

# create\_stooq\_data

September 29, 2021

## 1 Download and store STOOQ data

This notebook contains information on downloading the STOOQ stock and ETF price data that we use in [Chapter 09](#) for a pairs trading strategy based on cointegration and [Chapter 11](#) for a long-short strategy using Random Forest return predictions.

### 1.1 Imports & Settings

```
[1]: import warnings
warnings.filterwarnings('ignore')

[2]: from pathlib import Path
import requests
from io import BytesIO
from zipfile import ZipFile, BadZipFile

import numpy as np
import pandas as pd
import pandas_datareader.data as web
from sklearn.datasets import fetch_openml

pd.set_option('display.expand_frame_repr', False)
```

### 1.2 Set Data Store path

Modify the path to the DATA\_STORE if you would like to store the data elsewhere and change the notebooks accordingly

```
[3]: DATA_STORE = Path('assets.h5')
```

### 1.3 Stooq Historical Market Data

Note that the below downloading details may change at any time as Stooq updates their website; if you encounter errors, please inspect their website and raise a GitHub issue to let us know so we can update the information.

Update 12/2020: please note that STOOQ will disable automatic downloads and require CAPTCHA starting Dec 10, 2020 so that the code that downloads and unpacks the zip files will no longer work; please navigate to their website [here](#) for manual download.

### 1.3.1 Download price data

1. Download **price data** for the selected combination of asset class, market and frequency from [the Stooq website](#)
2. Store the result under `stooq` using the preferred folder structure outlined on the website. It has the structure: `/data/freq/market/asset_class`, such as `/data/daily/us/nasdaq etfs`.

```
[4]: stooq_path = Path('stooq')
     if not stooq_path.exists():
         stooq_path.mkdir()
```

Use the symbol for the market you want to download price data for. In this book we'll be using `us` and `jp`.

```
[6]: STOOQ_URL = 'https://static.stooq.com/db/h/'
```

```
[7]: def download_price_data(market='us'):
     data_url = f'd_{market}_txt.zip'
     response = requests.get(STOOQ_URL + data_url).content
     with ZipFile(BytesIO(response)) as zip_file:
         for i, file in enumerate(zip_file.namelist()):
             if not file.endswith('.txt'):
                 continue
             local_file = stooq_path / file
             local_file.parent.mkdir(parents=True, exist_ok=True)
             with local_file.open('wb') as output:
                 for line in zip_file.open(file).readlines():
                     output.write(line)
```

```
[8]: for market in ['us', 'jp']:
     download_price_data(market=market)
```

### 1.3.2 Add symbols

Add the corresponding **symbols**, i.e., tickers and names by following the directory tree on the same site. You can also adapt the following code snippet using the appropriate asset code that you find by inspecting the url; this example works for NASDAQ ETFs that have code `g=69`:

```
df = pd.read_csv('https://stooq.com/db/l/?g=69', sep='').apply(lambda x: x.str.strip())
df.columns = ['ticker', 'name']
df.drop_duplicates('ticker').to_csv('stooq/data/tickers/us/nasdaq etfs.csv', index=False)
```

```
[9]: metadata_dict = {
     ('jp', 'tse etfs'): 34,
     ('jp', 'tse stocks'): 32,
     ('us', 'nasdaq etfs'): 69,
     ('us', 'nasdaq stocks'): 27,
     ('us', 'nyse etfs'): 70,
```

```

('us', 'nyse stocks'): 28,
('us', 'nysemkt stocks'): 26
}

```

```

[10]: for (market, asset_class), code in metadata_dict.items():
        df = pd.read_csv(f'https://stooq.com/db/l/?g={code}', sep=' ').
        ↪apply(lambda x: x.str.strip())
        df.columns = ['ticker', 'name']
        df = df.drop_duplicates('ticker').dropna()
        print(market, asset_class, f'# tickers: {df.shape[0]:,.0f}')
        path = stooq_path / 'tickers' / market
        if not path.exists():
            path.mkdir(parents=True)
        df.to_csv(path / f'{asset_class}.csv', index=False)

```

```

jp tse etfs # tickers: 321
jp tse stocks # tickers: 3,732
us nasdaq etfs # tickers: 171
us nasdaq stocks # tickers: 3,570
us nyse etfs # tickers: 1,023
us nyse stocks # tickers: 3,969
us nysemkt stocks # tickers: 298

```

### 1.3.3 Store price data in HDF5 format

To speed up loading, we store the price data in HDF format. The function `get_stooq_prices_and_symbols` loads data assuming the directory structure described above and takes the following arguments: - frequency (see Stooq website for options as these may change; default is daily - market (default: us), and - asset class (default: nasdaq etfs).

It removes files that do not have data or do not appear in the corresponding list of symbols.

```

[11]: def get_stooq_prices_and_tickers(frequency='daily',
                                       market='us',
                                       asset_class='nasdaq etfs'):

    prices = []

    tickers = (pd.read_csv(stooq_path / 'tickers' / market / f'{asset_class}.
    ↪csv'))

    if frequency in ['5 min', 'hourly']:
        parse_dates = [['date', 'time']]
        date_label = 'date_time'
    else:
        parse_dates = ['date']
        date_label = 'date'
    names = ['ticker', 'freq', 'date', 'time',
            'open', 'high', 'low', 'close', 'volume', 'openint']

```

```

usecols = ['ticker', 'open', 'high', 'low', 'close', 'volume'] + parse_dates
path = stooq_path / 'data' / frequency / market / asset_class
print(path.as_posix())
files = path.glob('**/*.txt')
for i, file in enumerate(files, 1):
    if i % 500 == 0:
        print(i)
    if file.stem not in set(tickers.ticker.str.lower()):
        print(file.stem, 'not available')
        file.unlink()
    else:
        try:
            df = (pd.read_csv(
                file,
                names=names,
                usecols=usecols,
                header=0,
                parse_dates=parse_dates))
            prices.append(df)
        except pd.errors.EmptyDataError:
            print('\tdata missing', file.stem)
            file.unlink()

prices = (pd.concat(prices, ignore_index=True)
          .rename(columns=str.lower)
          .set_index(['ticker', date_label])
          .apply(lambda x: pd.to_numeric(x, errors='coerce'))))
return prices, tickers

```

We'll be using US equities and ETFs in [Chapter 9](#) and Japanese equities in [Chapter 11](#). The following code collects the price data for the period 2000-2019 and stores it with the corresponding symbols in the global `assets.h5` store:

```

[12]: # load some Japanese and all US assets for 2000-2019
markets = {'jp': ['tse stocks'],
          'us': ['nasdaq etfs', 'nasdaq stocks', 'nyse etfs', 'nyse stocks',
                ↪ 'nysemkt stocks']}
frequency = 'daily'

idx = pd.IndexSlice
for market, asset_classes in markets.items():
    for asset_class in asset_classes:
        print(f'\n{asset_class}')
        prices, tickers = get_stooq_prices_and_tickers(frequency=frequency,
                                                         market=market,

```

```

asset_class=asset_class)

prices = prices.sort_index().loc[idx[:, '2000': '2019'], :]
names = prices.index.names
prices = (prices
          .reset_index()
          .drop_duplicates()
          .set_index(names)
          .sort_index())

print('\nNo. of observations per asset')
print(prices.groupby('ticker').size().describe())
key = f'stoooq/{market}/{asset_class.replace(" ", "/")}/'

print(prices.info(null_counts=True))

prices.to_hdf(DATA_STORE, key + 'prices', format='t')

print(tickers.info())
tickers.to_hdf(DATA_STORE, key + 'tickers', format='t')

```

```

tse stocks
sto0q/data/daily/jp/tse stocks
8729.jp not available
8044.jp not available
8885.jp not available
500
7873.jp not available
7891.jp not available
1000
6889.jp not available
8692.jp not available
7684.jp not available
1500
2000
2417.jp not available
2500
3756.jp not available
3606.jp not available
3171.jp not available
3000
3424.jp not available
6065.jp not available
3258.jp not available
3500
4217.jp not available

```

```

No. of observations per asset
count      3664.000000
mean       2806.534116
std        1177.053371
min         1.000000
25%        2150.000000
50%        3041.000000
75%        3621.000000
max        5716.000000
dtype: float64
<class 'pandas.core.frame.DataFrame'>
MultiIndex: 10283141 entries, ('1301.JP', Timestamp('2005-03-22 00:00:00')) to
('9997.JP', Timestamp('2019-12-30 00:00:00'))
Data columns (total 5 columns):
#   Column      Non-Null Count  Dtype
---  -
0   open        10283141 non-null  float64
1   high        10283141 non-null  float64
2   low         10283141 non-null  float64
3   close       10283141 non-null  float64
4   volume      10283141 non-null  int64
dtypes: float64(4), int64(1)
memory usage: 431.6+ MB
None
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3732 entries, 0 to 3731
Data columns (total 2 columns):
#   Column      Non-Null Count  Dtype
---  -
0   ticker      3732 non-null   object
1   name        3732 non-null   object
dtypes: object(2)
memory usage: 58.4+ KB
None

nasdaq etfs
stooq/data/daily/us/nasdaq etfs
dslv.us not available
uslv.us not available
ziv.us not available
hynd.us not available
viix.us not available
istb.us not available
agnd.us not available
gulf.us not available
dvy.us not available
tvix.us not available

```

ugld.us not available  
bscn.us not available  
snln.us not available  
dgld.us not available  
bsjo.us not available  
emcg.us not available

No. of observations per asset

count 171.000000  
mean 2104.748538  
std 883.154960  
min 74.000000  
25% 1473.500000  
50% 2079.000000  
75% 2634.500000  
max 5031.000000

dtype: float64

<class 'pandas.core.frame.DataFrame'>

MultiIndex: 359912 entries, ('AAXJ.US', Timestamp('2008-08-15 00:00:00')) to ('YLC0.US', Timestamp('2019-12-31 00:00:00'))

Data columns (total 5 columns):

#	Column	Non-Null Count	Dtype
0	open	359912 non-null	float64
1	high	359912 non-null	float64
2	low	359912 non-null	float64
3	close	359912 non-null	float64
4	volume	359912 non-null	int64

dtypes: float64(4), int64(1)

memory usage: 15.1+ MB

None

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 171 entries, 0 to 170

Data columns (total 2 columns):

#	Column	Non-Null Count	Dtype
0	ticker	171 non-null	object
1	name	171 non-null	object

dtypes: object(2)

memory usage: 2.8+ KB

None

nasdaq stocks

stooq/data/daily/us/nasdaq stocks

sva.us not available

rose.us not available

nebuu.us not available

pgnx.us not available

ocsl1.us not available  
totau.us not available  
tgen.us not available  
msbf.us not available  
nurow.us not available  
rtix.us not available  
webk.us not available  
ntgn.us not available  
srva.us not available  
mlnx.us not available  
tecd.us not available  
stml.us not available  
tzacu.us not available  
wrlsr.us not available  
pbbi.us not available  
wrlsu.us not available  
xog.us not available  
tdacu.us not available  
500  
song.us not available  
ptla.us not available  
songw.us not available  
paacr.us not available  
torc.us not available  
slim.us not available  
vtiqu.us not available  
tivo.us not available  
roseu.us not available  
mnlo.us not available  
saex.us not available  
opgnw.us not available  
valx.us not available  
rarx.us not available  
pacq.us not available  
tacow.us not available  
osbcp.us not available  
palt.us not available  
1000  
shlo.us not available  
smrt.us not available  
opb.us not available  
paac.us not available  
sito.us not available  
nebu.us not available  
sphs.us not available  
rbzhf.us not available  
znwaa.us not available  
pope.us not available



paacw.us not available  
trpx.us not available  
tlf.us not available  
rubi.us not available  
rosew.us not available  
tsg.us not available  
ubio.us not available  
nebuw.us not available  
pub.us not available  
sorl.us not available  
pegi.us not available  
tuesq.us not available  
srtsw.us not available  
paacu.us not available  
syne.us not available  
pacqw.us not available  
zbio.us not available  
sjoyw.us not available  
otg.us not available  
1500  
tcrd.us not available  
mudsu.us not available  
zionw.us not available  
org.us not available  
qbak.us not available  
twmc.us not available  
zn.us not available  
vvus.us not available  
ottw.us not available  
trnx.us not available  
pnrly.us not available  
pstvz.us not available  
lk.us not available  
bntcw.us not available  
csfl.us not available  
evstc.us not available  
evsi.us not available  
lsxmr.us not available  
fomx.us not available  
algr.us not available  
fdef.us not available  
dbcp.us not available  
algrr.us not available  
cats.us not available  
2000  
flrz.us not available  
emms.us not available  
kbwp.us not available

loacu.us not available  
caro.us not available  
cyou.us not available  
hhhhr.us not available  
fllc.us not available  
corv.us not available  
ftrcq.us not available  
ibkco.us not available  
ahi.us not available  
ctrcq.us not available  
ent.us not available  
2500  
akrxq.us not available  
mfsf.us not available  
chngv.us not available  
mini.us not available  
bcom.us not available  
actt.us not available  
cvti.us not available  
evsiw.us not available  
habt.us not available  
ibkc.us not available  
bvsnq.us not available  
fllcw.us not available  
cyrxw.us not available  
ddmxu.us not available  
gpaq.us not available  
iots.us not available  
elgx.us not available  
imvtw.us not available  
kblmu.us not available  
fllcu.us not available  
fsbc.us not available  
ibkcp.us not available  
alacu.us not available  
ftsv.us not available  
3000  
asna.us not available  
eri.us not available  
deacu.us not available  
evlmc.us not available  
edtxw.us not available  
gbdcr.us not available  
acttw.us not available  
algrw.us not available  
gcvrz.us not available  
dnjr.us not available  
afh.us not available

bvxxvw.us not available  
 aryau.us not available  
 acttu.us not available  
 gblk.us not available  
 aryaw.us not available  
 gpaqw.us not available  
 aytup.us not available  
 algru.us not available  
 dkngw.us not available  
 dmpi.us not available  
 bwmwx.us not available  
 hyxe.us not available  
 3500  
 imvtu.us not available  
 innt.us not available  
 ctacu.us not available  
 drmt.us not available  
 evgbc.us not available  
 dfnsu.us not available  
 cy.us not available  
 hhhhhu.us not available  
 intl.us not available  
 kmph.us not available  
 club.us not available  
 inapq.us not available  
 ibkcn.us not available  
 gpaqu.us not available

No. of observations per asset

count 3147.000000  
 mean 2038.690817  
 std 1556.230972  
 min 1.000000  
 25% 530.000000  
 50% 1646.000000  
 75% 3722.000000  
 max 10062.000000

dtype: float64

<class 'pandas.core.frame.DataFrame'>

MultiIndex: 6415760 entries, ('AACG.US', Timestamp('2008-01-28 00:00:00')) to ('ZYXI.US', Timestamp('2019-12-31 00:00:00'))

Data columns (total 5 columns):

#	Column	Non-Null Count	Dtype
0	open	6415760 non-null	float64
1	high	6415760 non-null	float64
2	low	6415760 non-null	float64
3	close	6415760 non-null	float64

```

4    volume  6415760 non-null  int64
dtypes: float64(4), int64(1)
memory usage: 269.3+ MB
None
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3570 entries, 0 to 3569
Data columns (total 2 columns):
#   Column  Non-Null Count  Dtype
---  -
0    ticker  3570 non-null    object
1    name    3570 non-null    object
dtypes: object(2)
memory usage: 55.9+ KB
None

```

```

nyse etfs
stooq/data/daily/us/nyse etfs
flag.us not available
ejul.us not available
kbwr.us not available
flat.us not available
dvop.us not available
jpge.us not available
dtys.us not available
ugaz.us not available
dlbs.us not available
axjl.us not available
hspx.us not available
gce.us not available
500
drr.us not available
olem.us not available
dgaz.us not available
gsc.us not available
dtul.us not available
tur.us not available
jjp.us not available
dto.us not available
pgj.us not available
spyb.us not available
bsjk.us not available
1000
stpp.us not available

```

```

No. of observations per asset
count      983.000000
mean       2477.645982
std        1002.603761

```

```

min          8.000000
25%         1708.000000
50%         2607.000000
75%         3341.000000
max         3738.000000
dtype: float64
<class 'pandas.core.frame.DataFrame'>
MultiIndex: 2435526 entries, ('AADR.US', Timestamp('2010-07-21 00:00:00')) to
('ZSL.US', Timestamp('2019-12-31 00:00:00'))
Data columns (total 5 columns):
#   Column    Non-Null Count  Dtype
---  -
0   open      2435526 non-null  float64
1   high      2435526 non-null  float64
2   low       2435526 non-null  float64
3   close     2435526 non-null  float64
4   volume    2435526 non-null  int64
dtypes: float64(4), int64(1)
memory usage: 102.2+ MB
None
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1023 entries, 0 to 1022
Data columns (total 2 columns):
#   Column    Non-Null Count  Dtype
---  -
0   ticker    1023 non-null   object
1   name      1023 non-null   object
dtypes: object(2)
memory usage: 16.1+ KB
None

nyse stocks
stooq/data/daily/us/nyse stocks
vvnt-ws.us not available
vrt-ws.us not available
vst-ws-a.us not available
wpcf-ws.us not available
zayo.us not available
xrf.us not available
xth.us not available
yac-ws.us not available
vygg-u.us not available
sswa.us not available
paca.us not available
sitc_a.us not available
schw_d.us not available
ipoc-u.us not available
treb-u.us not available

```

jnmf.us not available  
pmvc-u.us not available  
tblu.us not available  
per.us not available  
trne-u.us not available  
obelf.us not available  
sbe-ws.us not available  
nycb\_a.us not available  
rtn.us not available  
treb-ws.us not available  
tlra.us not available  
nref\_a.us not available  
shll-ws.us not available  
kcac-u.us not available  
mitt\_a.us not available  
iret\_c.us not available  
voya\_b.us not available  
500  
pcpl-u.us not available  
prif\_b.us not available  
jjt.us not available  
piy.us not available  
prif\_f.us not available  
vam.us not available  
lgvw-u.us not available  
srf.us not available  
rtl.us not available  
tap-a.us not available  
jphf.us not available  
pic-ws.us not available  
jjc.us not available  
loak-u.us not available  
nycb\_u.us not available  
ryzz.us not available  
msus.us not available  
loak-ws.us not available  
oac-ws.us not available  
schw\_c.us not available  
kcac-ws.us not available  
val.us not available  
jmf.us not available  
trtn\_a.us not available  
rrts.us not available  
nsco-ws.us not available  
tdw-ws-a.us not available  
star\_d.us not available  
rbs.us not available  
ne.us not available

utx-w.us not available  
tdw-ws-b.us not available  
psth-ws.us not available  
pana-ws.us not available  
star\_g.us not available  
sdrl.us not available  
rexr\_a.us not available  
julz.us not available  
prif\_e.us not available  
mitt\_c.us not available  
rtw.us not available  
seah-u.us not available  
rbac-ws.us not available  
pia-i-u.us not available  
tcrw.us not available  
1000  
kdp.us not available  
rpla-ws.us not available  
ipob-u.us not available  
rexr\_b.us not available  
trtn\_c.us not available  
jcap\_b.us not available  
ssinq.us not available  
lvhe.us not available  
ryce.us not available  
prif\_d.us not available  
ltmaq.us not available  
jmlp.us not available  
spaq-ws.us not available  
mitt\_b.us not available  
vceb.us not available  
royt.us not available  
pana-u.us not available  
oilx.us not available  
klr.us not available  
utz-ws.us not available  
vgac-u.us not available  
tbjl.us not available  
oxy-ws.us not available  
tcrz.us not available  
spn.us not available  
mstb.us not available  
vjet.us not available  
omn.us not available  
pgm.us not available  
oxy-ws-w.us not available  
mlti.us not available  
prpb-ws.us not available

waas.us not available  
1500  
sdag.us not available  
mne.us not available  
snpr-u.us not available  
lgvw-ws.us not available  
pol.us not available  
wbc.us not available  
qhc.us not available  
splp\_a.us not available  
rbac-u.us not available  
sftw-u.us not available  
swp.us not available  
pack-ws.us not available  
ipob-ws.us not available  
stpk-u.us not available  
scvx-ws.us not available  
stag\_c.us not available  
oppr-w.us not available  
trne-ws.us not available  
shll-u.us not available  
twnd-u.us not available  
star\_i.us not available  
nmfx.us not available  
jpls.us not available  
scpe-u.us not available  
jih-ws.us not available  
rmg-ws.us not available  
mfac-ws.us not available  
prpb-u.us not available  
sepz.us not available  
lvhb.us not available  
soac-u.us not available  
jpgb.us not available  
pyx.us not available  
sitc\_k.us not available  
ipoc-ws.us not available  
ktp.us not available  
psa\_v.us not available  
tfjl.us not available  
pdac-u.us not available  
jpeu.us not available  
2000  
mxde.us not available  
leap-u.us not available  
ngls\_a.us not available  
spaq-u.us not available  
jmei.us not available



untcq.us not available  
lmha.us not available  
vgfo.us not available  
vert-u.us not available  
jpmf.us not available  
rpla-u.us not available  
kem.us not available  
jws-ws.us not available  
lgc-ws.us not available  
s.us not available  
psv.us not available  
prif\_c.us not available  
oacb-u.us not available  
soac-ws.us not available  
mfac-u.us not available  
prif\_a.us not available  
lhc.us not available  
rexr\_c.us not available  
tlrd.us not available  
nmfc.us not available  
scpe-ws.us not available  
trtn\_b.us not available  
psth-u.us not available  
tsoc.us not available  
scvx-u.us not available  
wchn.us not available  
pcpl-ws.us not available  
trtn\_d.us not available  
sftw-ws.us not available  
tge.us not available  
nfh-ws.us not available  
lmhb.us not available  
oibr-c.us not available  
jped.us not available  
sbna.us not available  
ipv-ws.us not available  
octz.us not available  
chx-w.us not available  
dvp.us not available  
aptv\_a.us not available  
inf.us not available  
codi\_b.us not available  
faii-u.us not available  
avx.us not available  
ctl.us not available  
fuse-u.us not available  
avan-u.us not available  
jcpnq.us not available

fvac-ws.us not available  
dgnr-u.us not available  
codi\_a.us not available  
2500  
djul.us not available  
clny\_h.us not available  
gsah-ws.us not available  
ali\_b.us not available  
ftai\_a.us not available  
ccac-ws.us not available  
hmlp\_a.us not available  
dyls.us not available  
bldg.us not available  
hylvn-ws.us not available  
chap.us not available  
cbo.us not available  
gmre\_a.us not available  
agn.us not available  
cmre\_e.us not available  
inxn.us not available  
dboc.us not available  
chkr.us not available  
cmre\_d.us not available  
dlng\_b.us not available  
fg-ws.us not available  
fgna-u.us not available  
cvia.us not available  
fsep.us not available  
crhc-u.us not available  
cciv-u.us not available  
gtx.us not available  
cpsr-u.us not available  
cubi\_c.us not available  
ccxx-u.us not available  
chmi\_b.us not available  
enpc-u.us not available  
funl.us not available  
eqm.us not available  
cubi\_d.us not available  
alin\_a.us not available  
bufr.us not available  
3000  
alus-u.us not available  
fpac-ws.us not available  
deh-ws.us not available  
avtr\_a.us not available  
dsep.us not available  
graf-u.us not available

inst.us not available  
ally\_a.us not available  
diet.us not available  
ctst.us not available  
aone-u.us not available  
bmrq-u.us not available  
hsbc\_a.us not available  
bdxa.us not available  
cubi\_e.us not available  
codi\_c.us not available  
gnc.us not available  
dxb\_.us not available  
insw\_a.us not available  
dsoc.us not available  
ares\_a.us not available  
ccac-u.us not available  
embd.us not available  
fvac-u.us not available  
bal.us not available  
banc\_d.us not available  
fjul.us not available  
dlng\_a.us not available  
celg-r.us not available  
dfns-u.us not available  
cch.us not available  
hewi.us not available  
aks.us not available  
hcr.us not available  
gleo-ws.us not available  
apsg-u.us not available  
bcrhf.us not available  
ccxx-ws.us not available  
clii-u.us not available  
argo\_a.us not available  
hpx-ws.us not available  
atco\_e.us not available  
crc.us not available  
gsah-u.us not available  
jbn.us not available  
3500  
hzac-u.us not available  
eumf.us not available  
chk\_d.us not available  
eros.us not available  
haud.us not available  
aep.us not available  
gleo-u.us not available  
aspl-u.us not available

dnr.us not available  
css.us not available  
impx-u.us not available  
axe.us not available  
hhs.us not available  
dms-ws.us not available  
bepc-w.us not available  
ftai\_b.us not available  
clny\_j.us not available  
atco\_g.us not available  
atco\_i.us not available  
cpsr-ws.us not available  
alus-ws.us not available  
jbr.us not available  
bsjn.us not available  
dmyd-u.us not available  
glog\_a.us not available  
chmi\_a.us not available  
iipr\_a.us not available  
ect.us not available  
avh.us not available  
graf-ws.us not available  
acnd-u.us not available  
iaca-u.us not available  
azn.us not available  
asaq-u.us not available  
inteq.us not available  
glop\_a.us not available  
bmrq-ws.us not available  
clny\_i.us not available  
chk.us not available  
gik-ws.us not available  
glop\_b.us not available  
cmre\_c.us not available  
bbp.us not available  
ayr.us not available  
grx\_a.us not available  
adfi.us not available  
alin\_e.us not available  
fuse-ws.us not available  
goac-u.us not available  
corr\_a.us not available  
aig-ws.us not available  
ftsi.us not available  
fpac-u.us not available  
atco\_d.us not available  
4000  
alin\_b.us not available

```

clny_g.us not available
altg-ws.us not available
apha.us not available
ccx-ws.us not available
atco_h.us not available
glby.us not available
hfro_a.us not available
banc_e.us not available
dofsq.us not available
dmyt-ws.us not available
goac-ws.us not available
dmyt-u.us not available
easi.us not available
faii-ws.us not available
acnd-ws.us not available
cch-ws.us not available
cubi_f.us not available
hjb.us not available
feac-u.us not available
bip-w.us not available
ali_e.us not available
cbx.us not available
bgg.us not available
augz.us not available
fg.us not available
cwen-a.us not available
dgnr-ws.us not available
ali_a.us not available
cmre_b.us not available
ambc-ws.us not available
gix-ws.us not available
dfns-ws.us not available
glop_c.us not available
feac-ws.us not available
cciv-ws.us not available
4500

```

```

No. of observations per asset
count      3672.000000
mean       2174.136438
std        1715.610457
min         1.000000
25%        591.000000
50%       1770.000000
75%       3737.000000
max       10062.000000
dtype: float64
<class 'pandas.core.frame.DataFrame'>

```

MultiIndex: 7983429 entries, ('A.US', Timestamp('2000-01-03 00:00:00')) to ('ZYM.E.US', Timestamp('2019-12-31 00:00:00'))

Data columns (total 5 columns):

#	Column	Non-Null Count	Dtype
0	open	7983429 non-null	float64
1	high	7983429 non-null	float64
2	low	7983429 non-null	float64
3	close	7983429 non-null	float64
4	volume	7983429 non-null	int64

dtypes: float64(4), int64(1)

memory usage: 335.1+ MB

None

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 3969 entries, 0 to 3968

Data columns (total 2 columns):

#	Column	Non-Null Count	Dtype
0	ticker	3969 non-null	object
1	name	3969 non-null	object

dtypes: object(2)

memory usage: 62.1+ KB

None

nysemkt stocks

stooq/data/daily/us/nysemkt stocks

phge-u.us not available

micr.us not available

chaq-ws.us not available

sgb.us not available

ltsl.us not available

lts\_a.us not available

arnc\_.us not available

nspr-ws-b.us not available

tdw-ws.us not available

alo.us not available

chaq-u.us not available

phge-ws.us not available

plym\_a.us not available

ptk-ws.us not available

klr-ws.us not available

nspr-ws.us not available

ltsf.us not available

ltsk.us not available

sdi.us not available

llex.us not available

ycbd\_a.us not available

yumaq.us not available

```

rif.us not available
biox-ws.us not available
brmk-ws.us not available
lbyyq.us not available
talo-ws.us not available
ltsh.us not available
cuo.us not available
uuuu-ws.us not available

```

No. of observations per asset

```

count      283.000000
mean       2630.572438
std        1260.978958
min         4.000000
25%        1583.000000
50%        3312.000000
75%        3721.500000
max        5029.000000

```

dtype: float64

<class 'pandas.core.frame.DataFrame'>

MultiIndex: 744452 entries, ('AAMC.US', Timestamp('2012-12-13 00:00:00')) to ('ZOM.US', Timestamp('2019-12-31 00:00:00'))

Data columns (total 5 columns):

#	Column	Non-Null Count	Dtype
0	open	744452 non-null	float64
1	high	744452 non-null	float64
2	low	744452 non-null	float64
3	close	744452 non-null	float64
4	volume	744452 non-null	int64

dtypes: float64(4), int64(1)

memory usage: 31.3+ MB

None

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 298 entries, 0 to 297

Data columns (total 2 columns):

#	Column	Non-Null Count	Dtype
0	ticker	298 non-null	object
1	name	298 non-null	object

dtypes: object(2)

memory usage: 4.8+ KB

None