

# Analyzing Sectors and Portfolios from the Macro Perspective

## Bloomberg Shape the Future Conference

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## Going beyond $B_m$ to $B_i$ , where $i = 1$ to $n$

- Macro driving news and markets
  - Markets have become more correlated since crisis
  - Less alpha from stock picking, and more focus on beta positioning
    - Beta can be to anything (e.g., oil, inflation, consumer confidence, GDP, momentum, industry, valuation, profitability, etc.)
- Explosion of ETFs
  - Including smart beta
- There is a beta to everything
  - Ignoring beta exposure can set up a manager to underperform (or outperform) unintentionally
- Class projects
  1. Determine macro drivers (factors) for stock and custom industry
  2. Long/short ideas
  3. Analyze a portfolio's correlation to factors
  4. Analyze a portfolio's characteristics (factors exposures) and returns during scenarios

## Class project 1: analyze drivers of an industry (and stock)

- The goal is for students to determine the macro variables that influence returns of the industry (and stock) they are covering
  - This is part of a greater project of writing a sell-side stock report
  - Steps
    1. Create a custom index of “comps” of the stock in Bloomberg
      - You could also use existing sector of industry indices in Bloomberg for project
    2. Look up economic variables in Bloomberg (need ticker symbol) related to the industry
    3. Download return data for stock, custom index, market index, and economic variable from Bloomberg into Excel using API
    4. Correlate the custom index (and stock) with various economic and other variables in Bloomberg
      - Determine factors that correlated with outperformance of custom index to overall market index
      - Also, determine whether stock is more or less sensitive (higher or lower beta) to the factors than custom index to help forecast whether it will outperform or underperform depending on direction of the factors

## Class project 1: Step 1 – create custom index

- Each student chooses a stock to cover and appropriate comparable companies
- Create custom index of comparables in Bloomberg
  - CIXB function (Custom Basked Editor) to create an index over a date range
    - Use CIX function (Custom Index Library) to view all previously created custom indices
    - Creates a new ticker . \_\_\_\_ U Index

Give it a name and ticker symbol (Bloomberg converts the name to .ticker U)

Enter tickers of comps and positions. Important note: you could enter an entire portfolio and then test the factor exposure of the portfolio in a back-test.

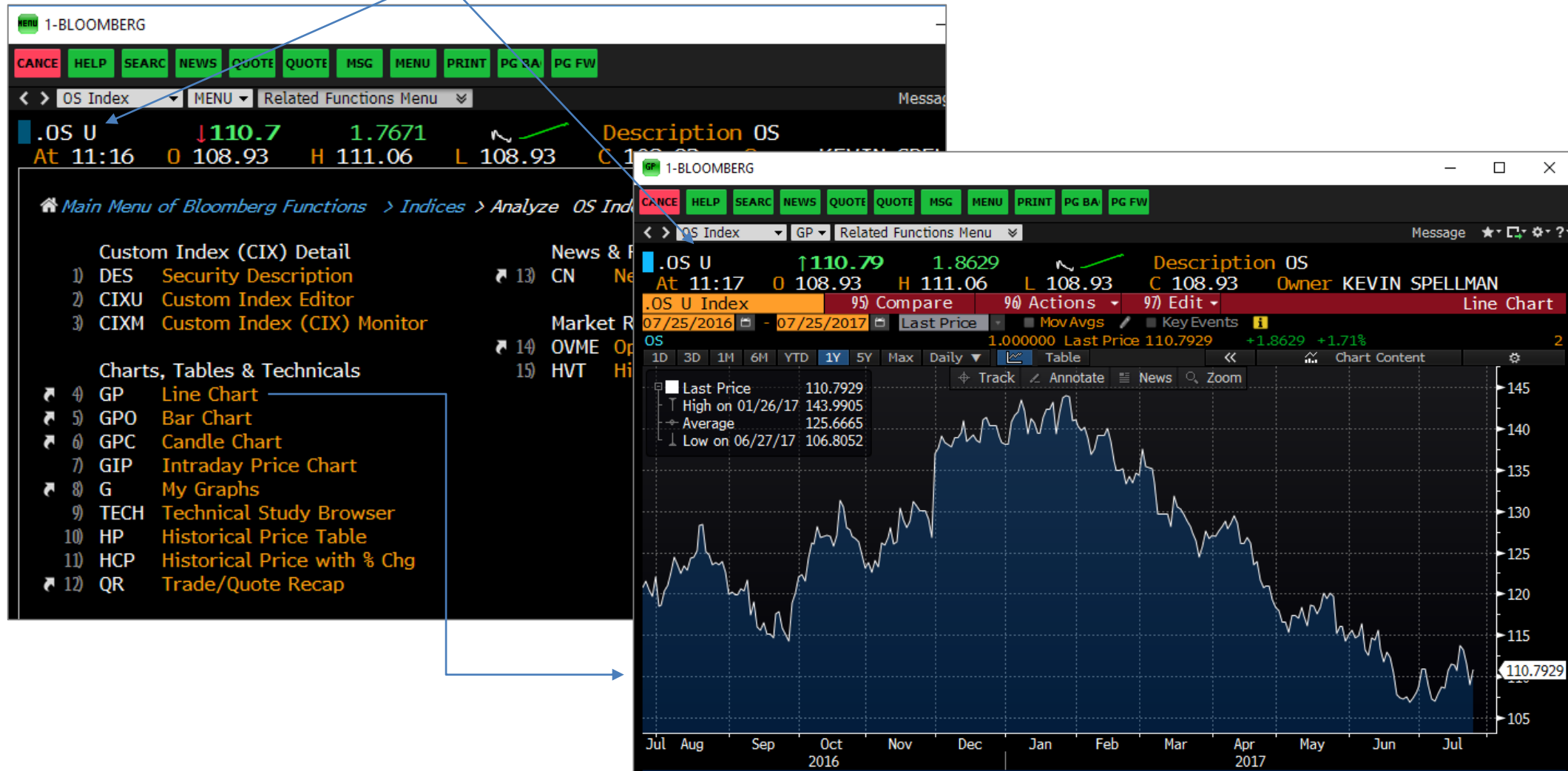
You can import a list

You can change the weightings to all equal-weight

Create the index over a date range

## Class project 1: Step 1 – view data

- . ticker <Index> Go
  - Note that Bloomberg adds a U after the .ticker that you must remember when downloading data in Excel



## Class project 1: Step 2 – look up economic variables

- To get an idea of what Bloomberg thinks is important, use BI (Bloomberg Intelligence) function to see economic variables it considers drivers for sectors

Typing BI <GO> gets you here

Select Energy on prior screen

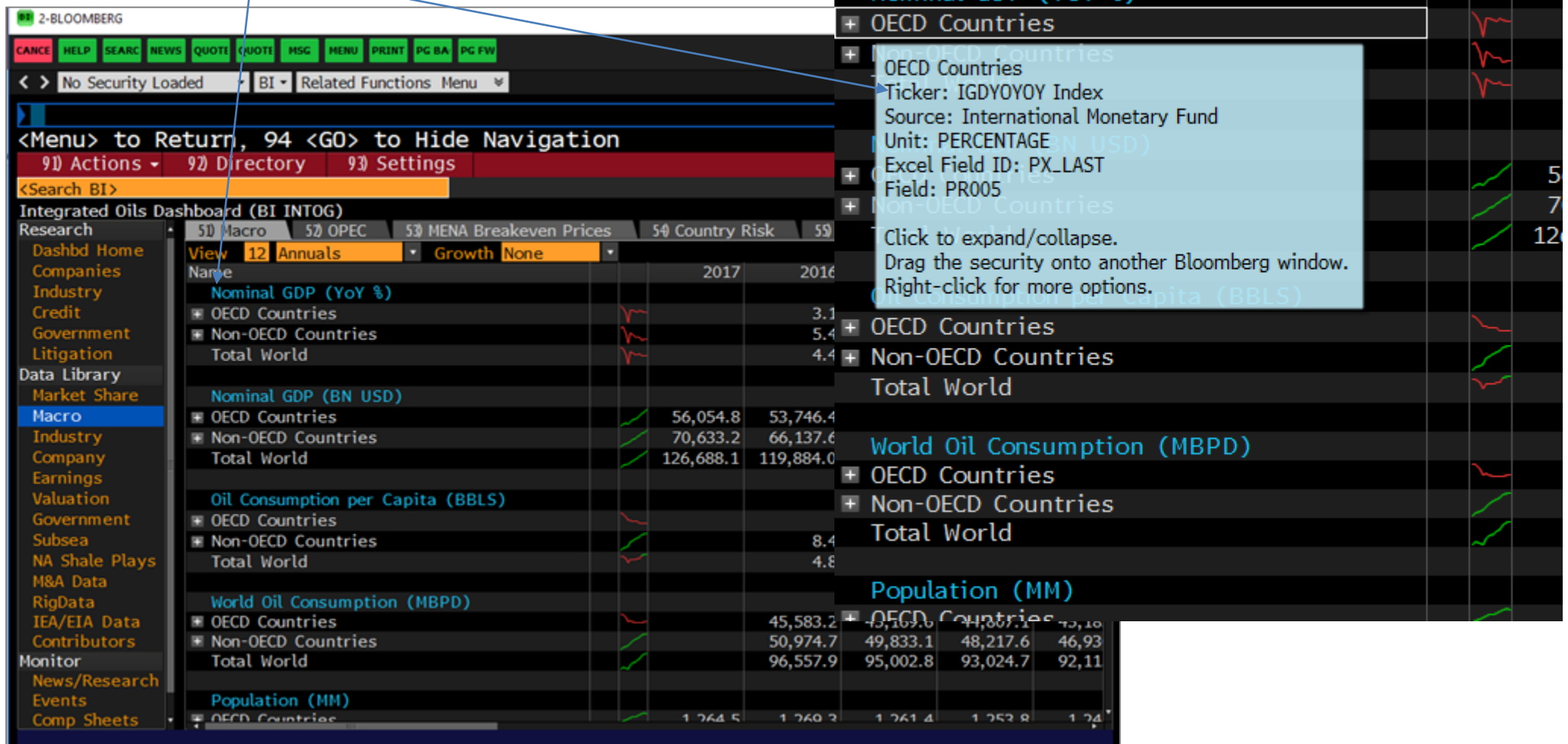
Select Integrated oils on prior screen

The first screenshot shows the Bloomberg terminal main menu with 'BI: All Research' selected under the 'Search BI' section. The second screenshot shows the 'Energy' category selected under '1) < BI: All Research'. The third screenshot shows the 'Integrated Oils Dashboard (BI INTOG)' with 'Macro' selected in the 'Data Library' section.

Select Macro from menu on left takes you to what is shown on next slide

## Class project 1: Step 2 – look up economic variables

- Now we have macro variables (can be anything, not just economic) for a sector
  - We need their ticker symbols
    - Hover over variable and the symbol appears





## Class project 1: Step 2 – look up economic variables

- Use ECST <GO> to look up thousands of economic statistics
  - We need their ticker symbols



1-BLOOMBERG

CANCEL HELP SEARCH NEWS QUOTE QUOTE MSG MENU PRINT PG BA PG FW

< > OS Index ECST Related Functions Menu Message

90<Go> to Export

91) Search 92) Settings World Economic Statistics

94) Standard Views 95) Custom Views

United States 1) Browse

Key Indicators		Ticker	Current Value	Current Date	Previous Value	Previous Date
National Accounts	11) Real GDP (qoq %, saar)	GDP CQOQ...	1.4	Q1 2017	2.1	Q4 2016
Consumer Prices	12) Real GDP (yoy %)	GDP CYOY ...	2.1	Q1 2017	2.0	Q4 2016
Producer Prices	13) Personal Consumptio...	GDPCTOT...	1.1	Q1 2017	3.5	Q4 2016
Labor Market	14) Private Investment (...)	GPDITOC...	3.7	Q1 2017	9.4	Q4 2016
Economic Activity	15) Gov't Spending (qoq ...)	GPGSTOC...	-0.9	Q1 2017	0.2	Q4 2016
NBER Business Cycle Ind...	16) Change in Inventorie...	RGDCDCPI...	2.6	Q1 2017	49.6	Q4 2016
Business Conditions	17) Nominal GDP (USD bn)	GDP CUR\$ ..	19027	Q1 2017	18869	Q4 2016
Fed Sr. Loan Officer Survey	18) Nominal GDP (yoy %)	GDP CURY ..	4.1	Q1 2017	3.5	Q4 2016
Leading Indicators	19) GDP Price Deflator (q...	GDP PIQQ ...	1.9	Q1 2017	2.1	Q4 2016
Leading Indicator Compo...	20) Core PCE Deflator (qo...	GDPCPCEC...	2.0	Q1 2017	1.3	Q4 2016
Housing Market						
Retail Sector						
Consumer Confidence						
Personal Sector						
External Sector						
Government Sector						
Monetary Sector						
Financial Sector						
✦ National Accounts (GDP)						
✦ Prices						
✦ Labor Market						
✦ Retail & Wholesale Sector						
✦ Industrial Sector						

3) Maximize Chart



## Class project 1: Step 3 – download data into Bloomberg

- Use Bloomberg API to download data within Excel
  - Formula in A12 references ticker symbol for stock (B6), start date (B2), and end date (C2)
  - Formulas in F12 and P12 are the same except for the custom index (ticker in G6) and the economic variable (ticker in Q6)

EconomicCorrWBloomMASTER\_IMCPversion\_2017 - Excel

G Kevin Spellman

File Home Insert Draw Page Layout Formulas Data Review View Developer Bloomberg FactSet Tell me what you want to do

Spreadsheet Import Function Publish File Template Chart Trading Find Fields Populate Table Refresh Power More Live Help Diagnostics Options  
Builder Data Builder Note Manager Library Library Library Worksheet Tools Help Support

A12 :  =BDH(\$B\$6,\$A\$2,\$B\$2,\$C\$2,"Points",\$D\$2,"Per",\$E\$2,"Days=N","Fill=c","Dts=S","cols=2;rows=319")

Do NOT Change Any Data On This Spreadsheet!

PX\_LAST 12/31/90 6/30/17 M

Factor Econ Crude Oil Price: West Texas Intermediate

Factor Monthly Closing Price

Ticker 1 XOM Ticker 2 .OS U Eco Factor USCRWTIC

XOM EQUITY .OS U INDEX USCRWTIC index

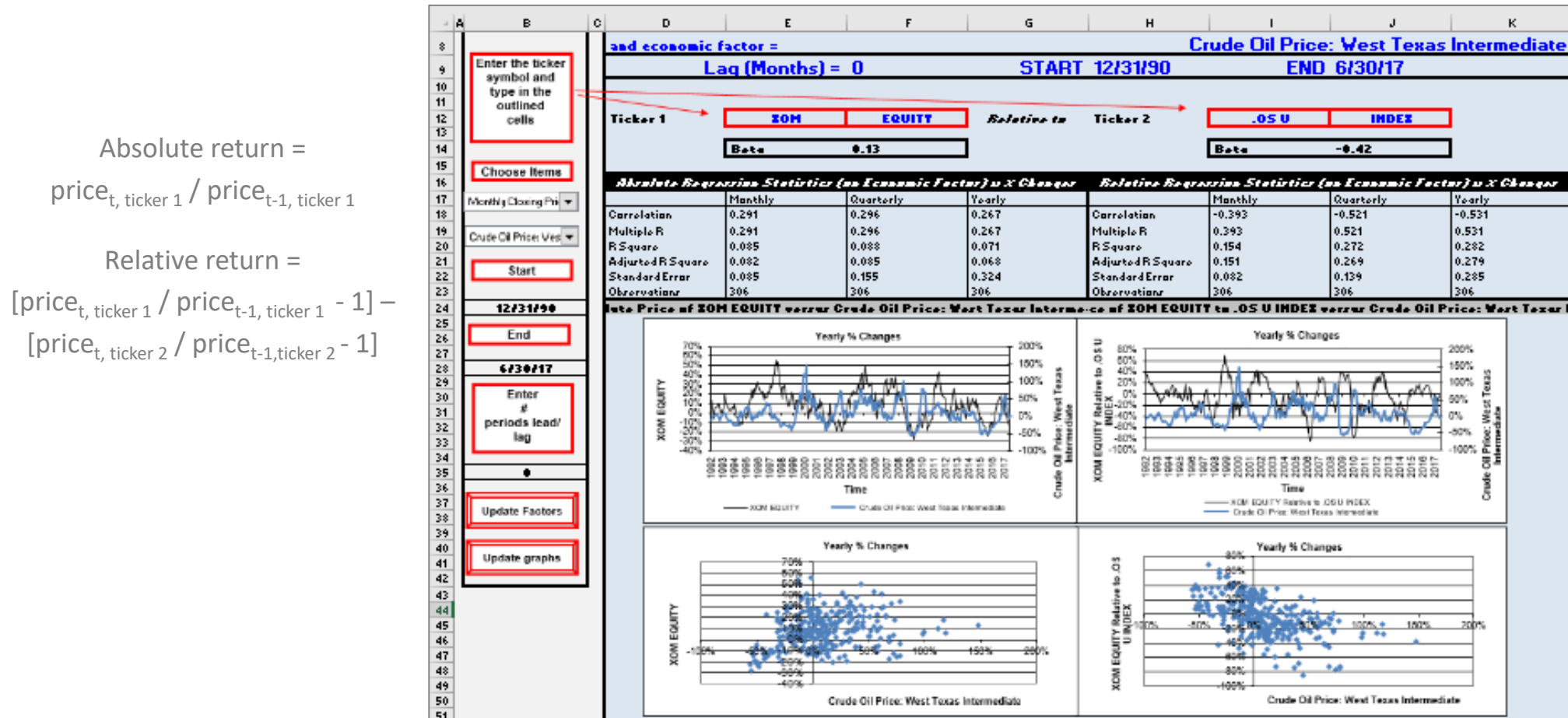
.OS U

XOM					.OS U					USCRWTIC index					
Date	Factor	Monthly	Quarterly	Yearly	Date	Factor	Relative Factor	Relative Monthly	Relative Quarterly	Relative Yearly	Date	Crude O	Monthly	Quarterly	Yearly
12/31/1990	12.9375				12/31/1990	24.55					12/31/1990	28.5			
1/31/1991	12.9063	0%			1/31/1991	24.45	0.53	0%			1/31/1991	21.6	-24%		
2/28/1991	13.7813	7%			2/28/1991	27.98	0.49	-8%			2/28/1991	19.12	-11%		
3/29/1991	14.625	6%	13%		3/29/1991	24.80	0.59	17%	12%		3/29/1991	19.6	3%	-31%	
4/30/1991	14.875	2%	15%		4/30/1991	23.91	0.62	5%	17%		4/30/1991	20.94	7%	-3%	
5/31/1991	14.5625	-2%	6%		5/31/1991	25.46	0.57	-9%	15%		5/31/1991	21.13	1%	11%	
6/28/1991	14.5313	0%	-1%		6/28/1991	21.94	0.66	14%	11%		6/28/1991	20.54	-3%	5%	

- The stock is Exxon and the custom index is of two securities in the oil field services industry (HAL and SLB)
- The economic variable is oil prices

## Class project 1: Step 4 – correlate the data

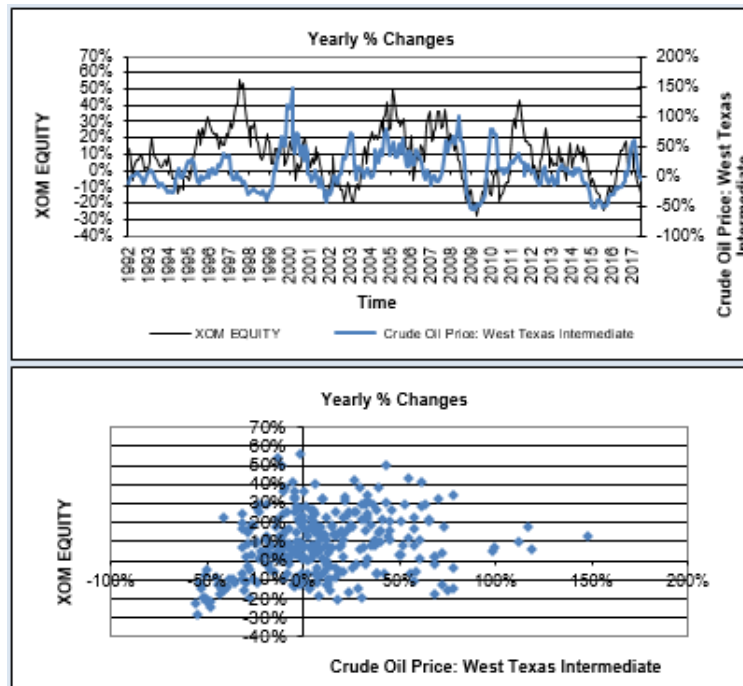
- Shown here is output of a program I created to download data for any date range with or without a lead/lag to compare an asset's absolute return to a factor (left graphs/data) or the relative return of two assets to a factor (right graphs/data)



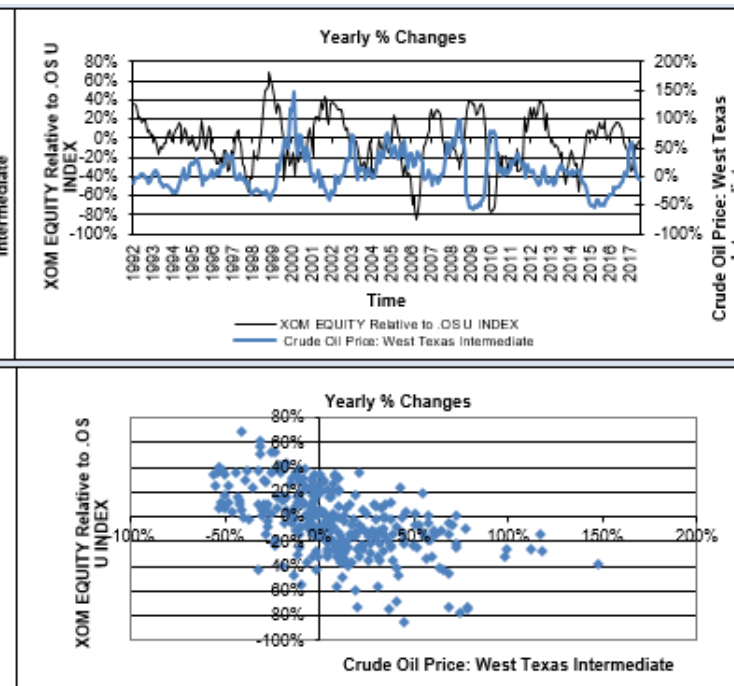
## Class project 1: Step 4 – what is most important, absolute or relative returns?

- You want the best stocks, right?
- You want to outperform, right?
- Then you want to look at the relative return graphs
  - Most students and professional managers spend too much time on the absolute graphs
  - Most stocks share positive or negative correlation to factors, but to different degrees
  - So just looking at absolute correlations does not help them pick the best stocks

Exxon rises with oil prices



But Exxon underperforms other oil services stocks (HAL and SLB) when oil prices rise



## Class project 2: create a long-short strategy

- Same project as the first one, but we seek factors that correlate positively with one asset and negatively with another (or less positively)
  - Economic long-shorts
    - Intra-sector: WTI and XOM versus oil field services (HAL and SLB)
    - Inter-sector: Inflation factor and consumer discretionary industry versus market
      - Prefer for beta of two sectors to be the same to overall market factor and other factors to isolate the impact of inflation
  - Other long-shorts based on
    - Merger arbitrage
    - Company specific
      - Great product launch helps one firm and hurts another
    - Valuation
      - Long cheap stock and short rich in same industry (to neutralize other beta effects)
    - Intermarket
      - Dollar rises buy dollar and short oil (or emerging markets)
    - Convertible arbitrage

## Class project 3: analyze a portfolio's correlation to factors

- Same project as the first one, but we create a custom index out of an existing portfolio
  - Keep in mind that
    - The index assumes positions entered exist historically
    - What if names do not have historical data?

## Class project 4: analyze portfolio's characteristics and returns during scenarios

- Bloomberg allows one to compare a portfolio (or a custom index of one stock) to a benchmark to analyse
  - Tracking error
  - Factor exposures (characteristics)
  - Performance during scenarios
- Using PORT <GO> (Portfolio Risk and Analytics)

Enter portfolios (note I created a custom index called Exxon that just includes XOM and the custom index OS is just of HAL and SLB)

PORT 4-BLOOMBERG

CANCEL HELP SEARCH NEWS QUOTE QUOTE MSG MENU PRINT PG BA PG FW

< > Exxon Index PORT Related Functions Menu Message ★ ?

See What's New in PORT X

1) View 12) Actions 13) Settings 14) Trade Simulation Portfolio & Risk Analytics

Characteristics Holdings Tracking Error/Volatility VaR Scenarios Performance Attribution Intraday

Main View Allocation

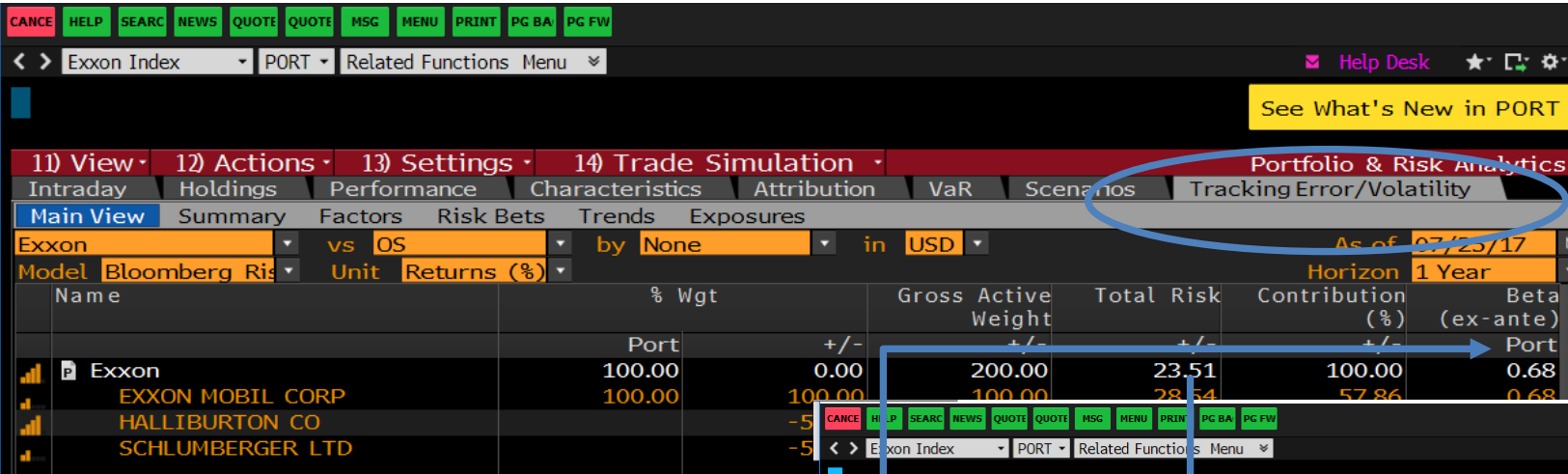
Exxon vs OS by None in USD As of 07/25/17

Date Trend

Name	#	% Wgt	Mkt Val	Pos	Px	Close	Cnrcy
	Port	Bmrk	Port	Port	Port	Port	Port
Exxon	1	2	100.00	100.00	0.00	80	
EXXON MOBIL CORP			100.00		100.00	80	1.00
HALLIBURTON CO				50.00	-50.00		
SCHLUMBERGER LTD				50.00	-50.00		

# Class project 4: Exxon's tracking error versus benchmark is very high

- Even though XOM and comparables are in the same sector, their tracking error is very high
  - Total risk measures the standard deviation of % return or profit/loss



– Beta is 0.68





## Class project 4: Exxon's characteristics differ from custom index

- May help explain why performance varies, or help to determine which is most attractive

Exxon Index | PORT | Related Functions Menu

See What's New

11) View | 12) Actions | 13) Settings | 14) Trade Simulation | Portfolio & Risk

Intraday | Holdings | Performance | Characteristics | Attribution | VaR | Scenarios | Tracking Error

Main View | Summary | Cash Flows | Liquidity Risk | Key Rates

Exxon vs OS by None in USD As of

Date Trend

Name	Wgt			Div Yld			P/E		
	Port	Bmrk	+/-	Port	Bmrk	+/-	Port	Bmrk	+/-
Exxon	100.00	100.00	0.00	3.78	2.35	1.43	27.70	87.83	-60.13
EXXON MOBIL CORP	100.00		100.00	3.78		3.78	27.70		27.70
HALLIBURTON CO		50.00	-50.00		1.69	-1.69		143.10	-143.10
SCHLUMBERGER LTD		50.00	-50.00		3.01	-3.01		63.36	-63.36

Exxon Index | PORT | Related Functions Menu

See What's New in PORT

11) View | 12) Actions | 13) Settings | 14) Trade Simulation | Portfolio & Risk Analytics

Intraday | Holdings | Performance | Characteristics | Attribution | VaR | Scenarios | Tracking Error/Volatility

Main View | Summary | Cash Flows | Liquidity Risk | Key Rates

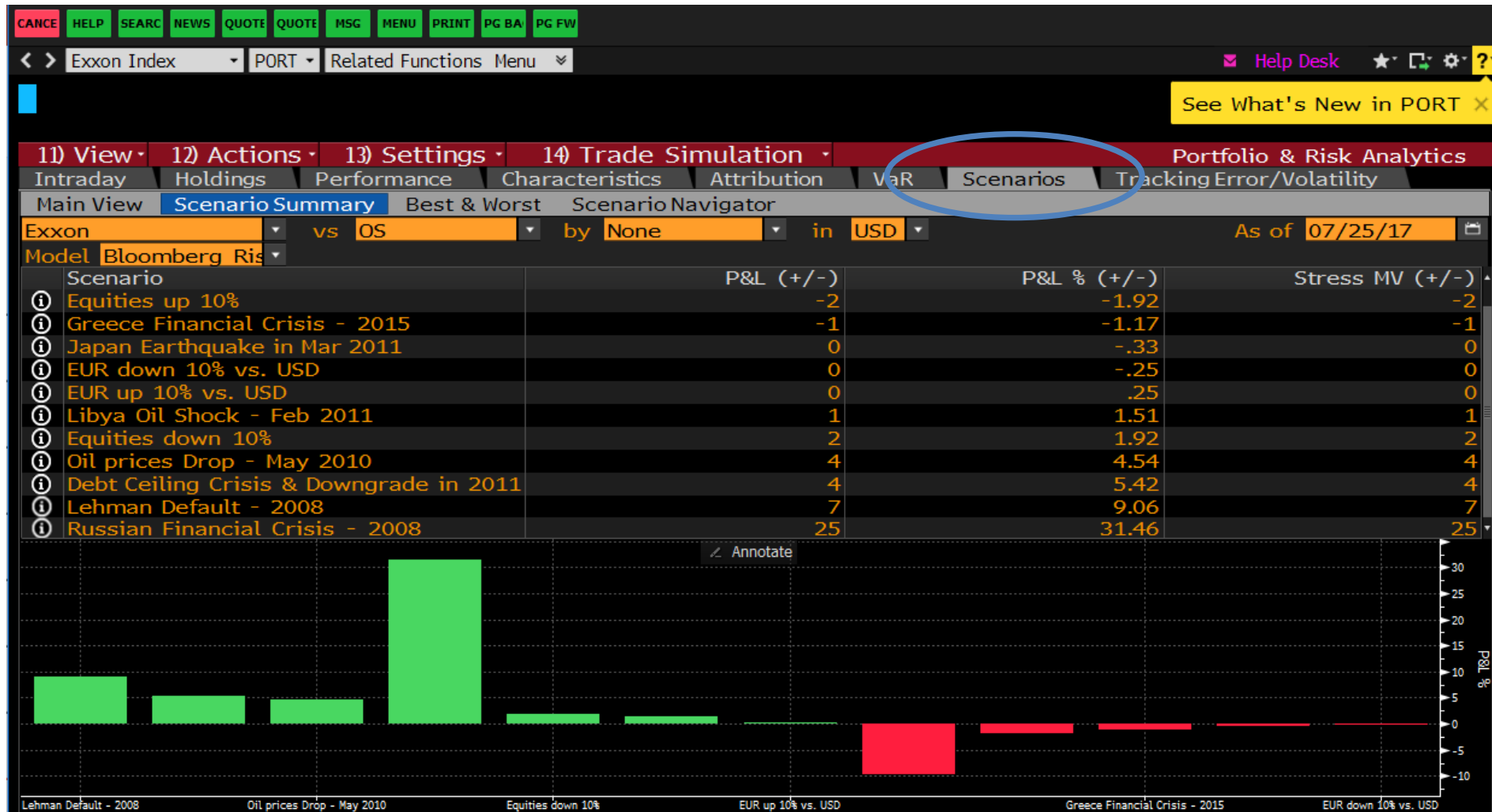
Exxon vs OS by None in USD As of 07/25/17

Date Trend

Name	P/CF			P/B			Debt/Equity			Current Ra	
	Port	Bmrk	+/-	Port	Bmrk	+/-	Port	Bmrk	+/-	Port	Bmrk
Exxon	13.13	17.55	-4.42	1.91	2.96	-1.05	24.62	74.99	-50.37	0.81	1.98
EXXON MOBIL CORP	13.13		13.13	1.91		1.91	24.62		24.62	0.81	
HALLIBURTON CO		14.99	-14.99		4.14	-4.14		125.06	-125.06		2.52
SCHLUMBERGER LTD		21.17	-21.17		2.30	-2.30		47.12	-47.12		1.57

## Class project 4: As expected, XOM lags (leads) in good (bad) times

- The macro scenario drives relative performance



## Summary

- Beta goes beyond exposure to the market factor
- Factor analysis is quite important for explaining a fund's performance
  - And even for securities in the same sector
- Factor analysis is made easy with Bloomberg