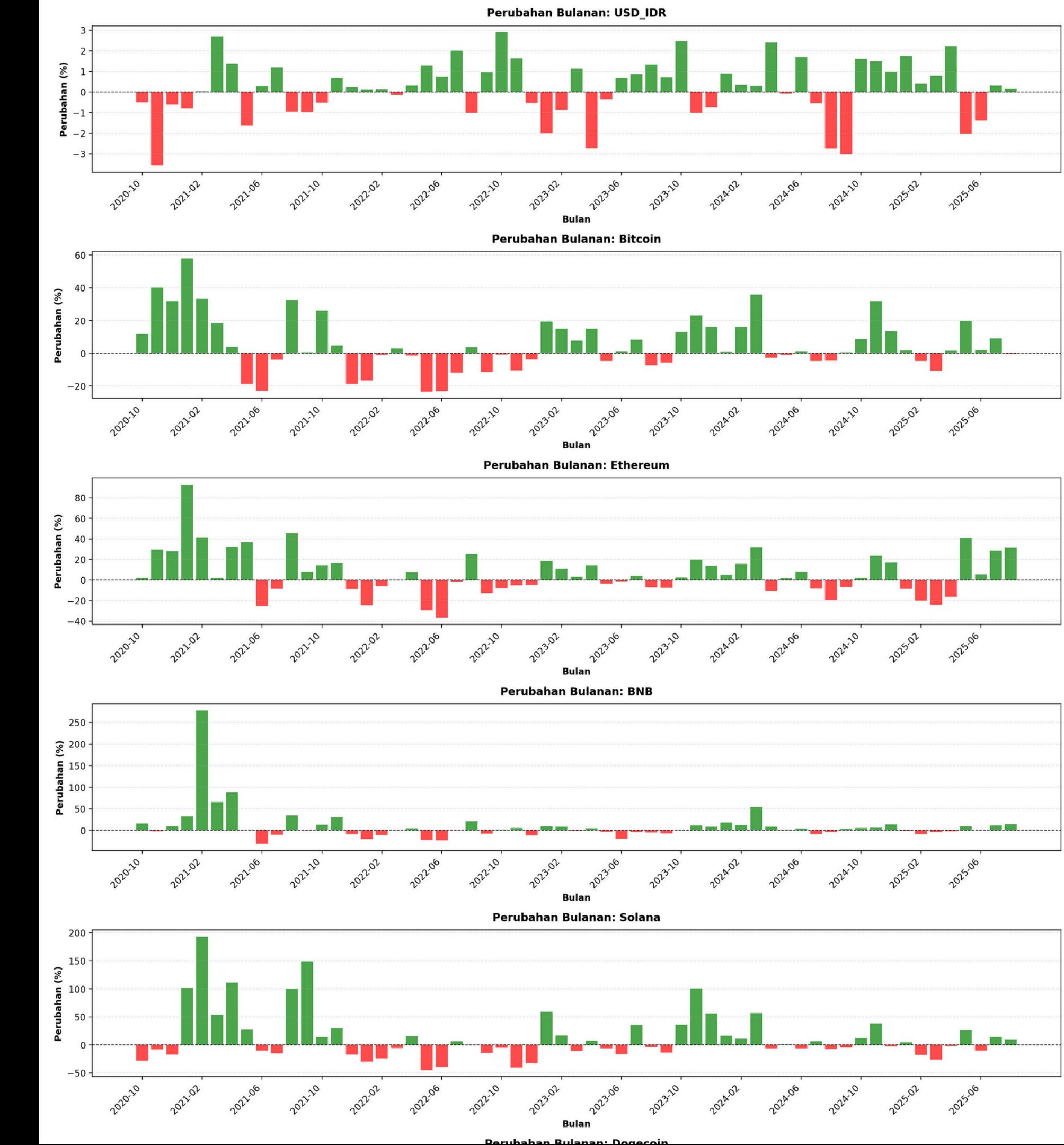
# OUTPUT

## MONTH DATASET



# WHAT?

# MONTH DATA CHANGE

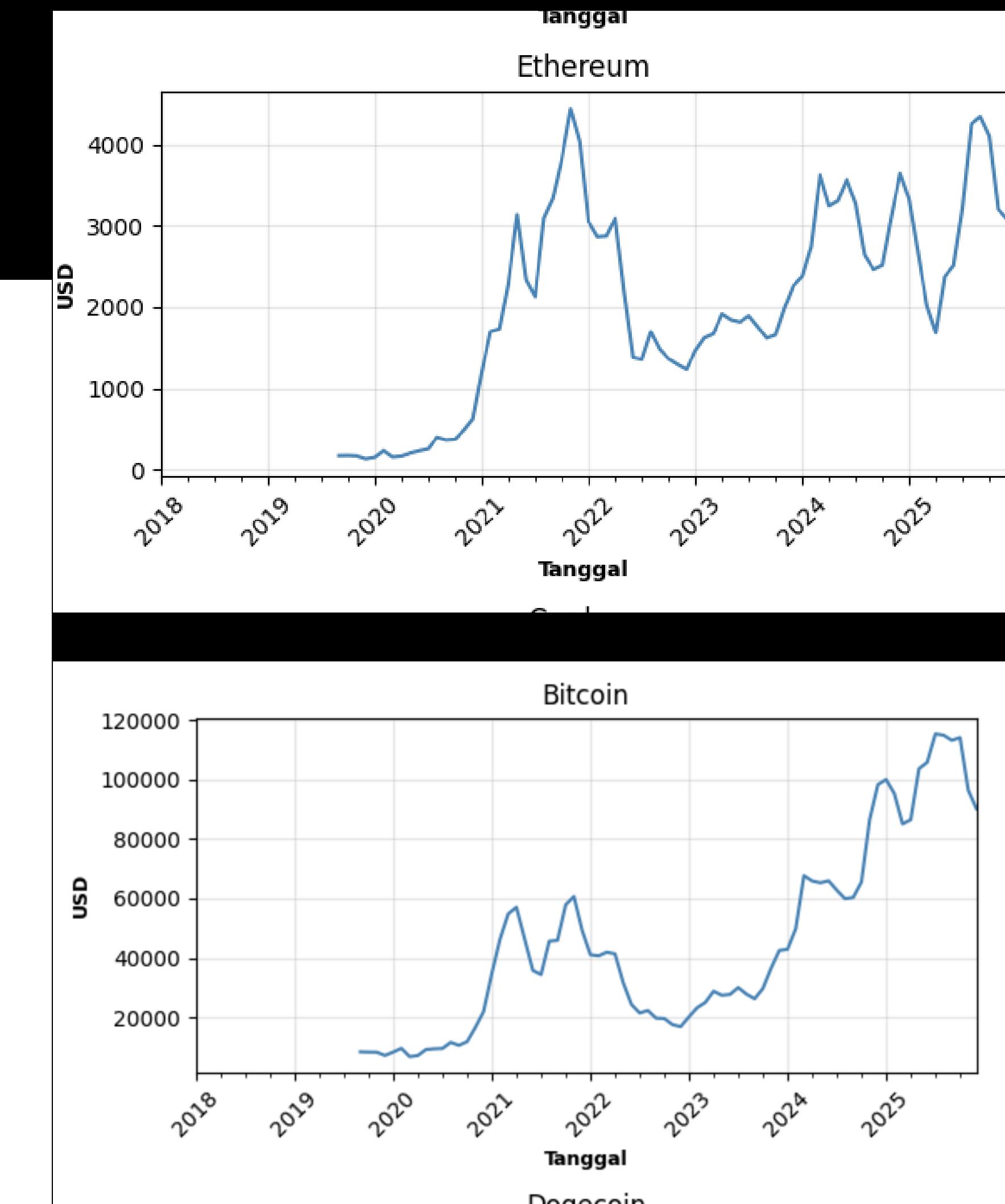
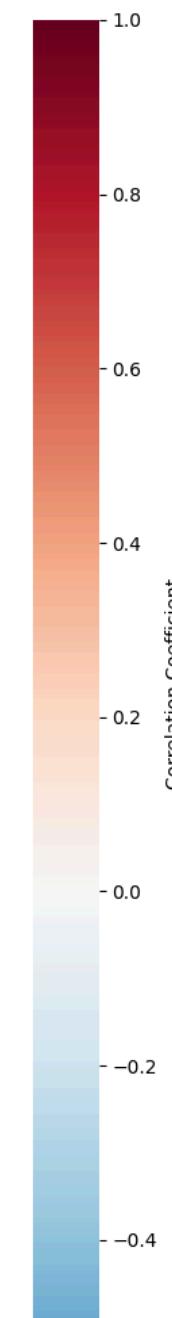


# WHAT?

# MONTH DATA CORRELATION

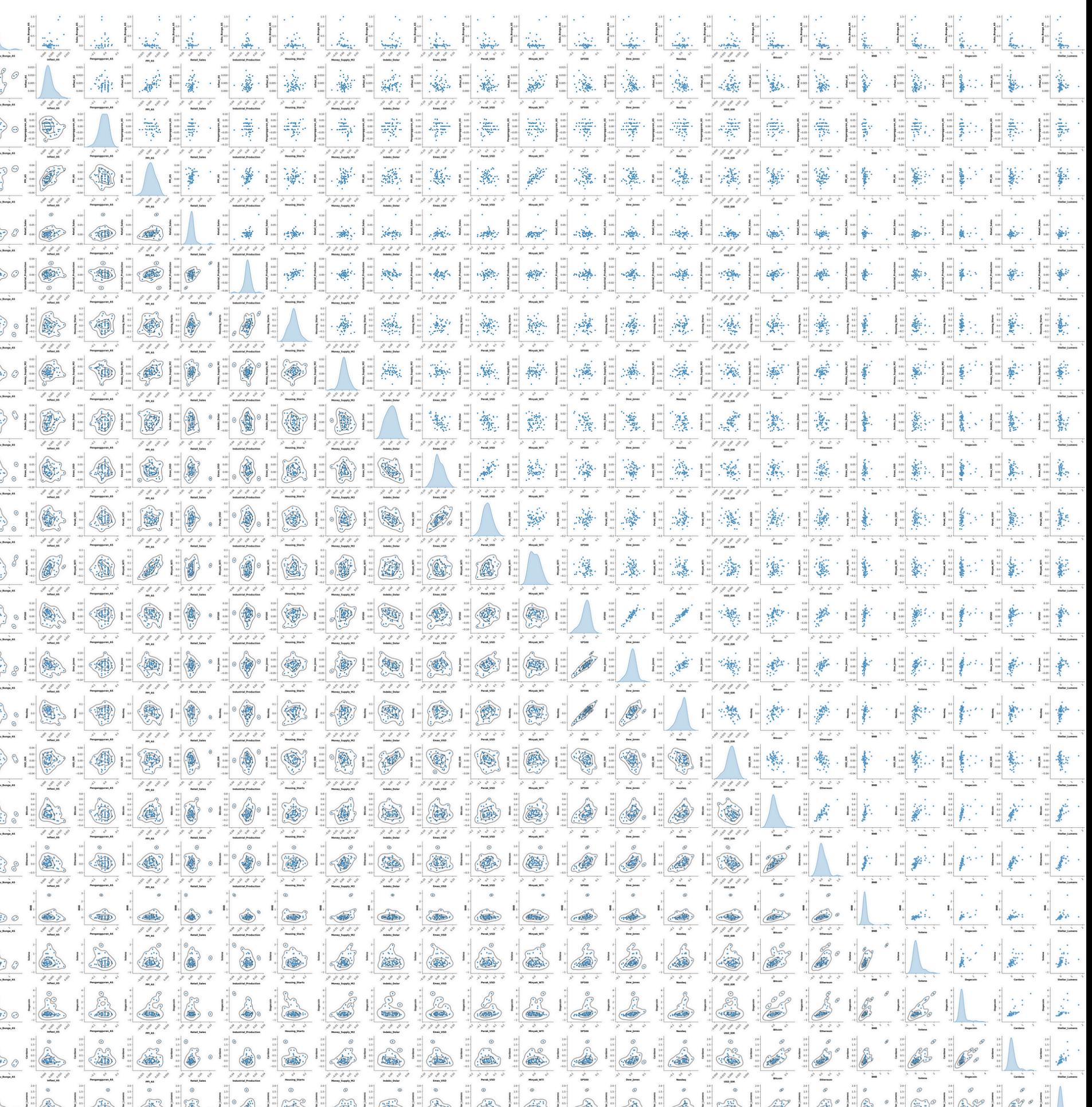
**Matriks Korelasi: Perubahan Bulanan Aset Multi-Pasar**  
(Periode: 2020-10 - 2025-08)

	Suku_Bunga_AS	Inflasi_AS	Pengangguran_AS	PPI_AS	Retail_Sales	Industrial_Production	Housing_Starts	Money_Supply_M2	Indeks_Dolar	Emas_USD	Perak_USD	Minyak_WTI	SP500	Dow_Jones	Nasdaq	USD_IDR	Bitcoin	Ethereum	BNB	Solana	Dogecoin	Cardano	Stellar_Lumens
Suku_Bunga_AS	1.00	0.45	-0.01	0.26	-0.02	0.02	-0.16	-0.28	0.28	-0.12	-0.13	0.17	-0.30	-0.25	-0.29	0.11	-0.33	-0.30	-0.21	-0.30	-0.21	-0.29	-0.24
Inflasi_AS	0.45	1.00	-0.19	0.68	0.22	0.16	-0.01	0.17	0.24	-0.10	-0.09	0.53	-0.27	-0.23	-0.32	0.07	-0.26	-0.20	-0.04	-0.07	-0.01	-0.15	-0.14
Pengangguran_AS	-0.01	-0.19	1.00	-0.20	0.13	-0.06	0.03	-0.30	0.07	0.06	0.09	-0.09	0.01	0.04	0.03	0.19	-0.12	-0.16	-0.11	-0.20	-0.07	-0.09	-0.00
PPI_AS	0.26	0.68	-0.20	1.00	0.29	0.15	0.01	0.46	0.09	-0.05	0.03	0.74	-0.11	-0.09	-0.17	-0.01	0.03	0.10	0.22	0.15	0.26	0.17	0.05
Retail_Sales	-0.02	0.22	0.13	0.29	1.00	0.56	0.39	0.21	0.03	-0.08	-0.01	0.27	-0.04	0.07	-0.15	0.06	0.20	0.07	-0.02	0.10	-0.08	0.07	0.05
Industrial_Production	0.02	0.16	-0.06	0.15	0.56	1.00	0.57	0.13	-0.02	0.02	-0.06	0.10	0.03	0.08	-0.05	0.02	0.11	0.03	-0.34	-0.26	-0.28	-0.23	-0.03
Housing_Starts	-0.16	-0.01	0.03	0.01	0.39	0.57	1.00	0.11	-0.11	0.08	0.02	-0.08	0.12	0.12	0.10	-0.13	0.06	-0.01	-0.16	-0.09	-0.25	-0.03	-0.03
Money_Supply_M2	-0.28	0.17	-0.30	0.46	0.21	0.13	0.11	1.00	-0.12	-0.10	-0.10	0.22	0.26	0.24	0.17	-0.16	0.30	0.41	0.41	0.44	0.47	0.38	0.25
Indeks_Dolar	0.28	0.24	0.07	0.09	0.03	-0.02	-0.11	-0.12	1.00	-0.52	-0.47	0.06	-0.38	-0.44	-0.28	0.58	-0.18	-0.20	0.02	-0.06	-0.06	-0.06	0.03
Emas_USD	-0.12	-0.10	0.06	-0.05	-0.08	0.02	0.08	-0.10	-0.52	1.00	0.68	-0.02	0.08	0.09	0.00	-0.18	0.00	-0.02	-0.12	-0.06	-0.03	-0.18	-0.14
Perak_USD	-0.13	-0.09	0.09	0.03	-0.01	-0.06	0.02	-0.10	-0.47	0.68	1.00	0.26	0.30	0.34	0.21	-0.22	0.13	0.17	0.13	0.02	0.18	0.05	0.02
Minyak_WTI	0.17	0.53	-0.09	0.74	0.27	0.10	-0.08	0.22	0.06	-0.02	0.26	1.00	-0.06	-0.04	-0.08	-0.01	0.15	0.06	0.17	0.06	0.18	0.13	0.09
SP500	-0.30	-0.27	0.01	-0.11	-0.04	0.03	0.12	0.26	-0.38	0.08	0.30	-0.06	1.00	0.89	0.93	-0.38	0.44	0.58	0.25	0.31	0.29	0.31	0.31
Dow_Jones	-0.25	-0.23	0.04	-0.09	0.07	0.08	0.12	0.24	-0.44	0.09	0.34	-0.04	0.89	1.00	0.72	-0.33	0.38	0.47	0.22	0.24	0.29	0.30	0.30
Nasdaq	-0.29	-0.32	0.03	-0.17	-0.15	-0.05	0.10	0.17	-0.28	0.00	0.21	-0.08	0.93	0.72	1.00	-0.34	0.46	0.57	0.23	0.31	0.26	0.32	0.34
USD_IDR	0.11	0.07	0.19	-0.01	0.06	0.02	-0.13	-0.16	0.58	-0.18	-0.22	-0.01	-0.38	-0.33	-0.34	1.00	-0.27	-0.33	0.02	-0.12	-0.04	-0.18	-0.10
Bitcoin	-0.33	-0.26	-0.12	0.03	0.20	0.11	0.06	0.30	-0.18	0.00	0.13	0.15	0.44	0.38	0.46	-0.27	1.00	0.79	0.45	0.56	0.51	0.69	0.67
Ethereum	-0.30	-0.20	-0.16	0.10	0.07	0.03	-0.01	0.41	-0.20	-0.02	0.17	0.06	0.58	0.47	0.57	-0.33	0.79	1.00	0.48	0.64	0.67	0.70	0.62
BNB	-0.21	-0.04	-0.11	0.22	-0.02	-0.34	-0.16	0.41	0.02	-0.12	0.13	0.17	0.25	0.22	0.23	0.02	0.45	0.48	1.00	0.71	0.78	0.73	0.36
Solana	-0.30	-0.07	-0.20	0.15	0.10	-0.26	-0.09	0.44	-0.06	-0.06	0.02	0.06	0.31	0.24	0.31	-0.12	0.56	0.64	0.71	1.00	0.69	0.74	0.42
Dogecoin	-0.21	-0.01	-0.07	0.26	-0.08	-0.28	-0.25	0.47	-0.06	-0.03	0.18	0.18	0.29	0.29	0.26	-0.04	0.51	0.67	0.78	0.69	1.00	0.79	0.61
Cardano	-0.29	-0.15	-0.09	0.17	0.07	-0.23	-0.03	0.38	-0.06	-0.18	0.05	0.13	0.31	0.30	0.32	-0.18	0.69	0.70	0.73	0.74	1.00	0.73	0.73
Stellar_Lumens	-0.24	-0.14	-0.00	0.05	0.05	-0.03	-0.03	0.25	0.03	-0.14	0.02	0.09	0.31	0.30	0.34	-0.10	0.67	0.62	0.36	0.42	0.61	0.73	1.00



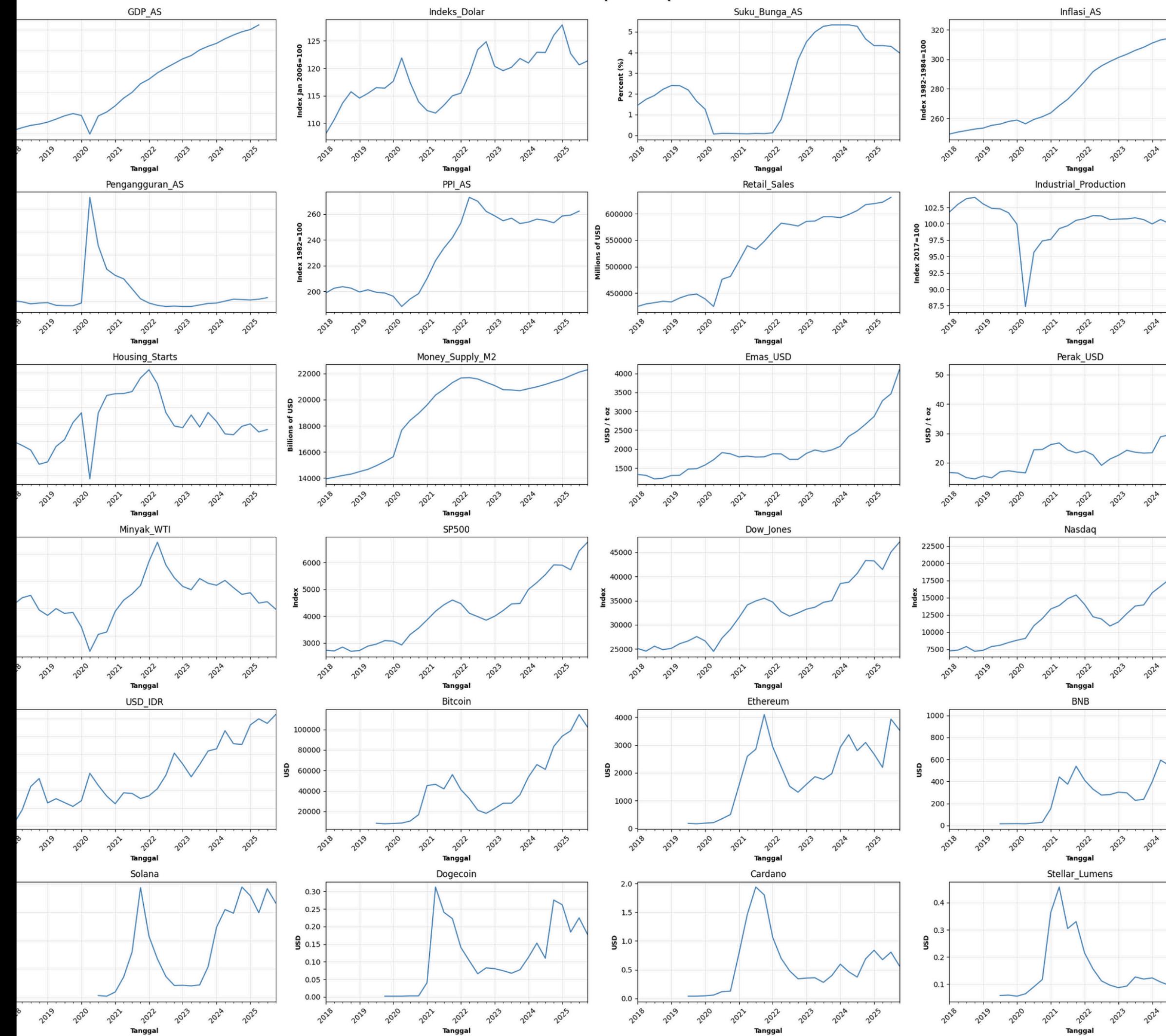
# WHAT?

# MONTH DATA PAIR PLOT



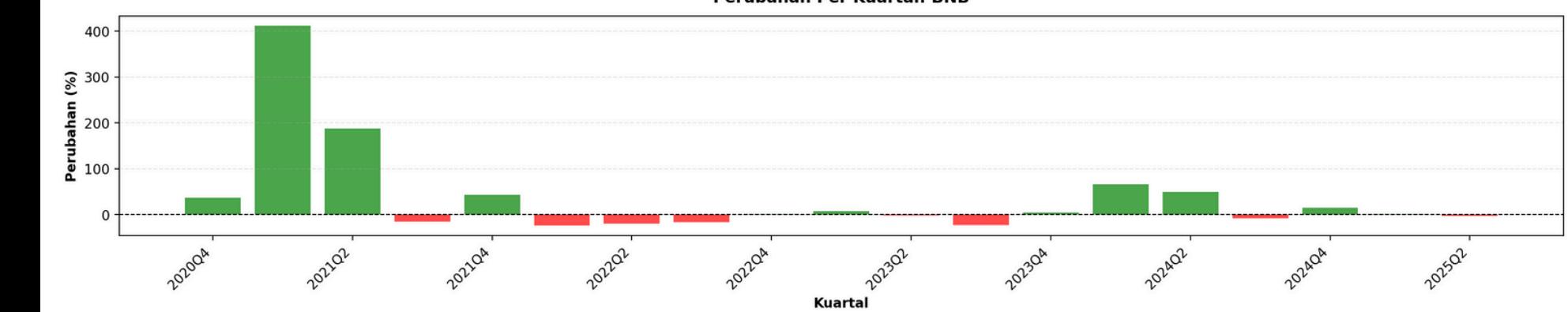
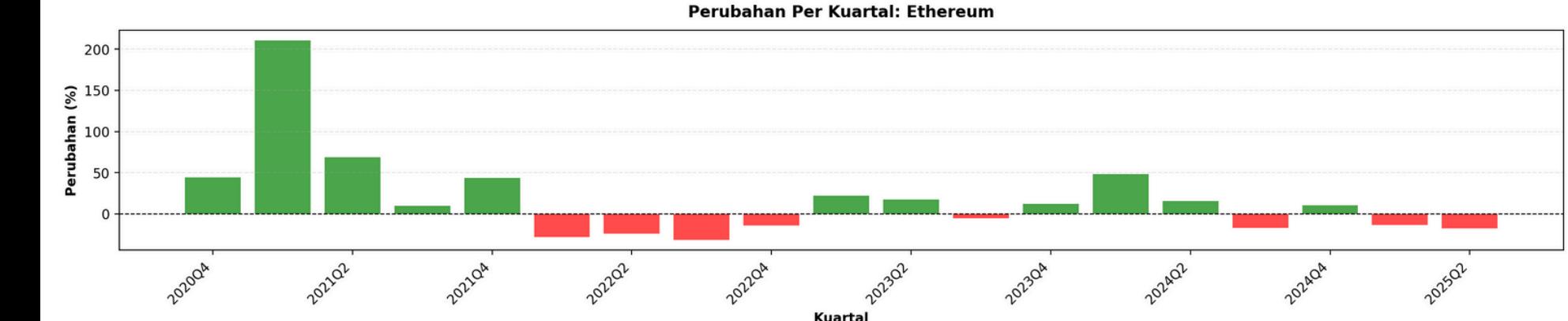
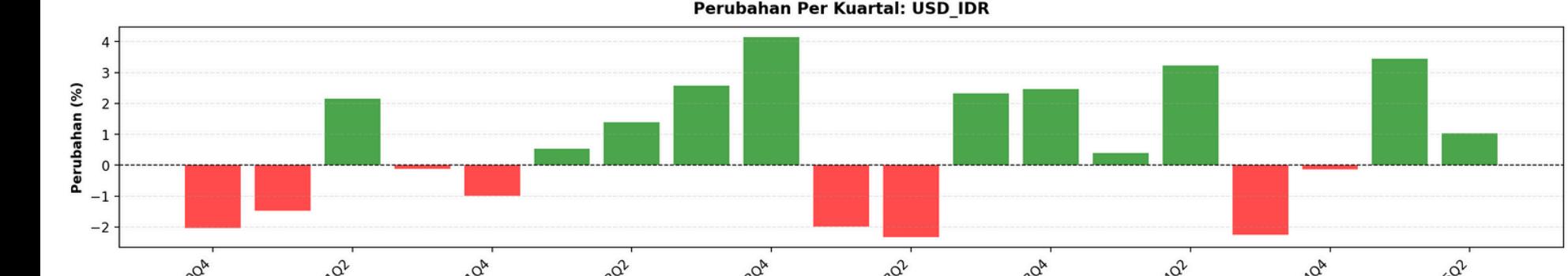
# OUTPUT

## QUARTER DATASET



# WHAT?

# QUARTER DATA CHANGE

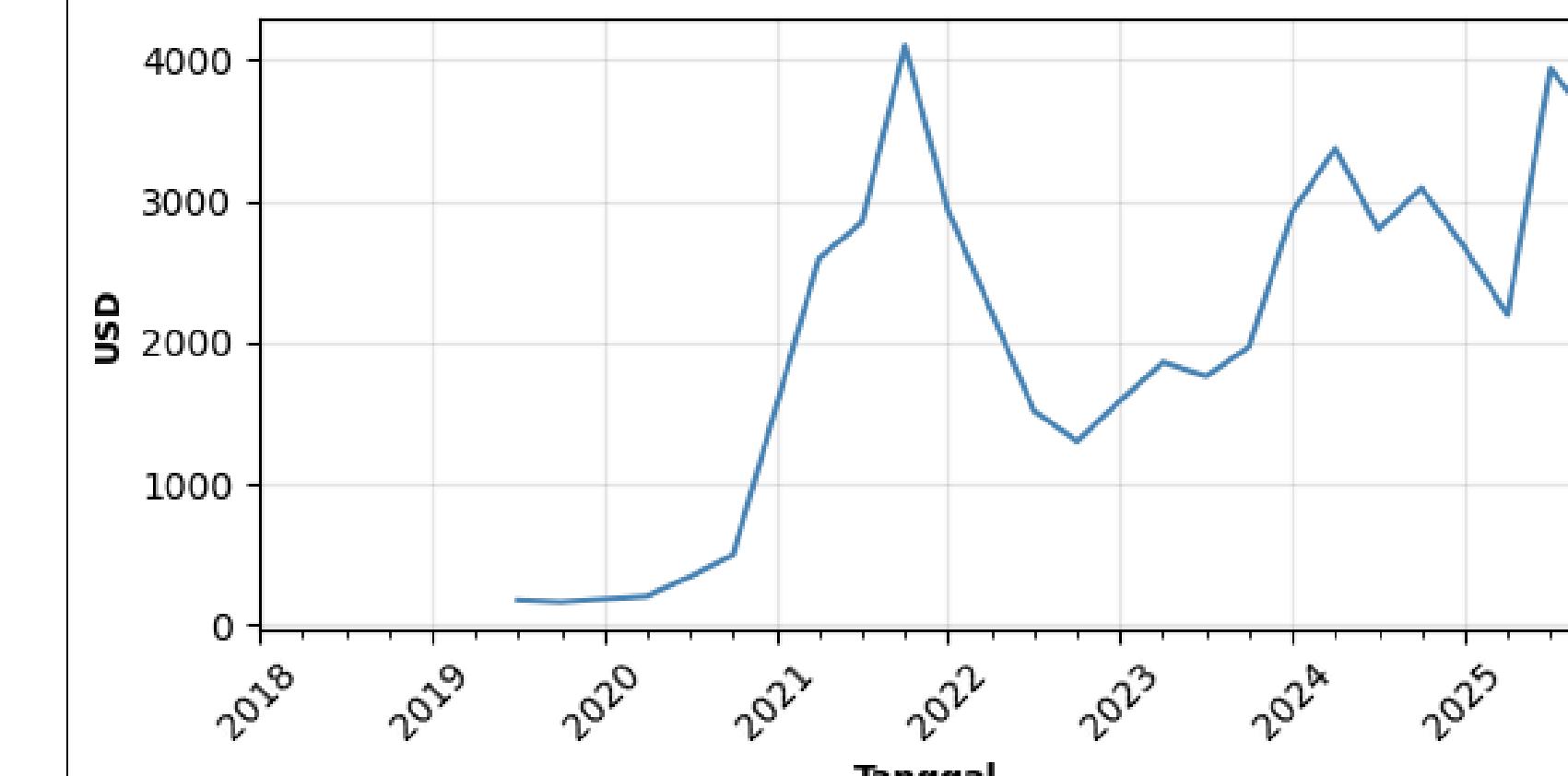
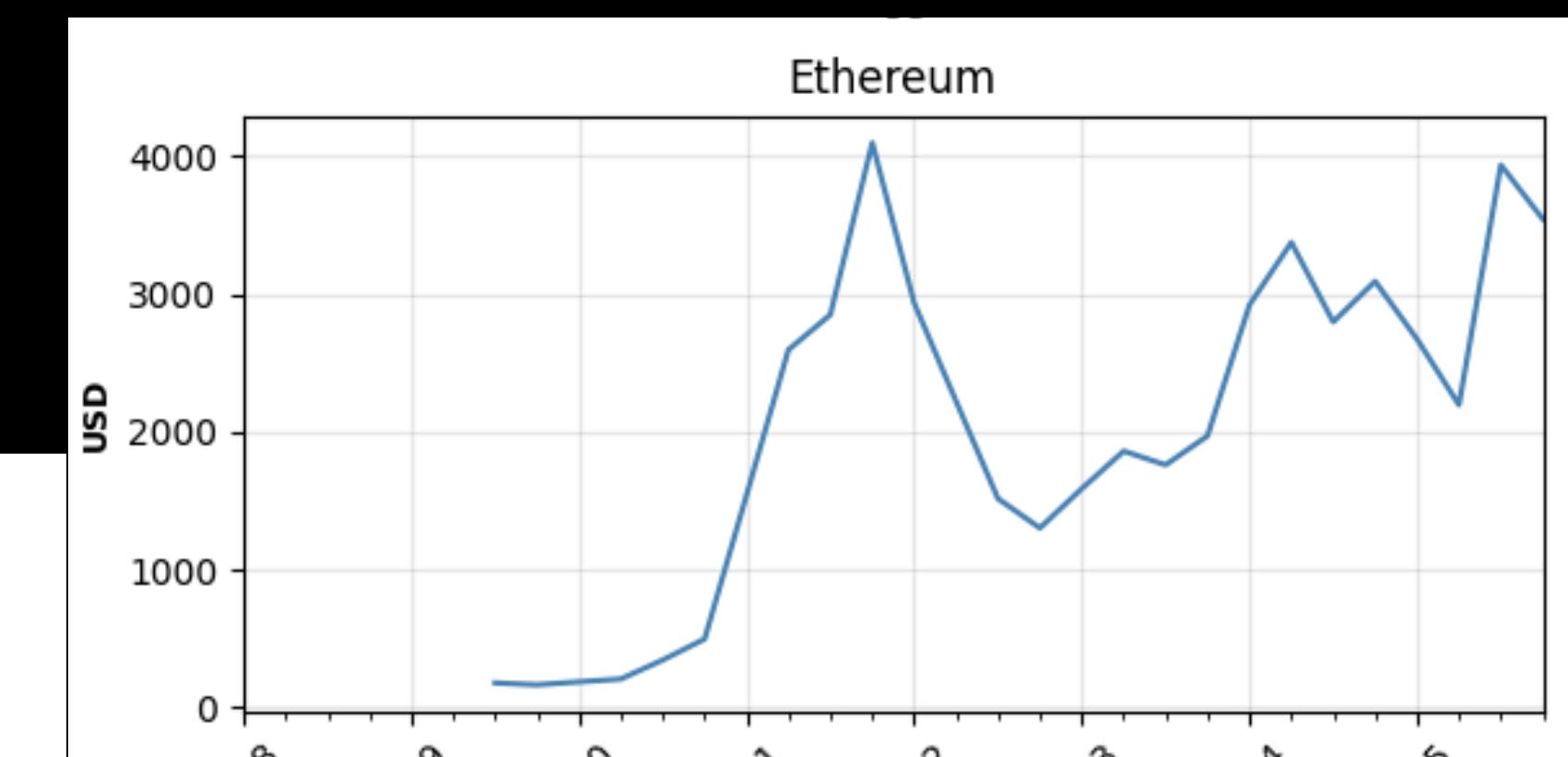


# WHAT?

# QUARTER DATA CORRELATION

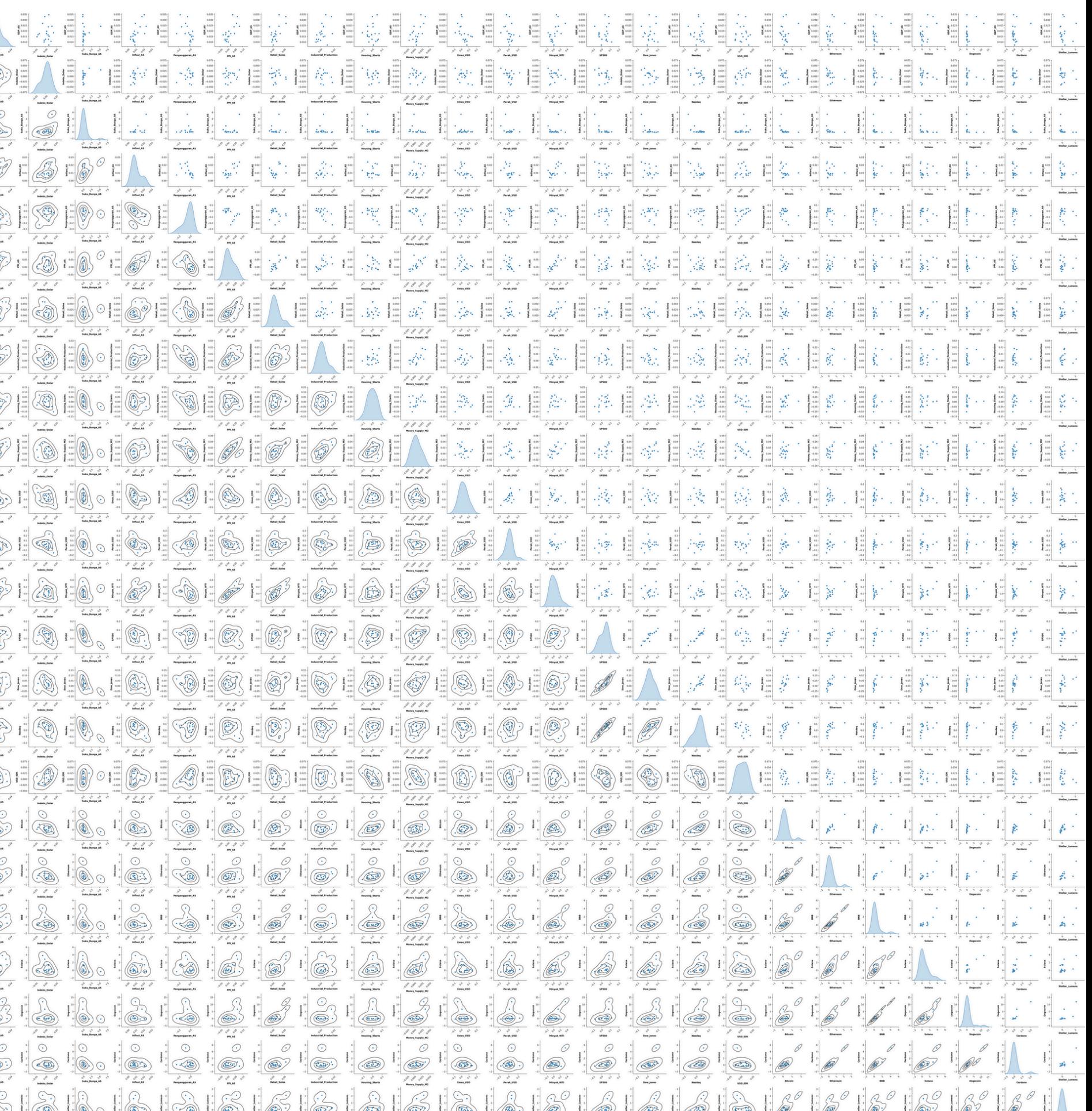
Matriks Korelasi: Perubahan Kuartal Aset Multi-Pasar  
(Periode: 2020Q4 - 2025Q2)

	GDP_AS	Indeks_Dolar	Suku_Bunga_AS	Inflasi_AS	Pengangguran_AS	PPI_AS	Retail_Sales	Industrial_Production	Housing_Starts	Money_Supply_M2	Emas_USD	Perak_USD	Minyak_WTI	SP500	Dow_Jones	Nasdaq	USD_IDR	Bitcoin	Ethereum	BNB	Solana	Dogecoin	Cardano	Stellar_Lumens
GDP_AS	1.00	0.05	0.17	0.68	-0.55	0.67	0.63	0.47	0.01	0.57	-0.50	-0.29	0.57	0.06	0.07	-0.07	-0.09	0.12	0.42	0.44	0.53	0.45	0.27	0.07
Indeks_Dolar	-0.05	1.00	0.43	0.40	0.11	0.07	-0.13	-0.21	-0.26	-0.19	-0.36	-0.28	-0.02	-0.32	-0.27	-0.33	0.50	-0.39	-0.33	-0.25	-0.11	-0.18	-0.19	-0.06
Suku_Bunga_AS	0.17	0.43	1.00	0.53	-0.04	0.37	0.04	-0.04	-0.42	-0.25	-0.28	-0.37	0.08	-0.65	-0.57	-0.64	0.19	-0.37	-0.32	-0.23	-0.31	-0.18	-0.22	-0.29
Inflasi_AS	0.68	0.40	0.53	1.00	-0.50	0.72	0.42	0.31	-0.02	0.29	-0.41	-0.42	0.51	-0.33	-0.28	-0.48	0.10	-0.28	-0.04	0.02	0.13	0.05	-0.08	-0.21
Pengangguran_AS	-0.55	0.11	-0.04	-0.50	1.00	-0.52	-0.24	-0.60	-0.45	-0.62	0.45	0.36	-0.41	-0.12	-0.12	-0.07	0.41	-0.21	-0.29	-0.17	-0.17	-0.11	-0.14	-0.07
PPI_AS	0.67	0.07	0.37	0.72	-0.52	1.00	0.68	0.57	0.09	0.71	-0.28	-0.22	0.83	-0.01	-0.01	-0.15	-0.07	0.15	0.36	0.43	0.44	0.45	0.34	0.15
Retail_Sales	0.63	-0.13	0.04	0.42	-0.24	0.68	1.00	0.39	0.18	0.61	-0.16	0.13	0.75	0.18	0.27	0.01	-0.20	0.42	0.60	0.70	0.58	0.75	0.56	0.51
Industrial_Production	0.47	-0.21	-0.04	0.31	-0.60	0.57	0.39	1.00	0.28	0.62	-0.07	-0.03	0.39	0.08	0.00	0.02	0.01	0.09	0.20	0.21	0.16	0.18	0.02	0.00
Housing_Starts	-0.01	-0.26	-0.42	-0.02	-0.45	0.09	0.18	0.28	1.00	0.33	0.10	0.09	0.22	0.32	0.29	0.33	-0.53	0.37	0.27	0.10	0.23	0.08	0.18	0.27
Money_Supply_M2	0.57	-0.19	-0.25	0.29	-0.62	0.71	0.61	0.62	0.33	1.00	-0.17	-0.08	0.62	0.40	0.42	0.23	-0.20	0.40	0.56	0.59	0.61	0.57	0.48	0.37
Emas_USD	-0.50	-0.36	-0.28	-0.41	0.45	-0.28	-0.16	-0.07	0.10	-0.17	1.00	0.64	-0.32	-0.01	-0.15	-0.01	-0.01	-0.08	-0.26	-0.25	-0.26	-0.28	-0.27	-0.15
Perak_USD	-0.29	-0.28	-0.37	-0.42	0.36	-0.22	0.13	-0.03	0.09	-0.08	0.64	1.00	0.04	0.21	0.20	0.16	0.06	0.30	0.20	0.23	0.02	0.19	0.14	0.22
Minyak_WTI	0.57	-0.02	0.08	0.51	-0.41	0.83	0.75	0.39	0.22	0.62	-0.32	0.04	1.00	0.18	0.18	0.07	-0.13	0.45	0.60	0.62	0.56	0.62	0.57	0.40
SP500	0.06	-0.32	-0.65	-0.33	-0.12	-0.01	0.18	0.08	0.32	0.40	-0.01	0.21	0.18	1.00	0.90	0.94	-0.44	0.58	0.61	0.47	0.56	0.41	0.43	0.47
Dow_Jones	0.07	-0.27	-0.57	-0.28	-0.12	-0.01	0.27	0.00	0.29	0.42	-0.15	0.20	0.18	0.90	1.00	0.77	-0.33	0.59	0.65	0.56	0.59	0.53	0.52	0.56
Nasdaq	-0.07	-0.33	-0.64	-0.48	-0.07	-0.15	0.01	0.02	0.33	0.23	-0.01	0.16	0.07	0.94	0.77	1.00	-0.51	0.61	0.56	0.38	0.45	0.31	0.42	0.48
USD_IDR	-0.09	0.50	0.19	0.10	0.41	-0.07	-0.20	0.01	-0.53	-0.20	-0.01	0.06	-0.13	-0.44	-0.33	-0.51	1.00	-0.42	-0.36	-0.18	-0.13	-0.12	-0.25	-0.24
Bitcoin	0.12	-0.39	-0.37	-0.28	-0.21	0.15	0.42	0.09	0.37	0.40	-0.08	0.30	0.45	0.58	0.59	0.61	-0.42	1.00	0.92	0.82	0.67	0.72	0.87	0.79
Ethereum	0.42	-0.33	-0.32	-0.04	-0.29	0.36	0.60	0.20	0.27	0.56	-0.26	0.20	0.60	0.61	0.65	0.56	-0.36	0.92	1.00	0.95	0.86	0.89	0.92	0.72
BNB	0.44	-0.25	-0.23	0.02	-0.17	0.43	0.70	0.21	0.10	0.59	-0.25	0.23	0.62	0.47	0.56	0.38	-0.18	0.82	0.95	1.00	0.85	0.97	0.93	0.71
Solana	0.53	-0.11	-0.31	0.13	-0.17	0.44	0.58	0.16	0.23	0.61	-0.26	0.02	0.56	0.56	0.59	0.45	-0.13	0.67	0.86	0.85	1.00	0.84	0.80	0.55
Dogecoin	0.45	-0.18	-0.18	0.05	-0.11	0.45	0.75	0.18	0.08	0.57	-0.28	0.19	0.62	0.41	0.53	0.31	-0.12	0.72	0.89	0.97	0.84	1.00	0.92	0.74
Cardano	0.27	-0.19	-0.22	-0.08	-0.14	0.34	0.56	0.02	0.18	0.48	-0.27	0.14	0.57	0.43	0.52	0.42	-0.25	0.87	0.92	0.93	0.80	1.00	0.92	0.83
Stellar_Lumens	-0.07	-0.06	-0.29	-0.21	-0.07	0.15	0.51	0.00	0.27	0.37	-0.15	0.22	0.40	0.47	0.56	0.48	-0.24	0.79	0.72	0.71	0.55	0.74	0.83	1.00

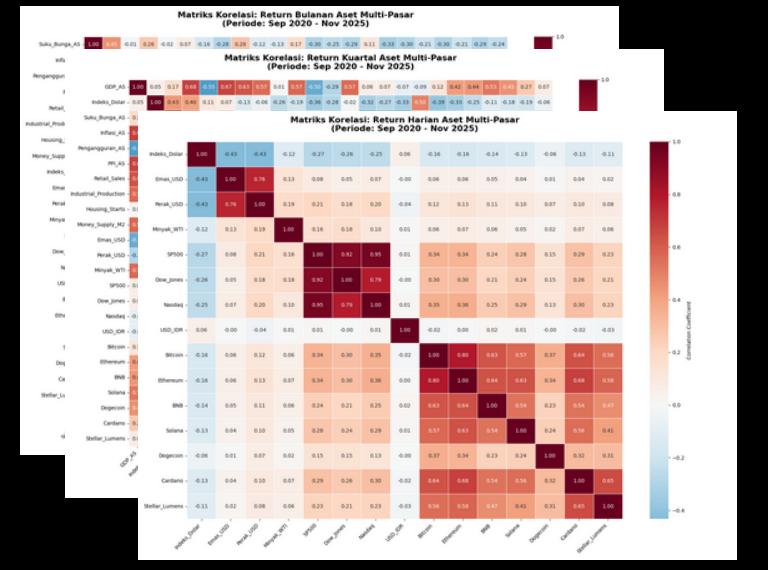
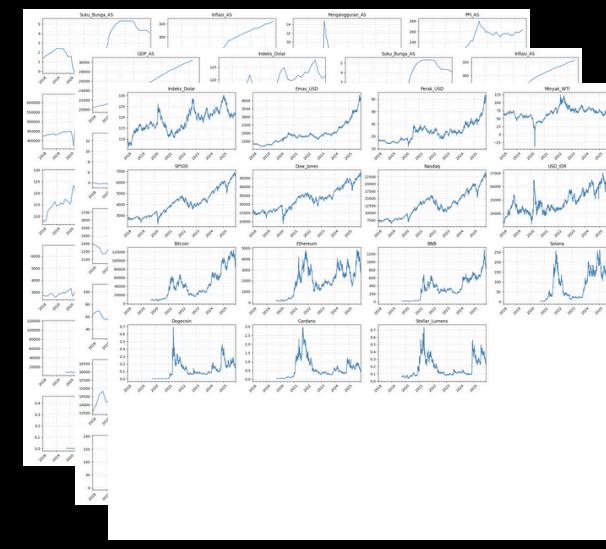


# WHAT?

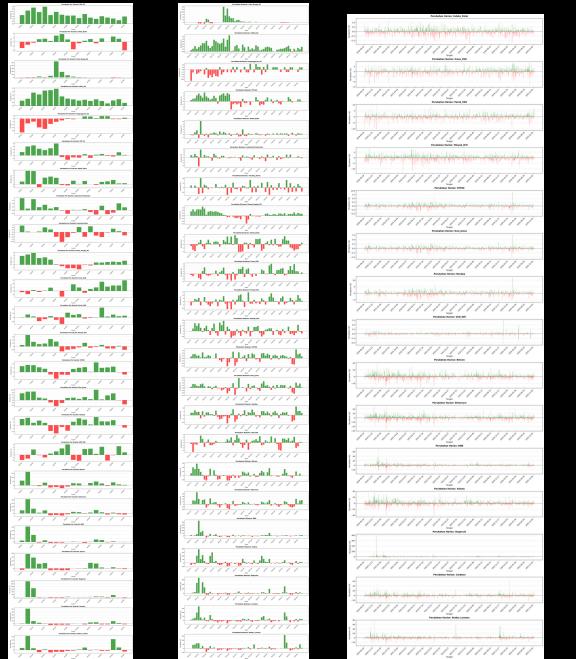
# QUARTER DATA PAIR PLOT



# OUTPUT



**DATASET RAW**  
**2018-2025**



**PLOT PERUBAHAN  
HARGA 2020-2025**

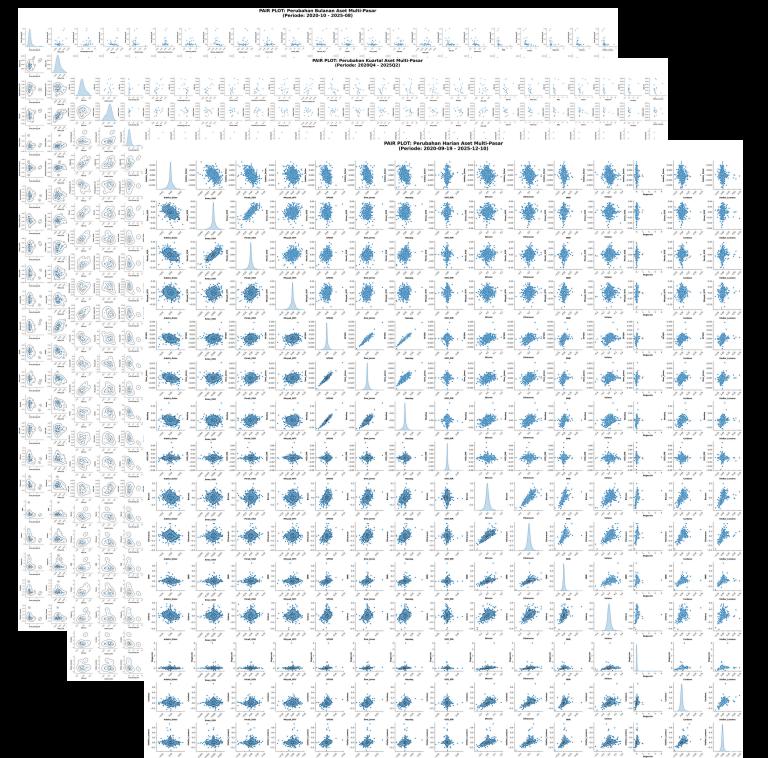
**DATASET CLEAN**  
**2020-2025**

**VISUALISASI HARGA**  
**2018-2025**

**MATRIKS KORELASI**  
**2020-2025**

[https://github.com/rafaelhartono8/  
bitcoin-macro-analysis.git](https://github.com/rafaelhartono8/bitcoin-macro-analysis.git)

[https://datawranglingpy.gagolewski.co  
m/chapter/530-time-  
series.html#imputing-missing-values](https://datawranglingpy.gagolewski.com/chapter/530-time-series.html#imputing-missing-values)



**PAIR PLOT**  
**2020 - 2025**

# CONCLUSION

1. Pada Data Harian BTC:

- a. Nasdaq +0.35
- b. Index Dolar -0.16

2. Pada Data Bulanan BTC:

- a. Nasdaq +0.46
- b. Suku Bunga AS -0.33

3. Pada Data Quartal BTC:

- a. Nasdaq +0.61
- b. USD/IDR -0.32

# THANK YOU

Let's Start Cryptocurrency With Us!



# APPENDIX

bitcoin-macro-analysis Public

main 1 Branch 0 Tags Go to file t Add file Code

rafaelhartono8 main code ee765b7 · 1 hour ago 41 Commits

DATASET update dataset 1 hour ago

correlation\_matrix pair plot & corr matrix 1 hour ago

pair\_plot pair plot & corr matrix 1 hour ago

price\_change time series & price change 1 hour ago

time\_series time series & price change 1 hour ago

.gitignore Initial commit 2 weeks ago

FLOWCHART\_BTC\_MACRO.png Add files via upload 2 weeks ago

LICENSE Initial commit 2 weeks ago

README.md Update README.md 2 weeks ago

btc\_macro\_analysis.ipynb main code 1 hour ago

README MIT license

Bitcoin & Macroeconomic Correlation Analysis