Risk Factors in Equity Markets Cont'd

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Outline

- A Five-Factor Asset Pricing Model
 - Fama and French (2015)

Insight

TDOFT

 According to the dividend discount model, the market value of a share of stock is the discounted value of expected dividends per share:

$$\underbrace{m_t} = \sum_{\tau=1}^{\infty} \frac{E\left(d_{t+\tau}\right)}{\left(1+r\right)^{\tau}}$$

- m_t is the share price at time t
- $E(d_{t+\tau})$ is the expected dividend per share for period $t+\tau$
- r is the IRR on expected dividends (approximately equal to the long-term average expected stock return)
- \bullet \Rightarrow if at time t, the stocks of two firms have the same expected dividends but different prices, the stock with a lower price has a higher (long-term average) expected return.

Insight Cont'd

 Modigliani and Miller (1961) show that the time t total market value of the firm's stock implied by the above equation is

$$\underbrace{M_{t}}_{\tau=1} = \sum_{\tau=1}^{\infty} \frac{E\left(Y_{t+\tau} - dB_{t+\tau}\right)}{\left(1+r\right)^{\tau}}$$

$$\Rightarrow \frac{M_{t}}{B_{t}} = \frac{\sum_{\tau=1}^{\infty} E\left(Y_{t+\tau} - dB_{t+\tau}\right)/\left(1+r\right)^{\tau}}{B_{t}} \qquad \underbrace{\frac{Bt}{Mt}}_{\theta t}$$

- $Y_{t+\tau}$ is total equity earnings for period $t+\tau$.
- $dB_{t+\tau}$ is the change in total book equity. *additional investment*
- ⇒ keeping everything else fixed:
 - **①** A lower value of M_t , or higher B_t/M_t , implies higher expected return.
 - 2 Higher expected earnings imply a higher expected return.
 - 4 Higher expected growth in book equity (investment) implies a lower expected return.
- In other words, B_t/M_t is a noisy proxy for expected return because the market cap M_t also responds to forecasts of earnings and investment.

marker

profitability

investment growth rate

primary tactors suggested by DCF

- Much of the variation in average returns related to profitability and
- investment is left unexplained by the Fama and French 3-factor model (Novy-Marx (2013); Titman, Wei, and Xie (2004)).
- Motivated by this evidence, Fama and French (2015) add profitability and investment factors to the 3-factor model:

$$r_{i,t} - r_{f,t} = \alpha_i + \beta_{i,m} (r_{m,t} - r_{f,t}) + \beta_{i,SMB} r_{SMB,t} + \beta_{i,HML} r_{HML,t} + \beta_{i,RMW} r_{RMW,t} + \beta_{i,CMA} r_{CMA,t} + \varepsilon_{i,t}$$

- r_{RMW,t} is the difference between the returns on diversified portfolios
 of stocks with robust and weak profitability.
- r_{CMA,t} is the difference between the returns on diversified portfolios of low (conservative) and high (aggressive) investment firms.
- If the exposures to the 5 factors capture all variation in expected returns, the intercept α_i is zero for all securities and portfolios i.

Table 1: Returns to be Explained

problem
Cannot rule out the
effects of other factors.

		Low	2	3	4	High		
asing	Panel A:	Size-B/M por	rtfolios	mcreasi	no Mo	re pronounce	e for small scocks	
128	Small	0.26	0.81	0.85	1.01	1.15		
3	2	0.48	0.72	0.94	0.94	1.02		
2	3	0.20 0.48 0.50 0.60 0.46	0.78	0.79	0.88	1.07		
3	4	0.60	0.57	0.71	0.85	0.86		
Z	Big	0.46	0.51	0.48	0.56	0.62		
12	Panel B:	Size-OP port	folios	mereasi	na			
2	Small	0.56	0.94	0.90	0.95	0.88		
-3	2	0.59	0.78	0.84	0.81	0.98	\	
easn	3	0.53	0.77	0.72	0.78	0.94		
8	4	0.57	0.65	0.63	0.70	0.82	smilar	
3	Big	0.39	0.33	0.43	0.47	0.57	1 ***	
4	Panel C	Size-Inv port	folios	decreas	ma		l sman firms that invest heavil	1
2	Small	1.01	0.98	0.99	0.89	0.35		
S.	2	0.92	0.91	0.92	0.90	8 0.48		
reasing	3	0.90	0.93	0.81	0.82	0.48 0.50 0.54		
8	4	0.79	0.72	0.71	0.75	8 0.54		
2	Big	0.71	0.52	0.49	0.48	0.42		
4								

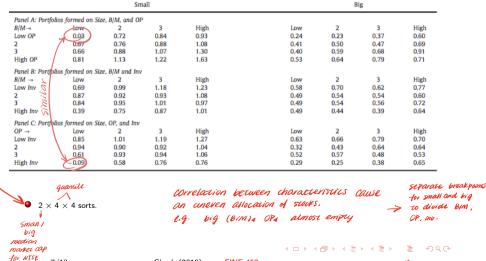
- 5 × 5 sorts.
- Profitability (measured with accounting data for the fiscal year ending in t-1) is annual revenue minus cost of goods sold, interest expense, and selling, general, and administrative expenses, all divided by BE at the end of fiscal year t-1.
- Investment is the growth of total assets for the fiscal year ending in t 1 divided by total assets at the end of t 2.
 Arowth of Asset

[H we use BIE, the results are similar; but using assets is stronger]

Table 2: Returns to be Explained

disentangle—the
dimensions of
average return

>> 3x5x3x5=81
poorly diversified



Ghosh (2019)

Table 3: Construction of Factors

	Sort	Breakpoints	Factors and their components
D)	2 × 3 sorts on Size and B/M, or Size and OP, or Size and Inv	Size: NYSE median	$SMB_{B M} = (SH + SN + SL)/3 - (BH + BN + BL)/3$ $SMB_{DD} = (SR + SN + SW)/3 - (BR + BN + BW)/3$ $SMB_{BD} = (SC + SN + SA)/3 - (BC + BN + BA)/3$ $SMB = (SMB_{BM} + SMB_{DP} + SMB_{DP})/3$
		B/M: 30th and 70th NYSE percentiles OP: 30th and 70th NYSE percentiles Inv: 30th and 70th NYSE percentiles	HML = (SH + BH) 2 - (SL + BL) 2 = [(SH - SL) + (BH - BL)] 2 RMW = (SR + BR) 2 - (SW + BW) 2 = [(SR - SW) + (BR - BW)] 2 CMA = (SC + BC) 2 - (SA + BA) 2 = [(SC - SA) + (BC - BA)] 2
3	2 × 2 sorts on Size and B/M, or Size and OP, or Size and Inv	Size: NYSE median B M: NYSE median OP: NYSE median Inv: NYSE median	$SMB = (SH + SL + SR + SW + SC + SA)/6 - (BH + BL + BR + BW + BC + BA)/6 \\ HML = (SH + BH)/2 - (SL + BL)/2 = [(SH - SL) + (BH - BL)]/2 \\ RMW = (SR + BR)/2 - (SW + BW)/2 = [(SR - SW) + (BR - BW)/2] \\ CMA = (SC + BC)/2 - (SA + BA)/2 = [(SC - SA) + (BC - BA)/2]$
3	$2 \times 2 \times 2 \times 2$ sorts on Size, B/M, OP, and Inv	Size: NYSE median B/M: NYSE median OP: NYSE median Inv: NYSE median	SMB = (SHRC + SHRA + SHWC + SHWA + SLRC + SLRA + SLWC + SLWA) 8 - (BHRC + BHRA + BHWC + BHWA + BLRC + BLRA + BLWC + BLWA) 8 HML = (SHRC + SHRA + SHWC + SHWA + BHRC + BHRA + BHWC + BHWA) 8 - (SLRC + SLRA + SLWC + SLWA + BLRC + BLRA + BWC + BHWA) 8 RMW = (SHRC + SHRA + SLRC + SLRA + BHRC + BHRA + BLRC + BLRA) 8 - (SHWC + SHWA + SLWC + SLWA + BHWC + BHWA + BLWC + BLWA) 8 CMA = (SHRC + SHWC + SLRC + SLRC + BHRC + BHWC + BLWC + BLWC) 8
		Inv: NYSE median	CMA=(SHRC + SHWC + SLRC + SLWC + BHRC + BHWC + BLRC + BLWC) 8 - (SHRA + SHWA + SLRA + SLWA + BHRA + BHWA + BLRA + BLWA) 8

Table 4: Summary Statistics of Factors

Statistically and economically significant

Panel A: Average	es, standard devi		statistics for 3 Factors	monthly retur	ns		2	× 2 Factors				2×	2 × 2 × 2 Fac	tors	
	$R_M - R_F$	SMB	HML	RMW	CMA	$R_{M}-R_{F}$	SMB	HML	RMW	CMA	$R_M - R_F$	SMB	HML	RMW	CMA
Mean Std dev. t-Statistic	0.50 4.49 2.74	0.29 3.07 2.31	0.37 2.88 3.20	0.25 2.14 2.92	0.33 2.01 4.07	0.50 4.49 2.74	0.30 3.13 2.33	0.28 2.16 3.22	0.17 1.52 2.79	0.22 1.48 3.72	0.50 4.49 2.74	0.30 2.87 2.60	0.30 2.13 3.43	0.25 1.49 4.09	0.14 1.29 2.71
	HML_{s}		HML_0	нм	s-a	RMW;		RMW_B	R	MW _{s-a}	CM	A _S	CMA _{st}		CMA _{S-B}
2 × 3 factors Mean Std dev. t-Statistic	0.53 3.24 4.05		0.21 3.11 1.69	0.3 2.6 2.5	9	0.33 2.69 3.06		0.17 2.35 1.81		0.16 2.68 1.48	0.4 2.0 5.4	0	0.22 2.66 2.00		0.23 2.47 2.29
2 × 2 Factors Mean Std dev t-Statistic	0.40 2.39 4.16		0.16 2.36 1.68	0.2 1.9 3.0	7	0.22 1.93 2.76		0.13 1.69 1.86		0.09 2.00 1.09	0.3 1.5 5.3	3	0.11 1.87 1.50		0.22 1.70 3.17
2 × 2 × 2 × 2 Fac Mean Std dev. t-Statistic	0.37 2.40 3.83		0.22 2.36 2.28	0.1 2.0 1.9	ri .	0.30 2.18 3.41		0.21 1.53 3.38		0.09 2.22 1.02	0.2 1.2 4.6	3	0.07 1.58 1.03		0.17 1.59 2.56
Panel B: Correla	tions between d	ifferent version SMi		me factor		HML				RMW				CMA	
	2×3	2 × 2	2 × 2	$2 \times 2 \times 2$	2 × 3	2 × 2	2×2×2>	2	2×3	2×2	2 × 2 × 2 × 2	2×3	2	×2	$2 \times 2 \times 2 \times 2$
2 × 3 2 × 2 2 × 2 × 2 × 2	1.00 1.00 0.98	1.00 1.00 0.98		0.98 0.98 1.00	1.00 0.97 0.94	0.97 1.00 0.96	0.94 0.96 1.00		1.00 0.96 0.80	0.96 1.00 0.83	0.80 0.83 1.00	1.00 0.95 0.83	1	1.95 .00 1.87	0.83 0.87 1.00

Similar result

Panel C: Co	orrelations betw	veen different	factors 2 × 3 Factors					2 × 2 Factors				2 >	2 × 2 × 2 Facto	rs	
	$R_M - R_F$	SMB	HML	RMW	CMA	$R_M - R_F$	SMB	HML	RMW	CMA	$R_M - R_F$	SMB	HML	RMW	CMA
R _M -R _F SMB HML	1.00 0.28 - 0.30	0.28 1.00 -0.11	-0.30 -0.11 1.00	-0.21 -0.36 0.08	-0.39 -0.11 0.70	1.00 0.30 -0.34	0.30 1.00 -0.16	-0.34 -0.16 1.00	-0.13 -0.32 0.04	-0.43 -0.13 0.71	1.00 0.25 - 0.33	0.25 1.00 - 0.21	-0.33 -0.21	-0.27 -0.33 0.63	-0.42 -0.21 0.37
RMW	-0.21	-0.36	0.08	1.00	-0.11	-0.13	-0.32	0.04	1.00	-0.19	-0.27	-0.33	0.63	1.00	0.15

Big correlation between value factor and investment factor

Table 5: Tests of Asset Pricing Model

							nexplain	ea aye	rage 1	ecurn			
		Aven	-		e alp	ha							
			2 × 3 i	actors			2 × 2 l	actors			2 × 2 × 2	× 2 Factors	<u> </u>
already navi size and	~ <170 AM	GRS d valu	Alaji	A a A r	$\frac{A(\hat{u}_i^2)}{A(\hat{\mu}_i^2)}$	GRS	Ala _i i	$\frac{A a_i }{A \bar{r}_i }$	$\frac{A(\hat{a}_i^2)}{A(\hat{\mu}_i^2)}$	GRS	Ala ji	$\frac{A a_i }{A \bar{r}_i }$	$\frac{A(\hat{\alpha}_i^2)}{A(\hat{\mu}_i^2)}$
nave. (Panel A: 25 Size-B/A			1 51	F1-17	FII 6	dispersion	on to	tal aven	age nec	eres 2		
cita and	HML 23 Size-B/N	3.62	0.102	0.54	0.38	3.54	0.101	0.53	0.36	3.40	0.096	0.51	0.36
size ww		3.13	0.095	0.50	0.24	3.11	0.096	0.51	0.26	3.29	0.089	0.47	0.24
value factor	HML CMA	3.52	0.101	0.53	0.39	3.46	0.100	0.53	0.37	3.18	0.096	0.51	0.35
	RMW CMA	2.84	0.100	0.53	0.22	2.78	0.093	0.49	0.19	2.78	0.087	0.46	0.13
	HML RMW CMA	2.84	0.094	0.50	0.23	2.80	0.093	0.49	0.23	2.82	0.088	0.46	0.18
	Panel B: 25 Size-OP		doesny		e much.								
	HML	2.31	0.108	0.68	0.51	2.31	0.109	0.68	0.51	1.91	0.089	0.56	0.37
	RMW	1.71	0.067	0.42	0.12	1.82	0.078	0.49	0.16	1.73	0.059	0.37	0.05
	HML RMW HML CMA	1.64 3.02	0.062	0.39	0.16	1.74 2.85	0.058	0.36	0.03	1.62 2.06	0.064	0.40	0.06
	RMW CMA	1.87	0.075	0.47	0.12	1.67	0.066	0.42	0.05	1.61	0.068	0.43	0.05
	HML RMW CMA	1.87	0.073	0.46	0.12	1.73	0.066	0.42	0.06	1.60	0.069	0.43	0.07
	Panel C: 25 Size-Inv	portfolior											
	HML	4.56	0.112	0.64	0.57	4.40	0.107	0.61	0.53	4.32	0.100	0.57	0.56
	CMA	4.03	0.105	0.60	0.47	4.05	0.106	0.61	0.47	4.23	0.123	0.70	0.62
	HML RMW	4.40	0.106	0.61	0.57	4.26	0.103	0.59	0.52	4.45	0.116	0.66	0.66
	HML CMA	4.00	0.099	0.57	0.43	3.97	0.098	0.56	0.41	3.70	0.084	0.48	0.35
	RMW CMA	3.33	0.085	0.49	0.29	3.28	0.082	0.47	0.26	3.50	0.082	0.47	0.27
to dayle and day souls are of a	HML RMW CMA	3.32	0.085	0.49	0.29	3.27	0.082	0.47	0.27	3.59	0.082	0.47	0.28
5 tactor model Performs almost as well as 4 tactor model	Panel D: 32 Size-B/N												
	HML	2.50	0.152	0.61	0.35	2.57	0.151	0.60	0.34	2.31	0.134	0.53	0.26
as well as 4 tactor model	HML RMW HML CMA	1.96	0.110	0.44	0.13	2.30	0.112	0.45	0.14	1.90	0.096	0.38	0.12
	RMW CMA	3.00 2.02	0.169	0.67	0.45	2.99	0.165 0.129	0.66	0.42	2.29 1.73	0.145	0.58	0.26
without HML.	HML RMW CMA	2.02	0.137	0.54	0.17	2.21	0.129	0.51	0.15	1.74	0.108	0.44	0.10
000000 1442.				0.54	0.17	2.2.	0.123	0.51	0.15		0.111	0.11	0.10
	Panel E: 32 Size-B/N HML	1-Inv porth 2.72	0.129	0.64	0.38	2.80	0.134	0.66	0.40	2.82	0.131	0.65	0.40
	HML RMW	2.72	0.129	0.60	0.38	2.49	0.134	0.64	0.40	2.62	0.131	0.63	0.40
	HML CMA	2.43	0.102	0.51	0.25	2.52	0.128	0.54	0.26	2.36	0.114	0.57	0.27
	RMW CMA	1.70	0.097	0.48	0.18	1.70	0.092	0.46	0.14	1.82	0.080	0.40	0.07
	HML RMW CMA	1.73	0.091	0.45	0.18	1.87	0.092	0.46	0.18	1.86	0.084	0.42	0.13
	Panel F: 32 Size-OP-	Inv portfoi	ios										
	HML	4.38	0.182	0.79	0.69	4.17	0.179	0.78	0.67	4.01	0.170	0.74	0.61
	HML RMW	3.80	0.140	0.61	0.37	3.82	0.140	0.61	0.37	3.55	0.151	0.66	0.43
	HML CMA	3.91	0.177	0.77	0.68	3.82	0.177	0.77	0.67	3.66	0.142	0.62	0.48
	RMW CMA	2.92	0.103	0.45	0.20	3.04	0.098	0.42	0.20	2.99	0.102	0.44	0.19
	HML RMW CMA	2.92	0,103	0.45	0.21	3.04	0.097	0.42	0.20	3.03	0.101	0.44	0.19

targest improvement

Ghosh (2019)

Q

Table 6: HML A Redundant Factor

	(Int)	R_M-R_F	SMB	HML	RMW	CMA	R^2
2 × 3 Factors							
RM-RF (marker)							
Coef	0.82		0.25	0.03	-0.40	-0.91	0.24
t-Statistic	4.94		4.44	0.38	-4.84	-7.83	
SMB							
Coef t-Statistic	0.39 3.23	0.13 4.44		0.05 0.81	-0.48 -8.43	-0.17 -1.92	0.17
			cally signifi		-0.43	-1.92	
HIVIL			J -	Conc			
Coef t-Statistic	-0.04 -0.47	0.01 0.38	0.02		0.23 5.36	1.04 23.03	0.51
t-Statistic	-0.47	0.36	0.81		3.36	23.03	
RMW							
Coef t-Statistic	0.43 5.45	- 0.09 - 4.84	-0.22 -8.43	0.20 5.36		-0.44 -7.84	0.21
	5.45	-4.04	-0.45	3.30		-7.04	
CMA					0.04		
Coef t-Statistic	0.28 5.03	-0.10 -7.83	-0.04 -1.92	0.45 23.03	-0.21 -7.84		0.57
2 × 2 Factors	5.05	7,000		23.03	7.0		
2 × 2 ractors							
$R_M - R_F$	0.70		0.00		0.40	4.00	0.05
Coef t-Statistic	0.78 4.80		0.28 5.09	-0.00 -0.02	-0.43 -3.71	-1.30 -8.12	0.25
	4.00		5.05	-0.02	-3.71	-0.12	
SMB Coef	0.20	0.15		-0.03	-0.63	0.10	0.17
Coer t-Statistic	0.38 3.10	0.15 5.09		-0.03 -0.36	-0.63 -7.60	-0.18 -1.42	0.17
	3.10	5.03		5.30	7.00		
HML Cf	0.00	0.00	0.04		0.05	4.00	0.53
Coef t-Statistic	0.00	- 0.00 - 0.02	-0.01 -0.36		0.25 5.66	1.08 23.13	0.53
	2.01	2.02	-130		3.00		
RMW Coef	0.30	-0.05	-0.14	0.21		-0.51	0.21
t-Statistic	5.22	-3.71	-0.14 -7.60	5.66		-0.51 -9.29	0.21
	3.22			5.00			
CMA Coef	0.19	-0.08	-0.02	0.43	-0.25		0.60
t-Statistic	4.72	-0.08 -8.12	-0.02 -1.42	23.13	-0.25 -9.29		0.00

Table 7: Regression Details for Size-BM Portfolios

$B/M \rightarrow$	Low	2	3	4	High	Low	2	3	4	High
Panel A: Th	ree-factor inter	cepts: R _M – R _F		ИL						
	problem	1	a					t(a)		
Small	-0,49	0.00	0.02	0.16	0.14	-5.18	0.07	0.40	2.88	2.3
2	-0.17	-0.04	0.12	0.07	-0.02	-2.75	-0.80	2.24	1.40	-0.3
3	-0.06	0.06	0.02	0.06	0.12	-0.98	0.92	0.33	0.96	1.6
4	0.14	-0.10	-0.04	0.07	-0.08	2.24	-1.46	-0.55	1.05	-0.9
Big	0.17	0.02	-0.07	-0.11	-0.18	3.53	0.40	-0.95	-1.86	-1.9
Panel A: Fit	0.17 e-factor coeffic	tients: $R_M - R_F$	SMB, HMLO,	RMW, and CN	IA.			400		
morre	<u> </u>		а					t(a)		
Small	(-0.29)	0.11	0.01	0.12	0.12	-3.31	1.61	0.17	2.12	1.9
2	-0.11	-0.10	0.05	-0.00	-0.04	-1.73	-1.88	0.95	-0.04	-0.6
3	0.02	-0.01	-0.07	-0.02	0.05	0.40	-0.10	-1.06	-0.25	0.0
4	0.18	-0.23	-0.13	0.05	-0.09	2.73	-3.29	-1.81	0.73	-1.0
Big	0.12	-0.11	-0.10	-0.15	-0.09	2.50	-1.82	-1.39	-2.33	-0.9
			h					t(h)		
Small	-0.43	-0.14	0.10	0.27	0.52	-10.11	-4.38	3.90	10.12	17.5
2	-0.46	-0.01	0.29	0.43	0.69	-15.22	-0.45	11.77	16.78	24.4
3	-0.43	0.12	0.37	0.52	0.67	-14.70	3.71	12.28	17.07	18.
4	-0.46	0.09	0.38	0.52	0.80	-15.18	2.76	11.03	15.88	20.3
Big	-0.31	0.03	0.26	0.62	0.85	-14.12	1.09	7.54	21.05	18.
			r					t(r)		
Small	-0.58	-0.34	0.01	0.11	0.12	-13.26	-10.56	0.31	3.89	3.9
2	-0.21	0.13	0.27	0.26	0.21	-6.75	4.89	10.35	9.86	7.0
3	-0.21	0.22	0.33	0.28	0.33	-6.99	6.77	10.36	8.98	8.8
4	-0.19	0.27	0.28	0.14	0.25	-6.06	7.75	7.99	4.16	6.1
Big	0.13	0.25	0.07	0.23	0.02	5.64	8.79	2.07	7.62	0.4
			c					t(c)		
Small	-0.57	-0.12	0.19	0.39	0.62	-12.27	-3.46	6.59	13.15	19.1
2	-0.59	0.06	0.31	0.55	0.72	-17.76	1.94	11.27	19.39	22.9
3	-0.67	0.13	0.42	0.64	0.78	-20.59	3.64	12.52	18.97	19.0
4	-0.51	0.31	0.51	0.60	0.79	-15.11	8.33	13.35	16,41	18.0
Big	-0.39	0.26	0.41	0.66	0.73	-16.08	8.38	10.80	19.88	14.5

Table 9: Regression Details for Size-OP Portfolios

$OP \rightarrow$	Low	2	3	4	High	Low	2	3	4	1
Panel A: 1	hree-factor in	ercepts: R _M -1	R _F , SMB, and H	ML						
	_		а					t(a)		
Small	-0.30	0.10	0.05	0.09	-0.02	-3.25	1.54	0.85	1.30	
2	-0.24	-0.03	0.05	0.04	0.16	-3.16	-0.55	0.94	0.58	
3	-0.21	0.07	0.01	0.05	0.20	-2.27	1.04	0.14	0.79	
4	-0.11	-0.02	- 0.05	0.06	0.18	-1.15	-0.24	-0.73	0.96	
Big	-0.17	-0.20	- 0.03	0.05	0.22	-1.90	-2.94	-0.58	1.20	
Panel B:	ive-factor coef	ficients: R _M -F		RMW, and CN	4A			400		
	\		а					t(a)		
Small	V-0.10	0.04	-0.05	-0.05	-0.15	-1.28	0.64	-0.80	-0.80	-
2	-0.05	-0.11	-0.03	-0.11	0.00	-0.83	-1.86	-0.64	-1.92	
3	0.08	0.04	-0.06	-0.07	0.03	1.15	0.67	-1.05	-1.23	
4	0.16	0.02	-0.12	-0.09	0.05	1.91	0.26	-1.97	-1.52	
Big	0.14	-0.11	-0.03	0.02	80.0	2.08	-1.67	-0.57	0.42	
			h					t(h)		
Small	-0.14	0.24	0.26	0.28	0.21	-3.82	8.05	9.32	9.31	
2	-0.12	0.17	0.23	0.18	0.15	-3.96	5.84	9.51	6,38	
3	0.00	0.14	0.21	0.19	0.09	0.11	4.36	7.68	6.74	
4	0.03	0.15	0.21	0.10	0.02	0.72	4.80	7.19	3.60	
Big	0.22	0.16	0.04	-0.00	-0.13	6.70	5.33	1.42	-0.19	-
			r					t(r)		
Small	-0.67	0.21	0.30	0.47	0.45	-17.70	6.98	10.59	15.08	
2	-0.60	0.21	0.29	0.45	0.55	-19.94	6.90	11.32	15.76	
3	-0.76	0.03	0.24	0.38	0.57	-21.06	0.93	8.33	13.12	
4	-0.75	-0.15	0.23	0.39	0.37	-18.94	-4.54	7.49	12.95	
Big	-0.71	-0.26	- 0.08	0.12	0.35	-21.05	-8.41	-2.82	5.66	
			с					t(c)		
Small	-0.06	0.25	0.34	0.31	0.14	-1.42	7.58	10.89	9.08	_
2	-0.09	0.29	0.26	0.23	0.05	-2.65	8.94	9.52	7.44	
3	-0.17	0.26	0.24	0.23	0.02	-4.41	7.31	7.89	7.49	
4	-0.02	0.30	0.30	0.26	0.02	-0.41	8.56	9.08	8.12	
Big	-0.03	0.23	0.19	-0.04	-0.12	-0.83	6.82	6.16	-1.82	-



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