Econ 219B
Psychology and Economics: Applications
(Lecture 8)

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March 10, 2004

Outline

1. Roadmap into Finance

2. Intro to (Empirical) Corporate Finance

3. Intro to (Empirical) Accounting

4. Problem Set

1 Roadmap into Finance

- Finance divided into 2 (+1) subfields :

  1. Corporate Finance.

     - Decision-making within a company
     - Relates to Labor Economics, Contract Theory, Economics of Organizations

  2. Asset Pricing.

     - Trade of shares of a company
     - Relates to Math Econ and General Equilibrium

  3. (Accounting)

     - Rules on measuring company value

- Three type of actors in finance:
  - Managers, CEOs, board, shareholders within a firm [Corporate Finance]
  - Individual investors (eTrade) and institutional investors (mutual fund, hedge funds, pension funds) [Asset Pricing]
  - Analysts, accountants, auditors [Accounting]

- Two reasons to know some finance (even if your aim in life in not just to be rich):
  - Interest in how firms make decisions
    - Huge demand for corporate finance, important topic
    - BUT: Very limited data sets, no experiments
  - Wonderful data sets on asset prices
    - Daily, even minute-by-minute price for each company
    - Can do simple event studies (mergers, lobbying, war)
    - Can do tests on attention, mood, disposition effect...
    - BUT: need to learn finance language

2 Intro to (Empirical) Corporate Finance

- Main topics:

  1. People making decisions
     - CEO – mainly study of pay
     - Board of directors – how they run company

  2. Corporate expansion
     - Investment
     - Mergers

  3. Financing of the decisions

2.1 CEO pay

- Jensen and Murphy (1990): "Are CEOs paid like Bureaucrats?"

- $1,000 increase in firm value increases CEO pay by only $3.5

- CEO does not have enough incentives (compare to Contract Theory predictions)

- 1990s: Dramatic increase of CEO pay and stock option grants

- CEOs not bureaucrats, but what are they?

- Problems:
  - If company does badly, options are repriced –> lose incentives
  - Bertrand-Mullainathan (2004): Rent seeking by CEO to get higher pay
  - Bertrand-Mullainathan (2002): CEOs rewarded for luck
  - Why do rank-and-file wokers get options?

- What do CEOs do if free?

- Bertrand and Mullainathan (2004, JPE): Enjoying the Quiet Life

- *Anti-takeover laws.*

- Business combination laws that make takeovers more difficult: most stringent; moratorium (3-5 yrs) on assets sales, mergers.

- Exploit variation in implementation across states

- Diff-in-Diff – outcome y

$$y_{i,t} = \alpha + \beta d_{i,t} + \eta_i + \varphi_t + \varepsilon_{i,t}$$

where i is state, t is year and $d_{i,t} = 1$ if antitakeover law is in place in state i in year t

Effects of anti-takeover laws

- Blue-collar wages rise by 1%
- White-collar wages rise by 4%
- Rate of plant destruction falls.
- Rate of plant creation falls!
- Total factor productivity decreases by 1%
- Return on capital decreases by 1%

TABLE 1
STATE ANTITAKEOVER LEGISLATION

Business Combination	Fair Price	Control Share Acquisition
Arizona (1987)	Arizona (1987)	Arizona (1987)
Connecticut (1989)	Connecticut (1984)	Hawaii (1985)
Delaware (1988)	Georgia (1985)	Idaho (1988)
Georgia (1988)	Idaho (1988)	Indiana (1986)
Idaho (1988)	Illinois (1984)	Kansas (1988)
Illinois (1989)	Indiana (1986)	Louisiana (1987)
Indiana (1986)	Kentucky (1989)	Maryland (1988)
Kansas (1989)	Louisiana (1985)	Massachusetts (1987)
Kentucky (1987)	Maryland (1983)	Michigan (1988)
Maine (1988)	Michigan (1984)	Minnesota (1984)
Maryland (1989)	Mississippi (1985)	Mississippi (1991)
Massachusetts (1989)	Missouri (1986)	Missouri (1984)
Michigan (1989)	New Jersey (1986)	Nebraska (1988)
Minnesota (1987)	New York (1985)	Nevada (1987)
Missouri (1986)	North Carolina (1987)	North Carolina (1987)
Nebraska (1988)	Ohio (1990)	Oklahoma (1987)
Nevada (1991)	Pennsylvania (1989)	Oregon (1987)
New Jersey (1986)	South Carolina (1988)	Pennsylvania (1989)
New York (1985)	South Dakota (1990)	South Carolina (1988)
Oklahoma (1991)	Tennessee (1988)	South Dakota (1990)
Ohio (1990)	Virginia (1985)	Tennessee (1988)
Pennsylvania (1989)	Washington (1990)	Utah (1987)
Rhode Island (1990)	Wisconsin (1985)	Virginia (1988)
South Carolina (1988)		Wisconsin (1991)
South Dakota (1990)		Wyoming (1990)
Tennessee (1988)		
Virginia (1988)		
Washington (1987)		
Wisconsin (1987)		
Wyoming (1989)		

SOURCE.—*Annotated State Codes*, various states and years.

(see table 1 for a list).[8] Business combination laws impose a moratorium (three to five years) on specified transactions between the target and a raider holding a specified threshold percentage of stock unless the board votes otherwise *before* the acquiring person becomes an interested shareholder. Specified transactions include sale of assets, mergers, and business relationships between raider and target. For example, the New York statute prohibits, in addition to any merger and consolidation, the sale, lease, exchange, mortgage, pledge, transfer, or other disposition of the assets of the target company to the interested shareholder. The New York law also forbids the adoption of any plan or proposal for the liquidation or dissolution of the target firm, the reclassification of se-

[8] Other (non–business combination) takeover laws are described in Bertrand and Mullainathan (1999*b*). These other laws are thought to be, at best, marginally effective. Event study evidence has borne out this belief, showing that business combination laws resulted in the biggest stock price drop (Karpoff and Malatesta 1989). We also have replicated the analysis below for these other laws and also found little effect.

TABLE 3
EFFECTS OF BUSINESS COMBINATION LAWS ON BLUE-COLLAR WAGES (N=191,211)

	DEPENDENT VARIABLE: LOG(WAGE)				
	(1)	(2)	(3)	(4)	(5)
BC	.013	.013	.013	.012	…
	(.005)	(.005)	(.005)	(.005)	
State-year	…	.436	.436	.436	.439
		(.013)	(.061)	(.061)	(.062)
Log(age)	…	…	.037	.038	…
			(.005)	(.005)	
Return on capital	…	…	−.001	−.001	…
			(.000)	(.000)	
Log(employment)	…	…	−.016	…	…
			(.003)		
Before^{-1}	…	…	…	…	.004
					(.004)
Before^{0}	…	…	…	…	.009
					(.004)
After^{1}	…	…	…	…	.015
					(.006)
After^{2+}	…	…	…	…	.019
					(.007)
Plant fixed effects?	yes	yes	yes	yes	yes
State of incorporation fixed effects?	yes	yes	yes	yes	yes
Year fixed effects?	yes	yes	yes	yes	yes
Log(base year employment) × year fixed effects?	no	no	no	yes	no
R^2	.836	.836	.836	.836	.836

NOTE.—The dependent variable is the log of production worker wages. Plant-level data are taken from the LRD-Compustat match for the years 1976–95. *BC* is a dummy variable that equals one if a business combination statute has been passed. State-year refers to the mean log production worker wage in the plant's state of location in that year (excluding the plant itself). Before^{-1} is a dummy variable that equals one if the plant is incorporated in a state that will pass business combination legislation in one year. Before^{0} is a dummy variable that equals one if the plant is incorporated in a state that passes business combination legislation this year. After^{1} is a dummy variable that equals one if the plant is incorporated in a state that passed business combination legislation one year ago. After^{2+} is a dummy variable that equals one if the plant is incorporated in a state that passed business combination legislation two years ago or more. Standard errors (in parentheses) are corrected for clustering of the observations at the state of location level.

of serial correlation in the data (see Bertrand, Duflo, and Mullainathan 2002).[15]

Column 1 of table 3 estimates the basic impact of the state laws on the mean wage of production workers in a protected plant. Mean blue-collar wages significantly go up by 1.3 percent after the business combination laws are passed. We investigate the robustness of this wage effect in the rest of the table. First, we control for state of location–specific shocks. In column 2, we include mean wage in the state of location of

[15] In regressions not reported here, we also allowed for correlated error terms at the state of incorporation level and found similar results.

Impact of boss

- Bertrand and Schoar (QJE, 2003): Are there CEO (and CFO) fixed effects?

- Run regression on variable y for company

$$y_{i,t} = \alpha_t + \gamma_i + BX_{i,t} + \lambda_{CEO} + \lambda_{CFO} + \varepsilon_t$$

- Is set of variables λ_{CEO} and λ_{CFO} jointly significant?

- Run for different outcomes y: (Tables 2-4)
  - Mergers
  - Investment policy
  - Company profitability, etc.

- Notice: This is identified only off CEOs and CFOs that switch company

- Placebo tratment (Table 5)

- Second step: What are the fixed effect associated to?
  - Pay in company (Table 7)
  - MBA or not (Table 8)

Table II
Executive Transitions Between Positions and Industries [a]

	to: CEO	CFO	Other
from:			
CEO	117	4	52
	63%	75%	69%
CFO	7	58	30
	71%	71%	57%
Other	106	0	145
	60%		42%

[a] Notes:

a. This table summarizes executives' transitions across positions and industries in the manager-firm matched panel data set (as described in Section III.A. and Table I). All transitions are across firms. The first entry in each cell reports the number of transitions from the row position to the column position. The second line in each cell reports the fraction of the transitions in that cell that are between different 2-digit industries.

b. "Other" refers to any job title other than CEO or CFO.

Table III
Executive Effects on Investment and Financial Policies[a]

Panel A: Investment policy

	F-tests on fixed effects for			*N*	*Adjusted* R^2
	CEOs	*CFOs*	*Other executives*		
Investment				6631	.91
Investment	16.74 (< .0001, 198)			6631	.94
Investment	19.39 (< .0001, 192)	53.48 (< .0001, 55)	8.45 (< .0001, 200)	6631	.96
Inv to Q sensitivity				6631	.95
Inv to Q sensitivity	17.87 (< .0001, 223)			6631	.97
Inv to Q sensitivity	5.33 (< .0001, 221)	9.40 (< .0001, 58)	20.29 (< .0001, 208)	6631	.98
Inv to CF sensitivity				6631	.97
Inv to CF sensitivity	2.00 (< .0001, 205)			6631	.98
Inv to CF sensitivity	0.94 (.7276, 194)	1.29 (.0760, 55)	1.28 (.0058, 199)	6631	.98
N of acquisitions				6593	.25
N of acquisitions	2.01 (< .0001, 204)			6593	.28
N of acquisitions	1.68 (< .0001, 199)	1.74 (.0006, 55)	4.08 (< .0001, 203)	6593	.36

Panel B: Financial policy

	F-tests on fixed effects for			*N*	*Adjusted* R^2
	CEOs	*CFOs*	*Other executives*		
Leverage				6563	.39
Leverage	0.99 (.5294, 203)			6563	.39
Leverage	0.86 (.9190, 199)	1.43 (.0225, 54)	1.21 (.0230, 203)	6563	.41
Interest coverage				6278	.31
Interest coverage	0.56 (.99, 193)			6278	.31
Interest coverage	0.35 (.99, 192)	13.85 (< .0001, 50)	2.61 (< .0001, 192)	6278	.41
Cash holdings				6592	.77
Cash holdings	2.52 (< .0001, 204)			6592	.78
Cash holdings	2.48 (< .0001, 201)	3.68 (< .0001, 54)	2.53 (< .0001, 202)	6592	.80
Dividends/earnings				6580	.65
Dividends/earnings	5.78 (< .0001, 203)			6580	.71
Dividends/earnings	4.95 (< .0001, 199)	1.07(.3368, 54)	1.74 (< .0001, 203)	6580	.72

[a]Notes:

a. Sample is the manager-firm matched panel data set as described in Section III.A. and Table I. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

b. Reported in the table are the results from fixed effects panel regressions, where standard errors are clustered at the firm level. For each dependent variable (as reported in column 1), the fixed effects included are: row 1: firm and year fixed effects; row 2: firm, year and CEO fixed effects; row 3: firm, year, CEO, CFO and other executives fixed effects. Included in the "Investment to Q" and "Investment to cash flow" regressions are interactions of these fixed effects with lagged Tobin's Q and cash flow, respectively. Also the "Investment," "Investment to Q" and "Investment to cash flow" regressions include lagged logarithm of total assets, lagged Tobin's Q and cash flow. The "Number of Acquisitions" regressions include lagged logarithm of total assets and return on assets. Each regression in Panel B contains return on assets, cash flow and the lagged logarithm of total assets.

c. Reported are the F-tests for the joint significance of the CEO fixed effects (column 2), CFO fixed effects (column 3) and other executives fixed effects (column 4). For each F test, we report the value of the F-statistic, the p-value and the number of constraints. For the "Investment to Q" and "Investment to Cash Flow" regressions, the F-tests are for the joint significance of the interactions between the manager fixed effects and Tobin's Q and cash flow, respectively. Column 5 reports the number of observations and column 6 the adjusted R^2s for each regression.

Table IV
Executive Effects on Organizational Strategy and Performance[a]

Panel A: Organizational strategy

	F-tests on fixed effects for			*N*	*Adjusted* R^2
	CEOs	*CFOs*	*Other Executives*		
N of diversifying acquis.				6593	.22
N of diversifying acquis.	2.06 (< .0001, 204)			6593	.25
N of diversifying acquis.	1.23 (.0163, 202)	1.74 (.0007, 53)	3.97 (< .0001, 202)	6593	.33
R&D				4283	.78
R&D	1.86 (< .0001, 145)			4283	.79
R&D	2.27 (< .0001, 143)	3.60 (< .0001, 45)	4.46 (< .0001, 143)	4283	.83
Advertising				2584	.79
Advertising	2.88 (< .0001, 95)			2584	.81
Advertising	4.03 (< .0001, 95)	0.84 (.6665, 21)	6.10 (< .0001, 80)	2584	.84
SG&A				2397	.46
SG&A	33.55 (< .0001, 123)			2397	.83
SG&A	13.80 (< .0001, 118)	0.82 (.7934, 42)	0.77 (.9777, 146)	2397	.83

Panel B: Performance

	F-tests on fixed effects for			*N*	*Adjusted* R^2
	CEOs	*CFOs*	*Other Executives*		
Return on assets				6593	.72
Return on assets	2.04 (< .0001, 217)			6593	.74
Return on assets	2.46 (< .0001, 201)	3.39 (< .0001, 54)	4.46 (< .0001, 202)	6593	.77
Operating return on assets				5135	.34
Operating return on assets	2.61 (< .0001, 217)			5135	.39
Operating return on assets	1.60 (< .0001, 216)	0.66 (.9788, 58)	1.01 (.4536, 217)	5135	.39

[a]Notes:

a. Sample is the manager-firm matched panel data set as described in Section III.A. and Table I. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

b. Reported in the table are the results from fixed effects panel regressions, where standard errors are clustered at the firm level. For each dependent variable (as reported in column 1), the fixed effects included are: row 1: firm and year fixed effects; row 2: firm, year and CEO fixed effects; row 3: firm, year, CEO, CFO and other executives fixed effects.

c. Also included in the "N of diversifying acquisitions," "R&D," "advertising" and "SG&A" regressions are the logarithm of total assets, return on assets and cash flow. The "N of diversifying acquisitions" regressions also include a dummy variable for whether the firm undertook any acquisition in that year. Also included in the "Return on assets" and "Operating return on assets" regressions is the logarithm of total assets.

d. Reported in the table are F-tests for the joint significance of the CEO fixed effects (column 2), CFO fixed effects (column 3) and other executives fixed effects (column 4). For each F test, we report the value of the F-statistic and, in parentheses, the p-value and number of constraints. Also reported are the number of observations (column 5) and adjusted R^2s (column 6) for each regression.

Table V
Persistence of Manager Effects:
Real Data and Placebo Data[a]

	Real Data	**Placebo Data**
Investment	0.05	0.01
	(0.02)	(0.02)
	[0.01]	[0.00]
N of acquisitions	0.49	-0.02
	(0.05)	(0.05)
	[0.13]	[0.00]
Leverage	0.40	0.02
	(0.03)	(0.05)
	[0.21]	[0.01]
Cash Holdings	0.74	0.05
	(0.05)	(0.07)
	[0.35]	[0.01]
Dividends/earnings	0.80	0.06
	(0.04)	(0.12)
	[0.51]	[0.02]
N of diversifying acquis.	0.25	0.04
	(0.06)	(0.05)
	[0.07]	[0.00]
R&D	0.65	0.09
	(0.05)	(0.05)
	[0.33]	[0.02]
Advertising	0.62	0.11
	(0.08)	(0.06)
	[0.02]	[0.01]
SG&A	0.14	0.08
	(0.01)	(0.08)
	[0.03]	[0.02]
Return on assets	0.31	0.02
	(0.07)	(0.06)
	[0.40]	[0.01]
Operating return on assets	0.18	0.03
	(0.03)	(0.11)
	[0.07]	[0.00]

[a]Notes:

a. Sample is the manager-firm matched panel data set as described in Section III.A. and Table I. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

b. Each entry in this table corresponds to a different regression.

c. In column 1, we regress for each of the policy variables a manager's average residual in his second firm on his average residual in his first firm. In column 2, we regress for each of the policy variables a "manager's average residual" in his second firm *three years prior to the manager joining that firm* on his true average residual in his first firm. See section IV.C. for details.

d. The first number in each cell is the estimated coefficient on the first job residual, the second number is the estimated standard error (in round brackets) and the third number is the estimated R^2 (in squared brackets).

Table VIII
Governance, Compensation, and Manager Fixed Effects[a]

	Percent shares held by large block holders	*Residual compensation*	
		Total compensation	*Salary compensation*
Return on assets	0.012	0.72	2.86
	(0.006)	(0.24)	(0.57)
Investment	0.278	0.02	-0.08
	(0.252)	(0.01)	(0.06)
Inv to Q sensitivity	0.246	0.08	0.19
	(0.053)	(0.03)	(0.13)
Inv to CF sensitivity	-0.004	-0.06	-0.06
	(0.088)	(0.04)	(0.07)
Cash holdings	-0.001	-0.02	-0.26
	(0.007)	(0.15)	(0.29)
Leverage	-0.018	0.04	-0.01
	(0.021)	(0.26)	(0.18)
R&D	0.009	-0.94	-0.33
	(0.006)	(0.08)	(0.90)
Advertising	0.008	2.18	1.36
	(0.007)	(0.93)	(0.54)
N of acquisitions	-0.568	0.10	0.00
	(0.131)	(0.05)	(0.03)
N of diversifying acquisitions	-0.617	0.09	0.03
	(0.092)	0.04	(0.05)
SG&A	-0.027	-0.16	-0.09
	(0.093)	(0.04)	(0.25)

[a]Notes:

a. Each entry in column 1 corresponds to a different regression. The *dependent* variable in each of these regressions is the manager fixed effect on the row variable, as retrieved from Tables III and IV). The *independent* variable is the fraction of shares held by 10 percent or more blockholders in the second firm we observe the manager in (from CDA Spectrum). The first number in each cell is the estimated coefficient; the second number is the estimated standard error. Each observation is weighted by the inverse of the standard error of the dependent variable.

b. Each entry in columns 2 and 3 corresponds to a different regression. The *independent* variable in each of these regressions is the manager fixed effect on the row variable, as retrieved from Tables III and IV). The *dependent* variable is a manager-level residual from a compensation regression where we control for firm fixed effects, year fixed effects, the logarithm of total assets, the logarithm of total sales, return on assets, tenure on the job, and dummies for whether the manager is a CEO, a CFO, or another top executive (see Section IV.E. for details). The two different compensation measures are the logarithm of total compensation (column 2), defined as salary plus bonus plus the Black & Scholes value of stock options grants, and the logarithm of salary compensation (column 3). In the reported regressions, each observation is weighted by the inverse of the standard error of the independent variable to account for estimation error.

Table IX
CEOs' Birth Cohort and MBA Effects on Firm Policies [a]

	Dependent Variable:	**Year of Birth (*10)**	**MBA**
(1)	Investment	.017	.016
		(.005)	(.010)
(2)	Inv to Q sensitivity	-.013	.017
		(.003)	(.006)
(3)	Inv to CF sensitivity	.118	-.075
		(.014)	(.026)
(4)	N of acquisitions	.001	-.017
		(.037)	(.056)
(5)	Leverage	.024	. 011
		(.007)	(.008)
(6)	Interest coverage	-6.50	.924
		(2.67)	(3.41)
(7)	Cash holdings	-.005	-.001
		(.002)	(.003)
(8)	Dividends/earnings	.000	-.009
		(.003)	(.004)
(9)	N of diversifying acquis.	-.036	.040
		(.015)	(.017)
(10)	R&D	-.003	-.002
		(.002)	(.002)
(11)	Advertising	-.001	.003
		(.002)	(.003)
(12)	SG&A	.002	-.004
		(.003)	(.003)
(13)	Return on assets	-.003	.012
		(.004)	(.005)
(14)	Operating return on assets	-.002	.008
		(.003)	(.003)

[a] Notes:

a. Sample is the set of firm-year observations for which we could obtain information on the year of birth and MBA graduation of the CEO, as described in Section VI.A. and Table I. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

b. Each row, except rows 2 and 3, corresponds to a different regression. Reported are the estimated coefficients on year of birth and MBA dummy. Also included in each regression are year fixed effects, firm fixed effects, and a control for CEO tenure. Other included controls are as follows: row 1: lagged Tobin's Q, cash flow and lagged logarithm of total assets; row 4: return on assets and lagged logarithm of total assets; rows 5 to 8: return on assets, cash flow and lagged logarithm of total assets; row 9: return on assets, cash flow, logarithm of total assets and a dummy for whether the firm undertook any acquisition that year; rows 10 to 12: return on assets, cash flow and logarithm of total assets; rows 13 and 14: logarithm of total assets.

c. The reported cofficients in rows 2 and 3 are from a unique regression of investment on year fixed effects, lagged Tobin's Q, cash flow, lagged logarithm of total assets, firm fixed effects, firm fixed effects interacted with lagged Tobin's Q and cash flow, CEO tenure, CEO tenure interacted with lagged Tobin's Q and cash flow, year of birth, year of birth interacted with lagged Tobin's Q and cash flow, an MBA dummy, an MBA dummy interacted with lagged Tobin's Q and cash flow. Reported in rows 2 and 3 are the estimated coefficients on the interactions between year of birth and the MBA dummy with lagged Tobin's Q and cash flow, respectively.

d. Standard errors are in parentheses. Standard errors are corrected for clustering of observations at the individual manager level.

- Similar identification in education data sets (Hanusheck, EMA 2005)

- Regress student grades on student, teacher, and headmaster fixed effects

- Fundamental question of social sciences: Who makes history?
  - *Classical historians.* The great personalities: Napoleon, George Washington, Nelson Mandela
  - *Marxist historians and Ecole des Annales.* It's class struggle (Marx) or local culture/environment (Annales)

- Where lies the empirical truth? Nobel-prize caliber question

- Jones and Olken (2004): Look at leader deaths –> impact on economic growth g

- Regression:

$$g_{i,t} = \alpha_t PRE_t + \beta_t POST_t + v_i + v_t + \varepsilon_{i,t}$$

- Compute statistic J based on $(POST - PRE)_i^2$

- Evidence of significant impact of leader

TABLE II

Deaths of National Leaders Due to Accidental or Natural Causes

Country	Leader	Year of Death	Tenure (Years)	Nature of Death
Algeria	Houari Boumediene	1978	13.5	Waldenstrom's disease (blood disorder)
Angola	Agostinho Neto	1979	3.9	Cancer of the pancreas
Argentina	Juan Peron	1974	.7[a]	Heart and kidney failure
Australia	John Curtin	1945	3.7	Heart attack
Australia	Harold Holt	1967	1.9	Drowned while skin-diving in Port Philip Bay
Barbados	John (Tom) Adams	1985	8.5	Heart attack
Barbados	Errol Barrow	1987	1.0[a]	No cause of death announced
Bolivia	Rene Barrientos (Ortuna)	1969	2.7[a]	Helicopter crash
Botswana	Sir Seretse Khama	1980	13.8	Cancer of the stomach
Brazil	Arthur da Costa e Silva	1969	2.6	Paralytic stroke, then heart attack
China	Mao Tse-tung	1976	26.9	Parkinson's disease
China	Deng Xiaoping	1997	19.2	Parkinson's disease
Comoros	Prince Jaffar	1975	.4	While on pilgrimage to Mecca
Comoros	Mohamad Taki	1998	2.7	Heart attack
Cote d'Ivoire	Felix Houphouet-Boigny	1993	33.3	Following surgery for prostate cancer
Denmark	Hans Hedtoft	1955	1.3[a]	Heart attack in hotel in Stockholm
Denmark	Hans Hansen	1960	5.0	Cancer
Dominica	Roosevelt Douglas	2000	0.7	Heart attack
Ecuador	Jaime Roldos (Aguilera)	1981	1.8	Plane crash in Andes
Egypt	Gamal Abdel Nasser	1970	15.9	Heart attack
France	Georges Pompidou	1974	4.8	Cancer
Gabon	Leon Mba	1967	7.3	Cancer (in Paris)
Greece	Georgios II	1947	11.4	Heart attack
Grenada	Herbert Blaize	1989	5.0	Prostate cancer
Guinea	Sekou Toure	1984	25.5	Heart attack during surgery in Cleveland
Guyana	Linden Burnham	1985	19.2	During surgery
Guyana	Cheddi Jagan	1997	4.4	Heart attack a few weeks after heart surgery
Haiti	Francois Duvalier	1971	13.5	Heart disease
Hungary	Jozsef Antall	1993	3.6	Lymphatic cancer
Iceland	Bjarni Benediktsson	1970	6.7	House fire
India	Jawaharlal Nehru	1964	16.8	Stroke
India	Lal Bahadur Shastri	1966	1.6	Heart attack
Iran	Ayatollah Khomeini	1989	10.3	Following surgery to stem intestinal bleeding
Israel	Levi Eshkol	1969	5.7	Heart attack
Jamaica	Donald Sangster	1967	0.1	Stroke
Japan	Masayoshi Ohira	1980	1.5	Heart attack
Japan	Keizo Obuchi	2000	1.7	Stroke
Jordan	Hussein al-Hashimi	1999	46.5	Non-Hodgkin's lymphoma
Kenya	Jomo Kenyatta	1978	14.7	While sleeping
Liberia	William V.S. Tubman	1971	27.6	Complications surrounding surgery on prostate
Luxembourg	Pierre Dupong	1953	16.1	Complications from broken leg
Luxembourg	Pierre Frieden	1959	0.9	Cause unclear
Malaysia	Tun Abdul Razak	1976	5.3[a]	Leukemia (in London)
Mauritania	Ahmed Ould Bouceif	1979	.1	Plane crash in sandstorm over Atlantic
Morocco	Mohammed V	1961	5.3[a]	Following operation to remove growth in throat
Morocco	Hassan II	1999	38.4	Heart attack
Mozambique	Samora Machel	1986	11.3	Plane crash near Maputo
Nepal	Tribhuvan	1955	4.1	Heart attack in Zurich
Nepal	Mahendra	1972	16.9	Heart attack
New Zealand	Norman Kirk	1974	1.7	Heart attack

Nicaragua	Rene Schick Gutierrez	1966	3.3	Heart attack
Niger	Seyni Kountche	1987	13.6	Cancer (brain tumor)
Nigeria	Sani Abacha	1998	4.6	Heart attack (some say poisoned)
Pakistan	Mohammed Ali Jinnah	1948	1.1	Heart failure
Pakistan	Mohammed Zia Ul-Haq	1988	11.1	Plane crash in Pakistan
Panama	Domingo Diaz Arosemena	1949	.9	Heart attack
Panama	Omar Torrijos Herrera	1981	12.8	Plane crash near Penonomé
Philippines	Manuel Roxas y Acuna	1948	1.9	Heart attack
Philippines	Ramon Magsaysay	1957	3.2	Plane crash on Cebu Island
Poland	Boleslaw Bierut	1956	11.2	Heart attack
Portugal	Francisco de Sa Carneiro	1980	0.9	Light plane crash near Lisbon
Romania	Gheorghe Gheorghiu-Dej	1965	17.2	Pneumonia
Sierra Leone	Sir Milton Margai	1964	3.0	After “brief illness”
South Africa	Johannes G. Strijdom	1958	3.7	Heart disease
Spain	Francisco Franco	1975	36.3	Heart failure
Sri Lanka	Don Stephen Senanayake	1952	4.5	Thrown from horse
Swaziland	Sobhuza II	1982	60.7	Unknown
Sweden	Per Hansson	1946	10.0	Stroke
Syria	Hafiz al-Assad	2000	29.6	Heart attack
Taiwan	Chiang Kai-Shek	1975	25.3[a]	Heart attack
Taiwan	Chiang Ching-Kuo	1988	12.8	Heart attack
Thailand	Sarit Thanarat	1963	5.1	Heart and lung ailments
Trinidad and Tobago	Eric Williams	1981	18.6	Complications from diabetes
United States	Franklin D. Roosevelt	1945	12.1	Stroke
Uruguay	Tomas Berreta	1947	.4	During emergency surgery
Uruguay	Luis Ganattasio	1965	.9	Heart attack
Uruguay	Oscar Gestido	1967	.8	Heart attack

a. Second time in power.

TABLE III

Do Leaders Matter?

	All Leaders			Leaders with Tenure >= 2 Years		
	J statistic	Wald P-Value	Rank P-Value	*J* statistic	Wald P-Value	Rank P-Value
Treatment Timings						
t	1.312	.0573*	0.017**	1.392	.0390**	0.004***
t+1	1.272	.0845*	0.075*	1.361	.0537*	0.052*
t+2	1.308	.0669*	0.172	1.443	.0314**	0.121
Control Timings						
t-5	0.841	.7953	0.446	0.918	.6269	0.357
t-6	0.986	.5026	0.806	0.962	.5409	0.905
Number of leaders (t)	57	57	57	47	47	47
Number of observations (t)	5567	5567	5567	5567	5567	5567

Under the null hypothesis, growth is similar before and after randomly-timed leader transitions. P-values indicate the probability that the null hypothesis is true. The *J*-statistic is the test statistic described in equation (3) in the text; under the null, $J = 1$, and higher values of *J* correspond to greater likelihood that the null is false. P-values in columns (2) and (5) are from Chi-squared tests, where the POST and PRE dummies are estimated via OLS allowing for region-specific heteroskedasticity and a region-specific AR(1) process, where the regions are Asia, Latin America, Western Europe, Eastern Europe/Transition, Middle East/North Africa, Sub-Saharan Africa, and Other. Estimation using alternative error structures for the Wald test produce similar or stronger results. Estimation of columns (3) and (6) is via the Rank-method described in the text.
The regressions reported in this table compare 5-year growth averages before and after leader deaths. The treatment timing "t" considers growth in the 5-year period prior to the transition year with growth in the 5-year period after the transition year. The treatment timings "t+1" and "t+2" shift the POST period forward 1 and 2 years respectively. The control timings shift both PRE and POST dummies 5 and 6 years backwards in time. Significance at the 10 percent, 5 percent, and 1 percent level is denoted by *, **, and *** respectively.

TABLE V

Interactions with Type of Political Regime in Year Prior to Death

	J statistic	Wald P-Value	Rank P-Value	*J* statistic	Wald P-Value	Rank P-Value
	Autocrats (Polity IV)			Democrats (Polity IV)		
Treatment Timings						
t	1.621	0.019**	0.040**	1.000	0.460	0.106
t+1	1.672	0.016**	0.017**	0.932	0.552	0.712
t+2	1.592	0.028**	0.051*	1.021	0.432	0.636
Control Timings						
t-5	0.849	0.698	0.837	0.866	0.632	0.075*
t-6	1.094	0.334	0.977	0.647	0.873	0.191
Number of leaders (t)	29	29	29	22	22	22

See notes to Table III. Distinctions across leader sets are defined using the "polity" variable in the Polity IV data set in the year prior to the leader's death. Autocrats are defined by having a polity score less than or equal to 0. Democrats are those leaders with a polity score greater than 0.

TABLE VII

What Policies Do Leaders Affect?

	P-values: Probability that dependent variable does not change systematically across randomly-timed leader deaths			
	Inflation	Growth of Government Expenditure	Growth of Trade	Any Conflict
All leaders				
t	0.006***	0.200	0.284	0.715
t+1	0.036**	0.114	0.195	0.589
t+2	0.065*	0.178	0.164	0.482
Autocrats				
t	0.009***	0.356	0.251	0.471
t+1	0.039**	0.492	0.162	0.39
t+2	0.025**	0.300	0.057*	0.303
Democrats				
t	0.186	0.202	0.492	0.789
t+1	0.207	0.088*	0.445	0.717
t+2	0.158	0.327	0.682	0.701
Number of leaders (t)	57	57	57	55

See notes to previous tables. Dependent variables are described in the text.

2.2 Board

- Board of directors controls the CEO
- Does it? CEO chooses most members of Board
- Ergo: CEO chooses own controllers (and pay)
- (Politicians also choose own pay)
- Corporate governance literature
- Which board composition is better?
  - Outsiders or insiders?

  - Large institutional block-holder (solves public good problem)

- Estimate effects of governance measures (Gompers, Ishii and Metrick, QJE 2003)

- Atheoretical literature

2.3 Investment

- Expansion of company in new plant, investment in machinery

- When do companies spend more in investment?

- Investment-cash flow sensitivity:

$$I_{k,t} = \alpha + \beta C_{k,t} + \varepsilon_{k,t}$$

  where C is cash-flow of company k

- Coefficient β significantly positive

- Theory: Investment should not depend on whether earnings are available (company can borrow at market interest rate)

2.4 Mergers

- Company expands by:
  - building new plant
  - taking over another company

- Why CEOs want to expand? (Andrade-Mitchell-Stafford, *JEP* 2001)
  1. Synergies (economies of scale).
  2. Self-serving attempts to overexpand (empire-building, hubris).
  3. Advantages of diversification (e.g. internal capital market; diversification for undiversified managers)

4. Overconfidence (believe can run other companies better)

- Why mergers in particular?

1. Attempt to create market power (forming monopolies)

2. Incompetent target management

3. Response to deregulation.

Stylized facts

1. **Mergers occur in waves.**

- 1920s/1930s: Mergers for market power.
- 1960s: Mergers for diversification (def.: 2-digit SIC).
- 1980s: Mergers for market discipline.
- late 1980s and 1990s: Mergers of deregulation.

2. **Within a wave, industry clusters.**

- 1970s: Metal Mining, Real Estate, Oil & Gas
- 1980s: Textile, Misc. Manufacturing, Food
- 1990s: Metal Mining, Media, Telecomm., Banking

2.5 Financing

- New plant financed with:
  - cash flow coming from previous years
  - issue new stock
  - issue debt (bond)
  - pay less dividend

- Most investment financed by retained earnings and debt. 1980: retained earnings (60%), debt (24%), increases in accounts payable (12%). Very little financing with new equity (4%).

- Puzzle: Why do companies pay dividends? (tax disadvantage of using dividends: Chetty and Saez, 2004)

2.6 Data Download

- Company-level data easily available online from WRDS
- http://wrds.wharton.upenn.edu/
- **Compustat North America,** Industrial Annual
- Accounting information:
  - Revenue (Sales)
  - Profit
  - Investment in plant and equipment (Data128)
  - Research and Development
  - Dividend (Data21)

- **ExecuComp.**

- Compensation of top 5 executives

- Wage vs. options

3 Intro to (Empirical) Accounting

- Accounting — Information on company performance
  - accounting books
  - quarterly earnings announcement

- Two main focuses:
  - Optimal accounting rules (we'll skip this)
  - Stock price response to profitability information in accounting books

- What is right valuation of company?
  - Crucial to guarantee right allocation of capital
  - Denote $e_{t,k}$ earnings (profits) of company k in year t
  - Stock price $=$ Discounted sum of future cash flows:

$$p_{t,k} = e_{t,k} + \frac{e_{t+1,k}}{1+r} + \frac{e_{t+2,k}}{(1+r)^2} + ...$$

  - Need forecasts of future profitability $e_{t,k}$

- Two main components:
  - Short-run earnings performance
  - Long-run performance
  - Analysts provide forecasts on both

- **Analysts.** Process information on companies and make it available (for a fee)
  - Sell-side. Work for brokerage firm (investment bank)
  - Buy-side. Work for mutual funds
  - Sell-side analysts:
    * more likely to have conflict of interest (Inv. Bank selling shares of target company)
    * data widely available (IBES, FirstCall)

- Analysts generate two main outputs:

  1. Earning forecasts $\hat{e}_{t,k}$
     - Dollar earning per share of company
     - Quarterly or annual
     - Forecast h years into the future: $h \simeq 3, 4$ years

  2. Long-term "growth rate" of earnings g_e

- Common forecasting model:

$$\begin{aligned}\hat{p}_{t,k} &= e_{t,k} + \frac{\hat{e}_{t+1,k}}{1+r} + \frac{\hat{e}_{t+2,k}}{(1+r)^2} + ... \\ &\quad + \sum_{t=0}^{\infty} \frac{1}{(1+r)^{h+t}} \hat{e}_{t+h,k} * g_e\end{aligned}$$

- Aside: Analists also provide Stock recommendations.
  - Strong sell / Sell
  - Hold
  - Buy / Strong buy

- In theory:
  - Compare $\hat{p}_{t,k}$ with stock price $p_{t,k}$
  - Buy or Strong Buy if $\hat{p}_{t,k} > p_{t,k}$

- In practice:
  - Individuals investors: stock recommendations
  - Insitutional investors: earnings forecasts

Company releases of information

- Each quarter: Announcement of accounting performance
  - Scheduled announcement, conference call
  - Release of accounting indicators
  - Special focus on earnings per share $e_{t,k}$
- Comparison of forecasted and realized earnings
- Measure of new information: earning surprise $e_{t,k} - \hat{e}_{t,k}$.
- Investors react to new information by updating stock price $p_{t,k}$

4 Problem set

- Focus on response of stock prices to earning surprise

- Economic significance:
  - Processing of new information
    - Clean measure of information
    - Clean measure of response
  - Timing of release of information by company

- Data on quarterly earnings $e_{t,k}$:
  - IBES (street earnings, 1984-)
  - Compustat (GAAP earnings, 1960s-)

- Data on quarterly earning forecasts by analysts, $\hat{e}_{t,k}$:
  - IBES (1984-)
  - First Call (1992-)

- Match the two sources

- Rest of lecture: use problem set text

Figure 1a: Response To Earnings Surprise From -30 To -3

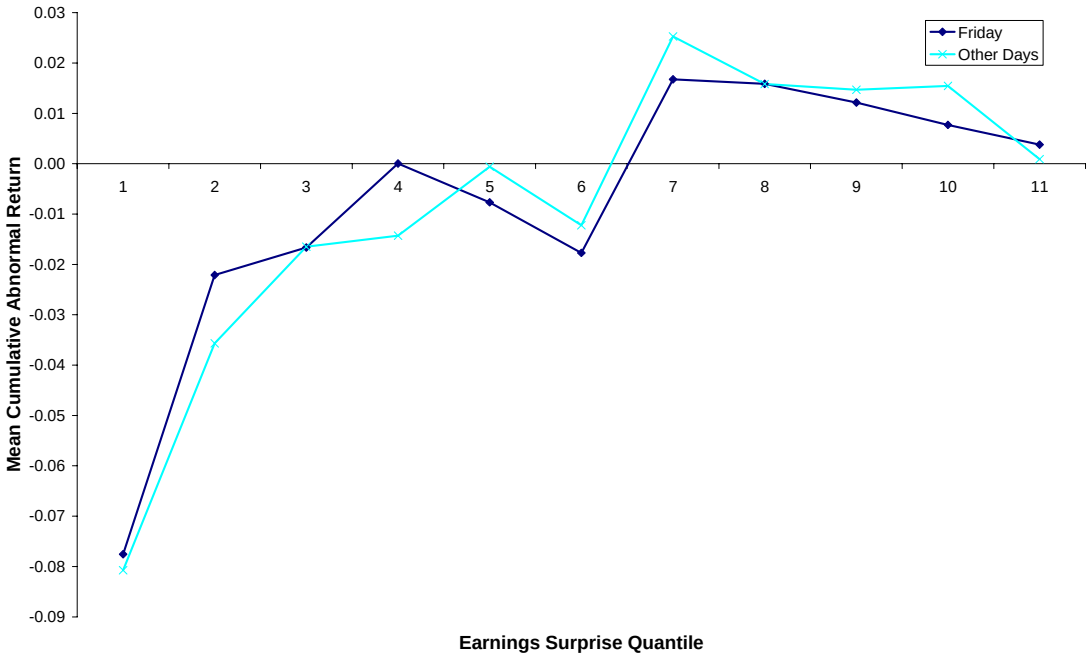
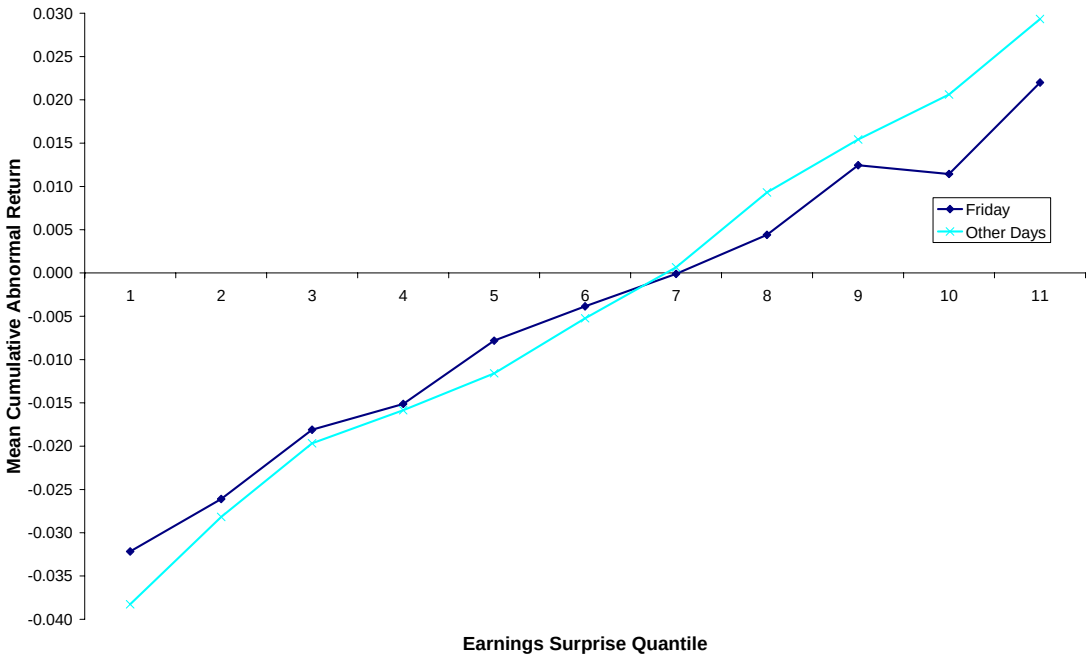


Figure 1b: Response To Earnings Surprise From 0 To +1



Notes: The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted using the estimated beta from market model. Quantiles 1 through 5 contain earnings announcements for five quintiles of negative earnings surprises and quantiles 7 through 11 contain earnings surprises for 5 quintiles of positive earnings surprises. Quantile 6 contains all announcements with an earnings surprise equal to zero. Let F(q) be the mean on Fridays and NF(q) be the mean on Other Days for quantile q, then F(11)-F(1)-[NF(1)-NF(11)] is statistically different from 0 at the 1% level in Figure 1b.

Figure 1c: Response To Earnings Surprise From +3 To +75

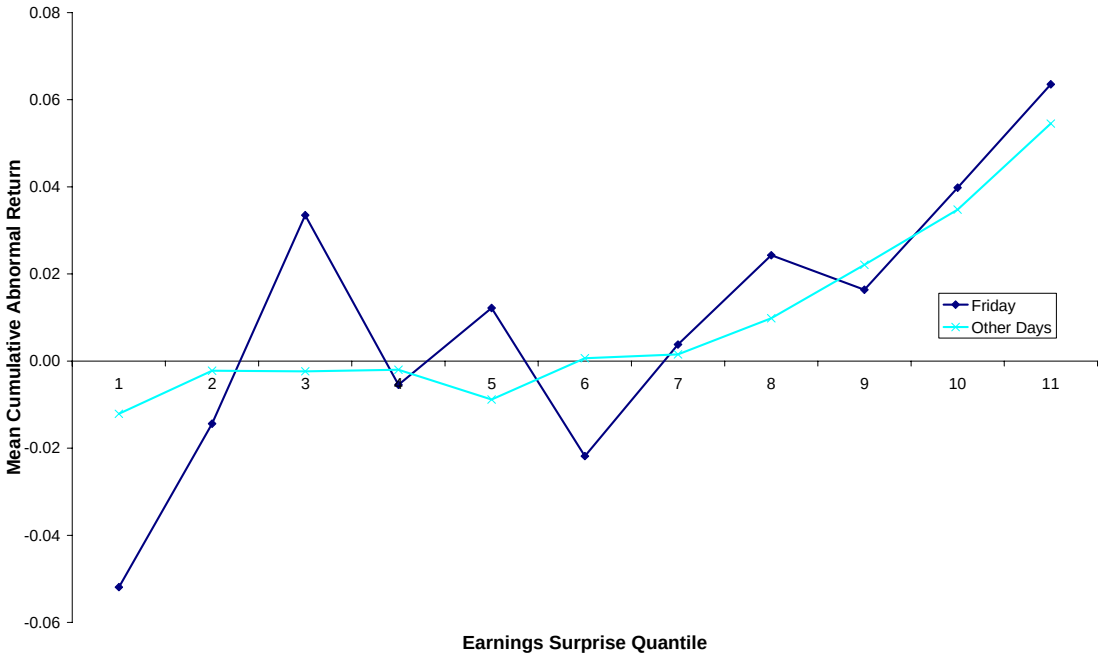
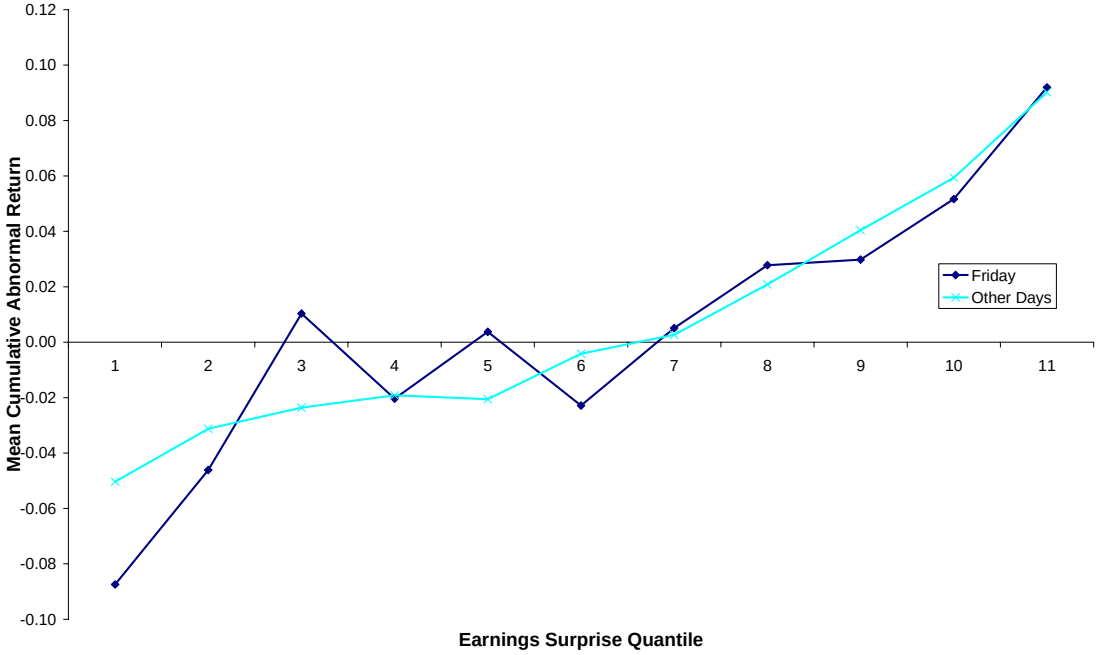


Figure 1d: Response To Earnings Surprise From 0 To +75



Notes: The cumulative abnormal return for each stock is the raw buy-and-hold return adjusted using the estimated beta from market model. Quantiles 1 through 5 contain earnings announcements for five quintiles of negative earnings surprises and quantiles 7 through 11 contain earnings surprises for 5 quintiles of positive earnings surprises. Quantile 6 contains all announcements with an earnings surprise equal to zero. Let F(q) be the mean on Fridays and NF(q) be the mean on Other Days for quantile q, then F(11)-F(1)-[NF(1)-NF(11)] is statistically different from 0 at the 1% level in Figure 1c but it is not statistically different in Figure 1d.