Web Appendix for Growth Opportunities and Technology Shocks

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Table 1: Data: Response of aggregate I/K to z-Shock

Dependent variable $\bar{i}_t$	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.2015	0.0850	0.1968	0.0604	0.2017	0.0816
	(45.24)	(3.79)	(31.18)	(2.79)	(36.42)	(3.60)
$\tilde{R}_{t-1}^{imc}$	0.0132	0.0099			0.0133	0.0091
	(3.20)	(3.33)			(2.91)	(2.52)
$\tilde{R}_{t-1}^{mkt}$			0.0233	0.0248	-0.0011	0.0079
			(1.24)	(2.95)	(-0.08)	(0.80)
$\bar{i}_{t-1}$		0.5775		0.6752		0.5864
		(5.11)		(5.96)		(5.22)
Observations	44	44	44	44	44	44
R^2	0.289	0.607	0.046	0.506	0.289	0.611

Table 1 shows estimates of

$$\bar{i}_t = a_0 + a_1 \tilde{R}_{t-1}^{imc} + a_2 \tilde{R}_{t-1}^{mkt} + a_3 \bar{i}_{t-1} + u_t,$$

The left hand side variable is the aggregate investment rate, defined as the total investment by firms in our sample normalized by their total capital stock, $\bar{i}_t = \sum_{f \in F_t} I_{ft} / \sum_{f \in F_t} K_{ft-1}$. The right hand side variables are cumulative log returns on the IMC portfolio, $\tilde{R}_{t-1}^{imc} \equiv \sum_{l=1}^{2} R_{t-1}^{imc}$, cumulative log returns on the market portfolio, $\tilde{R}_{t-1}^{mkt} \equiv \sum_{l=1}^{2} R_{t-1}^{mkt}$ and the lagged aggregate investment rate. We report t statistics in parenthesis using Newey-West standard errors with a maximum lag length of 3. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 2: Response of I/K to R^{imc}: firms sorted by β^{imc}, firms with credit ratings only

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1284	-0.0683	-0.0911	-0.0549	-0.0391
		(-3.66)	(-2.69)	(-2.51)	(-2.18)	(-1.30)
$D(\beta^{imc})_2$		0.0213	0.0374	0.0139	0.0305	0.0189
		(0.74)	(1.70)	(0.56)	(1.49)	(1.01)
$D(\beta^{imc})_3$		0.0639	0.0510	0.0548	0.0471	0.0260
		(2.13)	(2.31)	(2.46)	(2.54)	(1.23)
$D(\beta^{imc})_4$		0.1600	0.0850	0.1256	0.0777	0.0705
		(3.88)	(2.89)	(3.76)	(2.85)	(2.41)
$D(\beta^{imc})_5$		0.3987	0.1689	0.2627	0.1201	0.0805
		(7.07)	(5.44)	(6.56)	(4.38)	(1.95)
$\tilde{R}^{imc}_{t-1}$	0.1125	0.0206	0.0302	0.0406	0.0425	0.0547
	(3.00)	(0.97)	(1.86)	(1.71)	(2.28)	(2.78)
$D(\beta^{imc})_2 \times \tilde{R}^{imc}_{t-1}$		0.0414	0.0187	0.0419	0.0222	0.0220
		(2.04)	(0.88)	(2.50)	(1.50)	(1.32)
$D(\beta^{imc})_3 \times \tilde{R}^{imc}_{t-1}$		0.0843	0.0433	0.0391	0.0200	0.0146
		(2.63)	(1.96)	(1.15)	(0.83)	(0.71)
$D(\beta^{imc})_4 \times \tilde{R}^{imc}_{t-1}$		0.1329	0.0731	0.0749	0.0451	0.0461
		(3.38)	(2.52)	(2.55)	(1.97)	(1.91)
$D(\beta^{imc})_5 \times \tilde{R}^{imc}_{t-1}$		0.2014	0.1346	0.1398	0.1074	0.1132
		(4.47)	(4.95)	(4.12)	(4.86)	(3.82)
Observations	13456	13456	13456	13456	13456	13456
R^2	0.013	0.039	0.333	0.241	0.411	0.537
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 2 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{imc}_{f,t-1})_d + b_1\, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d\, D(\beta^{imc}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{imc}_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{imc}_{t-1}. β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t. Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799), utilities (SIC4900-4949) and firms without an Standard and Poor's credit rating.

Table 3: Response of I/K to R^{imc}: firms sorted by β^{imc}, adjusted for book leverage

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1184	-0.1061	-0.0870	-0.0791	-0.0464
		(-5.92)	(-5.48)	(-4.07)	(-3.90)	(-2.40)
$D(\beta_{imc})_2$		-0.0059	-0.0031	0.0390	0.0385	0.0256
		(-0.33)	(-0.18)	(3.36)	(3.31)	(2.26)
$D(\beta_{imc})_3$		0.0519	0.0487	0.0651	0.0609	0.0390
		(2.46)	(2.43)	(4.83)	(4.59)	(3.02)
$D(\beta_{imc})_4$		0.1644	0.1485	0.1133	0.1034	0.0603
		(6.82)	(6.30)	(5.90)	(5.46)	(3.60)
$D(\beta_{imc})_5$		0.3819	0.3368	0.2179	0.1931	0.1071
		(13.77)	(12.08)	(9.65)	(8.99)	(4.85)
$\tilde{R}^{imc}_{t-1}$	0.0959	0.0571	0.0525	0.0659	0.0613	0.0559
	(4.90)	(5.60)	(5.11)	(4.21)	(4.01)	(4.20)
$D(\beta_{imc})_2 \times \tilde{R}^{imc}_{t-1}$		0.0061	0.0072	-0.0003	0.0010	0.0042
		(0.36)	(0.46)	(-0.03)	(0.08)	(0.38)
$D(\beta_{imc})_3 \times \tilde{R}^{imc}_{t-1}$		0.0261	0.0237	0.0105	0.0104	0.0184
		(1.01)	(1.00)	(0.64)	(0.69)	(1.30)
$D(\beta_{imc})_4 \times \tilde{R}^{imc}_{t-1}$		0.0655	0.0629	0.0462	0.0463	0.0479
		(2.65)	(2.69)	(2.67)	(2.75)	(2.70)
$D(\beta_{imc})_5 \times \tilde{R}^{imc}_{t-1}$		0.0966	0.0943	0.0728	0.0740	0.0797
		(3.54)	(4.07)	(3.76)	(4.54)	(5.74)
Observations	62495	62495	62495	62495	62495	62495
R^2	0.009	0.032	0.085	0.161	0.191	0.438
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 3 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{imc}_{f,t-1})_d + b_1\, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d\, D(\beta^{imc}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{imc}_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{imc}_{t-1}. β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t and adjusted using book leverage. The leverage adjusted β^{imc} is computed as $\beta^{imc} = \hat{\beta}^{imc} \times B_E/B_A$ where B_E refers to Stockholder's equity (Compustat item seq) and B_A refers to Assets (Compustat item at). Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 4: Response of I/K to R^{imc}: firms sorted by β^{imc}, adjusted for market leverage

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1209	-0.1069	-0.0918	-0.0831	-0.0464
		(-6.40)	(-5.81)	(-4.60)	(-4.37)	(-2.48)
$D(\beta_{imc})_2$		0.0155	0.0169	0.0312	0.0303	0.0229
		(1.10)	(1.26)	(2.68)	(2.61)	(2.22)
$D(\beta_{imc})_3$		0.0801	0.0771	0.0704	0.0681	0.0452
		(4.73)	(4.83)	(5.20)	(5.23)	(3.53)
$D(\beta_{imc})_4$		0.1767	0.1542	0.1323	0.1185	0.0683
		(8.11)	(7.28)	(7.62)	(6.92)	(4.20)
$D(\beta_{imc})_5$		0.3327	0.2867	0.2255	0.1990	0.0955
		(11.96)	(10.47)	(9.24)	(8.57)	(4.35)
$\tilde{R}^{imc}_{t-1}$	0.0959	0.0541	0.0502	0.0633	0.0592	0.0573
	(4.90)	(5.44)	(4.88)	(4.42)	(4.20)	(4.41)
$D(\beta_{imc})_2 \times \tilde{R}^{imc}_{t-1}$		0.0007	0.0009	-0.0030	-0.0022	0.0005
		(0.05)	(0.07)	(-0.25)	(-0.19)	(0.05)
$D(\beta_{imc})_3 \times \tilde{R}^{imc}_{t-1}$		0.0264	0.0252	0.0116	0.0123	0.0148
		(1.22)	(1.26)	(0.68)	(0.77)	(0.92)
$D(\beta_{imc})_4 \times \tilde{R}^{imc}_{t-1}$		0.0632	0.0594	0.0427	0.0420	0.0378
		(2.55)	(2.62)	(2.18)	(2.29)	(2.32)
$D(\beta_{imc})_5 \times \tilde{R}^{imc}_{t-1}$		0.1185	0.1137	0.0887	0.0882	0.0910
		(4.30)	(4.93)	(4.33)	(5.03)	(6.08)
Observations	62495	62495	62495	62495	62495	62495
R^2	0.009	0.026	0.080	0.163	0.192	0.438
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 4 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{imc}_{f,t-1})_d + b_1\, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d\, D(\beta^{imc}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{imc}_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{imc}_{t-1}. β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t and adjusted using book leverage. The leverage adjusted β^{imc} is computed as $\beta^{imc} = \hat{\beta}^{imc} \times M_E/M_A$ where M_E refers to CRSP December market capitalization and M_A refers to the sum of CRSP December market capitalization, preferred stock (Compustat item pstkrv) and long term debt (Compustat item dltt). Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 5: Response of I/K to R^{imc}: firms sorted by β^{imc}, within industry

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1105	-0.0966	-0.0865	-0.0778	-0.0355
		(-5.82)	(-5.27)	(-4.21)	(-4.01)	(-1.98)
$D(\beta_{imc})_2$		0.0628	0.0596	0.0477	0.0460	0.0252
		(4.28)	(4.22)	(3.81)	(3.77)	(2.16)
$D(\beta_{imc})_3$		0.1080	0.0990	0.0808	0.0756	0.0364
		(7.62)	(7.24)	(6.86)	(6.63)	(3.05)
$D(\beta_{imc})_4$		0.1661	0.1434	0.1299	0.1155	0.0503
		(9.33)	(8.22)	(8.49)	(7.66)	(3.86)
$D(\beta_{imc})_5$		0.2248	0.1887	0.1815	0.1584	0.0681
		(10.09)	(9.08)	(9.60)	(9.17)	(3.77)
$\tilde{R}^{imc}_{t-1}$	0.0959	0.0541	0.0499	0.0640	0.0597	0.0573
	(4.90)	(4.07)	(3.62)	(3.94)	(3.73)	(3.98)
$D(\beta_{imc})_2 \times \tilde{R}^{imc}_{t-1}$		0.0006	0.0015	-0.0009	0.0002	0.0026
		(0.05)	(0.14)	(-0.08)	(0.02)	(0.27)
$D(\beta_{imc})_3 \times \tilde{R}^{imc}_{t-1}$		0.0251	0.0242	0.0126	0.0132	0.0144
		(1.49)	(1.64)	(0.78)	(0.91)	(1.13)
$D(\beta_{imc})_4 \times \tilde{R}^{imc}_{t-1}$		0.0630	0.0599	0.0406	0.0407	0.0392
		(2.71)	(2.75)	(2.08)	(2.21)	(2.49)
$D(\beta_{imc})_5 \times \tilde{R}^{imc}_{t-1}$		0.1206	0.1151	0.0854	0.0848	0.0883
		(4.05)	(4.50)	(4.15)	(4.79)	(6.08)
Observations	62495	62495	62495	62495	62495	62495
R^2	0.009	0.017	0.074	0.161	0.191	0.438
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 5 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d \, D(\beta^{imc}_{f,t-1})_d + b_1 \, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d \, D(\beta^{imc}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{imc}_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{imc}_{t-1}. Quintiles are computed within the 30 industries classified by Fama and French (1997). β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t. Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 6: Response of I/K to R^{imc}: firms sorted by β^{mkt}, within industry

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1089	-0.0993	-0.1124	-0.1045	-0.0787
		(-6.23)	(-5.93)	(-4.84)	(-4.76)	(-4.30)
$D(\beta_{mkt})_2$		0.0637	0.0608	0.0588	0.0563	0.0346
		(4.44)	(4.32)	(4.39)	(4.21)	(2.50)
$D(\beta_{mkt})_3$		0.1136	0.1085	0.1092	0.1048	0.0513
		(7.50)	(7.33)	(8.04)	(7.71)	(4.88)
$D(\beta_{mkt})_4$		0.1808	0.1658	0.1713	0.1601	0.0879
		(10.93)	(9.91)	(11.53)	(10.40)	(6.30)
$D(\beta_{mkt})_5$		0.2600	0.2269	0.2349	0.2121	0.1045
		(11.47)	(9.59)	(12.71)	(11.14)	(5.83)
$\tilde{R}^{imc}_{t-1}$	0.0959	0.0869	0.0821	0.0861	0.0823	0.0745
	(4.90)	(7.01)	(7.21)	(4.69)	(4.90)	(5.15)
$D(\beta_{mkt})_2 \times \tilde{R}^{imc}_{t-1}$		-0.0085	-0.0097	0.0008	-0.0007	0.0047
		(-0.66)	(-0.79)	(0.07)	(-0.06)	(0.43)
$D(\beta_{mkt})_3 \times \tilde{R}^{imc}_{t-1}$		0.0153	0.0139	0.0118	0.0112	0.0189
		(0.93)	(0.90)	(0.81)	(0.79)	(1.38)
$D(\beta_{mkt})_4 \times \tilde{R}^{imc}_{t-1}$		0.0164	0.0146	0.0142	0.0136	0.0195
		(1.09)	(0.94)	(0.93)	(0.87)	(1.27)
$D(\beta_{mkt})_5 \times \tilde{R}^{imc}_{t-1}$		0.0430	0.0419	0.0290	0.0299	0.0356
		(1.98)	(2.09)	(1.58)	(1.73)	(1.72)
Observations	62495	62495	62495	62495	62495	62495
R^2	0.009	0.018	0.072	0.163	0.191	0.433
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 6 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d \, D(\beta^{mkt}_{f,t-1})_d + b_1 \, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d \, D(\beta^{mkt}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{mkt}_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{mkt}_{t-1}. Quintiles are computed within the 30 industries classified by Fama and French (1997). β^{mkt}_t refers to the firm's beta with respect to the market portfolio in year t, estimated using non-overlapping weekly returns within year t. Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 7: Response of I/K to z-shocks: firms sorted by Tobin's Q

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.2491	-0.2215	-0.2587	-0.2368	-0.3211
		(-10.61)	(-10.05)	(-10.91)	(-10.48)	(-12.98)
$D(Q)_2$		0.0202	0.0106	0.0667	0.0560	0.1321
		(1.53)	(0.84)	(4.65)	(4.08)	(7.99)
$D(Q)_3$		0.1495	0.1294	0.2036	0.1846	0.2840
		(8.02)	(7.68)	(11.30)	(10.99)	(12.94)
$D(Q)_4$		0.3607	0.3243	0.3673	0.3391	0.4428
		(16.75)	(14.18)	(17.96)	(15.65)	(15.51)
$D(Q)_5$		0.7158	0.6443	0.6566	0.6054	0.7476
		(25.26)	(21.44)	(24.61)	(21.17)	(21.99)
$-\Delta z_{t-1}$	0.0355	0.0234	0.0187	0.0209	0.0172	0.0256
	(2.13)	(1.85)	(1.56)	(1.80)	(1.53)	(1.83)
$D(Q)_2 \times (-\Delta z_{t-1})$		0.0038	0.0001	0.0077	0.0044	0.0017
		(0.37)	(0.01)	(0.75)	(0.42)	(0.16)
$D(Q)_3 \times (-\Delta z_{t-1})$		0.0024	0.0002	0.0062	0.0043	-0.0044
		(0.19)	(0.02)	(0.51)	(0.36)	(-0.36)
$D(Q)_4 \times (-\Delta z_{t-1})$		0.0122	0.0107	0.0179	0.0162	0.0088
		(0.59)	(0.56)	(1.49)	(1.39)	(0.67)
$D(Q)_5 \times (-\Delta z_{t-1})$		0.0421	0.0426	0.0484	0.0486	0.0352
		(2.35)	(2.43)	(2.44)	(2.43)	(2.23)
Observations	62495	62495	62495	62495	62495	62495
R^2	0.001	0.072	0.118	0.166	0.195	0.441
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 7 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d \, D(Q_{f,t-1})_d + b_1 \, \Delta z_{t-1} + \sum_{d=2}^{5} b_d \, D(Q_{f,t-1})_d \times \Delta z_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over lagged capital, on the innovation in the quality-adjusted price of new equipment Δz_t, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(Q_{i,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in terms of Tobin's Q. The innovation Δz_t is the first difference of the detrended quality-adjusted price of investment goods divided by the consumption deflator from Cummins and Violante (2002) and extended by Israelsen (2010). Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 8: Response of I/K to z-shocks: firms sorted by β^{mkt}

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)	(6)
Constant		-0.1281	-0.1165	-0.1299	-0.1202	-0.0960
		(-5.59)	(-5.19)	(-4.93)	(-4.72)	(-4.71)
$D(\beta_{mkt})_2$		0.0498	0.0495	0.0580	0.0560	0.0426
		(3.46)	(3.54)	(4.55)	(4.39)	(3.80)
$D(\beta_{mkt})_3$		0.1176	0.1110	0.1184	0.1120	0.0655
		(6.59)	(6.59)	(7.55)	(7.28)	(4.86)
$D(\beta_{mkt})_4$		0.1885	0.1734	0.1805	0.1687	0.0966
		(9.46)	(8.59)	(10.14)	(9.14)	(7.01)
$D(\beta_{mkt})_5$		0.3486	0.3059	0.2951	0.2671	0.1546
		(12.35)	(10.07)	(13.39)	(11.25)	(6.94)
$-\Delta z_{t-1}$	0.0355	0.0281	0.0230	0.0350	0.0306	0.0274
	(2.13)	(1.70)	(1.48)	(1.49)	(1.42)	(1.18)
$D(\beta_{mkt})_2 \times (-\Delta z_{t-1})$		0.0008	0.0005	0.0010	0.0008	0.0032
		(0.06)	(0.04)	(0.07)	(0.06)	(0.28)
$D(\beta_{mkt})_3 \times (-\Delta z_{t-1})$		-0.0026	-0.0040	0.0012	-0.0001	0.0030
		(-0.17)	(-0.32)	(0.10)	(-0.01)	(0.30)
$D(\beta_{mkt})_4 \times (-\Delta z_{t-1})$		0.0086	0.0081	0.0059	0.0061	0.0129
		(0.59)	(0.61)	(0.54)	(0.59)	(1.45)
$D(\beta_{mkt})_5 \times (-\Delta z_{t-1})$		0.0388	0.0330	0.0325	0.0290	0.0342
		(1.97)	(1.71)	(1.88)	(1.73)	(1.75)
Observations	62495	58503	58503	58503	58503	58503
R^2	0.001	0.016	0.069	0.159	0.186	0.428
Industry/Firm FE	N	N	N	I	I	F
Controls (i_{t-1})	N	N	Y	N	Y	N
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y	Y

Table 8 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{mkt}_{f,t-1})_d + b_1\, \Delta z_{t-1} + \sum_{d=2}^{5} b_d\, D(\beta^{mkt}_{f,t-1})_d \times \Delta z_{t-1} + cX_{f,t-1} + \gamma_i + u_{ft},$$

where $i_t \equiv I_t/K_{t-1}$ is firm investment over lagged capital, on the innovation in the quality-adjusted price of new equipment Δz_t, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. $D(\beta^{mkt}_{f,t-1})_d$ is a dummy variable which takes the value of 1 if the firm falls in the d-th quintile in term of β^{mkt}_{t-1}, where firms are sorted within industry, following the Fama and French (1997) 30-industry classifications. β^{mkt}_t refers to the firm's beta with respect to the market portfolio in year t, estimated using non-overlapping weekly returns within year t. The innovation Δz_t is the first difference of the detrended quality-adjusted price of investment goods divided by the consumption deflator from Cummins and Violante (2002) and extended by Israelsen (2010). Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by firm and year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 9: Response of I/K to R^{imc}: portfolios sorted by β^{imc}

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)
Constant		-0.588	-0.418	-0.515	-0.411
		(-6.86)	(-4.29)	(-5.98)	(-4.92)
$D(\beta^{imc})_2$		0.157	0.138	0.100	0.165
		(2.23)	(2.20)	(0.99)	(2.05)
$D(\beta^{imc})_3$		0.427	0.285	0.306	0.270
		(5.51)	(3.24)	(3.04)	(2.77)
$D(\beta^{imc})_4$		0.862	0.576	0.733	0.552
		(8.94)	(5.18)	(6.34)	(5.01)
$D(\beta^{imc})_5$		1.493	1.008	1.437	0.968
		(12.35)	(6.05)	(10.70)	(6.10)
$\tilde{R}^{imc}_{t-1}$	0.492	0.271	0.159	0.279	0.188
	(5.34)	(4.43)	(3.13)	(5.01)	(3.86)
$D(\beta^{imc})_2 \times \tilde{R}^{imc}_{t-1}$		-0.0377	0.0239	-0.0718	-0.00913
		(-0.58)	(0.43)	(-1.14)	(-0.14)
$D(\beta^{imc})_3 \times \tilde{R}^{imc}_{t-1}$		0.133	0.122	0.0357	0.0402
		(1.78)	(1.25)	(0.35)	(0.31)
$D(\beta^{imc})_4 \times \tilde{R}^{imc}_{t-1}$		0.316	0.264	0.138	0.131
		(2.91)	(2.40)	(1.12)	(0.98)
$D(\beta^{imc})_5 \times \tilde{R}^{imc}_{t-1}$		0.690	0.625	0.385	0.377
		(4.86)	(5.32)	(2.55)	(3.02)
Observations	205	205	205	205	205
R^2	0.242	0.604	0.654	0.671	0.710
Controls (i_{t-1})	N	N	Y	N	Y
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y

Table 9 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{imc}_{f,t-1})_d + b_1\, \tilde{R}^{imc}_{t-1} + \sum_{d=2}^{5} b_d\, D(\beta^{imc}_{f,t-1})_d \times \tilde{R}^{imc}_{t-1} + cX_{f,t-1} + \gamma_f + u_{ft},$$

where $i_{ft} \equiv i_{ft}/K_{it-1}$ is firm investment over the lagged capital stock, on cumulative log returns on the IMC portfolio, $\tilde{R}^{imc}_{t-1} \equiv \sum_{l=1}^{2} R^{imc}_{t-1}$, and a vector of controls X_t which includes lagged values of log Tobin's Q, cashflows over lagged capital, log book equity over book assets, and log capital. β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t. Every year, we sort firms into 5 portfolios based on $\beta^{imc}_{i,t-1}$. Portfolio-level variables are constructed by averaging across firms within the portfolio. $D(\beta^{imc}_{i,t-1})_d$ is a portfolio indicator variable, denoting the portfolio containing firms in the d-th quintile of β^{imc}_{t-1}. Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

Table 10: Data: Response of I/K to z-Shock: Portfolios sorted by β^{imc}

Dependent variable i_t	(1)	(2)	(3)	(4)	(5)
Constant		-0.6130	-0.3309	-0.4984	-0.3341
		(-6.47)	(-3.32)	(-5.67)	(-4.11)
$D(\beta_{imc})_2$		0.1874	0.1129	0.0848	0.0984
		(2.94)	(1.78)	(0.95)	(1.31)
$D(\beta_{imc})_3$		0.4136	0.2155	0.2252	0.1636
		(5.29)	(2.17)	(2.39)	(1.71)
$D(\beta_{imc})_4$		0.8426	0.4330	0.6612	0.4273
		(8.01)	(3.19)	(5.86)	(3.92)
$D(\beta_{imc})_5$		1.4570	0.7564	1.3853	0.8564
		(9.70)	(3.37)	(8.68)	(4.69)
$-\Delta z_{t-1}$	0.1798	0.0207	-0.0799	0.0236	-0.0405
	(2.02)	(0.30)	(-1.12)	(0.49)	(-0.84)
$D(\beta_{imc})_2 \times (-\Delta z_{t-1})$		0.0795	0.0813	0.0490	0.0513
		(1.67)	(2.09)	(0.70)	(1.12)
$D(\beta_{imc})_3 \times (-\Delta z_{t-1})$		0.1316	0.0874	0.0716	0.0441
		(2.51)	(1.35)	(0.86)	(0.64)
$D(\beta_{imc})_4 \times (-\Delta z_{t-1})$		0.1912	0.1144	0.1665	0.1167
		(2.71)	(1.47)	(2.12)	(1.63)
$D(\beta_{imc})_5 \times (-\Delta z_{t-1})$		0.3929	0.3078	0.2938	0.2532
		(2.84)	(2.97)	(2.28)	(2.44)
Observations	205	205	205	205	205
R^2	0.035	0.346	0.497	0.575	0.642
Controls (i_{t-1})	N	N	Y	N	Y
Controls ($Q_{t-1}, CF_{t-1}, K_{t-1}, E_{t-1}/A_{t-1}$)	N	N	N	Y	Y

Table 10 shows estimates of

$$i_{ft} = a_1 + \sum_{d=2}^{5} a_d\, D(\beta^{imc}_{f,t-1})_d + b_1\,(-\Delta z_{t-1}) + \sum_{d=2}^{5} b_d\, D(\beta^{imc}_{f,t-1})_d \times (-\Delta z_{t-1}) + cX_{ft-1} + \gamma_f + u_{ft},$$

where $i_{ft} \equiv I_{ft}/K_{ft-1}$ is Investment over the lagged Capital stock, on the innovation in the quality-adjusted relative price of new equipment Δz_t, and a vector of controls X_t which includes lagged values of log Tobin's Q, Cashflows over lagged Capital, log Book Equity over Book Assets, and log Capital. β^{imc}_t refers to the firm's beta with respect to the investment minus consumption portfolio (IMC) in year t, estimated using non-overlapping weekly returns within year t. The innovation Δz_t is the first difference of the detrended quality-adjusted price of investment goods divided by the consumption deflator from Cummins and Violante (2002) and extended by Israelsen (2010). Every year, we sort firms into 5 portfolios based on $\beta^{imc}_{i,t-1}$. Portfolio-level variables are constructed by averaging across firms within the portfolio. $D(\beta^{imc}_{i,t-1})_d$ is a portfolio indicator variable, denoting the portfolio containing firms in the d-th quintile of β^{imc}_{t-1}. Industries are defined at the 2-digit SIC code level. All variables have been standardized to zero mean and unit standard deviation. We report t statistics in parenthesis using standard errors clustered by year. Sample period is 1965-2007 and excludes firms producing investment goods, financial firms (SIC6000-6799) and utilities (SIC4900-4949).

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