Resurrecting the Size Effect:

Firm Size, Profitability Shocks, and Expected Stock Returns

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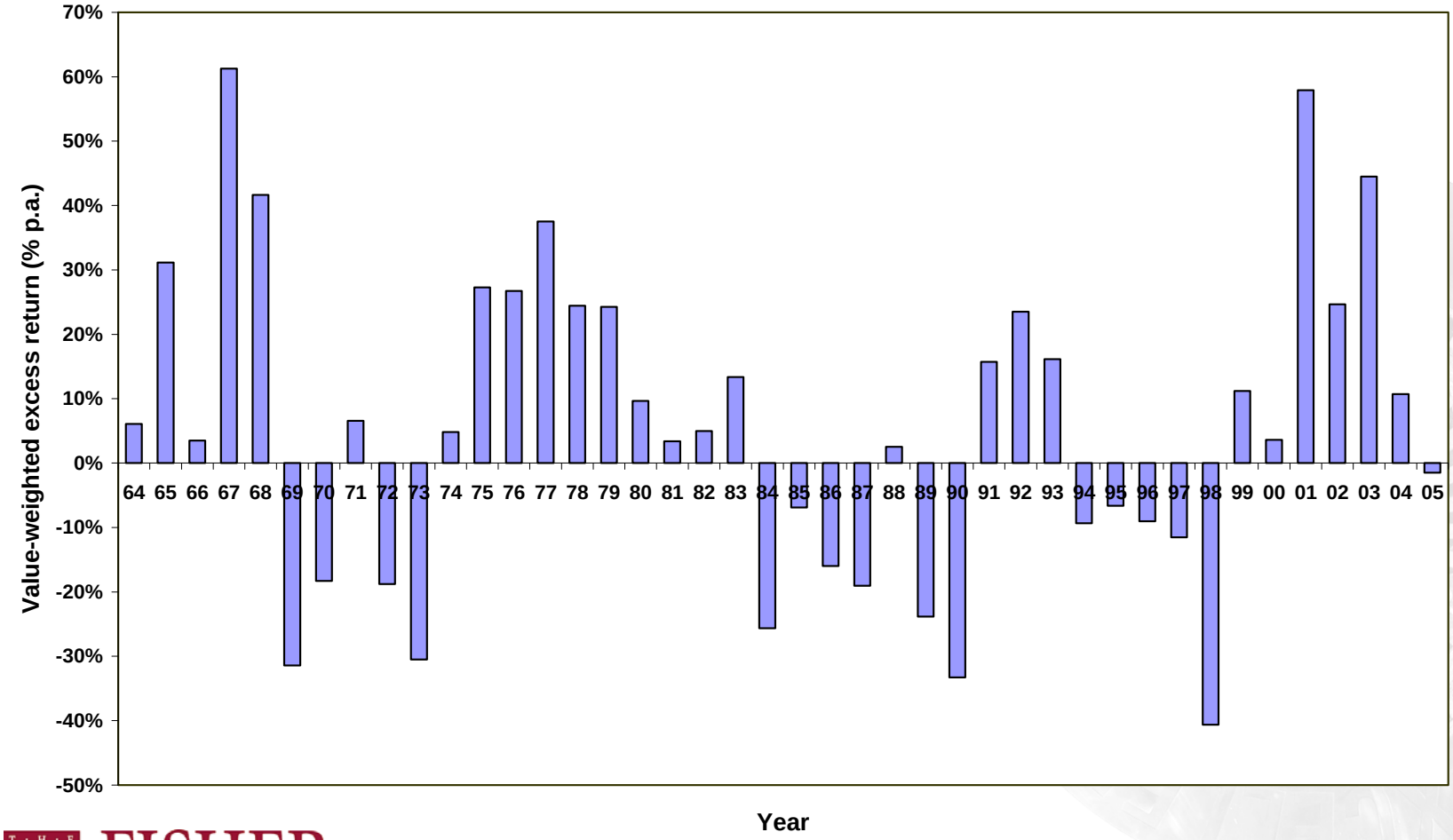
Overview of the Size Effect

- Banz (1981) is the first to show that small firms earn higher returns than big firms.
- The size effect has been extended and applied in numerous papers in financial economics and accounting.
- Multi-factor asset pricing models that include a mimicking factor for the size effect (e.g., Fama and French (1993) three-factor model) have become increasingly popular among academic researchers and investment practitioners.
- The underlying sources of the size effect are debated.
- However, the size literature has dried up in recent years.

Is the Size Effect "Dead"?

- Several studies report that the size effect has disappeared after the early 1980s.
  - Dichev (1998): 1981-1995.
  - Chan, Karceski, and Lakonishok (2000): 1984-1998.
  - Horowitz, Loughran, and Savin (2000): 1979-1995.
  - Amihud (2002): 1980-1997.
  - Hirshleifer (2001): "The U.S. small firm effect was strongly positive every year during 1974 to 1983, and then was negative for six out of the next seven years…"
  - Schwert (2003): "(…) it seems that the small-firm anomaly has disappeared since the initial publication of the papers that discovered it."

Size Premium Over Time



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A Straightforward Explanation?

- Realized stock returns are a noisy measure of expected returns.
  - Blume and Friend (1973), Sharpe (1978), Froot and Frankel (1989), Elton (1999).
- Elton (1999) provides example that realized stock returns can deviate from expected returns over prolonged periods of time.
- By definition (Campbell and Shiller 1988):

  realized stock returns = expected returns + cash flow shocks + discount rate shocks
- Firm-level stock returns are primarily driven by cash flow shocks (Vuolteenaho 2002, Chen and Zhao 2007).
- Even if the expected returns on small firms exceed those on big firms, the observed size premium may be negligible when small firms experience negative cash flow shocks and/or big firms experience positive shocks.

Objective and Contribution

- Is the disappearance of the size effect due to shocks to the cash flows of small and big firms?
- Alternatively, the significant size effect in the 60s and 70s could be driven by differences in cash flow shocks rather than differences in expected returns.
- The first paper that explicitly adjusts realized returns for cash flow shocks in order to arrive at a more accurate measure of expected returns.
- We show that the distinction between realized returns and expected returns matters for asset pricing anomalies.

Data

- Sample Period: 1963:07-2005:12.
  - Two subperiods: 1963:07-1984:06 and 1984:07-2005:12.
  - Results are robust to using 1980 instead of 1984 as the cut-off point.
- CRSP NYSE/Amex/Nasdaq stock file (sharecodes 10 or 11):
  - Monthly stock returns.
  - Firm size (market value of equity at the end of June of each year).
- COMPUSTAT industrial annual file:
  - Earnings, book equity, total assets, dividends, and operating accruals.

Size Deciles: Summary Statistics

Table 1

	Small	2	3	4	5	6	7	8	9	Big
1963:07-2005:12										
# of firms	2,299	550	365	288	242	206	183	171	157	151
Average size	0.04	0.10	0.16	0.25	0.38	0.58	0.90	1.54	3.07	35.34
1963:07-1984:06										
# of firms	1,644	353	257	218	196	168	155	147	139	137
Average size	0.02	0.04	0.06	0.08	0.12	0.18	0.28	0.45	0.77	10.73
1984:07-2005:12										
# of firms	2,939	743	471	356	288	242	211	195	175	164
Average size	0.06	0.15	0.27	0.42	0.64	0.96	1.50	2.57	5.27	58.83

Size Deciles: Average Realized Returns

Table 1

	Small	2	3	4	5	6	7	8	9	Big	Small-Big
1963:07-2005:12											
VW excess return	0.85	0.65	0.70	0.69	0.72	0.60	0.68	0.62	0.54	0.41	0.44
t-statistic	*2.92*	*2.29*	*2.57*	*2.59*	*2.80*	*2.48*	*2.89*	*2.71*	*2.57*	*2.15*	*1.94*
1963:07-1984:06											
VW excess return	0.93	0.66	0.67	0.69	0.61	0.45	0.43	0.40	0.23	0.11	0.82
t-statistic	*2.08*	*1.60*	*1.68*	*1.80*	*1.69*	*1.29*	*1.25*	*1.26*	*0.78*	*0.42*	*2.48*
1984:07-2005:12											
VW excess return	0.77	0.64	0.73	0.69	0.82	0.75	0.93	0.83	0.84	0.71	0.07
t-statistic	*2.05*	*1.64*	*1.96*	*1.86*	*2.25*	*2.22*	*2.86*	*2.54*	*2.80*	*2.50*	*0.21*

Measuring Cash Flow Shocks

- Following Fama and French (2000, 2006) and Hou and Robinson (2006), we estimate the following cross-sectional profitability model annually:

$$\frac{E_{t+1}}{A_t} = \alpha_0 + \alpha_1 \frac{V_t}{A_t} + \alpha_2 DD_t + \alpha_3 \frac{D_t}{B_t} + \alpha_4 \frac{E_t}{A_{t-1}} + \eta_{t+1} \qquad (1)$$

  - E_{t+1}/A_t is profitability (earnings scaled by lagged total assets).
  - V_t/A_t is the market-to-book ratio.
  - DD_t is a dummy variable that equals 0 for dividend payers and 1 for non-payers.
  - D_t/B_t is the ratio of dividend payments to book equity.
  - E_t/A_{t-1} is lagged profitability.
- Cross-sectional regressions provide power with little survivor bias.

Measuring Cash Flow Shocks, cont'd

- For each firm in the sample, we compute expected profitability for year *t*+1 as the profitability forecast based on the profitability regression.
- We make sure that profitability forecast is truly out-of-sample:
  - We use the independent variables observed at the end of year *t.*
  - We use the regression coefficients from the profitability regression estimated the year before.
  - All information necessary to forecast year *t*+1 profitability is available at the end of year t.
- Profitability shock for year *t*+1 is the difference between realized and expected profitability.

Profitability Regressions

Table 2

	Intercept	V_t/A_t	DD_t	D_t/B_t	E_t/A_{t-1}	Adj. R^2
1963-2005						
Coefficient	0.0153	0.0059	-0.0075	0.2067	0.6926	0.60
t-statistic	*11.21*	*4.09*	*-5.84*	*10.58*	*53.43*	
1963-1983						
Coefficient	0.0125	0.0124	-0.0025	0.2043	0.6934	0.63
t-statistic	*6.60*	*7.92*	*-1.79*	*6.14*	*40.58*	
1984-2005						
Coefficient	0.0182	-0.0005	-0.0126	0.2091	0.6917	0.58
t-statistic	*10.02*	*-0.38*	*-8.24*	*9.79*	*34.72*	

How Good is the Profitability Model?

- We believe that our model does a good job in capturing the market's expectation about profitability:
  1. It explains a large fraction of the cross-sectional variation in profitability using variables that are strictly ex ante.
     - Average R^2 of around 60% for the entire sample periods and for both subperiods.

How Good is the Profitability Model?

- We believe that our model does a good job in capturing the market's expectation about profitability:
  1. It explains a large fraction of the cross-sectional variation in profitability using variables that are strictly ex ante.
  2. Profitability shocks are not predictable based on past shocks.
     - The average autocorrelation coefficient is -0.02 (*t*-stat=-0.25).

How Good is the Profitability Model?

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  1. It explains a large fraction of the cross-sectional variation in profitability using variables that are strictly ex ante.
  2. Profitability shocks are not predictable based on past shocks.
  3. Profitability shocks are positively and significantly correlated with contemporaneous stock returns.

Profitability Shocks and Stock Returns

Table 3

	Low	2	3	4	High	High-Low
1963:07-2005:12						
VW profitability shock	-6.15	-1.52	0.22	2.16	7.61	13.76
t-statistic	*-15.31*	*-9.09*	*1.34*	*11.18*	*20.42*	*23.12*
VW excess return	-0.60	0.19	0.54	0.80	1.38	1.98
t-statistic	*-2.51*	*0.94*	*2.67*	*3.94*	*5.71*	*14.54*
1963:07-1984:06						
VW profitability shock	-5.84	-1.83	-0.13	1.68	6.50	12.35
t-statistic	*-11.68*	*-6.32*	*-0.46*	*5.36*	*14.88*	*27.31*
VW excess return	-0.76	-0.18	0.34	0.64	1.21	1.97
t-statistic	*-2.37*	*-0.63*	*1.20*	*2.22*	*3.63*	*11.31*
1984:07-2005:12						
VW profitability shock	-6.44	-1.23	0.56	2.63	8.66	15.11
t-statistic	*-10.26*	*-7.73*	*3.64*	*13.92*	*17.13*	*15.02*
VW excess return	-0.45	0.55	0.73	0.96	1.54	1.99
t-statistic	*-1.25*	*1.95*	*2.58*	*3.35*	*4.43*	*9.49*

How Good is the Profitability Model?

- We believe that our model does a good job in capturing the market's expectation about profitability:
  1. It explains a large fraction of the cross-sectional variation in profitability using variables that are strictly ex ante.
  2. Profitability shocks are not predictable based on past shocks.
  3. Profitability shocks are positively and significantly correlated with contemporaneous stock returns.
  4. Expected profitability does not predict stock returns.

Expected Profitability and Stock Returns

Table 4

	Low	2	3	4	High	High-Low
1963:07-2005:12						
VW expected profitability	2.66	7.67	10.37	13.51	22.75	20.09
t-statistic	*4.33*	*21.57*	*29.12*	*30.59*	*35.56*	*46.98*
VW excess return	0.43	0.60	0.47	0.43	0.51	0.08
t-statistic	*1.61*	*2.84*	*2.42*	*2.03*	*2.45*	*0.50*
1963:07-1984:06						
VW expected profitability	5.65	9.46	12.05	15.61	25.81	20.16
t-statistic	*12.98*	*21.93*	*27.09*	*27.45*	*31.62*	*40.46*
VW excess return	0.29	0.35	0.27	0.28	0.16	-0.14
t-statistic	*0.84*	*1.16*	*0.96*	*0.91*	*0.53*	*-0.68*
1984:07-2005:12						
VW expected profitability	-0.06	6.05	8.84	11.60	19.96	20.02
t-statistic	*-0.08*	*25.77*	*32.06*	*37.36*	*44.55*	*29.00*
VW excess return	0.56	0.84	0.67	0.57	0.84	0.28
t-statistic	*1.39*	*2.83*	*2.46*	*1.98*	*2.90*	*1.22*

Size Deciles: Profitability Shocks

Table 5

	Small	2	3	4	5	6	7	8	9	Big	*t*(Small=Big)
1963-2005											
VW exp. profit.	6.33	8.83	9.91	10.81	11.65	11.91	12.51	12.51	12.42	15.42	10.00
t-statistic	*8.32*	*11.96*	*15.76*	*19.12*	*20.76*	*22.89*	*26.70*	*29.87*	*29.47*	*31.05*	
VW profit. shock	-0.66	-0.04	0.45	0.64	0.94	0.98	0.89	0.88	0.66	0.99	4.33
t-statistic	*-2.75*	*-0.18*	*2.25*	*2.87*	*3.88*	*4.31*	*3.90*	*3.60*	*2.70*	*3.34*	
1963-1983											
VW exp. profit.	10.60	12.78	13.16	13.55	14.30	14.25	14.80	14.52	14.43	18.01	9.03
t-statistic	*17.36*	*20.62*	*24.58*	*24.98*	*26.29*	*27.40*	*29.88*	*32.62*	*32.76*	*32.85*	
VW profit. shock	-0.07	0.13	0.28	0.17	0.36	0.39	0.20	0.04	-0.19	0.02	0.18
t-statistic	*-0.19*	*0.29*	*0.81*	*0.47*	*0.98*	*1.16*	*0.62*	*0.11*	*-0.67*	*0.06*	
1984-2005											
VW exp. profit.	2.45	5.23	6.95	8.32	9.23	9.78	10.43	10.68	10.59	13.07	15.51
t-statistic	*4.15*	*8.05*	*11.51*	*14.49*	*15.69*	*16.92*	*24.32*	*27.05*	*25.89*	*37.81*	
VW profit. shock	-1.23	-0.21	0.61	1.09	1.49	1.54	1.54	1.68	1.46	1.92	6.61
t-statistic	*-4.41*	*-0.89*	*2.84*	*4.86*	*5.46*	*5.92*	*6.07*	*5.96*	*4.82*	*4.96*	

Profitability Shocks and the Size Effect

- Results so far:
  - Small firms do not outperform big firms after 1984.
  - Small firms experience negative profitability shocks whereas large firms experience positive shocks after 1984.
  - Profitability shocks have a significant impact on realized stock returns.
- To what extent can the disappearance of the size effect be attributed to differences in profitability shocks between small and large firms?

$\Rightarrow$ We need to adjust individual stock returns for the price impact of profitability shocks and then re-estimate the size effect.

Adjusting Individual Stock Returns

- Method 1:
  - Compute price impact per unit of profitability shock by dividing the return spread between the highest and lowest profitability shock-sorted quintile portfolios by the difference in profitability shock between the two portfolios.
  - Then subtract the product of a firm's profitability shock and this scaled return spread from the firm's realized return to obtain an estimate of the return adjusted for the effect of profitability shocks.

Adjusting Individual Stock Returns, cont'd

- Method 2:
  - Regress individual stock returns on the return spreads between the highest and lowest profitability shock-sorted quintile portfolios, using 60-month rolling windows (36 months minimum).
  - Then adjust returns for the systematic price impact of profitability shocks by subtracting the product of the estimated loading and the returns on the profitability shock spread portfolio from the realized returns of individual stocks.

Size Deciles: Average Adjusted Returns

Table 6

	Small	2	3	4	5	6	7	8	9	Big	Small-Big
1963:07-2005:12											
VW excess return	1.06	0.78	0.75	0.76	0.81	0.65	0.71	0.67	0.57	0.40	0.65
t-statistic	*3.60*	*2.76*	*2.77*	*2.85*	*3.15*	*2.69*	*2.98*	*2.90*	*2.74*	*2.08*	*2.87*
VW adjusted return 1	1.19	0.85	0.75	0.73	0.76	0.59	0.65	0.61	0.53	0.34	0.85
t-statistic	*4.00*	*2.93*	*2.72*	*2.71*	*2.92*	*2.40*	*2.64*	*2.61*	*2.47*	*1.72*	*3.68*
VW adjusted return 2	1.11	0.90	0.83	0.78	0.87	0.69	0.73	0.72	0.56	0.25	0.86
t-statistic	*3.46*	*2.92*	*2.82*	*2.72*	*3.14*	*2.65*	*2.86*	*2.93*	*2.52*	*1.17*	*3.39*
1963:07-1984:06											
VW excess return	1.15	0.85	0.73	0.76	0.77	0.54	0.50	0.47	0.27	0.09	1.05
t-statistic	*2.47*	*1.97*	*1.74*	*1.87*	*2.02*	*1.48*	*1.39*	*1.40*	*0.90*	*0.35*	*3.07*
VW adjusted return 1	1.12	0.85	0.72	0.75	0.77	0.54	0.50	0.50	0.33	0.14	0.98
t-statistic	*2.41*	*1.98*	*1.74*	*1.86*	*2.01*	*1.46*	*1.39*	*1.48*	*1.11*	*0.52*	*2.86*
VW adjusted return 2	0.87	0.73	0.53	0.52	0.60	0.33	0.31	0.33	0.12	0.00	0.87
t-statistic	*1.62*	*1.47*	*1.13*	*1.14*	*1.37*	*0.79*	*0.77*	*0.88*	*0.35*	*0.00*	*2.16*
1984:07-2005:12											
VW excess return	0.97	0.72	0.78	0.75	0.84	0.75	0.91	0.85	0.86	0.70	0.27
t-statistic	*2.66*	*1.92*	*2.21*	*2.18*	*2.46*	*2.37*	*2.90*	*2.73*	*2.98*	*2.50*	*0.91*
VW adjusted return 1	1.26	0.84	0.78	0.71	0.74	0.65	0.79	0.73	0.73	0.54	0.72
t-statistic	*3.38*	*2.18*	*2.15*	*1.98*	*2.12*	*1.96*	*2.39*	*2.22*	*2.39*	*1.85*	*2.32*
VW adjusted return 2	1.32	1.05	1.08	1.00	1.11	1.01	1.10	1.05	0.96	0.46	0.85
t-statistic	*3.50*	*2.74*	*3.00*	*2.83*	*3.16*	*3.10*	*3.42*	*3.32*	*3.24*	*1.56*	*2.66*

Fama-MacBeth Cross-Sectional Regressions

Table 7

	Excess return	Adjusted return 1	Adjusted return 2	Adjusted return 2 (purged)
1963:07-2005:12				
Intercept	2.89	3.53	3.16	3.02
t-statistic	*4.40*	*5.32*	*4.35*	*3.44*
Ln(size)	-0.17	-0.22	-0.19	-0.18
t-statistic	*-3.95*	*-4.98*	*-3.89*	*-3.00*
Adj. R^2	0.02	0.02	0.02	
1963:07-1984:06				
Intercept	3.25	3.19	2.96	3.14
t-statistic	*3.20*	*3.13*	*2.47*	*2.08*
Ln(size)	-0.22	-0.22	-0.21	-0.22
t-statistic	*-3.30*	*-3.21*	*-2.67*	*-2.17*
Adj. R^2	0.02	0.02	0.03	
1984:07-2005:12				
Intercept	-2.54	3.87	3.35	3.01
t-statistic	*3.03*	*4.54*	*3.81*	*2.93*
Ln(size)	-0.11	-0.23	-0.17	-0.15
t-statistic	*-1.83*	*-3.90*	*-2.86*	*-2.10*
Adj. R^2	0.01	0.01	0.01	

Explaining Profitability Shocks

- We find a robust size effect after 1984 after adjusting for the price impact of profitability shocks to small and big firms.
- But what economic forces are behind the profitability shocks to small and big firms after the early 80s?
- We explore two potential explanations:
  1. The “new lists” effect (Fama and French 2004).

Size Deciles (Seasoned Firms): Profitability Shocks

Table 8

	Small	2	3	4	5	6	7	8	9	Big	*t*(Small=Big)
1963-2005											
VW exp. profit.	6.39	8.76	9.68	10.51	11.30	11.61	12.33	12.32	12.37	15.47	11.35
t-statistic	*10.01*	*13.83*	*17.80*	*20.12*	*23.78*	*25.63*	*28.28*	*31.17*	*32.79*	*32.17*	
VW profit. shock	-0.39	0.12	0.46	0.62	0.74	0.79	0.77	0.80	0.58	1.03	3.82
t-statistic	*-1.84*	*0.50*	*2.25*	*2.86*	*3.34*	*3.24*	*3.85*	*3.53*	*2.49*	*3.37*	
1963-1983											
VW exp. profit.	9.83	12.11	12.40	13.00	13.69	13.77	14.49	14.18	14.23	17.97	10.02
t-statistic	*16.01*	*19.41*	*22.35*	*23.02*	*27.45*	*25.14*	*29.38*	*31.79*	*33.22*	*33.85*	
VW profit. shock	-0.09	0.12	0.22	0.21	0.27	0.31	0.27	0.03	-0.18	0.04	0.28
t-statistic	*-0.27*	*0.28*	*0.62*	*0.60*	*0.78*	*0.90*	*0.85*	*0.10*	*-0.61*	*0.13*	
1984-2005											
VW exp. profit.	3.26	5.72	7.21	8.25	9.12	9.66	10.35	10.62	10.68	13.19	17.01
t-statistic	*6.80*	*11.42*	*14.77*	*16.79*	*22.72*	*26.12*	*30.02*	*29.50*	*35.09*	*39.54*	
VW profit. shock	-0.67	0.12	0.70	1.00	1.19	1.24	1.25	1.52	1.30	1.97	5.64
t-statistic	*-2.91*	*0.50*	*3.23*	*4.32*	*4.63*	*3.90*	*6.07*	*6.46*	*4.49*	*4.84*	

Explaining Profitability Shocks

- We find a robust size effect after 1984 after adjusting for the price impact of profitability shocks to small and big firms.
- But what economic forces are behind the profitability shocks to small and big firms after the early 80s?
- We explore two potential explanations:
  1. The “new lists” effect (Fama and French 2004).
  2. Greater competition (as a result of trade liberalization and industry deregulation).

Profitability Shocks for Different Industries, 1984-2005

Table 9

Small firms			**Big firms**		
Industry (2-digit SIC)	*Contribution to profit. shock*	*Cumulative contribution*	*Industry (2-digit SIC)*	*Contribution to profit. shock*	*Cumulative contribution*
28: Chemicals and allied products	-0.46	0.37	28: Chemicals and allied products	0.51	0.26
38: Advanced medical equipment	-0.19	0.53	73: Business services	0.36	0.45
35: Computer hardware	-0.13	0.64	35: Computer hardware	0.21	0.56
73: Business services	-0.13	0.75	20: Food products	0.19	0.66
36: Electronic equipment	-0.12	0.84	36: Electronic equipment	0.18	0.75
other industries	-0.19	1.00	other industries	0.48	1.00
Total	-1.23		Total	1.92	

Conclusions

- Small firms do not outperform large firms in the 80s and 90s.
- Small firms experience large negative shocks to their profitability after the early 1980s, while large firms experience positive profitability shocks.
- Returns that are adjusted for the price impact of profitability shocks show a significant size effect in both halves of the 1963-2005 sample period.

Future Research

- More work on understanding the sources of the size effect in expected returns is needed.
- Realized vs. expected returns:
  - How does this distinction affect other anomalies?
  - *COMING SOON!*
- More accurate measures of expected returns:
  - Changes in expectations about more distant cash flows.
  - Adjusting for discount rate shocks.

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BE/ME Deciles: Profitability Shocks

	Growth	2	3	4	5	6	7	8	9	Value	*t*(Value=Growth)
1963-2005											
VW exp. profit.	24.42	18.62	15.34	13.52	12.54	11.43	10.35	9.29	8.95	7.41	16.87
t-statistic	*25.51*	*31.92*	*26.40*	*26.16*	*25.37*	*22.58*	*26.11*	*25.33*	*27.22*	*23.42*	
VW profit. shock	3.30	2.15	1.20	0.74	0.67	0.28	-0.27	-0.21	-0.71	-0.61	6.28
t-statistic	*5.56*	*4.67*	*3.15*	*2.71*	*2.31*	*1.15*	*-1.00*	*-0.93*	*-3.44*	*-3.22*	
1963-1983											
VW exp. profit.	28.60	21.68	17.78	15.94	15.13	14.00	12.20	11.06	10.33	8.60	19.95
t-statistic	*30.42*	*40.65*	*21.52*	*24.31*	*26.60*	*23.38*	*23.69*	*28.40*	*25.85*	*24.69*	
VW profit. shock	0.58	0.50	0.00	0.29	0.25	0.07	-0.48	-0.35	-0.54	-0.71	1.98
t-statistic	*1.04*	*1.05*	*0.00*	*0.62*	*0.47*	*0.18*	*-1.04*	*-0.94*	*-1.94*	*-2.09*	
1984-2005											
VW exp. profit.	20.63	15.84	13.13	11.32	10.18	9.10	8.67	7.69	7.70	6.33	12.06
t-statistic	*18.44*	*30.97*	*28.82*	*28.39*	*34.28*	*26.79*	*29.80*	*22.28*	*22.72*	*16.01*	
VW profit. shock	5.89	3.71	2.35	1.16	1.08	0.48	-0.07	-0.07	-0.87	-0.53	9.61
t-statistic	*9.23*	*6.13*	*4.44*	*4.48*	*4.25*	*1.67*	*-0.25*	*-0.28*	*-2.86*	*-2.68*	

BE/ME Deciles: Average Adjusted Returns

	Growth	2	3	4	5	6	7	8	9	Value	Value-Growth
1963:07-2005:12											
VW excess return	0.25	0.41	0.45	0.47	0.49	0.49	0.50	0.60	0.64	0.79	0.54
t-statistic	*0.97*	*1.73*	*1.98*	*2.06*	*2.26*	*2.37*	*2.53*	*3.11*	*3.39*	*3.77*	*2.44*
VW adjusted return	0.01	0.24	0.39	0.43	0.41	0.47	0.55	0.64	0.71	0.88	0.87
t-statistic	*0.03*	*0.99*	*1.70*	*1.85*	*1.87*	*2.25*	*2.73*	*3.29*	*3.70*	*4.12*	*4.10*
1963:07-1984:06											
VW excess return	-0.09	0.08	0.14	0.18	0.21	0.28	0.24	0.37	0.51	0.70	0.78
t-statistic	*-0.24*	*0.23*	*0.41*	*0.59*	*0.68*	*0.92*	*0.83*	*1.36*	*1.81*	*2.20*	*2.71*
VW adjusted return	0.00	0.08	0.19	0.18	0.19	0.25	0.29	0.43	0.60	0.80	0.80
t-statistic	*-0.01*	*0.26*	*0.56*	*0.58*	*0.64*	*0.83*	*0.98*	*1.57*	*2.14*	*2.55*	*2.81*
1984:07-2005:12											
VW excess return	0.58	0.72	0.75	0.74	0.75	0.69	0.75	0.81	0.77	0.88	0.30
t-statistic	*1.50*	*2.13*	*2.42*	*2.25*	*2.51*	*2.43*	*2.80*	*3.03*	*3.01*	*3.17*	*0.92*
VW adjusted return	0.02	0.39	0.60	0.68	0.62	0.70	0.82	0.85	0.83	0.96	0.94
t-statistic	*0.05*	*1.10*	*1.85*	*1.97*	*2.00*	*2.37*	*2.92*	*3.08*	*3.10*	*3.31*	*2.97*