Internet Appendix

"Is There an S&P 500 Index Effect?"

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Table 1.A
Cross-sectional Analysis of Changes in the CAPM Betas

This table presents cross-sectional analysis of changes in the daily and weekly CAPM betas around index inclusion events, $\Delta\beta_{mrk}$. Changes in the betas are defined in Table III of the paper. All other variables are defined in Table I. The estimates are reported for the full sample of index inclusions and for the restricted sample of inclusions with earnings data available from the *I/B/E/S* database. The estimates significant at the 1%, 5% and 10% level are indicated in bold.

Panel A. Daily betas

	Full sample					Sample with EPS data							
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Intercept	0.01	**0.11**	**0.10**	**0.11**	-0.02	-0.01	**0.09**	**0.07**	**0.09**	**0.09**	0.00	0.00	0.00
t-stat	(0.39)	**(4.80)**	**(3.98)**	**(4.72)**	(-0.72)	(-0.40)	**(3.05)**	**(2.50)**	**(3.02)**	**(3.39)**	(0.12)	(0.02)	(0.04)
$\Delta Size_{Pre1}$	**0.31**				**0.31**	**0.24**					**0.30**	**0.28**	**0.29**
t-stat	**(6.82)**				**(6.95)**	**(4.58)**					**(5.20)**	**(4.77)**	**(4.89)**
$\Delta Size_{Post}$		0.04			0.09	**0.16**					**0.19**	**0.17**	**0.18**
t-stat		(0.71)			(1.55)	**(2.42)**					**(2.78)**	**(2.44)**	**(2.66)**
$\Delta Turn_{Pre1}$			0.05		**0.12**	0.08					**0.09**	**0.09**	**0.09**
t-stat			(1.25)		**(2.58)**	(1.53)					**(1.71)**	**(1.66)**	**(1.83)**
$\Delta Turn_{Post}$				0.05	**0.11**	**0.10**					**0.11**	**0.11**	**0.11**
t-stat				(1.08)	**(1.99)**	**(1.75)**					**(1.89)**	**(1.80)**	**(1.86)**
ΔEPS^{r}_{FY1a}							0.00				**-0.16**		
t-stat							(0.05)				**(-2.45)**		
ΔEPS^{e}_{FY1a}								0.06				-0.11	
t-stat								(0.89)				(-1.54)	
$\Delta EPS^{e}_{FY1a(pre)}$									0.00				**-0.14**
t-stat									(-0.05)				**(-1.92)**
$\Delta EPS^{e}_{FY1a(post)}$										0.16			0.07
t-stat										(1.54)			(0.60)
R^2	10.4%	0.1%	0.4%	0.3%	12.4%	8.6%	0.0%	0.2%	0.0%	0.7%	10.3%	9.3%	10.5%

Panel B. Weekly betas

	Full sample					Sample with EPS data							
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Intercept	-0.03	**0.09**	**0.08**	**0.08**	-0.05	-0.03	0.05	0.04	0.04	**0.07**	-0.02	-0.02	-0.02
t-stat	(-0.81)	**(2.68)**	**(2.30)**	**(2.53)**	(-1.34)	(-0.61)	(1.20)	(1.03)	(1.08)	**(2.18)**	(-0.54)	(-0.54)	(-0.54)
$\Delta Size_{Pre1}$	**0.33**				**0.33**	**0.23**					**0.24**	**0.24**	**0.23**
t-stat	**(5.34)**				**(5.27)**	**(3.18)**					**(3.01)**	**(2.88)**	**(2.85)**
$\Delta Size_{Post}$		0.05			0.10	**0.21**					**0.21**	**0.21**	**0.20**
t-stat		(0.58)			(1.33)	**(2.23)**					**(2.26)**	**(2.23)**	**(2.16)**
$\Delta Turn_{Pre1}$			-0.02		0.06	0.04					0.04	0.04	0.04
t-stat			(-0.31)		(0.95)	(0.57)					(0.52)	(0.58)	(0.54)
$\Delta Turn_{Post}$				0.11	**0.14**	**0.16**					**0.16**	**0.16**	**0.16**
t-stat				(1.59)	**(1.95)**	**(1.93)**					**(1.98)**	**(1.94)**	**(1.92)**
ΔEPS^{r}_{FY1a}							0.11				-0.03		
t-stat							(1.31)				(-0.35)		
ΔEPS^{e}_{FY1a}								0.13				-0.02	
t-stat								(1.46)				(-0.17)	
$\Delta EPS^{e}_{FY1a(pre)}$									0.14				-0.01
t-stat									(1.63)				(-0.08)
$\Delta EPS^{e}_{FY1a(post)}$										-0.07			-0.07
t-stat										(-0.47)			(-0.44)
R^2	6.7%	0.1%	0.0%	0.6%	7.7%	5.5%	0.5%	0.7%	0.8%	0.1%	5.6%	5.5%	5.6%

Table 2.A
Cross-sectional Analysis of Changes in the Univariate S&P 500 Betas

This table presents cross-sectional analysis of changes in the daily and weekly S&P 500 betas around index inclusion events, $\Delta\beta_{sp}$. Changes in the betas are defined in Table IV of the paper. All other variables are defined in Table I. The estimates are reported for the full sample of index inclusions and for the restricted sample of inclusions with earnings data available from the *I/B/E/S* database. The estimates significant at the 1%, 5% and 10% level are indicated in bold.

Panel A. Daily betas

	Full sample					Sample with EPS data							
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Intercept	**0.05**	**0.16**	**0.16**	**0.16**	0.02	0.03	**0.14**	**0.12**	**0.14**	**0.14**	0.04	0.04	0.04
t-stat	**(1.72)**	**(6.57)**	**(6.24)**	**(6.45)**	(0.73)	(0.87)	**(4.72)**	**(3.93)**	**(4.81)**	**(5.61)**	(1.40)	(1.23)	(1.27)
$\Delta Size_{Pre1}$	**0.38**				**0.38**	**0.32**					**0.38**	**0.36**	**0.37**
t-stat	**(8.36)**				**(8.44)**	**(6.00)**					**(6.56)**	**(6.00)**	**(6.18)**
$\Delta Size_{Post}$		0.03			0.05	**0.13**					**0.16**	**0.13**	**0.15**
t-stat		(0.44)			(0.97)	**(1.90)**					**(2.28)**	**(1.92)**	**(2.19)**
$\Delta Turn_{Pre1}$			0.04		**0.10**	0.07					0.08	0.08	**0.09**
t-stat			(0.82)		**(2.20)**	(1.42)					(1.62)	(1.54)	**(1.76)**
$\Delta Turn_{Post}$				0.06	**0.09**	0.09					**0.10**	0.10	**0.10**
t-stat				(1.16)	**(1.66)**	(1.56)					**(1.70)**	(1.61)	**(1.69)**
ΔEPS^{r}_{FY1a}							0.03				**-0.17**		
t-stat							(0.47)				**(-2.56)**		
ΔEPS^{e}_{FY1a}								0.11				-0.11	
t-stat								(1.58)				(-1.50)	
$\Delta EPS^{e}_{FY1a(pre)}$									0.02				**-0.15**
t-stat									(0.24)				**(-1.98)**
$\Delta EPS^{e}_{FY1a(post)}$										**0.23**			0.12
t-stat										**(2.09)**			(0.99)
R^2	14.8%	0.0%	0.2%	0.3%	16.1%	11.9%	0.1%	0.8%	0.0%	1.3%	13.7%	12.5%	14.2%

Panel B. Weekly betas

	Full sample					Sample with EPS data							
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Intercept	0.02	**0.14**	**0.13**	**0.13**	0.00	0.02	0.06	0.04	0.06	**0.11**	0.01	0.00	0.00
t-stat	(0.46)	**(4.34)**	**(3.97)**	**(4.15)**	(0.03)	(0.57)	(1.58)	(0.96)	(1.62)	**(3.29)**	(0.24)	(0.02)	(0.02)
$\Delta Size_{Pre1}$	**0.35**				**0.35**	**0.25**					**0.20**	**0.17**	**0.17**
t-stat	**(5.66)**				**(5.54)**	**(3.43)**					**(2.53)**	**(2.06)**	**(2.08)**
$\Delta Size_{Post}$		0.02			0.07	0.02					0.00	0.02	0.02
t-stat		(0.22)			(0.94)	(0.22)					(-0.02)	(0.21)	(0.25)
$\Delta Turn_{Pre1}$			-0.04		0.03	0.02					0.01	0.01	0.01
t-stat			(-0.73)		(0.50)	(0.27)					(0.19)	(0.11)	(0.14)
$\Delta Turn_{Post}$				0.11	**0.13**	0.11					0.10	0.10	0.10
t-stat				(1.59)	**(1.71)**	(1.29)					(1.19)	(1.23)	(1.24)
ΔEPS^{r}_{FY1a}							**0.23**				0.14		
t-stat							**(2.81)**				(1.52)		
ΔEPS^{e}_{FY1a}								**0.31**				**0.21**	
t-stat								**(3.49)**				**(2.05)**	
$\Delta EPS^{e}_{FY1a(pre)}$									**0.22**				**0.20**
t-stat									**(2.63)**				**(1.93)**
$\Delta EPS^{e}_{FY1a(post)}$										0.14			0.26
t-stat										(0.98)			(1.61)
R^2	7.4%	0.0%	0.1%	0.6%	8.1%	4.5%	2.4%	3.7%	2.1%	0.3%	5.2%	5.7%	5.8%

Table 3.A
Changes in the Factor Betas in Consecutive 120-day Estimation Windows

This table presents analysis of changes in betas in alternative factor models in consecutive 120-day windows around index inclusion announcement. The pre-inclusion estimation windows are 360_240, 240_120, 120_0, and the post-inclusion windows are 0_120, 120_240, 240_360. "CRSP" indicates the rows with the estimates from the specifications with the CRSP value-weighted market return. "SP" indicates the rows with the estimates from the specifications with the S&P 500 index return. The table reports the mean differences between the betas in the consecutive intervals and the t-test statistics (in parentheses) for these differences to be equal to zero. The estimates significant at the 1%, 5% and 10% level are indicated in bold.

Panel A. Daily betas

		$\beta_{(240\_120)} - \beta_{(360\_240)}$	$\beta_{(120\_0)} - \beta_{(240\_120)}$	$\beta_{(0\_120)} - \beta_{(120\_0)}$	$\beta_{(120\_240)} - \beta_{(0\_120)}$	$\beta_{(240\_360)} - \beta_{(120\_240)}$
$\Delta\beta_{mrk}$ [1-factor]	CRSP	-0.033 (-1.356)	**0.056 (2.138)**	0.039 (1.530)	0.040 (1.638)	-0.035 (-1.517)
	SP	-0.026 (-1.097)	**0.066 (2.510)**	**0.075 (2.919)**	**0.052 (2.140)**	-0.031 (-1.369)
$\Delta\beta_{mrk}$ [3-factor]	CRSP	**-0.079 (-2.270)**	0.052 (1.545)	-0.027 (-0.766)	-0.001 (-0.027)	-0.008 (-0.247)
	SP	**-0.077 (-2.190)**	0.046 (1.326)	0.016 (0.454)	0.013 (0.348)	0.006 (0.169)
$\Delta\beta_{mrk}$ [4-factor]	CRSP	**-0.089 (-2.624)**	0.058 (1.593)	0.016 (0.467)	-0.019 (-0.549)	-0.051 (-1.595)
	SP	**-0.083 (-2.382)**	0.050 (1.353)	0.053 (1.580)	-0.007 (-0.201)	-0.034 (-1.099)
$\Delta\beta_{smb}$ [3-factor]	CRSP	**-0.134 (-3.088)**	0.052 (1.243)	**-0.228 (-5.488)**	-0.051 (-1.206)	0.004 (0.100)
	SP	**-0.162 (-3.374)**	0.050 (1.068)	**-0.216 (-4.719)**	-0.054 (-1.150)	0.010 (0.202)
$\Delta\beta_{smb}$ [4-factor]	CRSP	**-0.144 (-3.300)**	0.049 (1.084)	**-0.184 (-4.410)**	-0.044 (-1.069)	-0.020 (-0.498)
	SP	**-0.172 (-3.563)**	0.048 (0.962)	**-0.162 (-3.556)**	-0.045 (-0.990)	-0.021 (-0.469)
$\Delta\beta_{hml}$ [3-factor]	CRSP	-0.069 (-1.048)	0.009 (0.154)	**-0.163 (-2.815)**	0.004 (0.072)	-0.002 (-0.036)
	SP	-0.086 (-1.268)	-0.003 (-0.058)	**-0.125 (-2.170)**	0.034 (0.564)	0.018 (0.316)
$\Delta\beta_{hml}$ [4-factor]	CRSP	-0.084 (-1.196)	0.017 (0.269)	**-0.107 (-1.822)**	-0.028 (-0.464)	0.028 (0.476)
	SP	-0.087 (-1.214)	0.004 (0.057)	-0.082 (-1.372)	0.008 (0.136)	0.048 (0.789)
$\Delta\beta_{umd}$ [4-factor]	CRSP	0.042 (0.819)	-0.040 (-0.841)	**-0.108 (-2.258)**	**-0.234 (-4.715)**	-0.074 (-1.576)
	SP	0.030 (0.568)	-0.046 (-0.929)	**-0.120 (-2.492)**	**-0.238 (-4.718)**	**-0.083 (-1.744)**

Panel B. Weekly betas

		$\beta_{(240\_120)} - \beta_{(360\_240)}$	$\beta_{(120\_0)} - \beta_{(240\_120)}$	$\beta_{(0\_120)} - \beta_{(120\_0)}$	$\beta_{(120\_240)} - \beta_{(0\_120)}$	$\beta_{(240\_360)} - \beta_{(120\_240)}$
$\Delta\beta_{mrk}$ [1-factor]	CRSP	-0.041 (-0.960)	**0.072 (1.724)**	0.054 (1.367)	-0.046 (-1.148)	**0.061 (1.698)**
	SP	-0.041 (-0.954)	**0.100 (2.291)**	0.064 (1.543)	-0.032 (-0.796)	**0.069 (1.835)**
$\Delta\beta_{mrk}$ [3-factor]	CRSP	-0.077 (-1.192)	0.045 (0.723)	0.023 (0.398)	-0.075 (-1.327)	0.043 (0.779)
	SP	-0.083 (-1.271)	0.059 (0.924)	0.033 (0.565)	-0.074 (-1.297)	0.027 (0.493)
$\Delta\beta_{mrk}$ [4-factor]	CRSP	**-0.160 (-2.496)**	0.050 (0.754)	0.084 (1.363)	-0.074 (-1.151)	-0.039 (-0.650)
	SP	**-0.159 (-2.459)**	0.068 (1.010)	0.085 (1.368)	-0.068 (-1.059)	-0.055 (-0.917)
$\Delta\beta_{smb}$ [3-factor]	CRSP	**-0.140 (-1.805)**	-0.020 (-0.278)	-0.023 (-0.297)	-0.083 (-0.987)	-0.110 (-1.344)
	SP	**-0.152 (-1.928)**	-0.002 (-0.027)	-0.033 (-0.400)	-0.103 (-1.191)	-0.086 (-1.038)
$\Delta\beta_{smb}$ [4-factor]	CRSP	**-0.188 (-2.249)**	-0.028 (-0.367)	0.041 (0.492)	-0.091 (-1.028)	-0.132 (-1.633)
	SP	**-0.221 (-2.603)**	0.008 (0.102)	0.031 (0.360)	-0.108 (-1.183)	-0.125 (-1.545)
$\Delta\beta_{hml}$ [3-factor]	CRSP	-0.049 (-0.448)	-0.033 (-0.317)	-0.074 (-0.717)	-0.037 (-0.367)	-0.094 (-0.983)
	SP	-0.057 (-0.519)	-0.040 (-0.389)	-0.057 (-0.551)	-0.028 (-0.281)	-0.085 (-0.876)
$\Delta\beta_{hml}$ [4-factor]	CRSP	-0.155 (-1.302)	0.021 (0.165)	-0.019 (-0.163)	-0.020 (-0.173)	-0.107 (-0.960)
	SP	-0.145 (-1.220)	0.019 (0.153)	-0.023 (-0.191)	0.000 (0.002)	-0.099 (-0.877)
$\Delta\beta_{umd}$ [4-factor]	CRSP	0.131 (1.579)	-0.098 (-1.196)	-0.106 (-1.402)	**-0.205 (-2.727)**	**-0.123 (-1.796)**
	SP	0.128 (1.536)	-0.099 (-1.195)	-0.107 (-1.410)	**-0.219 (-2.897)**	**-0.125 (-1.807)**

Table 4.A
Difference-in-Difference Analysis of the Abnormal Returns
The Early Sub-period: 1989-2000

This table presents the difference-in-difference analysis of the abnormal returns around index inclusion. The differences between the abnormal returns of the event stocks and the control stocks (*ΔCAR40, ΔCAR_AND* and *ΔCAR_EFD)* are regressed on the differences between changes in the following characteristics of the event and control stocks: size in the pre-event year ($\Delta\Delta Size_{Pre1}$), average returns in the first year (ΔRet_{Pre1}) and in the second year (ΔRet_{Pre2}) before the event, the realized EPS ($\Delta\Delta EPS^{r}_{FY1a}$) and the forecasted EPS ($\Delta\Delta EPS^{e}_{FY1a(pre)}$ and $\Delta\Delta EPS^{e}_{FY1a(post)}$) in the year of index inclusion. All variables are defined in Table I of the paper. The estimates significant at the 1%, 5% and 10% level are indicated in bold.

	ΔCAR40			*ΔCAR_AND*			*ΔCAR_EFD*		
Intercept	0.01	-0.62	-0.70	**5.58**	**5.79**	**5.87**	**5.49**	**5.55**	**5.61**
t-stat	(0.01)	(-0.24)	(-0.27)	**(7.76)**	**(6.99)**	**(7.08)**	**(4.72)**	**(4.14)**	**(4.20)**
$\Delta\Delta Size_{Pre1}$	5.83			1.64			-2.02		
t-stat	(0.75)			(0.67)			(-0.51)		
ΔRet_{Pre1}		5.43	6.38		-0.96	-0.64		-0.87	-0.24
t-stat		(0.64)	(0.75)		(-0.36)	(-0.23)		(-0.20)	(-0.06)
ΔRet_{Pre2}	**19.83**	**18.66**	**18.71**	1.01	1.06	0.14	**9.21**	**9.46**	**8.32**
t-stat	**(2.30)**	**(2.14)**	**(2.15)**	(0.37)	(0.38)	(0.05)	**(2.09)**	**(2.13)**	**(1.87)**
$\Delta\Delta EPS^{r}_{FY1a}$	0.78	0.75		**-6.42**	**-5.95**		-6.72	-6.90	
t-stat	(0.08)	(0.08)		**(-2.23)**	**(-2.05)**		(-1.44)	(-1.47)	
$\Delta\Delta EPS^{e}_{FY1a(pre)}$			-0.47			-3.24			-4.31
t-stat			(-0.08)			(-1.76)			(-1.45)
$\Delta\Delta EPS^{e}_{FY1a(post)}$			6.26			0.03			0.34
t-stat			(0.81)			(0.01)			(0.09)
R^2	3.14%	3.06%	3.55%	2.71%	2.55%	2.42%	3.41%	3.30%	3.65%