- 퀀트?

- 모형을 기반으로 금융상품의 가격을 산정하거나, 이를 바탕으로 투자를 하는 사람
- ‘계량적’을 의미하는 퀀티터티브(Quantitative)의 약자

- 퀀트 투자?

- 정량적인 투자법
- 데이터를 바탕으로 수학과 통계를 기반으로 투자 전략을 만들고 이를 바탕으로 투자

- **요리과정 & 퀀트**

| 요리 과정 | 퀀트 투자 |
|---|---|
| **요리 재료** | 데이터 |
| **요리 도구** | 프로그래밍 |
| **레시피** | 투자 전략 (종목 선택) |
| **데코레이션** | 포트폴리오  구성 |
| **음식** | 투자 결과 |

- 퀀트의 핵심: 데이터(DATA)

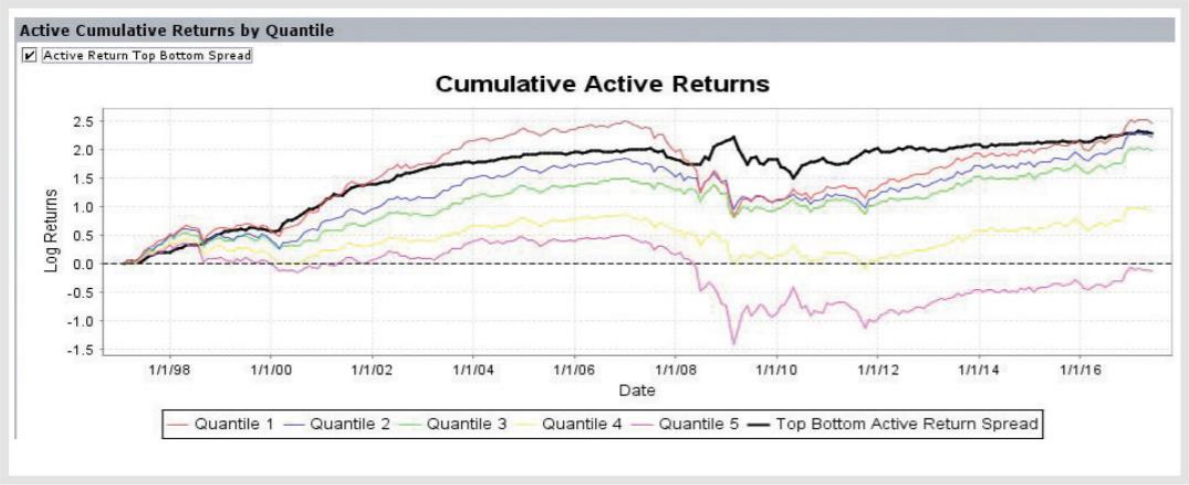
- 핵심 데이터: 주가 / 재무제표 / 가치지표

- **데이터의 등급**

| 데이터 | 종류 |
| --- | --- |
| **유료 데이터 (고급)** | 블룸버그, 팩트셋. S&P<br>백테스트 기능 제공 |
| **유료 데이터 (일반)** | Quandl, tiingo, DataGuide, Quantiwise<br>단순 데이터 제공 |
| **무료 데이터** | 금융 홈페이지, 한국거래소, API 등<br>직접 수집 및 클랜징 |

- 유료 데이터 (고급)

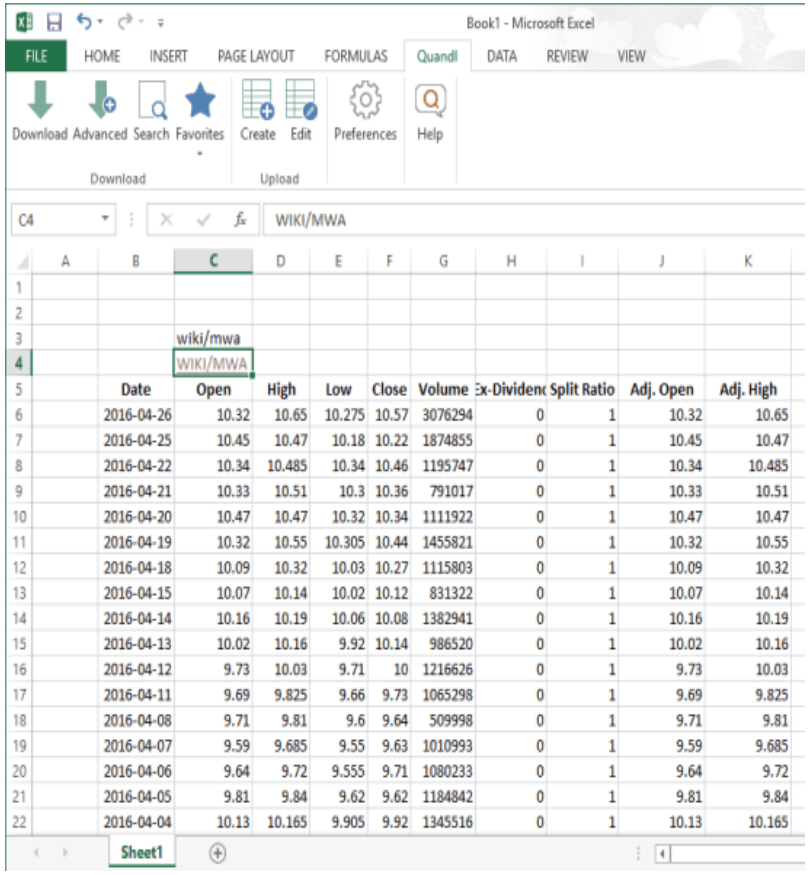
3-BLOOMBERG
GO F1 F2 F3 F4 PRINT HELP MEMO SURVE QUOTE QUOTE MONIT NEWS MSG MENU PG BA PG FW CMND
Charts & Tables - Futures Menu
Generic 1st 'CL' Future Comdty
HP
HELP DESK
CL1 ↓55.27 +.54 55.26 /55.27 8×10 Prev 54.73
At 15:23 d Vol 53922 Op 55.05 Hi 55.74 Lo 54.94 OpenInt 309507
CL1 COMB Comdty
96) Export to Excel
Page 1/6 Historical Price
Generic 1st 'CL' Future
Range 12/29/1995 - 11/29/1996 Period Daily
Market Last Price Contract Volum Currency USD
View Dense (HP)
High 25.92 on 10/21/96
Low 17.45 on 01/29/96
Average 21.73 38,950
Net Chg 4.20 21.48%
Date Last Price Contract ... Date Last Price Contract ... Date Last Price Contract ...
F 11/29/96 24,943 F 11/08/96 23.59 50,481 F 10/18/96 25.79 21,595
T 11/28/96 T 11/07/96 22.74 40,579 T 10/17/96 25.42 26,997
W 11/27/96 23.75 W 11/06/96 22.69 55,689 W 10/16/96 25.17 32,745
T 11/26/96 23.62 35,051 T 11/05/96 22.64 40,764 T 10/15/96 25.42 26,146
M 11/25/96 23.49 36,370 M 11/04/96 22.79 34,962 M 10/14/96 25.62 32,390
F 11/22/96 23.75 40,436 F 11/01/96 23.03 39,654 F 10/11/96 24.66 31,093
T 11/21/96 23.84 1,899 T 10/31/96 23.35 69,441 T 10/10/96 24.26 51,656
W 11/20/96 23.76 39,768 W 10/30/96 24.28 43,753 W 10/09/96 25.07 35,805
T 11/19/96 24.49 43,906 T 10/29/96 24.34 45,548 T 10/08/96 25.54 38,035
M 11/18/96 23.88 30,265 M 10/28/96 24.85 50,676 M 10/07/96 25.24 32,776
F 11/15/96 24.17 32,416 F 10/25/96 24.86 30,727 F 10/04/96 24.73 33,610
T 11/14/96 24.41 47,492 T 10/24/96 24.51 52,403 T 10/03/96 24.81 41,680
W 11/13/96 24.12 47,884 W 10/23/96 24.86 44,906 W 10/02/96 24.05 45,060
T 11/12/96 23.35 33,286 T 10/22/96 25.75 34,189 T 10/01/96 24.14 40,059
M 11/11/96 23.37 37,151 M 10/21/96 H 25.92 28,551 M 09/30/96 24.38 27,733
THE NEW HUB FOR PRIVATE EQUITY
PE


Active Cumulative Returns by Quantile
Active Return Top Bottom Spread
Cumulative Active Returns
Log Returns
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
1/1/98
1/1/00
1/1/02
1/1/04
1/1/06
1/1/08
1/1/10
1/1/12
1/1/14
1/1/16
Date
Quantile 1
Quantile 2
Quantile 3
Quantile 4
Quantile 5
Top Bottom Active Return Spread

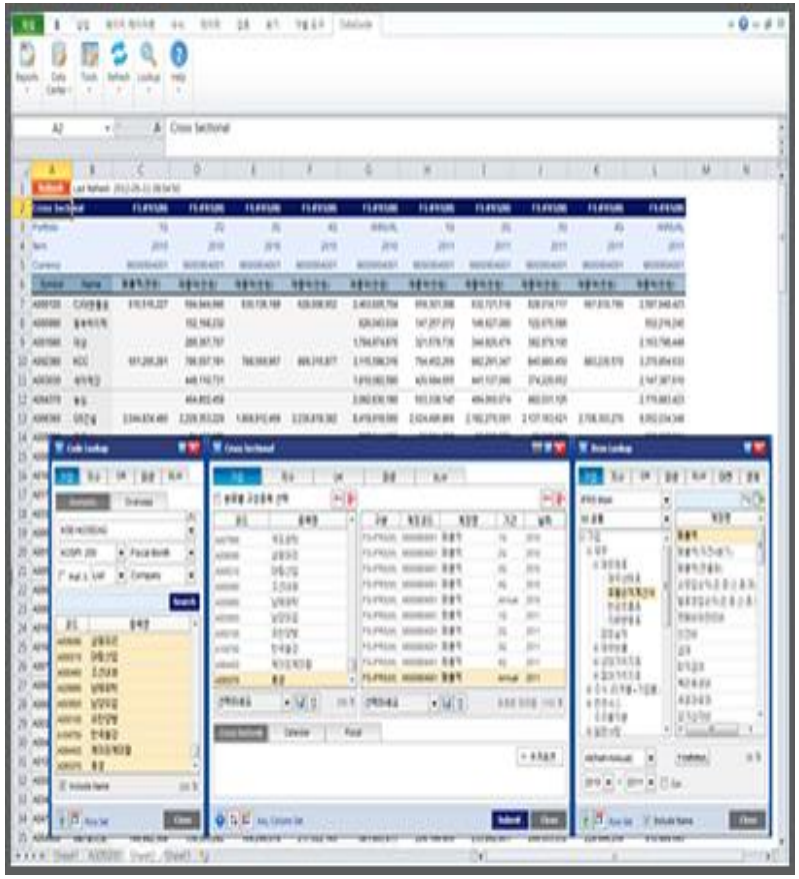
- 유료 데이터 (일반)

| Price Per Month | FREE | $10 |
|---|---|---|
| Price Data | | |
| Coverage | 64,409 Global Securities | 64,409 Global Securities |
| Intraday Real-time | Yes | Yes |
| History | 30+ Years | 30+ Years |
| Fundamental Data | | |
| Coverage (Funds) | All 31,864 Mutual Funds & ETFs | All 31,864 Mutual Funds & ETFs |
| Coverage (Stocks) | Top 2,000 U.S. Stocks by Market Cap | All 21,386 US & Chinese Stocks |
| History | 5 Years | 12+ Years |
| Screener | | |
| Saved Screens Allowed | 5 | Unlimited |
| Saved Custom Metrics Allowed | 2 | Unlimited |
| Portfolio | | |
| Saved Portfolios Allowed | 5 | Unlimited |
| Custom Scenario Periods | Yes | Yes |
| API | | |
| Tiingo "Composite Prices" Accessible | Yes | Yes |
| News API Accessible | No | Yes |
| Unique Symbols Per Month | 500 | 45,000+ |
| Limits | | |
| Bandwidth Per Month | 5 GB | 100 GB |
| Requests Per Hour | 500 | 20,000 |
| Requests Per Day | 20,000 | 150,000 |

- 유료 데이터 (일반)




| Date | Open | High | Low | Close | Volume | Ex-Dividenc | Split Ratio | Adj. Open | Adj. High |
|---|---|---|---|---|---|---|---|---|---|
| 2016-04-26 | 10.32 | 10.65 | 10.275 | 10.57 | 3076294 | 0 | 1 | 10.32 | 10.65 |
| 2016-04-25 | 10.45 | 10.47 | 10.18 | 10.22 | 1874855 | 0 | 1 | 10.45 | 10.47 |
| 2016-04-22 | 10.34 | 10.485 | 10.34 | 10.46 | 1195747 | 0 | 1 | 10.34 | 10.485 |
| 2016-04-21 | 10.33 | 10.51 | 10.3 | 10.36 | 791017 | 0 | 1 | 10.33 | 10.51 |
| 2016-04-20 | 10.47 | 10.47 | 10.32 | 10.34 | 1111922 | 0 | 1 | 10.47 | 10.47 |
| 2016-04-19 | 10.32 | 10.55 | 10.305 | 10.44 | 1455821 | 0 | 1 | 10.32 | 10.55 |
| 2016-04-18 | 10.09 | 10.32 | 10.03 | 10.27 | 1115803 | 0 | 1 | 10.09 | 10.32 |
| 2016-04-15 | 10.07 | 10.14 | 10.02 | 10.12 | 831322 | 0 | 1 | 10.07 | 10.14 |
| 2016-04-14 | 10.16 | 10.19 | 10.06 | 10.08 | 1382941 | 0 | 1 | 10.16 | 10.19 |
| 2016-04-13 | 10.02 | 10.16 | 9.92 | 10.14 | 986520 | 0 | 1 | 10.02 | 10.16 |
| 2016-04-12 | 9.73 | 10.03 | 9.71 | 10 | 1216626 | 0 | 1 | 9.73 | 10.03 |
| 2016-04-11 | 9.69 | 9.825 | 9.66 | 9.73 | 1065298 | 0 | 1 | 9.69 | 9.825 |
| 2016-04-08 | 9.71 | 9.81 | 9.6 | 9.64 | 509998 | 0 | 1 | 9.71 | 9.81 |
| 2016-04-07 | 9.59 | 9.685 | 9.55 | 9.63 | 1010993 | 0 | 1 | 9.59 | 9.685 |
| 2016-04-06 | 9.64 | 9.72 | 9.555 | 9.71 | 1080233 | 0 | 1 | 9.64 | 9.72 |
| 2016-04-05 | 9.81 | 9.84 | 9.62 | 9.62 | 1184842 | 0 | 1 | 9.81 | 9.84 |
| 2016-04-04 | 10.13 | 10.165 | 9.905 | 9.92 | 1345516 | 0 | 1 | 10.13 | 10.165 |



# • 무료 데이터

**시간별 시세**

| 체결시각 | 체결가 | 전일비 | 매도 | 매수 | 거래량 | 변동량 |
|---|---|---|---|---|---|---|
| 15:58 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,559 | 12 |
| 15:57 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,547 | 24 |
| 15:56 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,523 | 65 |
| 15:54 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,458 | 21 |
| 15:53 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,437 | 81 |
| 15:52 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,356 | 43 |
| 15:51 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,313 | 37 |
| 15:49 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,276 | 117 |
| 15:48 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,159 | 88 |
| 15:47 | 46,150 | ▼ 50 | 46,200 | 46,150 | 6,443,071 | 181 |

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 다음 › | 맨뒤 ››

**일별 시세**

| 날짜 | 종가 | 전일비 | 시가 | 고가 | 저가 | 거래량 |
|---|---|---|---|---|---|---|
| 2018.08.24 | 46,150 | ▼ 50 | 45,900 | 46,400 | 45,550 | 6,443,602 |
| 2018.08.23 | 46,200 | ▲ 100 | 46,150 | 46,200 | 45,700 | 6,730,918 |
| 2018.08.22 | 46,100 | ▲ 1,300 | 45,150 | 46,200 | 44,900 | 11,641,656 |
| 2018.08.21 | 44,800 | ▲ 950 | 43,700 | 44,900 | 43,700 | 9,520,270 |
| 2018.08.20 | 43,850 | ▼ 250 | 43,500 | 44,200 | 43,500 | 7,289,124 |
| 2018.08.17 | 44,100 | ▼ 150 | 44,050 | 44,400 | 44,050 | 6,808,747 |
| 2018.08.16 | 44,250 | ▼ 900 | 43,800 | 44,650 | 43,700 | 10,088,229 |
| 2018.08.14 | 45,150 | ▲ 100 | 44,850 | 45,400 | 44,850 | 6,409,259 |
| 2018.08.13 | 45,050 | ▼ 350 | 44,950 | 45,100 | 44,650 | 9,803,831 |
| 2018.08.10 | 45,400 | ▼ 1,500 | 46,150 | 46,400 | 44,850 | 16,670,643 |

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 다음 › | 맨뒤 ››

| 주요재무정보 | 2013/12 (IFRS연결) | 2014/12 (IFRS연결) | 2015/12 (IFRS연결) |
|---|---|---|---|
| 매출액 | 2,286,927 | 2,062,060 | 2,006,535 |
| 영업이익 | 367,850 | 250,251 | 264,134 |
| 영업이익(발표기준) | 367,850 | 250,251 | 264,134 |
| 세전계속사업이익 | 383,643 | 278,750 | 259,610 |
| 당기순이익 | 304,748 | 233,944 | 190,601 |
| 당기순이익(지배) | 298,212 | 230,825 | 186,946 |
| 당기순이익(비지배) | 6,535 | 3,119 | 3,655 |
| 자산총계 | 2,140,750 | 2,304,230 | 2,421,795 |
| 부채총계 | 640,590 | 623,348 | 631,197 |
| 자본총계 | 1,500,160 | 1,680,882 | 1,790,598 |
| 자본총계(지배) | 1,444,426 | 1,621,817 | 1,728,768 |
| 자본총계(비지배) | 55,734 | 59,065 | 61,830 |
| 자본금 | 8,975 | 8,975 | 8,975 |
| 영업활동현금흐름 | 467,074 | 369,754 | 400,618 |
| 투자활동현금흐름 | -447,470 | -328,064 | -271,678 |
| 재무활동현금흐름 | -41,370 | -30,571 | -65,735 |
| CAPEX | 231,576 | 220,429 | 258,802 |
| FCF | 235,499 | 149,324 | 141,815 |
| 이자발생부채 | 111,605 | 112,655 | 128,740 |
| 영업이익률 | 16.09 | 12.14 | 13.16 |
| 순이익률 | 13.33 | 11.34 | 9.50 |
| ROE(%) | 22.80 | 15.06 | 11.16 |
| ROA(%) | 15.43 | 10.53 | 8.07 |
| 부채비율 | 42.70 | 37.09 | 35.25 |

**R: quantmod**

```r
symbols = c("SPY","IEV","EWJ","EEM","TLT","IEF","IYR","RWX","GLD","DBC")
getSymbols(symbols, src="yahoo")

#################################################################
###### SPY: S&P 500 ##############################################
###### IEV: iShares Europe ETF  ##############################
###### EWJ: iShares MSCI Japan ETF ##############################
###### EEM: iShares MSCI Emerging Markets ETF ##################
###### TLT: iShares 20+ Year Treasury Bond ETF  ################
###### IEF: iShares Barclays 7-10 Year Trasry Bond ETF ##########
###### IYR: iShares Dow Jones US Real Estate ####################
###### RWX: SPDR Dow Jones Interntnl Real Estate ETF #############
###### GLD: SPDR Gold Trust (ETF) ###############################
###### DBC: PowerShares DB Commodity  Index Trckng Fund(ETF) #####
#################################################################

prices = list()
for(i in 1:length(symbols)) {
  prices[[i]] = Ad(get(symbols[[i]]))
}
prices = do.call(cbind, prices)
rets = na.omit(Return.calculate(prices))

num = 5 # Select Top 5 Asset
lookback = 12 # Momentum Period - Former 12 Months
fee = 0.002
target_vol = 0.12

wts = list()
rc_list = list()
ep = endpoints(rets, on = "months") # Rebalancing Frequency
```

13:29 w_minvol(covs, lower, upper)

Console Terminal

C:/Users/Henry/Dropbox/R/Multifactor/

```
WARNING: There have been significant changes to Yahoo Finance data.
Please see the Warning section of '?getSymbols.yahoo' for details.

This message is shown once per session and may be disabled by setting
options("getSymbols.yahoo.warning"=FALSE).
pausing 1 second between requests for more than 5 symbols
pausing 1 second between requests for more than 5 symbols
pausing 1 second between requests for more than 5 symbols
pausing 1 second between requests for more than 5 symbols
pausing 1 second between requests for more than 5 symbols
pausing 1 second between requests for more than 5 symbols
 [1] "SPY" "IEV" "EWJ" "EEM" "TLT" "IEF" "IYR" "RWX" "GLD" "DBC"
Found more than one class "xts" in cache; using the first, from namespace 'FRAPO'
Also defined by 'quantmod'
Found more than one class "xts" in cache; using the first, from namespace 'FRAPO'
Also defined by 'quantmod'
```

**Python: DataReader**

Spyder (Python 2.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor: GTAA.py* | import_DIY.py | untitled0.py

```python
tickers = ['SPY', 'IEV', 'EWJ', 'EEM', 'TLO', 'IEF', 'IYR', 'RWX', 'GLD', 'DBC']
start = '2007-12-28'

all_data = {}
for ticker in tickers:
    all_data[ticker] = data.DataReader(ticker, 'yahoo', start)

prices = pd.DataFrame({tic: data['Adj Close'] for tic, data in all_data.items()})
prices = prices.fillna(method = 'ffill')
rets = prices.pct_change(1).dropna()

#rets = pd.read_csv('C:/Users/Henry/Dropbox/R/Tactical Asset Allocation/rets.csv',
#                    index_col=0, parse_dates=True)

fee = 0.0030
lookback = 12
num = 5

ep = endpoints(rets, "Months")
wts = list()
rc_weight = list()

for i in range(lookback, len(ep)) :

    ## rets.index[ep[i]]       check the calendar

    ret_zscore = list()
    ret_zscore.append( pd.DataFrame(stats.zscore(rankdata((1 + rets.iloc[ep[i-3] : ep[i], : ]).prod() - 1)), columns = ["3M"]) )
    ret_zscore.append( pd.DataFrame(stats.zscore(rankdata((1 + rets.iloc[ep[i-4] : ep[i], : ]).prod() - 1)), columns = ["4M"]) )
    ret_zscore.append( pd.DataFrame(stats.zscore(rankdata((1 + rets.iloc[ep[i-5] : ep[i], : ]).prod() - 1)), columns = ["5M"]) )
    ret_zscore.append( pd.DataFrame(stats.zscore(rankdata((1 + rets.iloc[ep[i-6] : ep[i], : ]).prod() - 1)), columns = ["6M"]) )
```

Variable explorer

| Name | Type | Size | |
|---|---|---|---|
| DataFrame | type | 1 | type |
| Day | type | 1 | type |
| MonthEnd | type | 1 | type |
| ReturnCumulative | function | 1 | type |
| ReturnPortfolio_Net | function | 1 | type |
| Series | type | 1 | type |
| all_data | dict | 10 | {'DBC |
| apply_frequency | function | 1 | type |
| chart_drawdown | function | 1 | type |
| chart_performance | function | 1 | type |
| chart_turnover | function | 1 | type |
| charts_performance | function | 1 | type |
| data | module | 1 | type |
| drawdown | function | 1 | type |
| minimize | function | 1 | type |

Variable explorer | History log

Python console

Console 1/A

```
In [12]: tickers = ['SPY', 'IEV', 'EWJ', 'EEM', 'TLO', 'IEF', 'IYR', 'RWX', 'GLD', 'DBC']
    ...: start = '2007-12-28'

In [13]: all_data = {}
    ...: for ticker in tickers:
    ...:     all_data[ticker] = data.DataReader(ticker, 'yahoo', start)

In [14]:
```

all_data - Dictionary (10 elements)

| Key | Type | Size | Value |
|---|---|---|---|
| DBC | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| EEM | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| EWJ | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| GLD | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| IEF | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| IEV | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| IYR | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |
| RWX | DataFrame | (2536, 6) | Column names: Open, High, Low, Close, Adj Close, Volume |

OK Canc

IPython console | Python console | File explorer | Help

- **HenryQuant Package**

**https://github.com/hyunyulhenry/HenryQuant**

This repository Search Pull requests Issues Marketplace Explore

hyunyulhenry / HenryQuant

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Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

*No description, website, or topics provided.*

Add topics

Edit

34 commits 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

hyunyulhenry git Latest commit fef0e24 13 hours ago

| | | |
|---|---|---|
| R | git | 13 hours ago |
| data | git | 6 days ago |
| man | git | 13 hours ago |
| .Rbuildignore | first commit | 8 days ago |
| DESCRIPTION | git | 3 days ago |
| LICENSE | lazy data | 8 days ago |
| NAMESPACE | git | 13 hours ago |
| README.md | link | 8 days ago |

- **HenryQuant Package**

주가관련 지표 단위 : 억원, 배

| IFRS 연결 | 2014/12 | | 2015/12 | | 2016/12 | | 2017/12 | | 2018/03 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 |
| 주가 (원) | 29,400 | 21,660 | 30,060 | 21,340 | 36,240 | 22,520 | 57,220 | 35,560 | 52,120 | 44,700 |
| 시가총액 | 2,427,885 | 1,793,218 | 2,471,470 | 1,759,146 | 2,844,093 | 1,842,478 | 4,142,750 | 2,791,338 | 3,749,942 | 3,201,793 |
| PER | 10.83 | 7.98 | 13.68 | 9.71 | 13.25 | 8.23 | 10.55 | 6.56 | | |
| PBR | 1.47 | 1.08 | 1.37 | 0.97 | 1.49 | 0.93 | 1.98 | 1.23 | 1.73 | 1.48 |

| | IFRS 연결 | 2014/12 | 2014/12 | 2015/12 | 2015/12 | 2016/12 | 2016/12 | 2017/12 | 2017/12 | 2018/03 | 2018/03 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | IFRS 연결 | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 | 최고 | 최저 |
| 2 | 주가(원) | 29,400 | 21,660 | 30,060 | 21,340 | 36,240 | 22,520 | 57,220 | 35,560 | 52,120 | 44,700 |
| 3 | 시가총액 | 2,427,885 | 1,793,218 | 2,471,470 | 1,759,146 | 2,844,093 | 1,842,478 | 4,142,750 | 2,791,338 | 3,749,942 | 3,201,793 |
| 4 | PER | 10.83 | 7.98 | 13.68 | 9.71 | 13.25 | 8.23 | 10.55 | 6.56 | | |
| 5 | PBR | 1.47 | 1.08 | 1.37 | 0.97 | 1.49 | 0.93 | 1.98 | 1.23 | 1.73 | 1.48 |

- **HenryQuant Package**

| | A | B |
|---|---|---|
| 1 | | 종가 |
| 2 | 2017-05-08 | 47020 |
| 3 | 2017-05-10 | 45600 |
| 4 | 2017-05-11 | 45500 |
| 5 | 2017-05-12 | 45820 |
| 6 | 2017-05-15 | 46100 |
| 7 | 2017-05-16 | 46380 |
| 8 | 2017-05-17 | 46340 |
| 9 | 2017-05-18 | 45940 |
| 10 | 2017-05-19 | 44720 |
| 11 | 2017-05-22 | 45100 |
| 12 | 2017-05-23 | 44920 |
| 13 | 2017-05-24 | 44880 |
| 14 | 2017-05-25 | 45680 |
| 15 | 2017-05-26 | 46080 |
| 16 | 2017-05-29 | 45620 |

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| | | Dec-15 | Dec-16 | Dec-17 | Mar-18 |
|---|---|---|---|---|---|
| 1 | | Dec-15 | Dec-16 | Dec-17 | Mar-18 |
| 2 | 매출액 | 919587 | 936490 | 963761 | 224366 |
| 3 | 매출원가 | 737013 | 759597 | 787982 | 189690 |
| 4 | 매출총이익 | 182574 | 176893 | 175779 | 34675 |
| 5 | 판매비와관리비계산에 참여한 계정 펼치기 | 118995 | 124958 | 130032 | 27862 |
| 6 | 인건비 | 31571 | 31481 | 31234 | 7553 |
| 7 | 유무형자산상각비 | NA | NA | NA | NA |
| 8 | 연구개발비 | 9293 | 10192 | 10393 | 2018 |
| 9 | 광고선전비 | 20718 | 22331 | 24604 | 5517 |
| 10 | 판매비 | 20755 | 20205 | 19759 | 2588 |
| 11 | 관리비 | 24072 | 40750 | 44043 | 7194 |
| 12 | 기타원가성비용 | NA | NA | NA | NA |
| 13 | 기타 | 12586 | NA | NA | 2992 |
| 14 | 영업이익 | 63579 | 51935 | 45747 | 6813 |
| 15 | 금융수익계산에 참여한 계정 펼치기 | 8314 | 11112 | 9729 | 2038 |
| 16 | 이자수익 | 4909 | 3776 | 4407 | 1170 |
| 17 | 배당금수익 | 138 | 351 | 297 | 289 |
| 18 | 외환이익 | 3024 | 3406 | 3548 | 443 |

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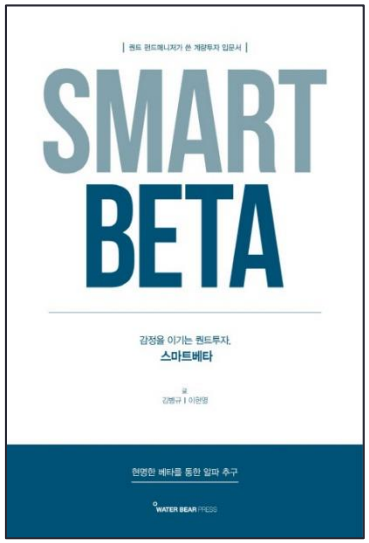
| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | PER | PCR | PSR | PBR | DY |
| 2 | 5930 | 8.65154 | 5.636342 | 1.492965 | 1.61886 | 0.018124 |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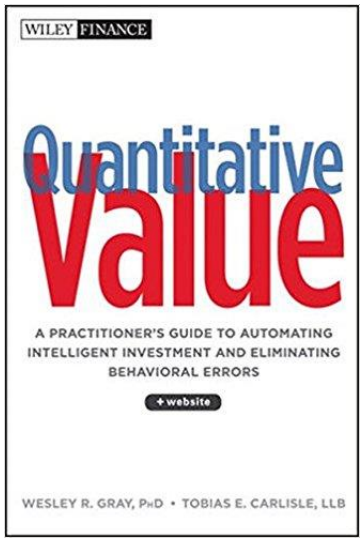
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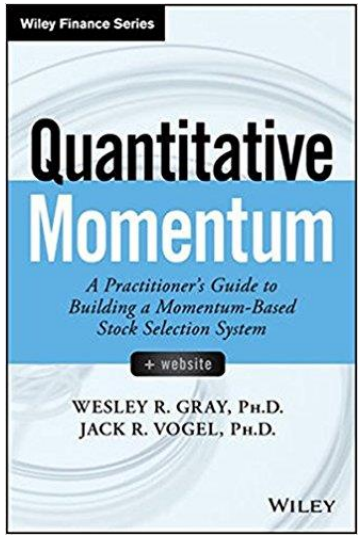
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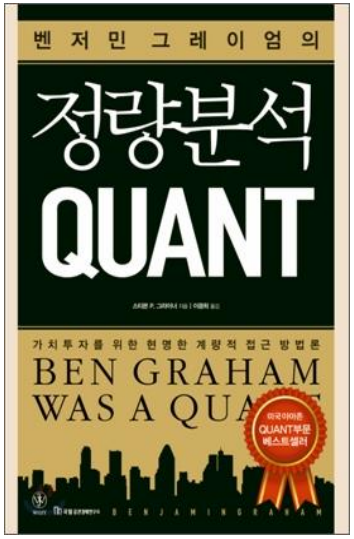
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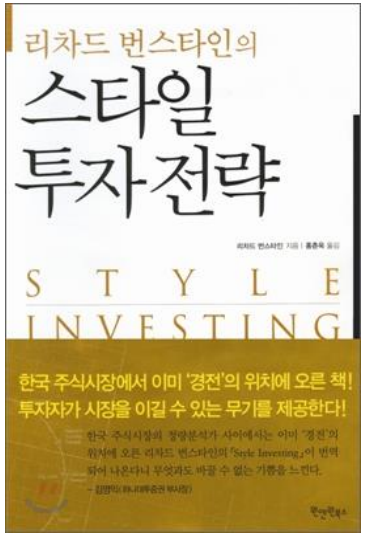
정량분석
QUANT
BEN GRAHAM
WAS A QUA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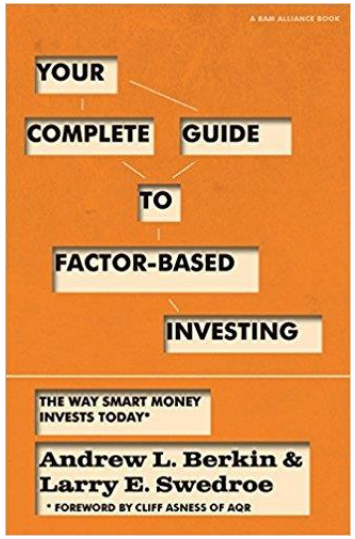
당신의 포트폴리오에 고요와 평화를 찾아줄 것이다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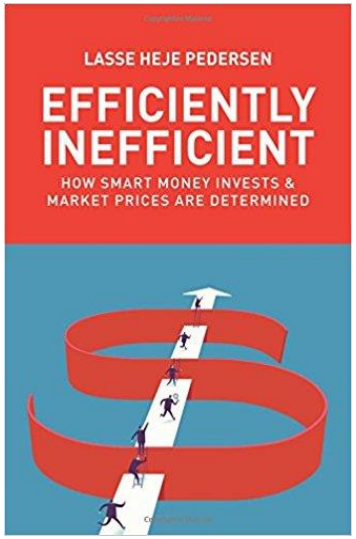
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