

data-pipelining-with-polygon

December 30, 2025

1 Data Pipelining With Polygon

1.1 Python Imports

```
[1]: # Standard Library
import datetime
import io
import os
import random
import sys
import time
import warnings

from datetime import datetime, timedelta
from pathlib import Path

# Data Handling
import numpy as np
import pandas as pd

# Data Visualization
import matplotlib.dates as mdates
import matplotlib.pyplot as plt
import matplotlib.ticker as mtick
import seaborn as sns
from matplotlib.ticker import FormatStrFormatter, FuncFormatter, MultipleLocator

# Data Sources
import yfinance as yf

# Statistical Analysis
import statsmodels.api as sm

# Machine Learning
from sklearn.decomposition import PCA
from sklearn.preprocessing import StandardScaler

# Suppress warnings
```

```
warnings.filterwarnings("ignore")
```

1.2 Add Directories To Path

```
[2]: # Add the source subdirectory to the system path to allow import config from settings.py
current_directory = Path(os.getcwd())
website_base_directory = current_directory.parent.parent.parent
src_directory = website_base_directory / "src"
sys.path.append(str(src_directory)) if str(src_directory) not in sys.path else None

# Import settings.py
from settings import config

# Add configured directories from config to path
SOURCE_DIR = config("SOURCE_DIR")
sys.path.append(str(Path(SOURCE_DIR))) if str(Path(SOURCE_DIR)) not in sys.path else None

# Add other configured directories
BASE_DIR = config("BASE_DIR")
CONTENT_DIR = config("CONTENT_DIR")
POSTS_DIR = config("POSTS_DIR")
PAGES_DIR = config("PAGES_DIR")
PUBLIC_DIR = config("PUBLIC_DIR")
SOURCE_DIR = config("SOURCE_DIR")
DATA_DIR = config("DATA_DIR")
DATA_MANUAL_DIR = config("DATA_MANUAL_DIR")

# Print system path
for i, path in enumerate(sys.path):
    print(f"{i}: {path}")
```

```
0: /usr/lib/python313.zip
1: /usr/lib/python3.13
2: /usr/lib/python3.13/lib-dynload
3:
4: /home/jared/python-virtual-envs/general_313/lib/python3.13/site-packages
5:
/home/jared/Cloud_Storage/Dropbox/Websites/jaredszajkowski.github.io_congo/src
```

1.3 Track Index Dependencies

```
[3]: # Create file to track markdown dependencies
dep_file = Path("index_dep.txt")
dep_file.write_text("")
```

[3]: 0

1.4 Python Functions

```
[4]: from export_track_md_deps import export_track_md_deps
from polygon_fetch_full_history import polygon_fetch_full_history
from polygon_pull_data import polygon_pull_data
```

1.5 Function Usage

1.5.1 Polygon Fetch Full History

```
[5]: from load_api_keys import load_api_keys
from polygon import RESTClient

# Load API keys from the environment
api_keys = load_api_keys()

# Get the environment variable for where data is stored
DATA_DIR = config("DATA_DIR")

# Open client connection
client = RESTClient(api_key=api_keys["POLYGON_KEY"])

# Create an empty DataFrame
df = pd.DataFrame({
    'Date': pd.Series(dtype="datetime64[ns]"),
    'open': pd.Series(dtype="float64"),
    'high': pd.Series(dtype="float64"),
    'low': pd.Series(dtype="float64"),
    'close': pd.Series(dtype="float64"),
    'volume': pd.Series(dtype="float64"),
    'vwap': pd.Series(dtype="float64"),
    'transactions': pd.Series(dtype="int64"),
    'otc': pd.Series(dtype="object")
})

# Example usage - minute
df = polygon_fetch_full_history(
    client=client,
    ticker="AMZN",
    timespan="day",
    multiplier=1,
    adjusted=True,
    existing_history_df=df,
    current_start=datetime(2025, 1, 1),
    free_tier=True,
```

```
verbose=True,  
)
```

Pulling day data for 2025-01-01 00:00:00 thru 2025-06-30 00:00:00 for AMZN...

New data:

| | | Date | open | high | low | close | volume | \ |
|-----|------------|----------|---------|---------|---------|--------|-------------|---|
| 0 | 2025-01-02 | 05:00:00 | 222.030 | 225.150 | 218.190 | 220.22 | 33956579.0 | |
| 1 | 2025-01-03 | 05:00:00 | 222.505 | 225.360 | 221.620 | 224.19 | 27515606.0 | |
| 2 | 2025-01-06 | 05:00:00 | 226.780 | 228.835 | 224.840 | 227.61 | 31849831.0 | |
| 3 | 2025-01-07 | 05:00:00 | 227.900 | 228.381 | 221.460 | 222.11 | 28084164.0 | |
| 4 | 2025-01-08 | 05:00:00 | 223.185 | 223.520 | 220.200 | 222.13 | 25033292.0 | |
| .. | | ... | ... | ... | ... | ... | | |
| 117 | 2025-06-24 | 04:00:00 | 212.135 | 214.340 | 211.045 | 212.77 | 38378757.0 | |
| 118 | 2025-06-25 | 04:00:00 | 214.615 | 216.030 | 211.110 | 211.99 | 31755698.0 | |
| 119 | 2025-06-26 | 04:00:00 | 213.120 | 218.035 | 212.010 | 217.12 | 50480814.0 | |
| 120 | 2025-06-27 | 04:00:00 | 219.920 | 223.300 | 216.740 | 223.30 | 119217138.0 | |
| 121 | 2025-06-30 | 04:00:00 | 223.520 | 223.820 | 219.120 | 219.39 | 58887780.0 | |

| | | vwap | transactions | otc |
|-----|--|----------|--------------|------|
| 0 | | 221.2745 | 449631 | None |
| 1 | | 223.7050 | 346976 | None |
| 2 | | 227.0921 | 410686 | None |
| 3 | | 223.4033 | 379570 | None |
| 4 | | 222.0414 | 325539 | None |
| .. | | ... | ... | ... |
| 117 | | 213.1129 | 459901 | None |
| 118 | | 212.8066 | 417565 | None |
| 119 | | 216.0944 | 572822 | None |
| 120 | | 221.7267 | 750603 | None |
| 121 | | 220.6316 | 673189 | None |

[122 rows x 9 columns]

Combined data:

| | | Date | open | high | low | close | volume | \ |
|-----|------------|----------|---------|---------|---------|--------|-------------|---|
| 0 | 2025-01-02 | 05:00:00 | 222.030 | 225.150 | 218.190 | 220.22 | 33956579.0 | |
| 1 | 2025-01-03 | 05:00:00 | 222.505 | 225.360 | 221.620 | 224.19 | 27515606.0 | |
| 2 | 2025-01-06 | 05:00:00 | 226.780 | 228.835 | 224.840 | 227.61 | 31849831.0 | |
| 3 | 2025-01-07 | 05:00:00 | 227.900 | 228.381 | 221.460 | 222.11 | 28084164.0 | |
| 4 | 2025-01-08 | 05:00:00 | 223.185 | 223.520 | 220.200 | 222.13 | 25033292.0 | |
| .. | | ... | ... | ... | ... | ... | | |
| 117 | 2025-06-24 | 04:00:00 | 212.135 | 214.340 | 211.045 | 212.77 | 38378757.0 | |
| 118 | 2025-06-25 | 04:00:00 | 214.615 | 216.030 | 211.110 | 211.99 | 31755698.0 | |
| 119 | 2025-06-26 | 04:00:00 | 213.120 | 218.035 | 212.010 | 217.12 | 50480814.0 | |
| 120 | 2025-06-27 | 04:00:00 | 219.920 | 223.300 | 216.740 | 223.30 | 119217138.0 | |
| 121 | 2025-06-30 | 04:00:00 | 223.520 | 223.820 | 219.120 | 219.39 | 58887780.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 221.2745 | 449631 | None |
| 1 | 223.7050 | 346976 | None |
| 2 | 227.0921 | 410686 | None |
| 3 | 223.4033 | 379570 | None |
| 4 | 222.0414 | 325539 | None |
| .. | ... | ... | ... |
| 117 | 213.1129 | 459901 | None |
| 118 | 212.8066 | 417565 | None |
| 119 | 216.0944 | 572822 | None |
| 120 | 221.7267 | 750603 | None |
| 121 | 220.6316 | 673189 | None |

[122 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2025-06-29 04:00:00 thru 2025-12-26 04:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|---------|--------|--------|------------|---|
| 0 | 2025-06-30 04:00:00 | 223.520 | 223.820 | 219.12 | 219.39 | 58887780.0 | |
| 1 | 2025-07-01 04:00:00 | 219.500 | 221.875 | 217.93 | 220.46 | 39256830.0 | |
| 2 | 2025-07-02 04:00:00 | 219.730 | 221.600 | 219.06 | 219.92 | 30894178.0 | |
| 3 | 2025-07-03 04:00:00 | 221.820 | 224.010 | 221.36 | 223.41 | 29632353.0 | |
| 4 | 2025-07-07 04:00:00 | 223.000 | 224.290 | 222.37 | 223.47 | 36604139.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 120 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.41 | 226.76 | 50267599.0 | |
| 121 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.58 | 227.35 | 85539391.0 | |
| 122 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.71 | 228.43 | 32189837.0 | |
| 123 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.73 | 232.14 | 29230205.0 | |
| 124 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.33 | 232.38 | 11392602.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 220.6316 | 673189 | None |
| 1 | 220.1508 | 544150 | None |
| 2 | 220.2103 | 429633 | None |
| 3 | 222.8867 | 364422 | None |
| 4 | 223.4121 | 513469 | None |
| .. | ... | ... | ... |
| 120 | 226.8046 | 510971 | None |
| 121 | 227.4216 | 473871 | None |
| 122 | 228.1121 | 465884 | None |
| 123 | 231.3567 | 435723 | None |
| 124 | 232.3350 | 193487 | None |

[125 rows x 9 columns]

Combined data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|---------|--------|--------|------------|---|
| 0 | 2025-01-02 05:00:00 | 222.030 | 225.150 | 218.19 | 220.22 | 33956579.0 | |
| 1 | 2025-01-03 05:00:00 | 222.505 | 225.360 | 221.62 | 224.19 | 27515606.0 | |
| 2 | 2025-01-06 05:00:00 | 226.780 | 228.835 | 224.84 | 227.61 | 31849831.0 | |
| 3 | 2025-01-07 05:00:00 | 227.900 | 228.381 | 221.46 | 222.11 | 28084164.0 | |
| 4 | 2025-01-08 05:00:00 | 223.185 | 223.520 | 220.20 | 222.13 | 25033292.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 241 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.41 | 226.76 | 50267599.0 | |
| 242 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.58 | 227.35 | 85539391.0 | |
| 243 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.71 | 228.43 | 32189837.0 | |
| 244 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.73 | 232.14 | 29230205.0 | |
| 245 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.33 | 232.38 | 11392602.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 221.2745 | 449631 | None |
| 1 | 223.7050 | 346976 | None |
| 2 | 227.0921 | 410686 | None |
| 3 | 223.4033 | 379570 | None |
| 4 | 222.0414 | 325539 | None |
| .. | ... | ... | ... |
| 241 | 226.8046 | 510971 | None |
| 242 | 227.4216 | 473871 | None |
| 243 | 228.1121 | 465884 | None |
| 244 | 231.3567 | 435723 | None |
| 245 | 232.3350 | 193487 | None |

[246 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2025-12-23 05:00:00 thru 2026-06-21 05:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume | vwap | \ |
|---|---------------------|---------|---------|--------|--------|------------|----------|---|
| 0 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.73 | 232.14 | 29230205.0 | 231.3567 | |
| 1 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.33 | 232.38 | 11392602.0 | 232.3350 | |
| 2 | 2025-12-26 05:00:00 | 232.035 | 232.990 | 231.18 | 232.52 | 15945174.0 | 232.4646 | |
| 3 | 2025-12-29 05:00:00 | 231.940 | 232.600 | 230.77 | 232.07 | 19791422.0 | 231.8925 | |

| | transactions | otc |
|---|--------------|------|
| 0 | 435723 | None |
| 1 | 193487 | None |
| 2 | 277601 | None |
| 3 | 352623 | None |

Combined data:

| | Date | open | high | low | close | volume | \ |
|---|---------------------|---------|---------|--------|--------|------------|---|
| 0 | 2025-01-02 05:00:00 | 222.030 | 225.150 | 218.19 | 220.22 | 33956579.0 | |
| 1 | 2025-01-03 05:00:00 | 222.505 | 225.360 | 221.62 | 224.19 | 27515606.0 | |

| | | | | | | |
|-----|---------------------|---------|---------|--------|--------|------------|
| 2 | 2025-01-06 05:00:00 | 226.780 | 228.835 | 224.84 | 227.61 | 31849831.0 |
| 3 | 2025-01-07 05:00:00 | 227.900 | 228.381 | 221.46 | 222.11 | 28084164.0 |
| 4 | 2025-01-08 05:00:00 | 223.185 | 223.520 | 220.20 | 222.13 | 25033292.0 |
| .. | ... | ... | ... | ... | ... | ... |
| 243 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.71 | 228.43 | 32189837.0 |
| 244 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.73 | 232.14 | 29230205.0 |
| 245 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.33 | 232.38 | 11392602.0 |
| 246 | 2025-12-26 05:00:00 | 232.035 | 232.990 | 231.18 | 232.52 | 15945174.0 |
| 247 | 2025-12-29 05:00:00 | 231.940 | 232.600 | 230.77 | 232.07 | 19791422.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 221.2745 | 449631 | None |
| 1 | 223.7050 | 346976 | None |
| 2 | 227.0921 | 410686 | None |
| 3 | 223.4033 | 379570 | None |
| 4 | 222.0414 | 325539 | None |
| .. | ... | ... | ... |
| 243 | 228.1121 | 465884 | None |
| 244 | 231.3567 | 435723 | None |
| 245 | 232.3350 | 193487 | None |
| 246 | 232.4646 | 277601 | None |
| 247 | 231.8925 | 352623 | None |

[248 rows x 9 columns]

```
[6]: # Copy this <!-- INSERT_polygon_fetch_full_history_HERE --> to index_temp.md
export_track_md_deps(dep_file=dep_file, md_filename="polygon_fetch_full_history.
    ↪md", content=df.head().to_markdown(floatfmt=".5f"))
```

Exported and tracked: polygon_fetch_full_history.md

1.5.2 Polygon Pull Data

```
[7]: current_year = datetime.now().year
current_month = datetime.now().month
current_day = datetime.now().day

# Example usage - daily
df = polygon_pull_data(
    base_directory=DATA_DIR,
    ticker="AMZN",
    source="Polygon",
    asset_class="Equities",
    start_date=datetime(current_year - 2, current_month, current_day),
    timespan="day",
    multiplier=1,
    adjusted=True,
    force_existing_check=True,
```

```

    free_tier=True,
    verbose=True,
    excel_export=True,
    pickle_export=True,
    output_confirmation=True,
)

time.sleep(12)  # Sleep for 2 seconds to avoid hitting rate limits

```

File found...updating the AMZN day data.

Existing data:

| | Date | open | high | low | close | volume \ |
|-----|---------------------|---------|---------|----------|--------|------------|
| 0 | 2023-07-28 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 |
| 1 | 2023-07-31 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 |
| 2 | 2023-08-01 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 |
| 3 | 2023-08-02 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 |
| 4 | 2023-08-03 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 |
| .. | ... | ... | ... | ... | ... | ... |
| 601 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 |
| 602 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 |
| 603 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 |
| 604 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 |
| 605 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |
| .. | ... | ... | ... |
| 601 | 226.8046 | 510971 | None |
| 602 | 227.4216 | 473871 | None |
| 603 | 228.1121 | 465884 | None |
| 604 | 231.3567 | 435723 | None |
| 605 | 232.3350 | 193487 | None |

[606 rows x 9 columns]

Last date in existing data: 2025-12-24 05:00:00

Number of rows in existing data: 606

Forcing check of existing data...

Pulling day data for 2023-12-30 00:00:00 thru 2024-06-27 00:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume \ |
|---|---------------------|---------|---------|--------|--------|------------|
| 0 | 2024-01-02 05:00:00 | 151.540 | 152.380 | 148.39 | 149.93 | 47339424.0 |
| 1 | 2024-01-03 05:00:00 | 149.200 | 151.050 | 148.33 | 148.47 | 49425495.0 |

| | | | | | | | |
|-----|------------|----------|---------|---------|--------|--------|------------|
| 2 | 2024-01-04 | 05:00:00 | 145.590 | 147.380 | 144.05 | 144.57 | 56039807.0 |
| 3 | 2024-01-05 | 05:00:00 | 144.690 | 146.590 | 144.53 | 145.24 | 45153147.0 |
| 4 | 2024-01-08 | 05:00:00 | 146.740 | 149.400 | 146.15 | 149.10 | 46757053.0 |
| .. | ... | | ... | ... | ... | ... | |
| 118 | 2024-06-21 | 04:00:00 | 187.800 | 189.275 | 185.86 | 189.08 | 72931754.0 |
| 119 | 2024-06-24 | 04:00:00 | 189.330 | 191.000 | 185.33 | 185.57 | 50610379.0 |
| 120 | 2024-06-25 | 04:00:00 | 186.810 | 188.840 | 185.42 | 186.34 | 45898475.0 |
| 121 | 2024-06-26 | 04:00:00 | 186.920 | 194.800 | 186.26 | 193.61 | 65103893.0 |
| 122 | 2024-06-27 | 04:00:00 | 195.005 | 199.840 | 194.20 | 197.85 | 74397491.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 149.8527 | 476433 | None |
| 1 | 149.4058 | 416955 | None |
| 2 | 145.4160 | 541342 | None |
| 3 | 145.4513 | 380386 | None |
| 4 | 148.3238 | 410733 | None |
| .. | ... | ... | ... |
| 118 | 188.1272 | 435848 | None |
| 119 | 187.2457 | 535367 | None |
| 120 | 186.9520 | 382085 | None |
| 121 | 192.1117 | 649554 | None |
| 122 | 197.3191 | 721971 | None |

[123 rows x 9 columns]

Combined data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|---------|----------|--------|------------|---|
| 0 | 2023-07-28 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 | |
| 1 | 2023-07-31 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 | |
| 2 | 2023-08-01 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 | |
| 3 | 2023-08-02 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 | |
| 4 | 2023-08-03 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 601 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 | |
| 602 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 | |
| 603 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 | |
| 604 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 | |
| 605 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |
| .. | ... | ... | ... |
| 601 | 226.8046 | 510971 | None |
| 602 | 227.4216 | 473871 | None |
| 603 | 228.1121 | 465884 | None |

| | | | |
|-----|----------|--------|------|
| 604 | 231.3567 | 435723 | None |
| 605 | 232.3350 | 193487 | None |

[606 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2024-06-26 04:00:00 thru 2024-12-23 04:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume \ |
|-----|---------------------|---------|----------|--------|--------|------------|
| 0 | 2024-06-26 04:00:00 | 186.920 | 194.8000 | 186.26 | 193.61 | 65103893.0 |
| 1 | 2024-06-27 04:00:00 | 195.005 | 199.8400 | 194.20 | 197.85 | 74397491.0 |
| 2 | 2024-06-28 04:00:00 | 197.730 | 198.8500 | 192.50 | 193.25 | 76930192.0 |
| 3 | 2024-07-01 04:00:00 | 193.490 | 198.2957 | 192.82 | 197.20 | 41192011.0 |
| 4 | 2024-07-02 04:00:00 | 197.280 | 200.4300 | 195.93 | 200.00 | 45600013.0 |
| .. | ... | ... | ... | ... | ... | ... |
| 120 | 2024-12-16 05:00:00 | 230.230 | 233.0000 | 228.01 | 232.93 | 37552096.0 |
| 121 | 2024-12-17 05:00:00 | 232.390 | 232.7300 | 227.85 | 231.15 | 35948131.0 |
| 122 | 2024-12-18 05:00:00 | 230.770 | 231.3999 | 220.11 | 220.52 | 43281443.0 |
| 123 | 2024-12-19 05:00:00 | 224.910 | 226.0900 | 222.92 | 223.29 | 39918739.0 |
| 124 | 2024-12-20 05:00:00 | 219.840 | 226.2100 | 218.73 | 224.92 | 88279184.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 192.1117 | 649554 | None |
| 1 | 197.3191 | 721971 | None |
| 2 | 194.6710 | 605538 | None |
| 3 | 196.1129 | 501335 | None |
| 4 | 198.7859 | 485437 | None |
| .. | ... | ... | ... |
| 120 | 231.5484 | 430659 | None |
| 121 | 230.7897 | 433266 | None |
| 122 | 225.2441 | 529103 | None |
| 123 | 224.0262 | 466361 | None |
| 124 | 223.9497 | 456278 | None |

[125 rows x 9 columns]

Combined data:

| | Date | open | high | low | close | volume \ |
|-----|---------------------|---------|---------|----------|--------|------------|
| 0 | 2023-07-28 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 |
| 1 | 2023-07-31 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 |
| 2 | 2023-08-01 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 |
| 3 | 2023-08-02 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 |
| 4 | 2023-08-03 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 |
| .. | ... | ... | ... | ... | ... | ... |
| 601 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 |
| 602 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 |
| 603 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 |

| | | | | | | |
|-----|---------------------|---------|---------|----------|--------|------------|
| 604 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 |
| 605 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |
| .. | ... | ... | ... |
| 601 | 226.8046 | 510971 | None |
| 602 | 227.4216 | 473871 | None |
| 603 | 228.1121 | 465884 | None |
| 604 | 231.3567 | 435723 | None |
| 605 | 232.3350 | 193487 | None |

[606 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2024-12-19 05:00:00 thru 2025-06-17 05:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume \ |
|-----|---------------------|---------|--------|----------|--------|------------|
| 0 | 2024-12-19 05:00:00 | 224.910 | 226.09 | 222.9200 | 223.29 | 39918739.0 |
| 1 | 2024-12-20 05:00:00 | 219.840 | 226.21 | 218.7300 | 224.92 | 88279184.0 |
| 2 | 2024-12-23 05:00:00 | 225.010 | 226.88 | 223.9000 | 225.06 | 28070007.0 |
| 3 | 2024-12-24 05:00:00 | 226.940 | 229.14 | 226.1300 | 229.05 | 15007497.0 |
| 4 | 2024-12-26 05:00:00 | 228.500 | 228.50 | 226.6706 | 227.05 | 16174500.0 |
| .. | ... | ... | ... | ... | ... | ... |
| 117 | 2025-06-11 04:00:00 | 217.410 | 218.40 | 212.8900 | 213.20 | 39325981.0 |
| 118 | 2025-06-12 04:00:00 | 211.780 | 213.58 | 211.3300 | 213.24 | 27639991.0 |
| 119 | 2025-06-13 04:00:00 | 209.960 | 214.05 | 209.6200 | 212.10 | 29337763.0 |
| 120 | 2025-06-16 04:00:00 | 212.310 | 217.06 | 211.6000 | 216.10 | 33284158.0 |
| 121 | 2025-06-17 04:00:00 | 215.195 | 217.41 | 214.5600 | 214.82 | 32086262.0 |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 224.0262 | 466361 | None |
| 1 | 223.9497 | 456278 | None |
| 2 | 225.2708 | 321899 | None |
| 3 | 228.3619 | 203039 | None |
| 4 | 227.6146 | 262085 | None |
| .. | ... | ... | ... |
| 117 | 214.8840 | 503640 | None |
| 118 | 212.8655 | 364940 | None |
| 119 | 211.9129 | 443361 | None |
| 120 | 215.1622 | 457829 | None |
| 121 | 215.7332 | 431316 | None |

[122 rows x 9 columns]

Combined data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|---------|----------|--------|------------|---|
| 0 | 2023-07-28 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 | |
| 1 | 2023-07-31 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 | |
| 2 | 2023-08-01 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 | |
| 3 | 2023-08-02 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 | |
| 4 | 2023-08-03 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 601 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 | |
| 602 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 | |
| 603 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 | |
| 604 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 | |
| 605 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |
| .. | ... | ... | ... |
| 601 | 226.8046 | 510971 | None |
| 602 | 227.4216 | 473871 | None |
| 603 | 228.1121 | 465884 | None |
| 604 | 231.3567 | 435723 | None |
| 605 | 232.3350 | 193487 | None |

[606 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2025-06-16 04:00:00 thru 2025-12-13 04:00:00 for AMZN...

New data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|--------|----------|--------|------------|---|
| 0 | 2025-06-16 04:00:00 | 212.310 | 217.06 | 211.6000 | 216.10 | 33284158.0 | |
| 1 | 2025-06-17 04:00:00 | 215.195 | 217.41 | 214.5600 | 214.82 | 32086262.0 | |
| 2 | 2025-06-18 04:00:00 | 215.090 | 217.96 | 212.3400 | 212.52 | 44360509.0 | |
| 3 | 2025-06-20 04:00:00 | 214.680 | 214.89 | 208.2709 | 209.69 | 75350733.0 | |
| 4 | 2025-06-23 04:00:00 | 209.790 | 210.39 | 207.3101 | 208.47 | 37311725.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 121 | 2025-12-08 05:00:00 | 229.590 | 230.83 | 226.2700 | 226.89 | 35019072.0 | |
| 122 | 2025-12-09 05:00:00 | 226.840 | 228.57 | 225.1100 | 227.92 | 25840496.0 | |
| 123 | 2025-12-10 05:00:00 | 228.805 | 232.42 | 228.4600 | 231.78 | 38790432.0 | |
| 124 | 2025-12-11 05:00:00 | 230.710 | 232.11 | 228.6901 | 230.28 | 28248522.0 | |
| 125 | 2025-12-12 05:00:00 | 229.870 | 230.08 | 225.1200 | 226.19 | 35636939.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 215.1622 | 457829 | None |
| 1 | 215.7332 | 431316 | None |
| 2 | 214.6135 | 475101 | None |
| 3 | 210.6230 | 591675 | None |
| 4 | 208.9130 | 513937 | None |
| .. | ... | ... | ... |
| 121 | 227.6878 | 510441 | None |
| 122 | 227.7138 | 371664 | None |
| 123 | 231.2702 | 501584 | None |
| 124 | 230.0536 | 426422 | None |
| 125 | 226.8227 | 553245 | None |

[126 rows x 9 columns]

Combined data:

| | Date | open | high | low | close | volume | \ |
|-----|---------------------|---------|---------|----------|--------|------------|---|
| 0 | 2023-07-28 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 | |
| 1 | 2023-07-31 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 | |
| 2 | 2023-08-01 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 | |
| 3 | 2023-08-02 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 | |
| 4 | 2023-08-03 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 | |
| .. | ... | ... | ... | ... | ... | ... | |
| 601 | 2025-12-18 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 | |
| 602 | 2025-12-19 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 | |
| 603 | 2025-12-22 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 | |
| 604 | 2025-12-23 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 | |
| 605 | 2025-12-24 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 | |

| | vwap | transactions | otc |
|-----|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |
| .. | ... | ... | ... |
| 601 | 226.8046 | 510971 | None |
| 602 | 227.4216 | 473871 | None |
| 603 | 228.1121 | 465884 | None |
| 604 | 231.3567 | 435723 | None |
| 605 | 232.3350 | 193487 | None |

[606 rows x 9 columns]

Sleeping for 12 seconds to avoid hitting API rate limits...

Pulling day data for 2025-12-11 05:00:00 thru 2026-06-09 05:00:00 for AMZN...

New data:

| | | Date | open | high | low | close | volume | \ |
|----|------------|----------|---------|---------|----------|--------|------------|---|
| 0 | 2025-12-11 | 05:00:00 | 230.710 | 232.110 | 228.6901 | 230.28 | 28248522.0 | |
| 1 | 2025-12-12 | 05:00:00 | 229.870 | 230.080 | 225.1200 | 226.19 | 35636939.0 | |
| 2 | 2025-12-15 | 05:00:00 | 227.930 | 227.930 | 221.5000 | 222.54 | 47286085.0 | |
| 3 | 2025-12-16 | 05:00:00 | 223.035 | 223.660 | 221.1304 | 222.56 | 39293678.0 | |
| 4 | 2025-12-17 | 05:00:00 | 224.655 | 225.190 | 220.9900 | 221.27 | 44030569.0 | |
| 5 | 2025-12-18 | 05:00:00 | 225.705 | 229.225 | 224.4100 | 226.76 | 50267599.0 | |
| 6 | 2025-12-19 | 05:00:00 | 226.760 | 229.125 | 225.5800 | 227.35 | 85539391.0 | |
| 7 | 2025-12-22 | 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 | |
| 8 | 2025-12-23 | 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 | |
| 9 | 2025-12-24 | 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 | |
| 10 | 2025-12-26 | 05:00:00 | 232.035 | 232.990 | 231.1800 | 232.52 | 15945174.0 | |
| 11 | 2025-12-29 | 05:00:00 | 231.940 | 232.600 | 230.7700 | 232.07 | 19791422.0 | |

| | vwap | transactions | otc |
|----|----------|--------------|------|
| 0 | 230.0536 | 426422 | None |
| 1 | 226.8227 | 553245 | None |
| 2 | 223.2278 | 619103 | None |
| 3 | 222.6031 | 478274 | None |
| 4 | 222.5990 | 493509 | None |
| 5 | 226.8046 | 510971 | None |
| 6 | 227.4216 | 473871 | None |
| 7 | 228.1121 | 465884 | None |
| 8 | 231.3567 | 435723 | None |
| 9 | 232.3350 | 193487 | None |
| 10 | 232.4646 | 277601 | None |
| 11 | 231.8925 | 352623 | None |

Combined data:

| | | Date | open | high | low | close | volume | \ |
|-----|------------|----------|---------|---------|----------|--------|------------|---|
| 0 | 2023-07-28 | 04:00:00 | 129.690 | 133.010 | 129.3300 | 132.21 | 46269781.0 | |
| 1 | 2023-07-31 | 04:00:00 | 133.200 | 133.870 | 132.3800 | 133.68 | 41901516.0 | |
| 2 | 2023-08-01 | 04:00:00 | 133.550 | 133.690 | 131.6199 | 131.69 | 42250989.0 | |
| 3 | 2023-08-02 | 04:00:00 | 130.154 | 130.230 | 126.8200 | 128.21 | 50988614.0 | |
| 4 | 2023-08-03 | 04:00:00 | 127.480 | 129.840 | 126.4100 | 128.91 | 90855736.0 | |
| .. | | ... | ... | ... | ... | ... | | |
| 603 | 2025-12-22 | 05:00:00 | 228.610 | 229.480 | 226.7100 | 228.43 | 32189837.0 | |
| 604 | 2025-12-23 | 05:00:00 | 229.055 | 232.445 | 228.7300 | 232.14 | 29230205.0 | |
| 605 | 2025-12-24 | 05:00:00 | 232.130 | 232.950 | 231.3300 | 232.38 | 11392602.0 | |
| 606 | 2025-12-26 | 05:00:00 | 232.035 | 232.990 | 231.1800 | 232.52 | 15945174.0 | |
| 607 | 2025-12-29 | 05:00:00 | 231.940 | 232.600 | 230.7700 | 232.07 | 19791422.0 | |

| | vwap | transactions | otc |
|---|----------|--------------|------|
| 0 | 131.8837 | 413438 | None |
| 1 | 133.3410 | 406644 | None |
| 2 | 132.2470 | 385743 | None |
| 3 | 128.3973 | 532942 | None |
| 4 | 131.4941 | 746639 | None |

```

..      ""      ""      ""
603  228.1121      465884  None
604  231.3567      435723  None
605  232.3350      193487  None
606  232.4646      277601  None
607  231.8925      352623  None

```

[608 rows x 9 columns]

Exporting AMZN day data to Excel...

Exporting AMZN day data to Pickle...

The first and last date of day data for AMZN is:

```

          Date    open    high    low    close    volume    vwap  \
0 2023-07-28 04:00:00  129.69  133.01  129.33  132.21  46269781.0  131.8837

```

```

    transactions    otc
0          413438  None

```

```

          Date    open    high    low    close    volume    vwap  \
607 2025-12-29 05:00:00  231.94  232.6   230.77  232.07  19791422.0  231.8925

```

```

    transactions    otc
607          352623  None

```

Number of rows after data update: 608

Number of rows added during update: 2

Polygon data complete for AMZN day data.

```

[8]: # Copy this <!-- INSERT_polygon_pull_data_HERE --> to index_temp.md
export_track_md_deps(dep_file=dep_file, md_filename="polygon_pull_data.md",
    ↪content=df.head().to_markdown(floatfmt=".5f"))

```

Exported and tracked: polygon_pull_data.md