PhD course in
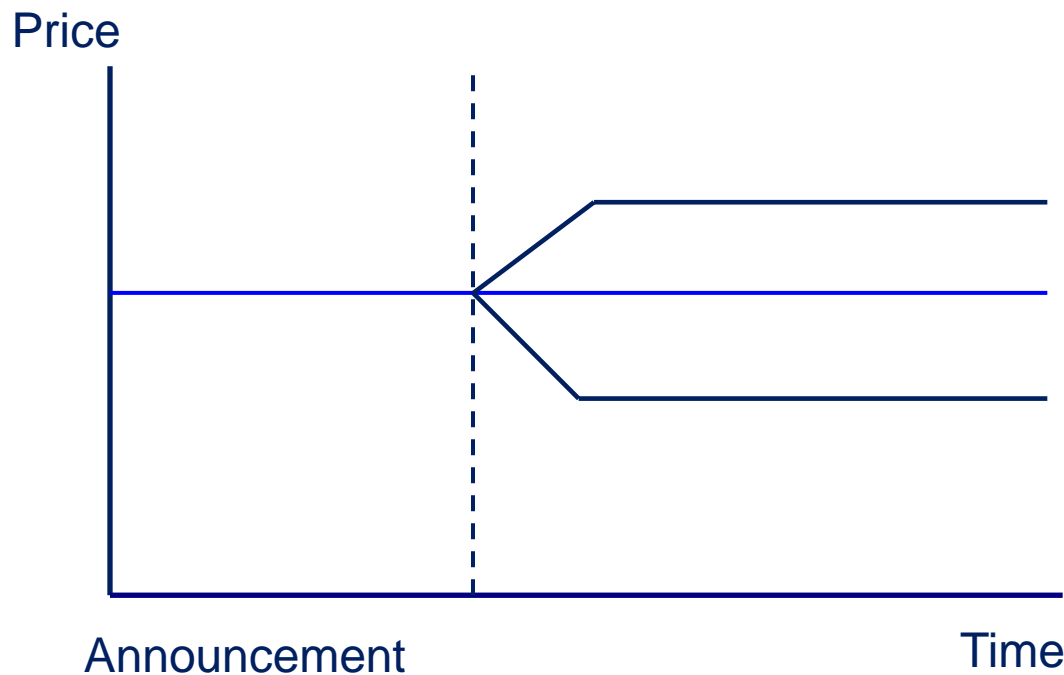
Empirical Finance

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Announcement

Price

The announcement was unexpected and there is a positive market reaction

The announcement was expected or there are no market reaction

The announcement was unexpected and there is a negative market reaction

Announcement

Time

$$AR_{it} = R_{it} - E(R_{it})$$

AR_{it} = Abnormal Returns

R_{it} = Actual stock return in period t

$E(R_{it})$ = Expected stock return in period t

R_{mt} = Actual market return in period t

$$E(R_{it}) = \hat{\alpha}_i + (\hat{\beta}_{mi} * R_{mt})$$

α and β are estimated using OLS, for period (example) -255 to -21 days before the announcement

Event Window

$$CAR = \sum_{i=-20}^{20} AR_i$$

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Share Repurchases in Europe. Underlying signals and regulatory frameworks: a Cross-country Analysis", Dimitrios Andriosopoulos and M. Ameziane Lasfer

- Market Reaction to Share Repurchases announcement in the UK, France and Germany from 1997 to 2006 (10 years)

- In the UK and Germany the market reaction is positive.

- In France, the market reaction is negative

Table 1. Share Repurchasing Distribution

This Table contains the number of announcements of intention to repurchase shares distributed annually and on a per country basis.

	Annual distribution of Share Repurchasing Announcements										
Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	All
Germany	0	1	9	21	34	32	17	18	31	31	194
France	2	20	26	49	16	35	36	24	15	40	263
United Kingdom	13	40	31	30	42	67	59	73	84	74	513
All	15	61	66	100	92	134	112	115	130	145	**970**

Figure 1.

Figure 1 illustrates the annual number of repurchasing announcements for each country.

Share Repurchasing Announcements
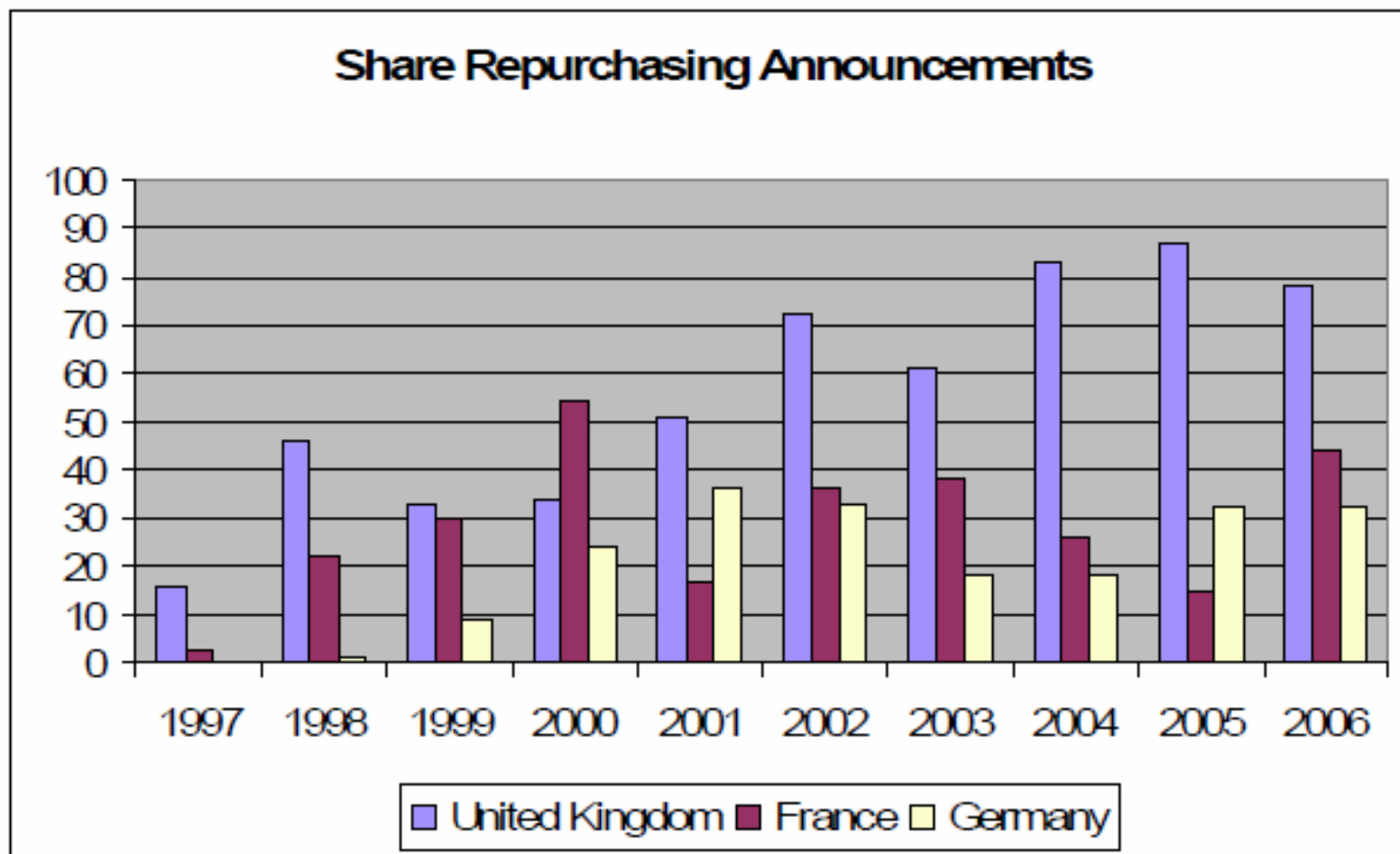
Legend: United Kingdom, France, Germany

Table 4. Cumulative Average Abnormal Results for Selected Time Windows for All Announcements

The sample consists of 970 announcements of intention to repurchase of which 513 took place in the UK. The announcements of intention to repurchase entail both open-market and tender-offer repurchases. The abnormal returns are calculated with the implementation of the simple market model with the coefficients computed over the -255 to -21 days before the announcement date. The table reports the cumulative average abnormal returns for selected time-windows. The t-statistics are reported in parentheses [***], [**], and [*] reported on the average abnormal returns indicate statistical significance at the 1, 5 and 10% level respectively. [a], [b], and [c] report the significant difference in means for the average abnormal returns for the pairs UK-France ([a]), UK-Germany ([b]) and Germany-France ([c]) respectively at the 10% confidence level.

	United Kingdom	France	Germany
CAAR -20,-3	0.19%	-0.44%	-1.23%
	(0.40)	(-0.57)	(-0.95)
CAAR -20,-2	0.13%[b]	-0.51%	-1.42%[b]
	(0.26)	(-0.65)	(-1.07)
CAAR -2,+2	[***]1.79%[a]	[**]0.84%[a,c]	[***]2.28%[c]
	(7.11)	(2.06)	(3.36)
CAAR -1,+1	[***]1.68%[a]	[**]0.66%[a,c]	[***]2.32%[c]
	(8.64)	(2.09)	(4.42)
CAAR DAY 0	[***]1.05%[a,b]	0.05%[a,c]	[***]1.98%[b,c]
	(9.34)	(0.29)	(6.51)
CAAR +2,+20	[*]0.91%[a]	-0.80%[a]	0.09%
	(1.86)	(-1.01)	(0.07)
CAAR +3,+20	0.74%[a]	-1.05%[a]	-0.06%
	(1.55)	(-1.36)	(-0.04)

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Table 5. Cumulative Average Abnormal Results for Selected Time Windows for Initial Announcements

The sample consists of 611 initial announcements of intention to repurchase of which 296 took place in the UK, 182 in France and 133 in Germany. The announcements of intention to repurchase entail both open-market and tender-offer repurchases. The abnormal returns are calculated with the implementation of the simple market model with the coefficients computed over the -255 to -21 days before the announcement date. The table reports the cumulative average abnormal returns for selected time-windows. The t-statistics are reported in parentheses. ***, **, and * reported on the average abnormal returns indicate statistical significance at the 1, 5 and 10% level respectively. [a], [b], and [c] report the significant difference in means for the average abnormal returns for the pairs UK-France ([a]), UK-Germany ([b]) and Germany-France ([c]) respectively at the 10% confidence level.

	United Kingdom	France	Germany
CAAR -20,-3	0.39%	-0.70%	-1.40%
	(0.56)	(-0.74)	(-1.01)
CAAR -20,-2	0.29%	-0.72%	-1.51%
	(0.42)	(-0.73)	(-1.07)
CAAR -2,+2	***2.50% [a]	**1.05% [a, c]	***3.09% [c]
	(6.91)	(2.09)	(4.25)
CAAR -1,+1	***2.34% [a]	*0.74% [a, c]	***3.07% [c]
	(8.33)	(1.90)	(5.45)
CAAR DAY 0	***1.43% [a, b]	-0.11% [a, c]	***2.49% [b, c]
	(8.83)	(-0.48)	(7.65)
CAAR +2,+20	*1.32% [a]	-1.06% [a]	-0.01%
	(1.87)	(-1.08)	(-0.01)
CAAR +3,+20	1.06% [a]	-1.39% [a]	-0.14%
	(1.55)	(-1.46)	(-0.10)

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Table 5 considers only the initial announcement (from the firms in the sample that had multiple announcements) as well the ones that announced the intention of just a single share repurchase (by firma and country).

Summary
UK larger reaction in the pre-event period (0.13% and 0.29%)

France and Germany, poorer reaction for initial announcements than for to total announcements.

Significant difference in CAARs for each event window.

Figure 2.

The graph illustrates the cumulative average abnormal returns for the forty-day period surrounding the announcement date [-20 to +20]. The respective pattern emerges from companies in the United Kingdom, France and Germany that made either one or multiple announcements of intention to repurchase their shares through the ten year period under study.

Cummulative Average Abnormal Returns (All Serial and Non-Serial firms)
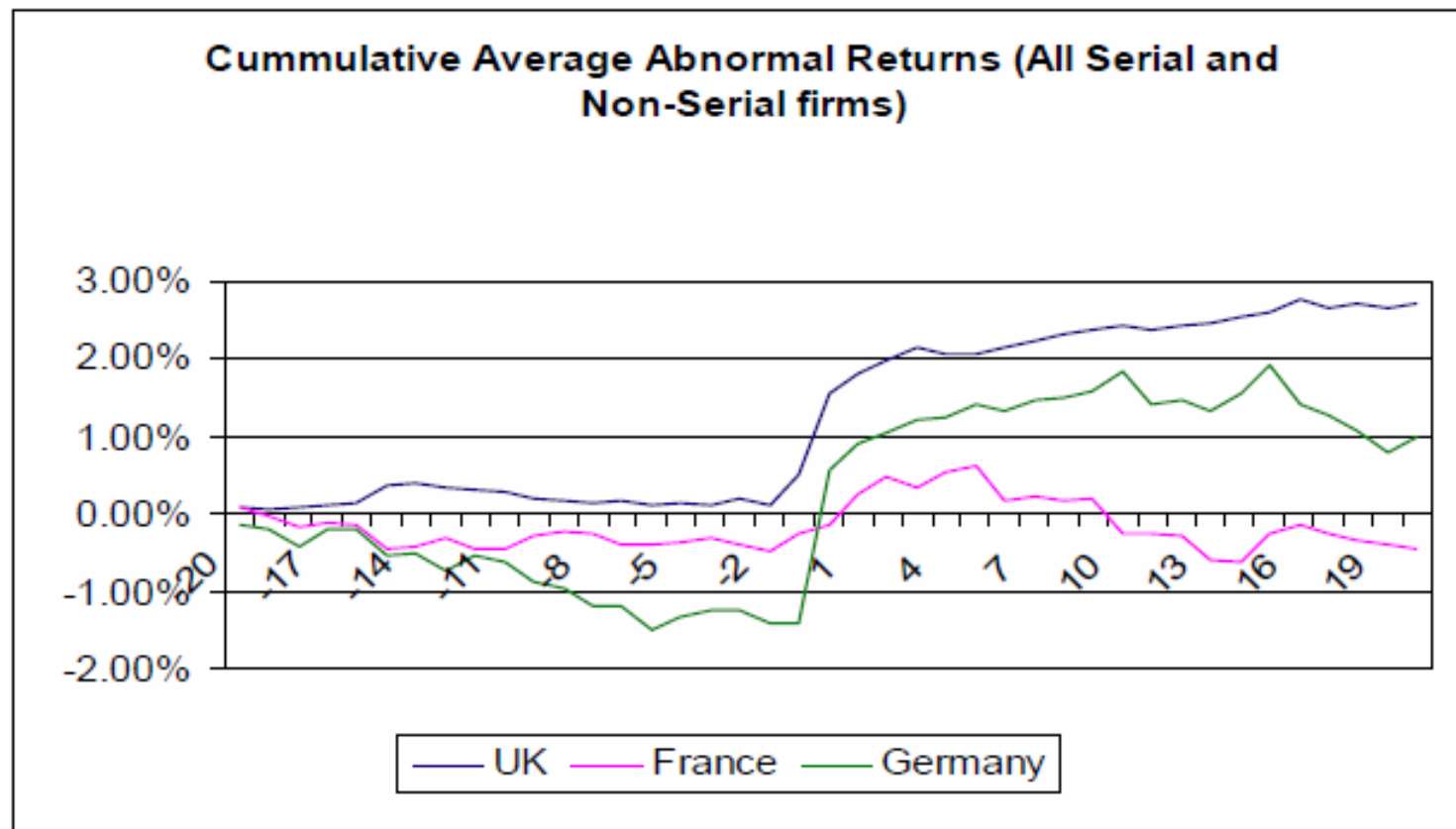
— UK — France — Germany

Figure 3.

The graph illustrates the cumulative average abnormal returns for the forty-day period surrounding the announcement date [-20 to +20]. The respective pattern emerges from the initial, only, announcement of intention to repurchase shares made by companies in the United Kingdom, France and Germany through the ten year period under study.
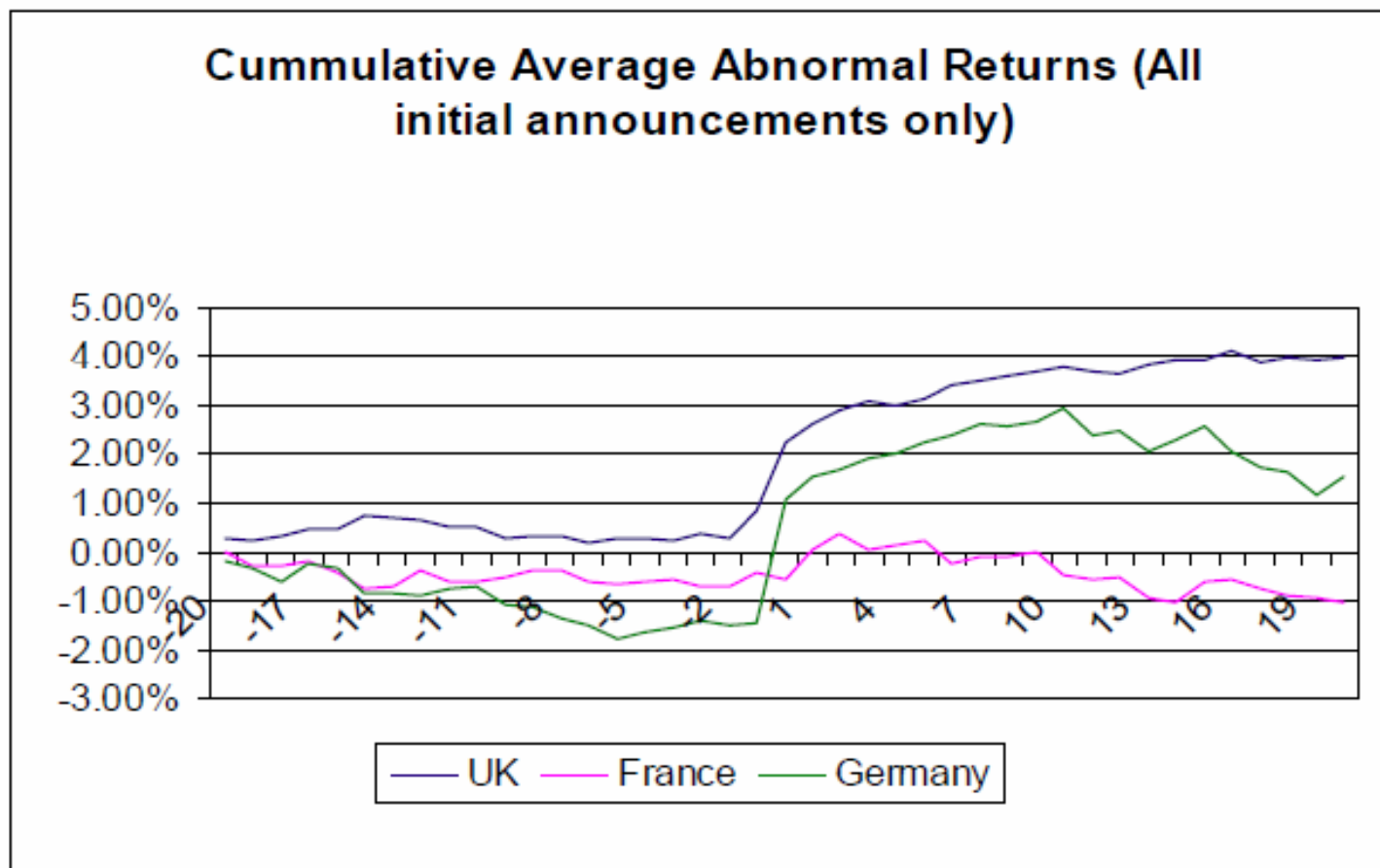

Cummulative Average Abnormal Returns (All initial announcements only)

Table 6. Cumulative Average Abnormal Results for Selected Time Windows between Serial and Non-Serial firms

The sample consists of 970announcements of intention to repurchase of which 513 took place in the UK. The announcements of intention to repurchase entail both open-market and tender-offer repurchases. The abnormal returns are calculated with the implementation of the simple market model with the coefficients computed over the -255 to -21 days before the announcement date. The table reports the cumulative average abnormal returns for selected time-windows, for the two sub-groups of Serial and Non-Serial firms. Serial firms are defined as the firms that made multiple announcements of intention to repurchase their shares, whereas Non-Serial firms are defined as the firms that made only a single announcement of intention to repurchase their shares during the ten year period under study. The t-statistics are reported in parentheses. ***, **, and * reported on the average abnormal returns indicate statistical significance at the 1, 5 and 10% level respectively. [a], [b], and [c] report the significant difference in means for the average abnormal returns for the pairs UK-France ([a]), UK-Germany ([b]) and Germany-France ([c]) respectively for the Serial firms group and the [a'], [b'] and [c'] for the equivalent pairs of the Non-Serial firms group at the 10% confidence level.

	Cumulative Average Abnormal Returns					
	United Kingdom		France		Germany	
	Serials	Non-Serials	Serials	Non-Serials	Serials	Non-Serials
N	328	185	128	135	104	90
CAAR -20,-3	0.44%	-0.25%	0.04%	-0.81%	-1.23%	0.94%
	(0.69)		(0.58)		(-0.65)	
CAAR -20,-2	0.38% [b]	-0.32%	-0.14%	-0.79%	-1.55% [b]	-1.08%
	(0.76)		(0.43)		(-0.29)	
CAAR -2,+2	***1.23% [a]	***2.79%	0.17% [a]	***1.58%	**1.37%	***3.18%
	(-2.93)		(-1.92)		(-1.36)	
CAAR -1,+1	***1.19%	***3.05% [a]	0.39%	**1.06% [a, c]	***1.55%	***3.15% [c]
	(-3.39)		(-1.13)		(-1.47)	
CAAR DAY 0	***0.67% [b]	***1.72% [a]	0.39% [c]	-0.17% [a, c]	***1.73% [b, c]	***2.37% [c]
	(-2.58)		(1.59)		(-0.71)	
CAAR +2,+20	0.86% [a]	1.01%	-0.89% [a]	-0.51%	0.56%	-1.14%
	(-0.18)		(-0.32)		(0.61)	
CAAR +3,+20	0.77% [a]	0.70%	-0.85% *[a]	-1.01%	0.42%	-1.24%
	(0.08)		(0.14)		(0.61)	

Figure 4.

The graph illustrates the cumulative average abnormal returns for the forty-day period surrounding the announcement date [-20 to +20]. The respective pattern emerges from companies in UK, France and Germany that made multiple announcements of their intention to repurchase their shares throughout the ten year period under study.

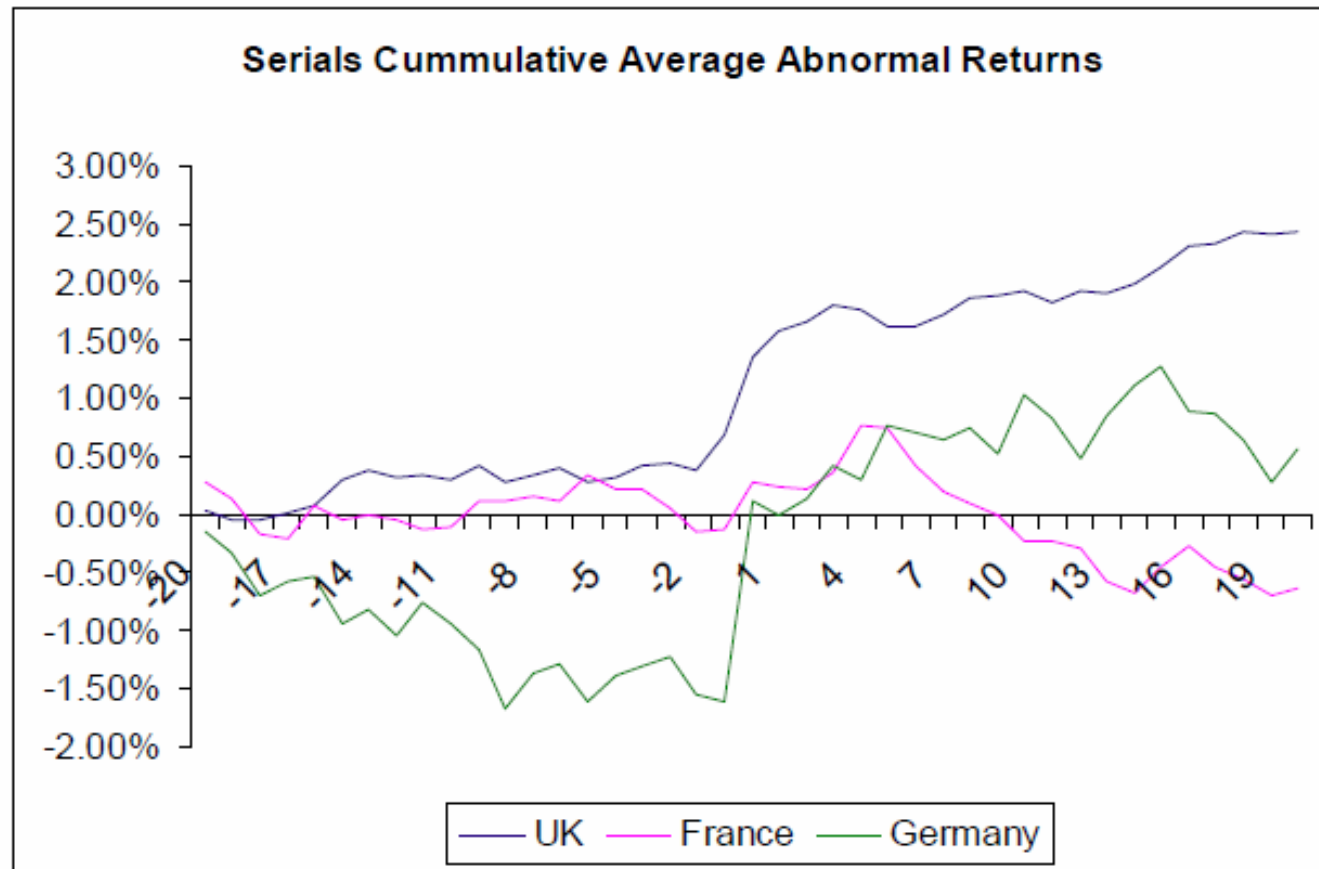Serials Cummulative Average Abnormal Returns

Figure 5.

The graph illustrates the cumulative average abnormal returns for the forty-day period surrounding the announcement date [-20 to +20]. The respective pattern emerges from companies in UK, France and Germany that announced only once their intention to repurchase their shares throughout the ten year period under study.

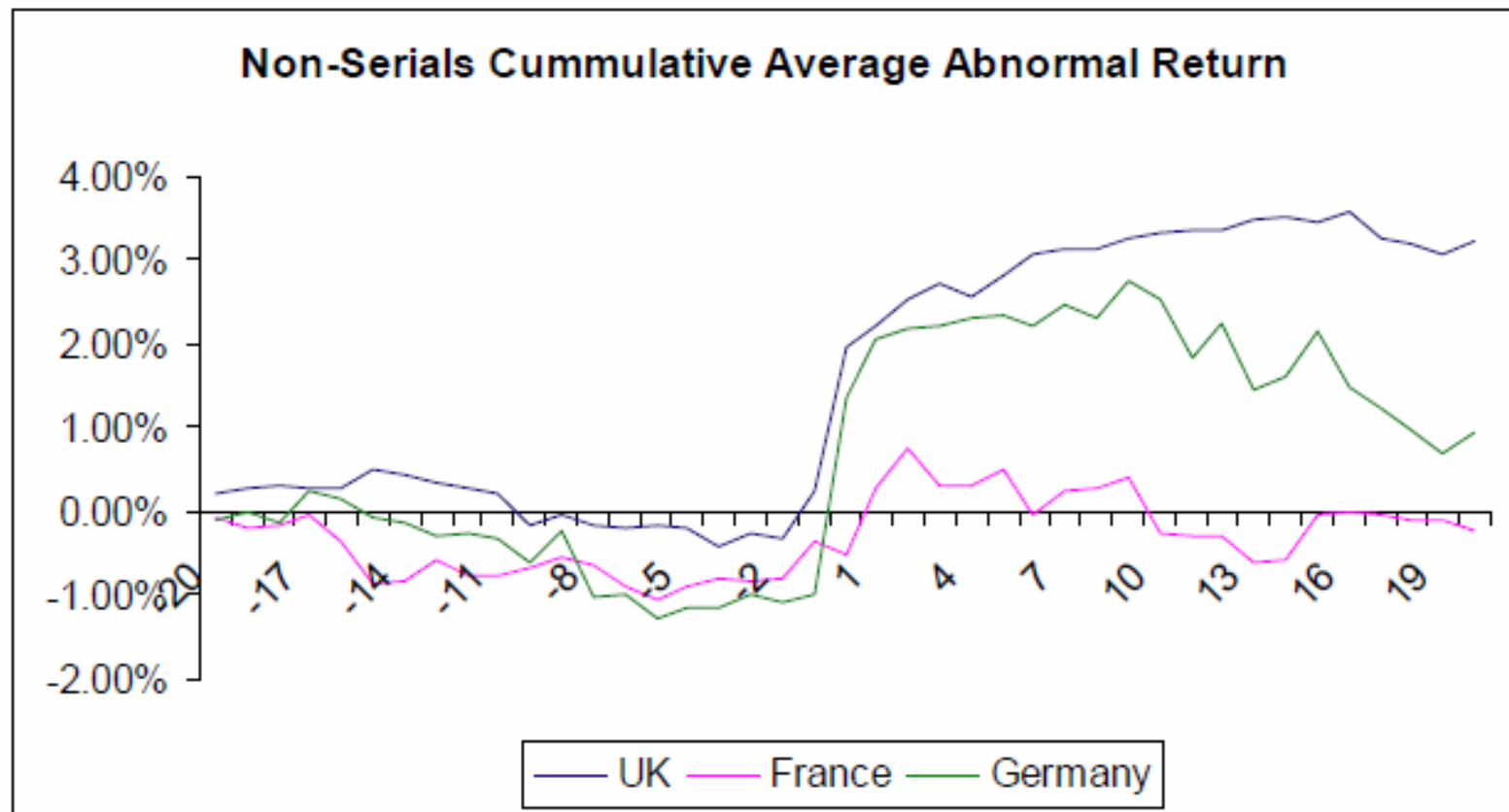Non-Serials Cummulative Average Abnormal Return

Table 9. Cross Sectional Analysis on the Drivers of the Market Reaction to Share Repurchasing Announcements

This table reports the estimated coefficients of the following cross-sectional regression:

$$CAAR_{it} = \beta_0 + \beta_1 LEV_{i(t-1)} + \beta_2 CASH_{i(t-1)} + \beta_3 MKBK_{(t-1)} + \beta_4 Log(SIZE)_{i(t-1)} + \beta_5 OWNCON_{i(t-1)} +$$

$$\beta_6 RET_{i(t-1)} + \alpha_1 DCOM_{it} + \alpha_2 DDIV_{i(t-1)}$$

The sample consists of firms in the UK, France and Germany that announced a share repurchasing program over the period 1996 to 2006. CAAR is the five-day cumulative abnormal return around the share repurchase announcement. LEV is the net debt (debt minus cash and equivalents) to total assets ratio of the repurchasing firm in the end of the calendar year prior to the repurchase announcement. CASH is the difference of a firm's ratio of net income before taxes plus depreciation and changes in deferred taxes and other deferred charges to total assets at the end of the year prior to the share repurchase announcement, with the median of the industry's respective ratio on a per year basis. MKBK is the market value of the company compared to its book value of assets at the year end prior to the repurchase announcement. Log(SIZE) is the natural logarithm of the book value of a firm's total assets. OWNCON is the percent of closely held shares divided by the number of common shares outstanding. Closely held shares include shares held by management, corporations, benefit/pension schemes and individuals that hold 5% or more of the common shares outstanding. RET is the daily cumulative market adjusted return for the period of 255 days prior and 20 days prior to the announcement of a share repurchase. DCOM is a dummy variable that takes the value of one if the repurchasing firm is in the UK market and zero otherwise. DDIV is a dummy variable that takes the value of one if a repurchasing firm paid dividends in the year prior to the repurchase announcement and zero otherwise. The standard errors of the coefficients have been adjusted for heteroskedasticity using White's procedure. Prob is the p-value of the cross-sectional regression. ***, **, and * reported on the average abnormal returns indicate statistical significance at the 1, 5 and 10% level respectively. based on the p-values.

	Dependent variable CAAR$_{(-2,+2)}$	
	Coefficient	Prob.
Intercept	0.013362	0.3304
LEV	0.000526	0.9593
CASH	***-0.071387	0.0051
MKBK	0.000100	0.2610
SIZE	**-0.002965	0.0214
OWNCON	0.000314	0.0193
RET	**-0.015821	0.0336
DCOM	0.009824	0.1082
DDIV	**0.015905	0.0423
Adjusted R^2	4.36%	
N	484	

Terrorist Attacks and Financial Markets

New York

London

Madrid

"An Empirical Analysis of the Impact of Terrorism on Global Financial Markets"
Tandoh and Mateus

Terrorism Definition

*United Nations:"*Act of terrorism in peacetime is equivelent of war Crime"

Central Intelligence Agency: "Terrorism means premeditated, politically motivated violence perpreted agians non-combatent targets by subnational groups or clandestine agents, usually intendfed to influence na audience"

Aljazeere: "terrorists are actors who don't belong to any recognized armed forces and who don't adhere to their rules and who are therefore regarded as rogue actors".

Terrorism comes from tem French word terrorisme, which is based on Latin language verb terrere (to frighten) and deterrere (to frighten from)

Most studies WTC (9/11)

Comparative study among NY, London and Madrid

Establish impact differences among industries

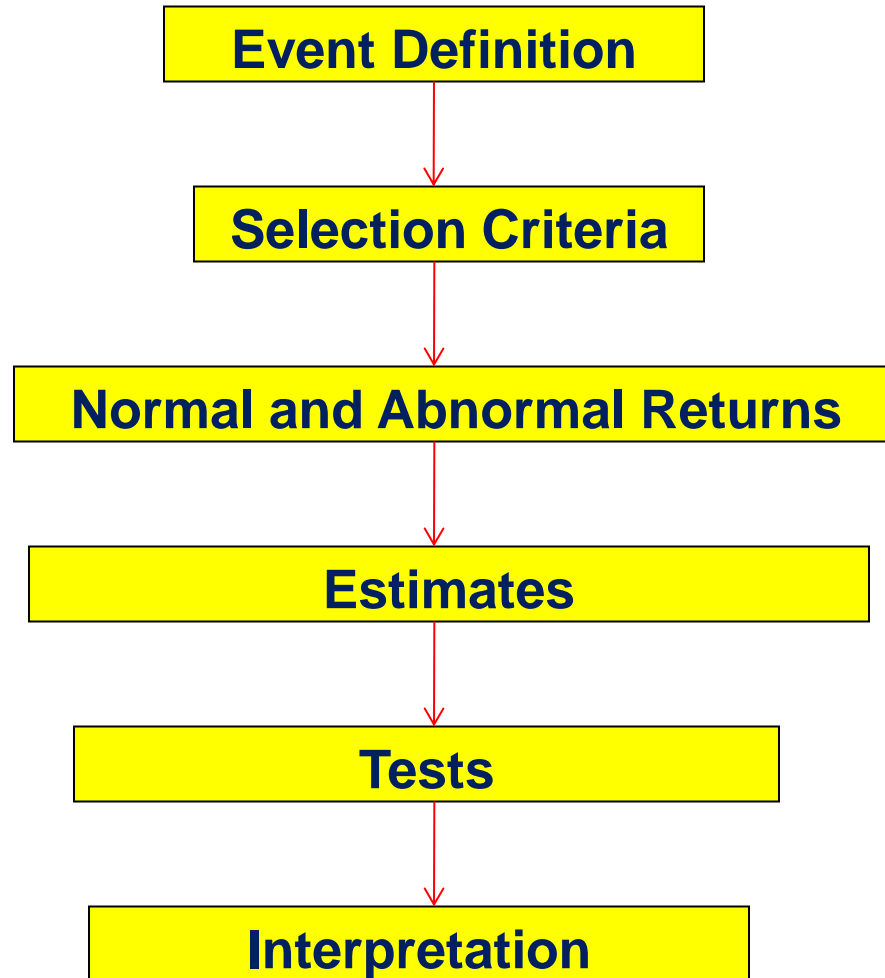Analyses 10 markets and 13 industries

Markets react negatively to terrorist attacks (statistical significance for 1 and 5 percent levels)

Markets recover after the initial impact to previous levels (22 days in the case of World Index after NY attack)

NY attack is the one with the largest impact in the stock market
1) Occurs with a previous stock market decline
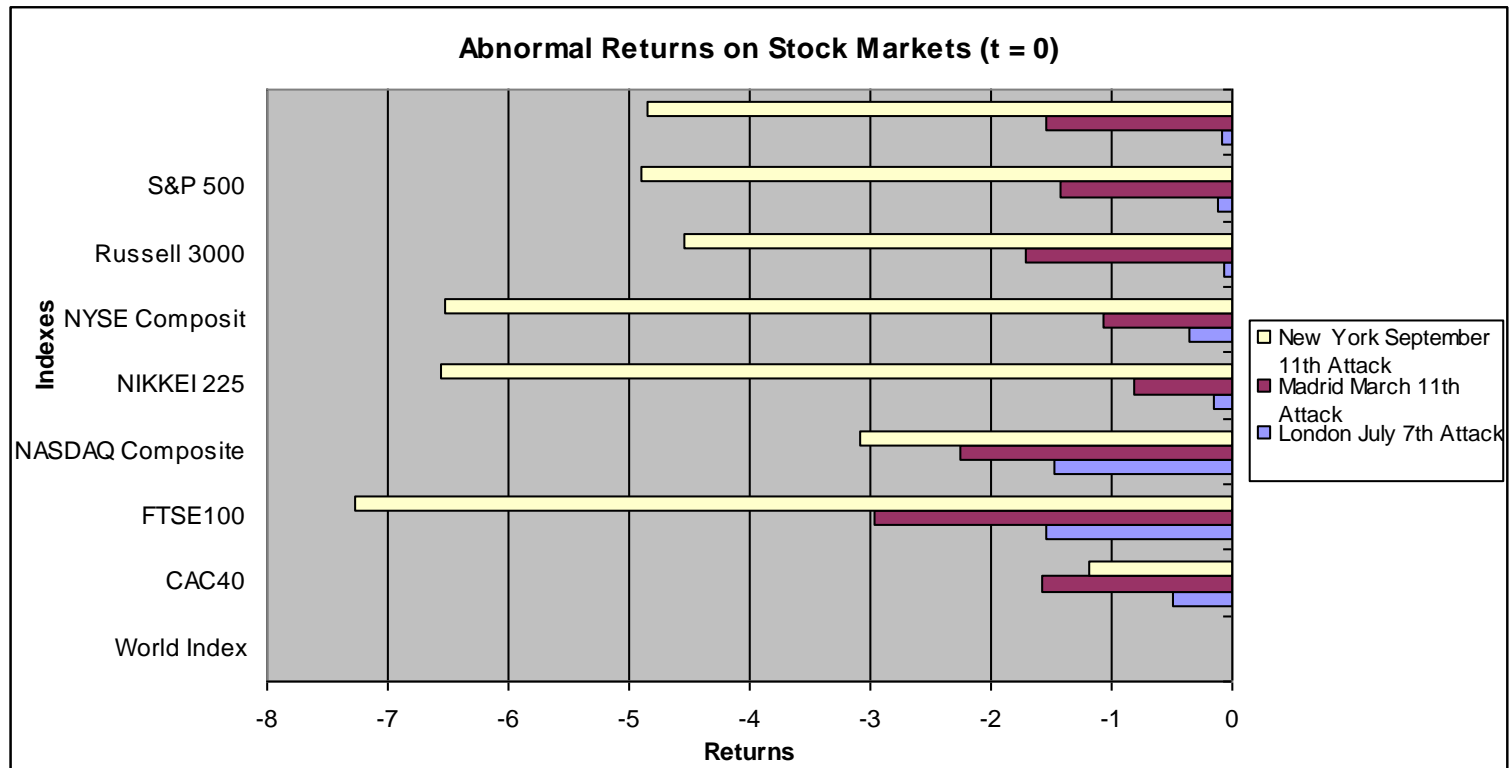2) Was an attack to the "financial sector"

Event Study Structure

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┌─────────────────────────────────┐
│        Event Definition         │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│       Selection Criteria        │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│   Normal and Abnormal Returns   │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│           Estimates             │
└─────────────────────────────────┘
                │
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┌─────────────────────────────────┐
│             Tests               │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│         Interpretation          │
└─────────────────────────────────┘
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Methodology

Average adjusted returns

$$A R_{it} = R_{it} - \bar{R}_i \qquad \bar{R}_j = \frac{1}{20} \sum_{t=-30}^{-11} R_{jt}$$

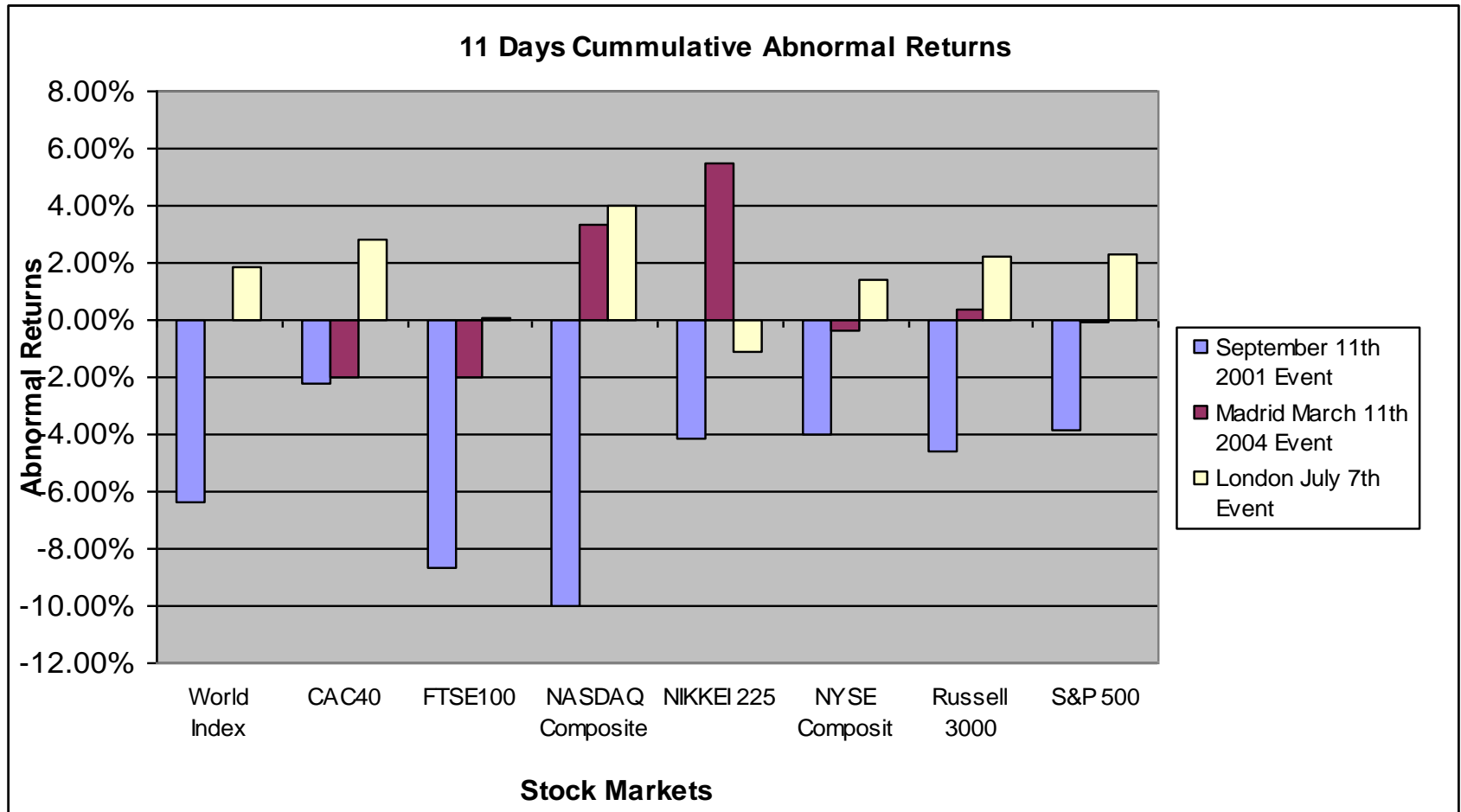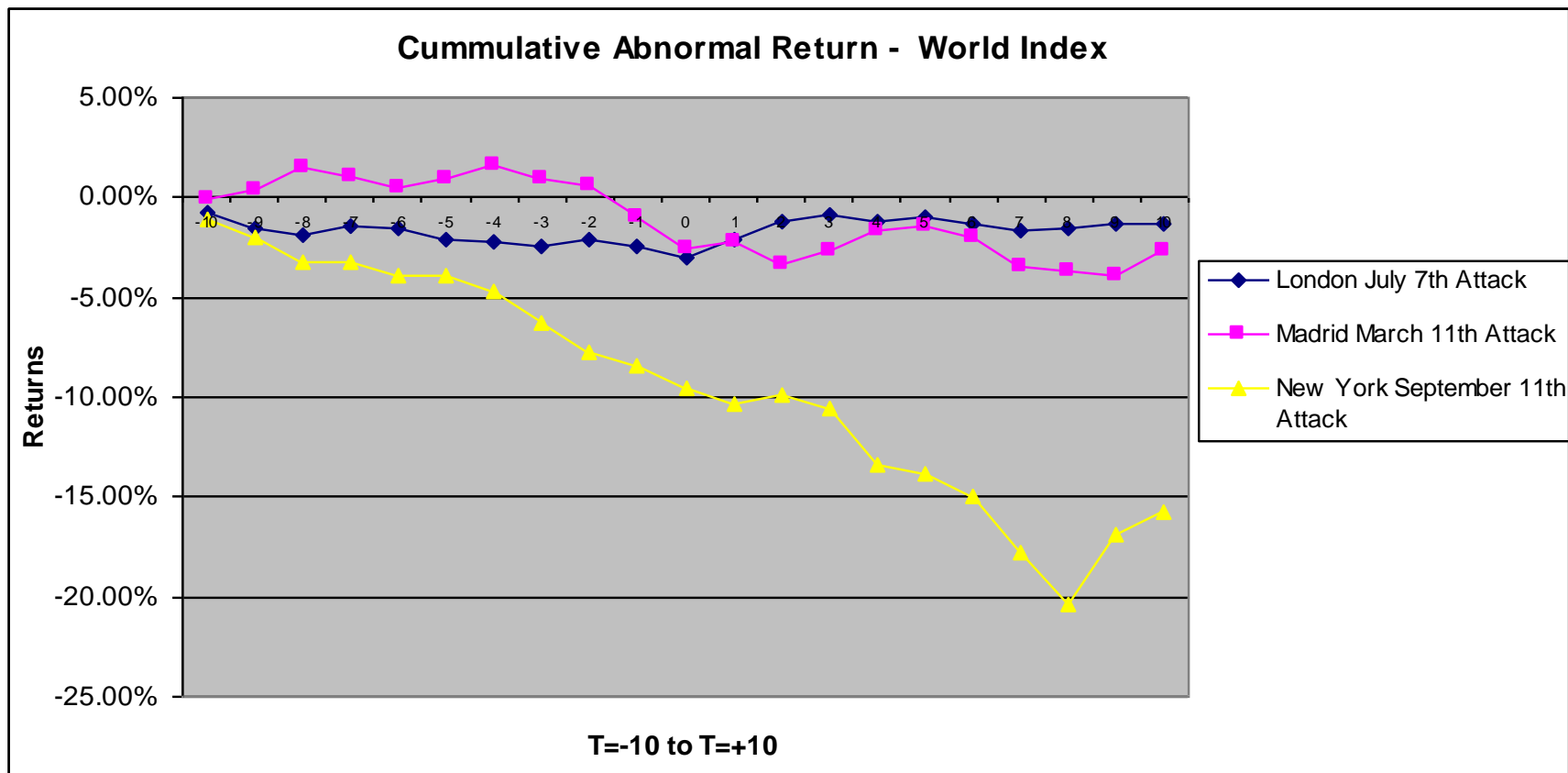**Abnormal Returns on Stock Markets (t = 0)**

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As a benchmark index, the Dow Jones Wilshire Global Total Market Index consists of 58 county-level Indexes and it has more than 98% of global market capitalization
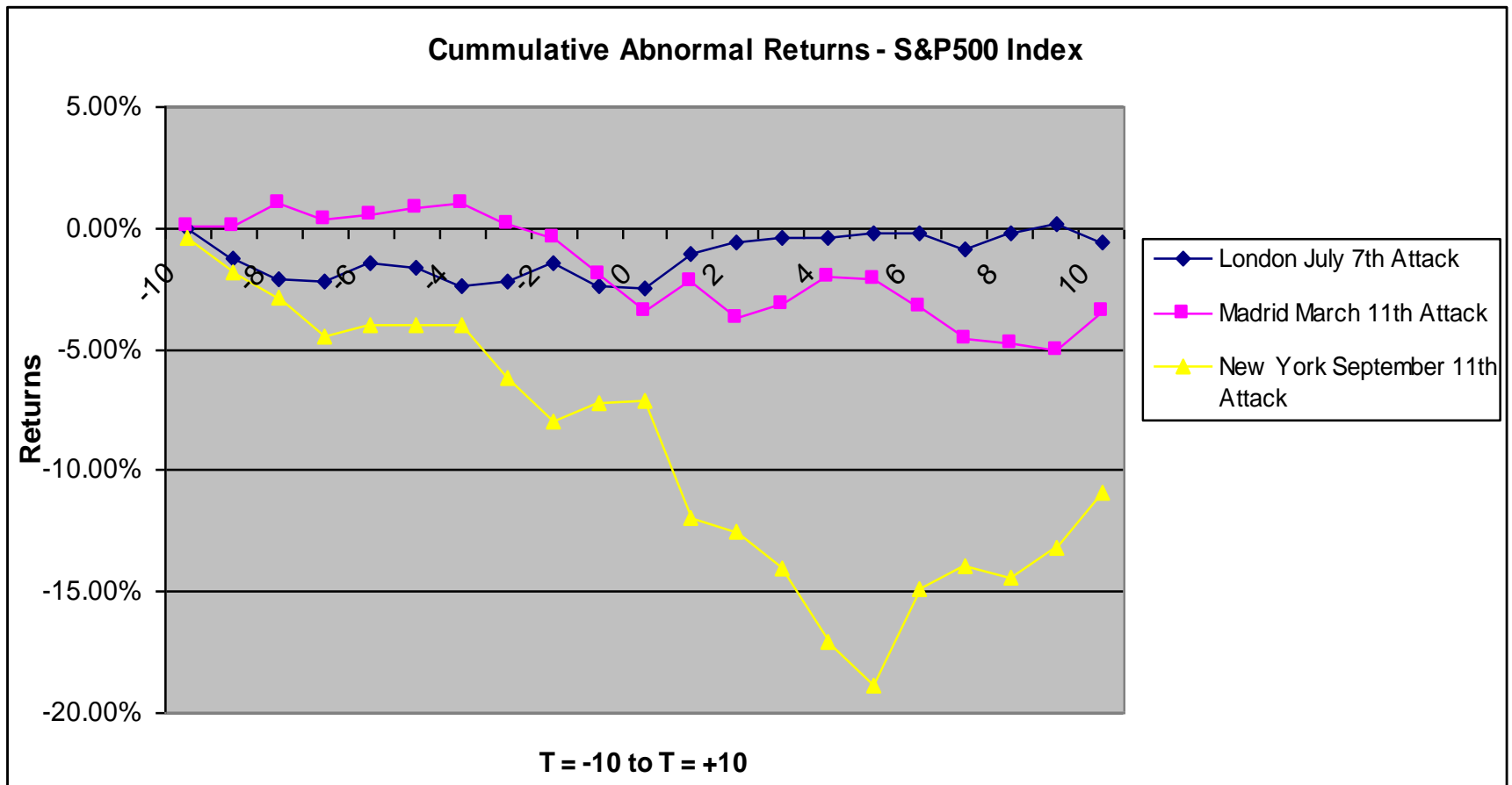
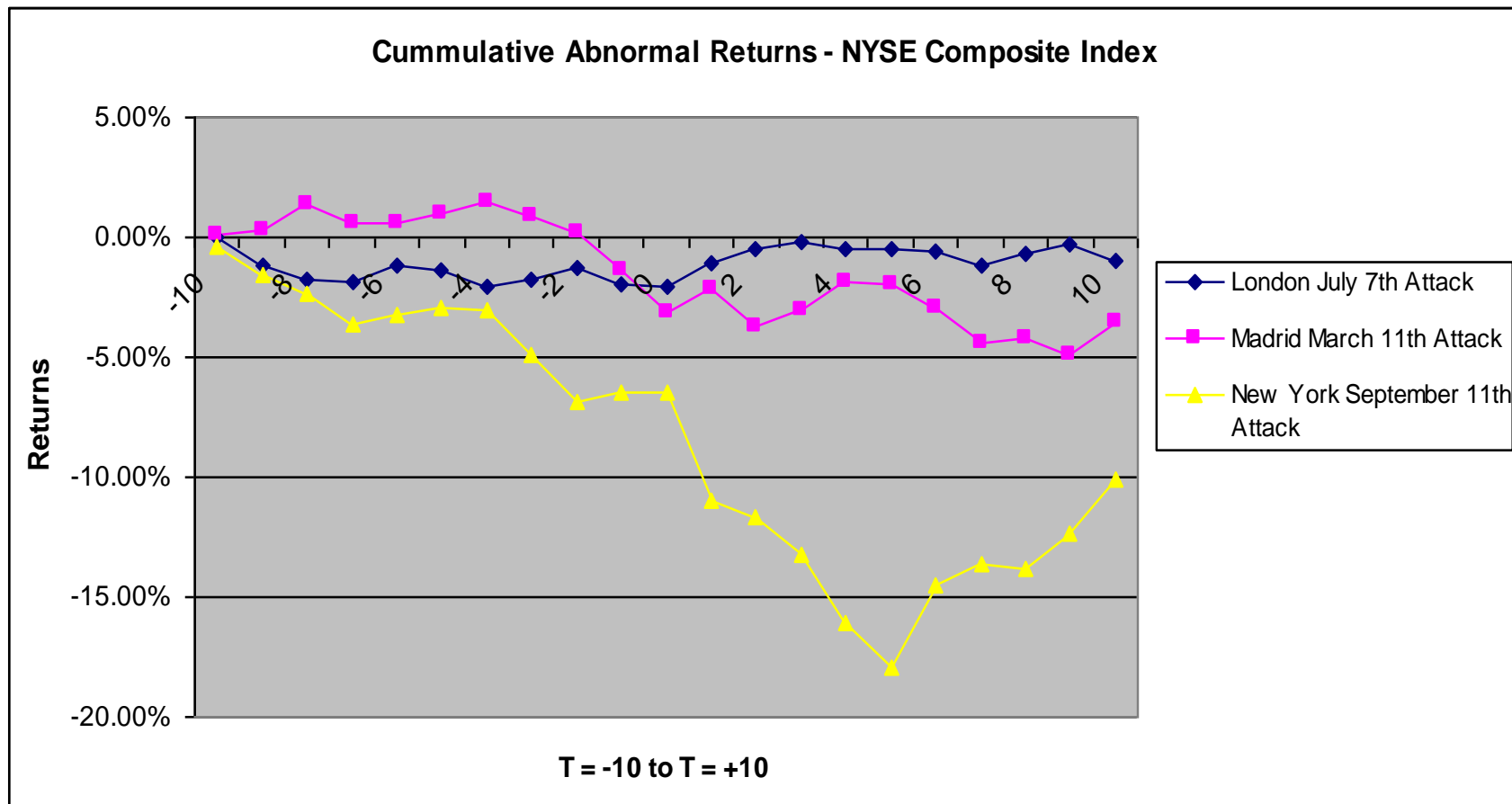Source: Official site of Dow Jones Wilshire

COUNTRY-LEVEL INDEXES (AS OF JUNE 18, 2007)			
Argentina	Australia	Austria	Belgium
Brazil	Bulgaria	Canada	Chile
China Offshore*	Colombia	Cyprus	Czech Republic
Denmark	Egypt	Estonia	Finland
France	Germany	Great Britain	Greece
Hong Kong	Hungary	Iceland	India
Indonesia	Ireland	Israel	Italy
Japan	Jordan	Latvia	Lithuania
Malaysia	Malta	Mexico	Morocco
Netherlands	New Zealand	Norway	Pakistan
Peru	Philippines	Poland	Portugal
Romania	Russia	Singapore	Slovakia
Slovenia	South Africa	South Korea	Spain
Sweden	Switzerland	Taiwan	Thailand
Turkey	USA		

6 Days Cummulative Abnormal Returns

Chart: Abnormal Returns (y-axis, from -12.00% to 6.00%) by Stock Markets (x-axis)

Stock Markets: World Index, CAC40, FTSE100, NASDAQ Composite, NIKKEI 225, NYSE Composit, Russell 3000, S&P 500

Legend:
- September 11th 2001 Event
- Madrid March 11th 2004 Event
- London July 7th Event

11 Days Cummulative Abnormal Returns

Chart showing Abnormal Returns (Y-axis, from -12.00% to 8.00%) across Stock Markets (X-axis): World Index, CAC40, FTSE100, NASDAQ Composite, NIKKEI 225, NYSE Composit, Russell 3000, S&P 500.

Legend:
- September 11th 2001 Event
- Madrid March 11th 2004 Event
- London July 7th Event

Cummulative Abnormal Return - World Index

Cummulative Abnormal Returns - S&P500 Index

T = -10 to T = +10

Legend:
- London July 7th Attack
- Madrid March 11th Attack
- New York September 11th Attack

Cummulative Abnormal Returns - NYSE Composite Index

Cummulative Abnormal Returns - NASDAQ Composite Index

Cummulative Abnormal Returns - CAC40 Index

T = -10 to T = +10

Cummulative Abnormal Returns - FTSE100 Index

T = -10 to T = +10

Legend:
- London July 7th Attack
- Madrid March 11th Attack
- New York September 11th Attack

Cummulative Abnormal Returns - Nikkei 225 Index

T = -10 to T = +10

- London July 7th Attack
- Madrid March 11th Attack
- New York September 11th Attack

Abnormal Returns for Industry Sector (t = 0)

6 Day Cummulative Abnormal Returns for the Industry Sector Indices

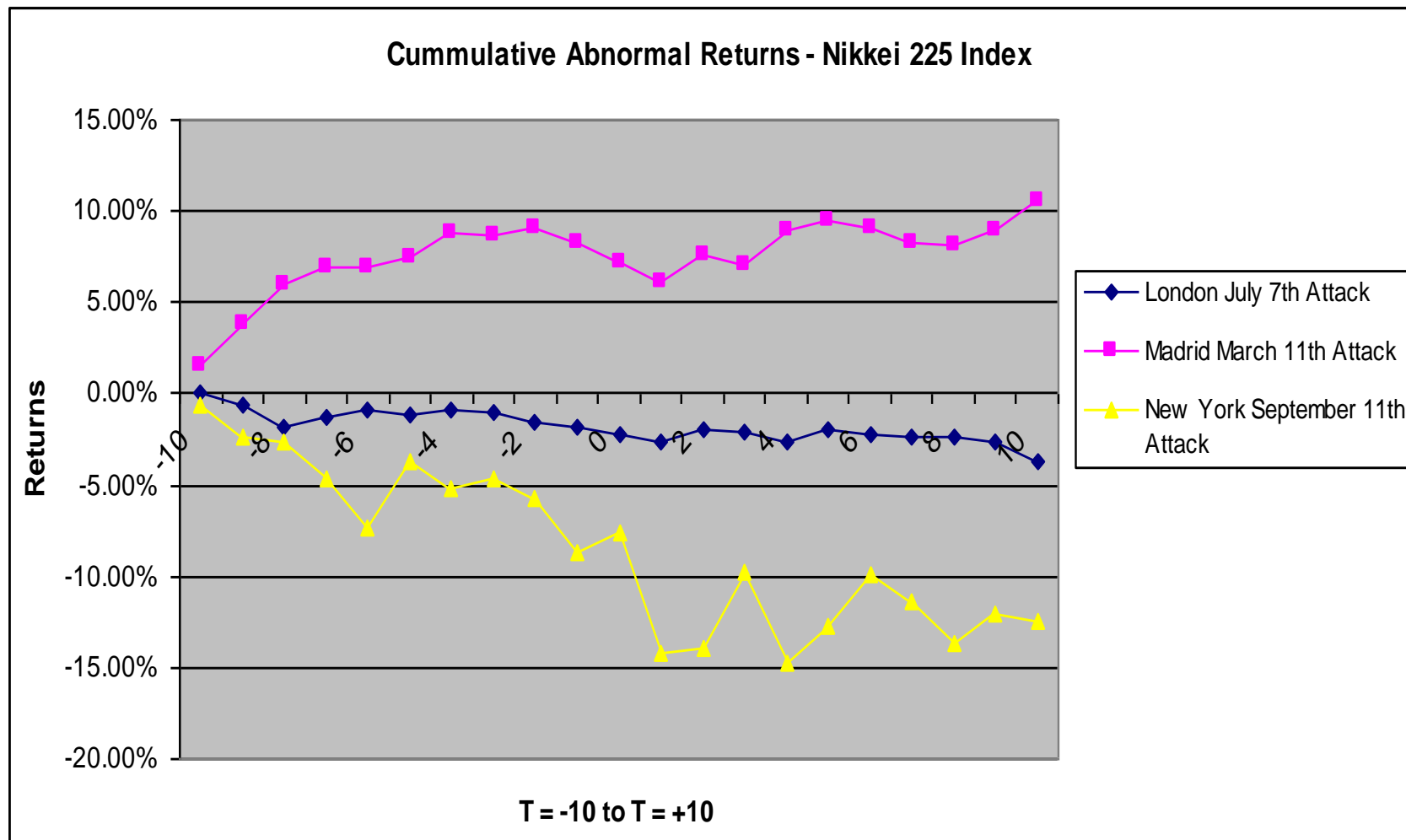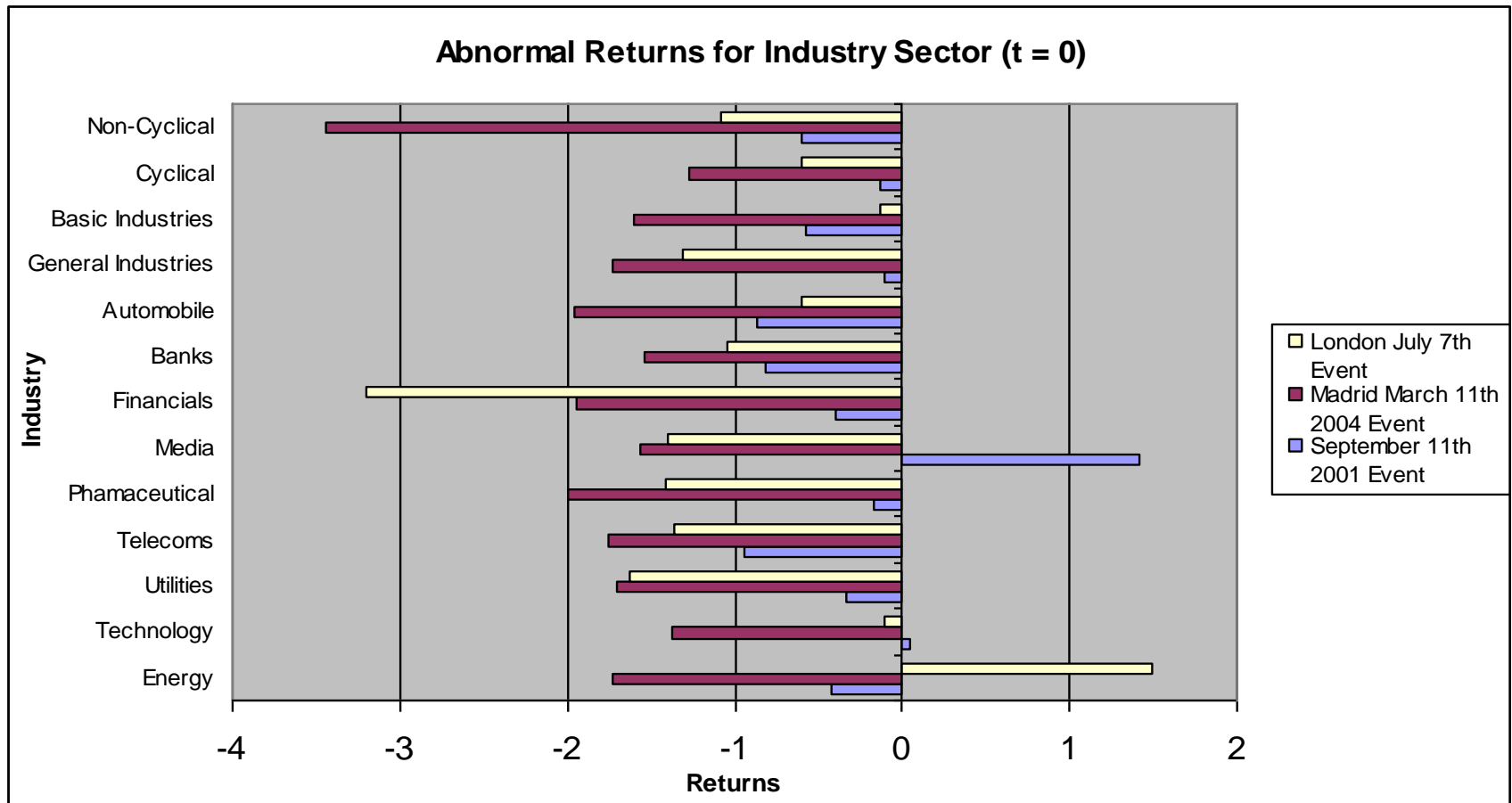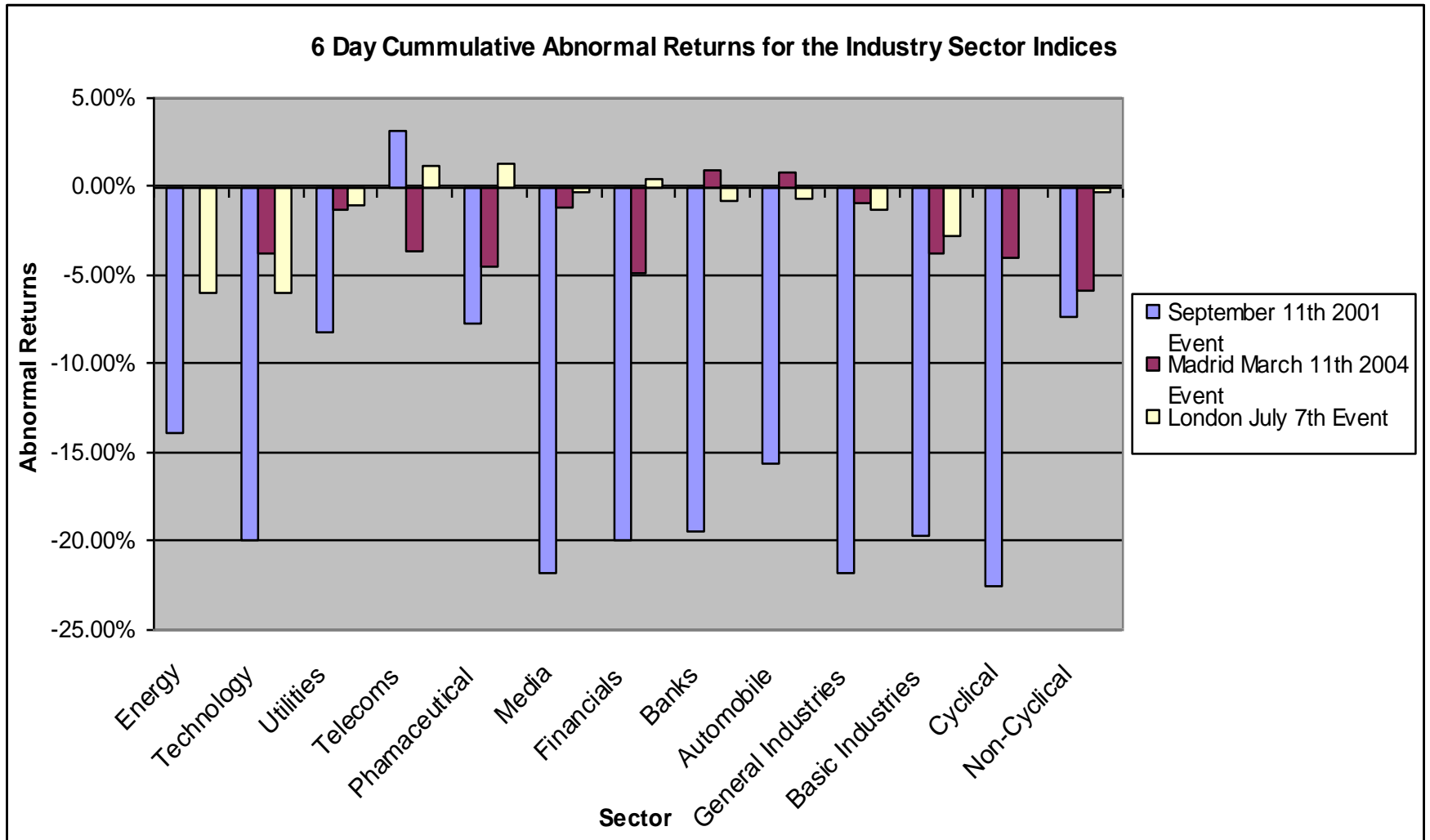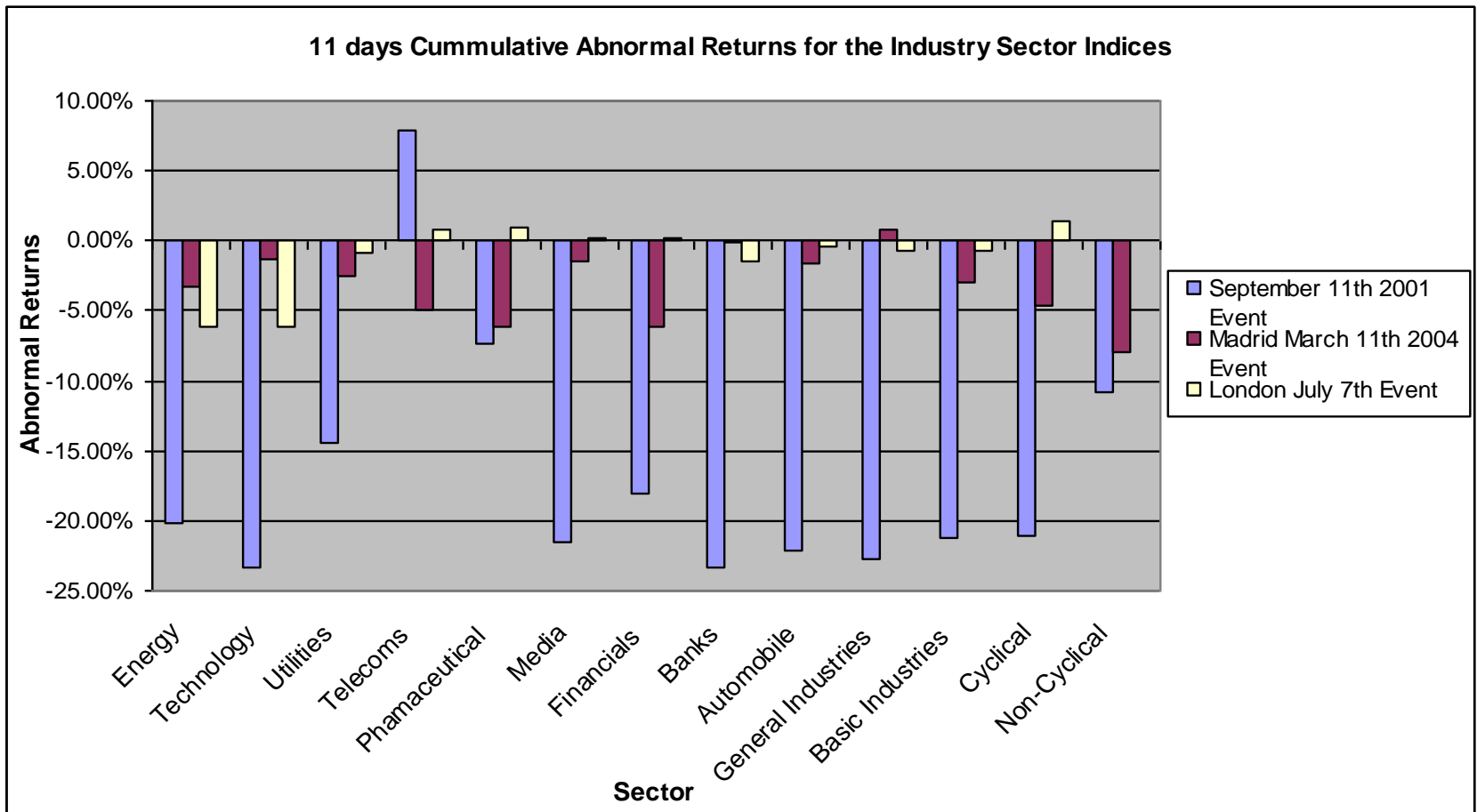**11 days Cummulative Abnormal Returns for the Industry Sector Indices**

Price Discounts in Rights Issues: Why Do Managers Insist On What Investors Hate?

- Significant mean price discounts (25% for financial and 29% for non-financial firms) in rights issues in the UK using a sample of 264 observations for the period of 1994 to 2006.

- sample is comprised by 264 rights issues deals that occurred during the period of 1994-2006, with 229 and 35 deals for non-financial and financial firms

- Pre and post-announcement

Variables	Description	Expected Sign
Pre-announcement		
Price Discount	Price Discount = 1 – (issue price divided by last price)	Dependent Variable
Leverage	Leverage = Total debt divided by total assets	(+)
Bid_Ask	Stock's bid –ask spread in the 260 days prior to the right issue announcement	(+)
Loss	Binary variable equal to one if return on assets is negative and zero otherwise	(+)
M_Sentiment	Binary variable equal to one if last year market return (previous to announcement) is positive and zero otherwise	(-)

Variables	Description	Expected Sign
Post-announcement		
CAR_Rights	Cumulative abnormal returns around announcement of rights issues terms	Dependent Variable
Price Discount	Price Discount = 1 – (issue price divided by last price)	(-)
Size	Natural logarithm of firm's market value	(+)
ROA	Return on Assets = Net Income divided by lagged total assets	(+)
Tobin's Q	Market value of Equity plus Book value of Debt divided by book value of debt and Equity	(+)
C_Held_Shares	Closely held shares = percentage shares held by majority shareholders	(-)/(+)
F_Sentiment	Binary variable equal to one if firm's cumulative return in prior 90 days to announcement is positive and zero otherwise	(+)

$$Price\ Discount_{i,t}$$
$$= \alpha + +\beta_1 Leverage_{i,t} + +\beta_2 Bid\_Ask_{i,t} + \beta_3 Loss_{i,t} + \beta_4 M\_Sentiment_{i,t}$$
$$+ \varepsilon_{i,t}$$

$$AAR_{i,\ t} = \sum_{t=-2}^{2} \left(R_{i,\ t} - ER_{i,\ t} \right)$$

$$CAR_{RIGHTS_{i,t}} = \alpha + +\beta_1 Price\ Discount_{i,t} + +\beta_2 Size_{i,t} + \beta_3 ROA_{i,t} + \beta_4 TOBIN\ Q_{i,t}$$
$$+\beta_5 C\_Held\_Shares_{i,t} + \beta_6 F\_Sentiment_{i,t} + \varepsilon_{i,t}$$

Pre-announcement

Non-Financials	Model (1)	Model (2)	Model (3)	Model (4)
Leverage	0.327*** (2.851)	0.308*** (2.915)	0.305*** (2.911)	0.308*** (2.931)
Bid-Ask		1.632*** (3.792)	1.277*** (2.814)	1.276*** (2.813)
Loss			0.110*** (2.426)	0.109* (2.419)
M_Sentiment				0.038 (1.059)
Constant	0.204*** (6.437)	0.123*** (3.858)	0.099*** (3.431)	0.076*** (2.077)
R-squared	0.048	0.151	0.181	0.185

Financials	Model (1)	Model (2)	Model (3)	Model (4)
Leverage	0.087 (0.434)	-0.263* (-1.704)	-0.124 (-0.985)	-0.147 (-1.075)
Bid-Ask		6.127*** (3.605)	3.151** (2.085)	3.074** (2.138)
Loss			0.322*** (3.223)	0.347*** (4.011)
M_Sentiment				0.069 (0.749)
Constant	0.221*** (3.468)	0.105* (1.755)	0.061 (1.245)	0.0131 (0.154)
R-squared	0.008	0.301	0.528	0.550

Post-announcement (Non – Financials)

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Price Discount	-0.055* (-1.922)	-0.046 (-1.626)	-0.050* (-1.721)	-0.054* (-1.917)	-0.055* (-1.968)	-0.054** (-1.991)
Size		0.008** (2.354)	0.007** (2.083)	0.008** (2.153)	0.010** (2.442)	0.009** (2.091)
Tobin's Q			0.004** (2.390)	0.004** (2.302)	0.004** (2.176)	0.003* (1.711)
ROA				-0.013 (-0.608)	-0.014 (-0.630)	-0.019 (-0.898)
C_Held_Shares					0.045 (1.164)	0.042 (1.091)
F_Sentiment						0.037*** (2.765)
Constant	-0.011 (-1.343)	-0.049** (-2.561)	-0.058*** (-2.945)	-0.059*** (-2.991)	-0.082*** (-2.997)	-0.095*** (-3.400)
Adj. R-squared	0.019	0.0365	0.056	0.0545	0.0574	0.0829

Post-announcement (Financials)

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Price Discount	-0.119* (-2.027)	-0.115* (-1.939)	-0.106* (-1.661)	-0.087 (-1.345)	-0.098 (-1.193)	-0.081 (-1.027)
Size		0.002 (0.248)	0.004 (0.443)	0.002 (0.245)	0.001 (0.101)	-0.003 (-0.356)
Tobin's Q			0.004 (0.658)	0.006 (0.840)	0.006 (0.846)	0.007 (1.128)
ROA				0.132*** (3.500)	0.135*** (3.646)	0.117*** (3.516)
C_Held_Shares					-0.029 (-0.444)	-0.044 (-0.771)
F_Sentiment						0.068* (1.878)
Constant	0.008 (0.531)	-0.004 (-0.090)	-0.025 (-0.484)	-0.023 (-0.455)	-0.007 (-0.115)	-0.035 (-0.554)
Adj. R-squared	0.087	0.060	0.055	0.151	0.126	0.206

References

Event Studies: Short-run abnormal returns

MacKinlay, A. Craig, 1997, Event studies in economics and finance, Journal of Economics Literature 35, 13-39

Campbell, Lo and MacKinlay, 1997, The Econometrics of Financial Markets. Princeton: Princeton University Press, 1997 (p. 149 – 180)

Brown, Stephen and Jerold Warner, 1980, Measuring security price performance, Journal of Financial Economics 8, 205-258.

Brown, Stephen and JeroldWarner, 1985, Using daily stock returns: The case of event studies, Journal of Financial Economics 14, 3-31.

Ball, C., and W. Torous, 1988, Investigating security price performance in the presence of event date uncertainty, Journal of Financial Economics 22, 123-154.

Boehmer, E., J. Musumeci, and A. Poulsen, 1991, Event study methodology under conditions of event-induced variance, Journal of Financial Economics 30, 253-272.

Cooper, M. J., Dimitrov, O., Rau, R. (2001). A rose.com by Any Other Name. *The Journal of Finance, 56, 6, 2371-2388*

Eckbo, B. Espen, Vojislav Maksimovic, and Joseph Williams, 1990, Consistent estimation of cross-sectional models in event studies, Review of Financial Studies 3, 343-365.

Prabhala, N. R., 1997, Conditional methods in event studies and an equilibrium justification for standard event study procedures, Review of Financial Studies 10, 1-38

Long-Run Abnormal Performance

Fama, Eugene, 1998, Market efficiency, long-term returns, and behavioral finance, Journal of Financial Economics 49, 283-306.

Kothari, S.P. and Jerold Warner, 1997, Measuring long-run security price performance, Journal of Financial Economics 43, 301-340.

Barder, Brad and John Lyon, 1997, Detecting long-run abnormal stock returns: The empirical power and specification of test statistics, Journal of Financial Economics 43, 341-372.

Lyon, John, Brad Barder and Chih Tsai, 1999, Improved methods for tests of long-run abnormal stock returns, Journal of Finance 54, 165-201.

Loughran, Tim, and Jay R. Ritter, 2000, Uniformly least powerful tests of market efficiency, Journal of Financial Economics 55, 361-389.

Mitchell, Mark L., and Erik Stafford, 2000, Managerial decisions and long-term stock price performance, Journal of Business 73, 287-329.

Ritter, Jay R., 2003, Investment banking and securities issuance, Chapter 5 in Handbook of the Economics and Finance.

Others
Fama, E.F. and MacBeth, J.D. (1973) 'Risk, Return and Equilibrium : Empirical Tests', *Journal of Political Economy*, pp. 607- 636

Roll, R. (1977) 'A Critique of Asset Pricing Theory's Tests', *Journal of Financial Economics*, Vol. 4, pp. 1073-1103.

Fama, E.F. and French, K. (1993) 'Common Risk Factors in the Returns on Stocks and Bonds', *Journal of Financial Economics*, Vol. 33, pp. 3-56.