Statistical Programming Languages (SPL): United States Oil Company Analysis

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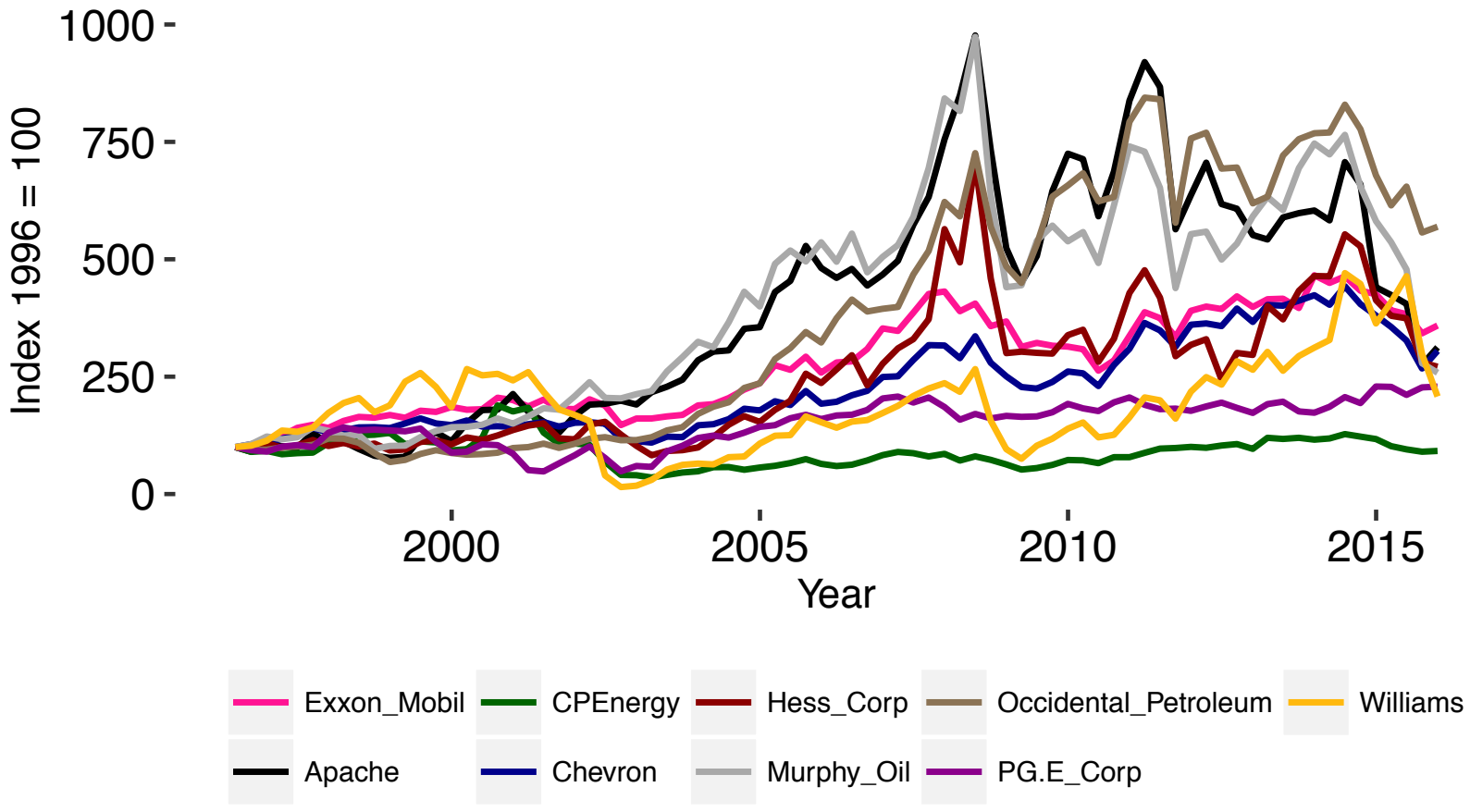
Outline

1. Introduction
2. Dataset Transformations
3. Exploratory Analysis: Plots & Graphics
4. Panel Data Regression & Results
5. Applications
6. Conclusion
7. Discussion

Figures


1000
750
500
250
0
Index 1996 = 100
2000
2005
2010
2015
Year
Exxon_Mobil
CPEnergy
Hess_Corp
Occidental_Petroleum
Williams
Apache
Chevron
Murphy_Oil
PG.E_Corp

[Catch-phrase]

Statistics is understanding data by modelling it.

Variable	μ	σ	Min	$\rho_{0.25}$	$\rho_{0.5}$	$\rho_{0.75}$	Max
Ozone	42.10	33.28	1.0	18.0	31.0	62.0	168.0
Solar.R	184.80	91.15	7.0	113.5	207.0	255.5	334.0
Wind	9.94	3.56	2.3	7.4	9.7	11.5	20.7
Temp	77.79	9.53	57.0	71.0	79.0	84.5	97.0

Table 1: Summary statistics of airquality data set

Tables

```
# Summary statistics of company-specific variables
SumSpecF = describeBy(data[,2:7], group = "Company",
                      mat = TRUE, digits = 2, trim =
   0, type = 1)
```

	μ	σ	Min	Max
Williams-Stock	23.39	12.05	1.85	58.21
Williams-A.MCAP	3.01	4.63	0.80	30.73
Williams-BVE.MCAP	0.66	0.70	0.13	4.96
Williams-D.MCAP [%]	151.40	58.77	85.06	337.28
Williams-NI	68.53	350.20	−1263.00	1678.00

Table 2: Exploratory data analysis - event detection

Distress Case, Firm 9: Williams

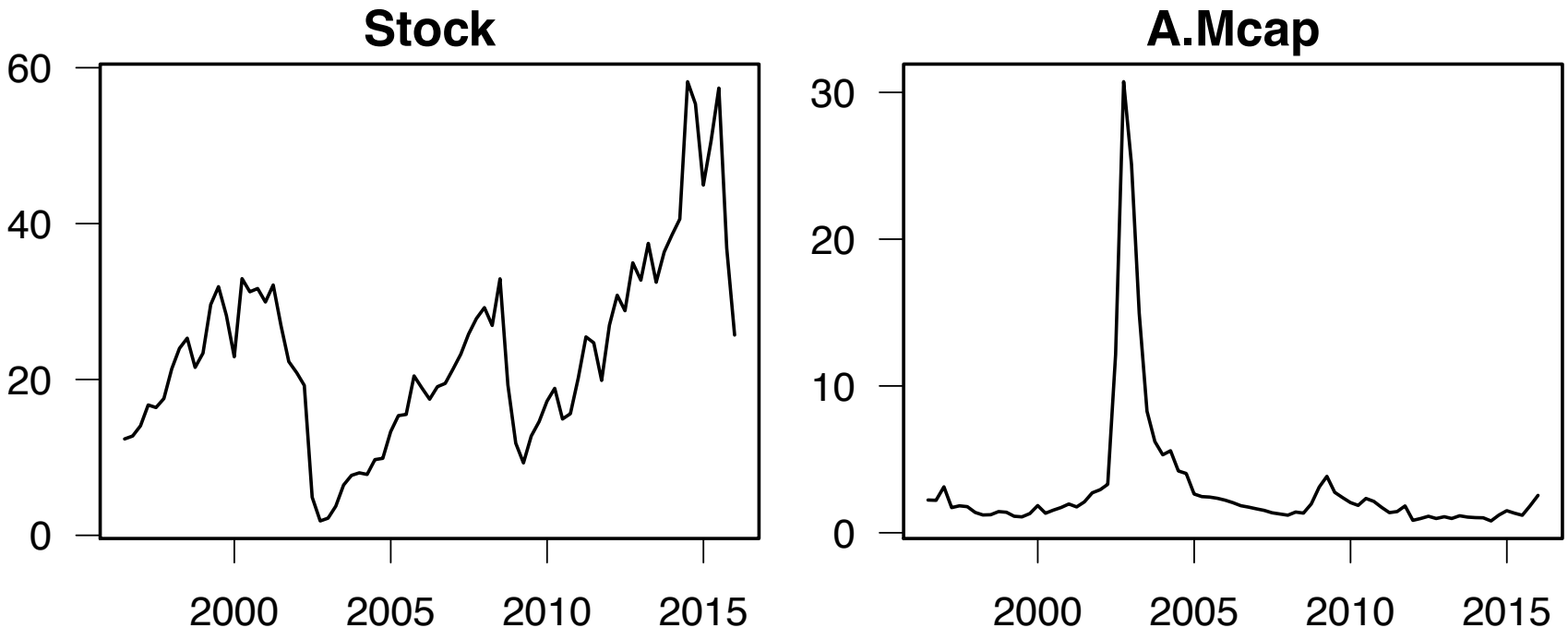


Figure 1: Financial Distress Case of C9: Williams

Tables

```
1 # Insert Other Parts!!
```


Items

- Item 1

Table 3: Oneway (individual) effect Random Effect Model

	Dependent variable:
	Stock return
A.MCAP	-0.062^{***}
	(0.023)
NI	0.016^{***}
	(0.006)
BVE.MCAP	-0.024^{**}
	(0.009)
D.MCAP	0.026^{**}
	(0.011)
Oil	0.260^{***}
	(0.032)
Gas	0.065^{***}
	(0.023)
Market	0.710^{***}
	(0.067)
Constant	-0.064^{*}
	(0.038)
Observations	546
R^2	0.411
Adjusted R^2	0.405
F Statistic	53.685^{***} (df = 7; 538)
Note:	*p<0.1; **p<0.05; ***p<0.01

Setup of the Regression Equations

- Baseline Equation: Stock = Oil + Gas + Market + EURUSD
  - Used for both pre-2008 and post-2008 sub-samples

- Dummy-Equation: Stock = Oil + Gas + Market + EURUSD + DumP + DumP*Oil + DumP*Gas + DumP*Market + DumP*EURUSD
  - Used to test significance of difference between sub-samples

	Dependent variable:	
	Stock return	
	(1)	(2)
Oil	0.244^{***}	0.251^{***}
	(0.059)	(0.043)
Gas	0.070^{**}	0.070^{*}
	(0.032)	(0.041)
Market	0.617^{***}	0.825^{***}
	(0.103)	(0.121)
EURUSD	-0.334^{**}	0.349^{**}
	(0.159)	(0.165)
Constant	0.038^{***}	-0.011
	(0.008)	(0.010)
Observations	336	210
R^2	0.168	0.565
Adjusted R^2	0.166	0.552
F Statistic	16.752^{***} (df = 4; 331)	66.614^{***} (df = 4; 205)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 4: Oneway (indiv.) Random Effect pre 2008 (1) and post 2008 (2)

Setup of the Regression Equations

- Baseline Equation: Stock = Oil + Gas + Market + EURUSD
  - Used for 'Oil-Firm' and 'Other Firms' sub-sampling

- Dummy-Equation: Stock = Oil + Gas + Market + EURUSD + DumFirmT + DumFirmT*Oil + DumFirmT*Gas + DumFirmT*Market + DumFirmT*EURUSD
  - Used to test significance of difference between sub-samples

Table 5: Random Effect Model depending on Company type

	Dependent variable:	
	Stock return	
	(1)	(2)
Oil	0.314^{***}	-0.104^{*}
	(0.033)	(0.062)
Gas	0.073^{***}	0.098^{**}
	(0.025)	(0.046)
Market	0.676^{***}	0.599^{***}
	(0.071)	(0.132)
EURUSD	0.028	−0.020
	(0.115)	(0.214)
Constant	0.017^{***}	0.010
	(0.005)	(0.022)
Observations	546	156
R^2	0.325	0.147
Adjusted R^2	0.322	0.142
F Statistic	65.158^{***} (df = 4; 541)	6.484^{***} (df = 4; 151)
Note:		*p<0.1; **p<0.05; ***p<0.01

For Further Reading

Tobias Oetiker, Hubert Partl, Irene Hyna and Elisabeth Schlegl
The Not So Short Introduction to LaTeX2e
available on www.ctan.org, 2008

Scott Pakin
The Comprehensive LaTeXSymbol List
available on www.ctan.org, 2008

Frank Mittelbach and Michel Goossens
The LaTeX Companion – 2nd ed.
Addison-Wesley, 2004

For Further Reading


Mark Trettin and Jürgen Fenn
An essential guide to LaTeX2e usage
available on www.ctan.org, 2007


Wikipedia Wiki Books
LaTeX-Wörterbuch: InDeX
available on www.wikipedia.de


Till Tantau
User Guide to the Beamer Class, Version 3.07
available on www.sourceforge.net, 2007