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Bessembinder, Hendrik and Feng Zhang (2013), Firm characteristics and long-run stock returns after corporate events, *Journal of Financial Economics* 109 (1), 83–102

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Abstract

- Abnormal long-run returns: due to imperfect control-firm matching
  - Negative after IPO: Loughran and Ritter (1995, JF)
  - (−) after SEO: Eckbo, Masulis and Norli (2007)
  - (−) after M&A bid: Betton, Eckbo and Thorburn (2008)
  - (+) after paying dividends: Boehme and Sorescu (2002, JF)
- Regression approach that allows other variations in characteristics
  - Idiosyncratic volatility: Ang et al. (2006, JF)
  - Liquidity: Amihud (2002, JFM)
  - Return momentum: Jegadeesh and Titman (1993, JF)
  - Capital investment: Lyandres, Sun and Zhang (2008, RFS)
- Long-run returns do not differ significantly from 0 for these firms

1 Introduction

- BHAR method versus calendar time portfolio method
  - Sometimes produce conflicting results
- Many studies are using BHAR with size–B/M matching, but
  - Event firms largely differ from matched counterparts
  - If # of matching variables ↑, then matching quality ↓ rapidly
- Previous papers allowing variations other than size & B/M explains abnormal returns after events
  - Post-event abnormal returns are not due to the events per se
  - But due to return regularities that are general for equities

2 The related literature

- Bad model problem: Fama (1998, JFE)
  - Trivial in short-term event studies
  - Crucial in long-term studies: Kothari and Warner (2007)
- Loughran and Ritter (2000, JFE): "Whether a pattern is distinct from other cross-sectional patterns such as size and book-to-market, or merely a manifestation of those patterns"
- Characteristics other than size & B/M
  - Volatility, liquidity, momentum, investment
  - Differences in these characteristics explain the abnormal returns
  - Long-run post-event returns are not unique (just the manifestation)
- Then why this refined method instead of portfolio method?
  - Portfolio method is misspecified in nonrandom samples: Lyon, Barber and Tsai (1999, JF)
  - Rebalancing bias: Barber and Lyon (1997, JFE), Asparouhova, Bessembinder and Kalcheva (2013, JF)

- Neither BHAR method nor portfolio method is perfect
- Other previous trials
  - Macroeconomic risks: Eckbo, Masulis and Norli (2000, JFE)
  - Larger investments after events: Li, Livdan and Zhang (2009, RFS)
  - Applying investment factor: Lyandres, Sun and Zhang (2008, RFS)
  - Liquidity of issuing firms: Butler and Wan (2010, RFS)

3 Data and methods

3.1 Sample selection

- 1980–2005, Thomson Financial's SDC database
- M&A
  - Matching: Closest B/M among firms with size between 70–130%
- SEO
  - Closest B/M among 70–130%-size firms
- IPO
  - Closest but greater size at the December following the IPO
- Dividend initiation (from CRSP daily stock event file)
  - Based on size and B/M at the end of the December prior to the announcement of dividend initiation
- Identical matching technique for M&As and SEOS

3.2 Characteristics of event and control firms

- Idiosyncratic volatility measure: Ang et al. (2006, JF)
  - Annualized standard deviation of the residuals in monthly regressions of daily stock returns on Fama–French factors
- Illiquidity measure: Amihud (2002, JFM)
  - Average of the daily ratio of absolute stock return to dollar trading volume

- Investment measure: Lyandres, Sun and Zhang (2008, RFS)
  - Annual change in grow property, plant, and equipment plus inventory, divided by assets at the beginning of the fiscal year
  - Investment during July of year t to June of year $t+1$ is calculated using the accounting data of fiscal year t
- Momentum measure
  - Cumulative return from the 12th month to the second month prior to that month
- Market beta
  - Estimated by implementing the market model in daily stock returns (in each of the 120 months around the events)
- Figures 1–4
  - While each sample is well matched on average at a particular time, the closeness of the match degrades as time passes
  - Event firms differ from their matched comparable firms in terms of average idiosyncratic volatility, illiquidity, investment, market beta and return momentum

4 A model to assess long-run returns after corporate events

- Both buy-and-hold abnormal return (BHAR) and Wealth relative (WR) are defined as

$$\begin{aligned} BHAR_{eT} &= \prod_{t=1}^{T}(1+r_{et}) - \prod_{t=1}^{T}(1+r_{mt}) \\ &= \exp\left\{\sum_{t=1}^{T}\ln(1+r_{et})\right\} - \exp\left\{\sum_{t=1}^{T}\ln(1+r_{mt})\right\} \\ WR_{eT} &= \exp\left\{\sum_{t=1}^{T}[\ln(1+r_{eT}) - \ln(1+r_{mt})]\right\} = \frac{\prod_{t=1}^{T}(1+r_{et})}{\prod_{t=1}^{T}(1+r_{mt})} \end{aligned}$$

- Both are equivalent to testing whether the time series mean log return is equal across the event and control firms

- Seven firm characteristics considered in this paper
  - Market beta, firm size, BM, momentum, illiquidity, idiosyncratic volatility and investment

- Implemented (panel) regression model

$$\begin{aligned}\ln(1+r_{et}) - \ln(1+r_{mt}) = \alpha &+ \beta_1 \Delta Beta_{et} + \beta_2 \Delta Size_{et} + \beta_3 \Delta BM_{et} \\ &+ \beta_4 \Delta Mom_{et} + \beta_5 \Delta Illiquidity_{et} + \beta_6 \Delta IdioVol_{et} \\ &+ \beta_7 \Delta Investment_{et} + \varepsilon_{et}, \qquad e \in \mathbb{N}_E, \qquad t \in \mathbb{N}_T \\ WR = \exp(\hat{\alpha} T)\end{aligned}$$

  - Where Δ denotes a normalized difference in the associated firm characteristic across the event firm and the matching firm
  - This normalized differences range from -1 to 1 (percentile)
  - Testing $H_0: \alpha = 0$ is equivalent to testing $H_0: WR = 1$

- 4 benefits of this regression approach
  - Accommodates variation in firm characteristics other than those used to select the matched firms (e.g. size and B/M)
  - Accommodates variation across time in firm characteristics
  - Addresses the compounding problem
  - Lower skewness and kurtosis relative to BHARs

5 Empirical results

5.1 Firm characteristics and abnormal returns after SEOs

- Table 4 Panel A: The intercept in Column (1) (no regressor) is $-.0028$ (WR=.85) and significant. The intercept in Column (9) (linear regressors) is $-.0012$ (WR=.93) and insignificant. The post-SEO abnormal return can be explained by firm characteristics.

5.2 Firm characteristics and abnormal returns after IPOs

- Table 4 Panel B: The intercept in Column (1) (no regressor) is −.0115 (WR=.50) and significant. The intercept in Column (10) (quadratic regressors) is −.0010 (WR=.94) and insignificant. The post-IPO abnormal return can be explained by firm characteristics.

5.3 Firm characteristics and abnormal returns to bidding firms

- Table 4 Panel C: The intercept in Column (1) (no regressor) is −.0046 (WR=.76) and significant. The intercept in Column (10) (quadratic regressors) is .0002 (WR=1.01) and insignificant. The post-M&A abnormal return can be explained by firm characteristics.

5.4 Firm characteristics and abnormal returns to dividend-initiating firms

- Table 4 Panel D: The intercept in Column (1) (no regressor) is .0040 (WR=1.27) and significant. The intercept in Column (10) (quadratic regressors) is .0010 (WR=1.06) and insignificant. The post-dividend-initiating abnormal return can be explained by firm characteristics.

5.5 Implementing the calendar time portfolio method

- Table 4 Panel E: All the estimated alphas are insignificant. This result is consistent with the results from previous panel regressions

5.6 Omitted characteristics versus time variation in characteristics

- If there is no time variation in firm characteristics, then
  - Table 5 Panel A: The intercept is insignificant after introducing firm characteristics as linear regressors (−.0028→−.0009)
  - Table 5 Panel B: The intercept is insignificant after introducing firm characteristics as quadratic regressors (−.0046→−.0004)
  - Table 5 Panel C: The intercept is insignificant after introducing firm characteristics as quadratic regressors (.0040→−.0026)

6 Conclusions

- Usual matching algorithms for event and control firms are imperfect
  - Though typical matching procedures are successful in matching event and control firms on the basis of size and BM ratio at a particular time, the quality of these matches degrade over time
- The abnormal returns could be
  - Directly associated with the event being studied
  - Or could reflect differences across event and control firms in characteristics that are themselves relevant for returns in the broader stock markets
  - The latter interpretation is appropriate
- Reconcile the diverging results obtained in
  - The literature in studies that assess long run abnormal returns by measuring BHARs
  - Versus those that study alphas to calendar time portfolios formed from event firms
- The apparently abnormal long-run returns
  - Reflect the characteristics of the firms undergoing the events and known market-wide return regularities
  - And need not be attributed to event-specific explanations
- These methods are applicable to a wide variety of corporate event such as
  - Exchange listing
  - Management turnover
  - Stock splits
  - Dividend suspensions

	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS (6)	OLS (7)	OLS (8)	OLS (9)	OLS (10)	Fama-MacBeth (11)
Panel A: SEOs											
Dependent variable: Difference in log return											
ΔBeta		−0.0090***							−0.0040*	−0.0041*	−0.0024
		(−3.160)							(−1.742)	(−1.830)	(−1.227)
$\Delta Beta^2$										0.0015	0.0026
										(0.752)	(1.018)
ΔSize			0.0031*						−0.0003	−0.0002	−0.0018
			(1.656)						(−0.167)	(−0.088)	(−1.132)
$\Delta Size^2$										0.0010	−0.0003
										(0.474)	(−0.126)
ΔBM				0.0043***					0.0044***	0.0045***	0.0028*
				(2.650)					(2.800)	(2.843)	(1.702)
ΔBM^2										0.0008	−0.0014
										(0.415)	(−0.569)
ΔMomentum					0.0154***				0.0117***	0.0117***	0.0102***
					(5.040)				(3.962)	(3.954)	(4.300)
$\Delta momentum^2$										0.0002	0.0005
										(0.115)	(0.159)
ΔIlliquidity						0.0015			0.0016	0.0018	0.0006
						(0.942)			(1.003)	(1.111)	(0.314)
$\Delta Illiquidity^2$										0.0006	−0.0007
										(0.255)	(−0.209)
ΔIdio. volatility							−0.0188***		−0.0157***	−0.0157***	−0.0150***
							(−6.320)		(−5.994)	(−6.040)	(−6.913)
$\Delta Idio.\ volatility^2$										0.0033	0.0083**
										(1.479)	(2.146)
ΔInvestment								−0.0055***	−0.0044***	−0.0043***	−0.0045***
								(−3.820)	(−3.208)	(−3.148)	(−2.950)
$\Delta Investment^2$										−0.0016	−0.0010
										(−0.813)	(−0.331)

	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS (6)	OLS (7)	OLS (8)	OLS (9)	OLS (10)	Fama-MacBeth (11)
Constant	−0.0028**	−0.0016	−0.0032**	−0.0026*	−0.0029**	−0.0027**	−0.0014	−0.0012	−0.0000	−0.0019	−0.0018
	(−2.012)	(−1.426)	(−2.375)	(−1.956)	(−2.079)	(−2.072)	(−1.101)	(−1.011)	(−0.017)	(−1.143)	(−0.870)
Cluster by date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	215,853	214,515	215,605	208,241	215,801	209,602	215,782	181,857	169,152	169,152	169,082
Adjusted R^2	0.000	0.001	0.000	0.000	0.002	0.000	0.003	0.000	0.004	0.004	0.100
Wealth relative	0.845	0.908	0.825	0.856	0.840	0.850	0.919	0.931	1.000	0.892	0.898
Panel B: IPOs											
ΔBeta		−0.0089**							−0.0027	−0.0026	−0.0016
		(−2.468)							(−0.871)	(−0.878)	(−0.689)
$\Delta Beta^2$										−0.0030	−0.0020
										(−0.951)	(−0.715)
ΔSize			−0.0007						0.0011	0.0011	0.0011
			(−0.354)						(0.474)	(0.471)	(0.578)
$\Delta Size^2$										0.0017	0.0028
										(0.684)	(0.977)
ΔBM				0.0150***					0.0072***	0.0070***	0.0058***
				(5.859)					(3.710)	(3.653)	(3.345)
ΔBM^2										−0.0042*	−0.0042
										(−1.790)	(−1.632)
ΔMomentum					0.0235***				0.0154***	0.0154***	0.0127***
					(6.550)				(4.027)	(4.023)	(5.043)
$\Delta momentum^2$										0.0011	0.0040
										(0.437)	(1.512)
ΔIlliquidity						0.0064***			0.0079***	0.0076***	0.0071***
						(3.746)			(3.398)	(3.313)	(3.197)
$\Delta Illiquidity^2$										0.0024	0.0029
										(0.738)	(0.834)
ΔIdio. volatility							−0.0259***		−0.0215***	−0.0214***	−0.0218***
							(−6.270)		(−5.450)	(−5.442)	(−7.582)
$\Delta Idio.\ volatility^2$										−0.0020	−0.0044
										(−0.774)	(−1.431)
ΔInvestment								−0.0152***	−0.0084***	−0.0083***	−0.0074***
								(−6.535)	(−4.091)	(−4.088)	(−4.640)
$\Delta Investment^2$										−0.0038	−0.0060**
										(−1.577)	(−2.124)
Constant	−0.0115***	−0.0079***	−0.0114***	−0.0109***	−0.0105***	−0.0113***	−0.0089***	−0.0099***	−0.0034**	−0.0010	−0.0015
	(−5.008)	(−4.591)	(−5.172)	(−4.428)	(−4.608)	(−5.088)	(−4.703)	(−3.818)	(−2.185)	(−0.387)	(−0.547)
Cluster by date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	447,655	246,693	395,406	270,995	429,147	388,674	437,347	236,523	152,796	152,796	152,708
Adjusted R^2	0.000	0.000	0.000	0.001	0.003	0.000	0.004	0.001	0.005	0.005	0.088
Wealth relative	0.502	0.623	0.505	0.520	0.533	0.508	0.586	0.552	0.815	0.942	0.914
Panel C: Mergers and acquisitions											
ΔBeta		−0.0064							−0.0003	−0.0001	−0.0000
		(−1.614)							(−0.083)	(−0.017)	(−0.011)
$\Delta Beta^2$										−0.0055**	−0.0028
										(−1.989)	(−1.123)

ΔSize			0.0031						0.0010	0.0006	0.0003
			(1.509)						(0.523)	(0.329)	(0.210)
$\Delta Size^2$										−0.0008	−0.0009
										(−0.283)	(−0.333)
ΔBM				0.0031					0.0038*	0.0036*	0.0017
				(1.566)					(1.906)	(1.813)	(0.996)
ΔBM^2										0.0020	0.0026
										(0.749)	(0.900)
ΔMomentum					0.0145***				0.0101**	0.0102**	0.0082***
					(3.689)				(2.582)	(2.588)	(3.176)
$\Delta momentum^2$										0.0013	0.0041
										(0.560)	(1.475)
ΔIlliquidity						0.0046**			0.0059***	0.0055***	0.0028
						(2.500)			(3.064)	(2.869)	(1.370)
$\Delta Illiquidity^2$										−0.0027	−0.0033
										(−0.784)	(−0.857)
ΔIdio. volatility							−0.0178***		−0.0168***	−0.0167***	−0.0157***
							(−4.328)		(−4.535)	(−4.546)	(−6.404)
$\Delta Idio.\ volatility^2$										−0.0051*	−0.0079**
										(−1.791)	(−2.428)
ΔInvestment								−0.0068***	−0.0056***	−0.0057***	−0.0042**
								(−3.597)	(−3.079)	(−3.124)	(−2.558)
$\Delta Investment^2$										−0.0003	0.0015
										(−0.103)	(0.579)
Constant	−0.0046***	−0.0044***	−0.0050***	−0.0045***	−0.0045***	−0.0041***	−0.0039***	−0.0049***	−0.0035***	0.0002	−0.0005
	(−4.300)	(−4.708)	(−4.364)	(−4.145)	(−4.229)	(−4.175)	(−4.023)	(−3.947)	(−3.492)	(0.105)	(−0.233)
Cluster by date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	160,900	159,860	160,739	155,132	160,860	160,856	160,845	125,458	120,133	120,133	119,682
Adjusted R^2	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.003	0.004	0.112
Wealth relative	0.759	0.768	0.741	0.763	0.763	0.782	0.791	0.745	0.811	1.012	0.970
Panel D: Dividend initiations											
ΔBeta		−0.0054**							−0.0028	−0.0025	−0.0039
		(−2.255)							(−1.166)	(−1.035)	(−1.220)
$\Delta Beta^2$										0.0095**	0.0118**
										(2.453)	(2.173)
ΔSize			0.0041**						0.0045**	0.0054**	0.0077**
			(2.128)						(2.117)	(2.548)	(2.585)
$\Delta Size^2$										−0.0061	−0.0059
										(−1.472)	(−1.034)
ΔBM				0.0025					0.0052**	0.0052**	0.0056*
				(1.193)					(2.081)	(2.078)	(1.840)
ΔBM^2										−0.0041	−0.0015
										(−0.975)	(−0.286)
ΔMomentum					0.0132***				0.0095***	0.0088***	0.0070**
					(5.079)				(3.441)	(3.161)	(1.991)
$\Delta momentum^2$										0.0016	0.0035
										(0.395)	(0.627)
ΔIlliquidity						0.0039*			0.0055**	0.0054**	0.0072**
						(1.795)			(2.027)	(1.967)	(2.072)
$\Delta Illiquidity^2$										0.0060	0.0099
										(1.104)	(1.481)
ΔIdio. volatility							−0.0167***		−0.0144***	−0.0139***	−0.0171***
							(−6.185)		(−5.193)	(−4.915)	(−4.739)

	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS (6)	OLS (7)	OLS (8)	OLS (9)	OLS (10)	Fama-MacBeth (11)
ΔIdio. volatility^2										0.0004	0.0020
										(0.089)	(0.359)
ΔInvestment								−0.0042**	−0.0040*	−0.0045**	−0.0050*
								(−2.079)	(−1.875)	(−2.092)	(−1.754)
ΔInvestment^2										0.0028	−0.0013
										(0.682)	(−0.219)
Constant	0.0040***	0.0041***	0.0036***	0.0040***	0.0034***	0.0043***	0.0037***	0.0053***	0.0041***	0.0010	−0.0008
	(3.518)	(3.549)	(3.190)	(3.610)	(3.017)	(3.769)	(3.317)	(4.387)	(3.452)	(0.276)	(−0.165)
Cluster by date	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	44,956	44,854	44,853	43,233	44,935	43,867	44,934	33,574	31,742	31,742	31,211
Adjusted R^2	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.004	0.004	0.221
Wealth relative	1.271	1.279	1.241	1.271	1.226	1.294	1.249	1.374	1.279	1.062	0.953

	SEO (1)	IPO (2)	M&A (3)	Dividend initiation (4)
Panel E: The calendar time portfolio method				
Dependent variable: Excess portfolio return				
MKT	1.1853***	1.0784***	1.0507***	0.9525***
	(44.562)	(28.650)	(42.153)	(27.157)
SMB	0.8619***	1.0321***	0.6891***	0.6759***
	(16.605)	(14.574)	(13.748)	(9.528)
HML	−0.0725	−0.3100***	0.1189**	0.4275***
	(−1.433)	(−4.189)	(2.291)	(7.853)
UMD	−0.2209***	−0.3016***	−0.2371***	−0.0719*
	(−6.188)	(−4.689)	(−6.066)	(−1.959)
Alpha	0.0009	0.0020	0.0009	0.0013
	(0.927)	(1.204)	(0.848)	(1.025)
Observations	369	365	308	355
Adjusted R^2	0.941	0.878	0.941	0.832

	OLS (1)	OLS (2)	OLS (3)	Fama-MacBeth (4)
Panel A: SEOs				
Dependent variable: Difference in log return				
ΔBeta		−0.0029	−0.0028	−0.0019
		(−1.563)	(−1.557)	(−1.017)
$\Delta Beta^2$			−0.0014	−0.0032
			(−0.608)	(−1.055)
ΔSize		0.0019*	0.0011	0.0012
		(1.772)	(1.058)	(0.943)
$\Delta Size^2$			−0.0040*	−0.0051*
			(−1.829)	(−1.755)
ΔBM		0.0027***	0.0028***	0.0021
		(2.721)	(2.751)	(1.431)
ΔBM^2			0.0073***	0.0062**
			(3.633)	(2.255)
ΔMomentum		−0.0028*	−0.0033**	−0.0046**
		(−1.670)	(−2.035)	(−2.147)
$\Delta momentum^2$			0.0011	0.0027
			(0.445)	(0.919)
ΔIlliquidity		0.0003	0.0009	0.0003
		(0.243)	(0.691)	(0.212)
$\Delta Illiquidity^2$			0.0012	−0.0030
			(0.427)	(−0.857)
ΔIdio. volatility		−0.0048**	−0.0046**	−0.0064***
		(−2.254)	(−2.221)	(−2.844)
$\Delta Idio.\ volatility^2$			0.0014	0.0040
			(0.602)	(1.302)
ΔInvestment		−0.0031***	−0.0032***	−0.0030**
		(−2.646)	(−2.698)	(−2.194)
$\Delta Investment^2$			0.0001	0.0019
			(0.033)	(0.708)
Constant	−0.0028**	−0.0009	−0.0028	−0.0011
	(−2.012)	(−0.918)	(−1.496)	(−0.440)
Cluster by date	Yes	Yes	Yes	No
Observations	215,853	139,375	139,375	139,305
Adjusted R^2	0.000	0.000	0.001	0.081
Wealth relative	0.845	0.947	0.845	0.936
Panel B: Mergers and acquisitions				
ΔBeta		−0.0009	−0.0007	0.0000
		(−0.419)	(−0.328)	(0.006)
$\Delta Beta^2$			−0.0012	−0.0009
			(−0.459)	(−0.327)
ΔSize		0.0011	0.0010	0.0004
		(1.034)	(0.931)	(0.366)
$\Delta Size^2$			−0.0012	0.0018
			(−0.484)	(0.636)
ΔBM		0.0021*	0.0021*	−0.0007

	OLS (1)	OLS (2)	OLS (3)	Fama-MacBeth (4)
		(1.731)	(1.750)	(−0.517)
ΔBM²			−0.0001	−0.0010
			(−0.035)	(−0.378)
ΔMomentum		−0.0058***	−0.0055***	−0.0032**
		(−3.219)	(−3.152)	(−2.096)
Δmomentum²			−0.0030	−0.0009
			(−1.085)	(−0.340)
ΔIlliquidity		0.0038**	0.0037*	0.0051***
		(1.985)	(1.945)	(2.663)
ΔIlliquidity²			−0.0032	−0.0003
			(−0.969)	(−0.098)
ΔIdio. volatility		−0.0088***	−0.0088***	−0.0084***
		(−3.152)	(−3.163)	(−4.131)
ΔIdio. volatility²			−0.0015	−0.0027
			(−0.565)	(−0.876)
ΔInvestment		−0.0022	−0.0024*	−0.0024*
		(−1.591)	(−1.683)	(−1.699)
ΔInvestment²			−0.0025	−0.0021
			(−1.020)	(−0.689)
Constant	−0.0046***	−0.0046***	−0.0004	−0.0016
	(−4.300)	(−4.306)	(−0.204)	(−0.638)
Cluster by date	Yes	Yes	Yes	No
Observations	160,900	110,744	110,744	110,315
Adjusted R^2	0.000	0.001	0.001	0.090
Wealth relative	0.759	0.759	0.976	0.908
Panel C: Dividend initiations				
ΔBeta		−0.0010	0.0001	0.0008
		(−0.438)	(0.030)	(0.251)
ΔBeta²			0.0030	0.0021
			(0.804)	(0.388)
ΔSize		0.0019	0.0022	0.0037
		(1.010)	(1.234)	(1.221)
ΔSize²			−0.0051	−0.0073
			(−1.211)	(−1.160)
ΔBM		0.0012	0.0003	−0.0005
		(0.571)	(0.140)	(−0.179)
ΔBM²			0.0002	−0.0015
			(0.041)	(−0.246)
ΔMomentum		−0.0036	−0.0043*	−0.0058*
		(−1.610)	(−1.864)	(−1.786)
Δmomentum²			0.0085**	0.0081
			(2.171)	(1.567)
ΔIlliquidity		0.0069***	0.0071***	0.0079**
		(2.902)	(2.970)	(2.233)
ΔIlliquidity²			0.0113*	0.0106
			(1.951)	(1.372)
ΔIdio. volatility		−0.0070***	−0.0063***	−0.0096***
		(−3.019)	(−2.672)	(−2.649)
ΔIdio. volatility²			0.0007	0.0056
			(0.145)	(0.996)
ΔInvestment		−0.0030	−0.0026	−0.0033
		(−1.347)	(−1.148)	(−1.050)
ΔInvestment²			0.0043	0.0120**
			(1.045)	(1.976)
Constant	0.0040***	0.0047***	−0.0026	−0.0037
	(3.518)	(3.570)	(−0.653)	(−0.612)
Cluster by date	Yes	Yes	Yes	No
Observations	44,956	29,946	29,946	29,436
Adjusted R^2	0.000	0.001	0.001	0.226
Wealth relative	1.271	1.326	0.856	0.801