

Is Liquidity the Missing Link?
Supplementary Information Section

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Key words: Asset Pricing; Three-Factor Model; Liquidity.

Table A: Australian Three-Factor Model with LIQV (M6) Regressions

$$R_{p,t} - R_{f,t} = a_p + b_p(R_{m,t} - R_{f,t}) + s_pSMB_t + h_pHML_t + l_pLIQV_t + j_pJAN_t + k_pJULY_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the Australian three-factor model with LIQV regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
a										
Small	-0.0452	-1.7996	-1.5214	-1.9844	-1.7471	0.9408	0.0006 **	0.0060 **	0.0000 **	0.0000 **
2	-0.5427	-0.5682	-0.7693	-1.3753	-1.3218	0.0034 **	0.0215 *	0.0057 **	0.0000 **	0.0000 **
3	0.0143	-0.2493	-0.5481	-0.9579	-1.2413	0.9323	0.0659 **	0.0019 **	0.0001 **	0.0000 **
4	0.2806	0.0862	-0.0553	-0.5751	-1.1573	0.0077 **	0.3488	0.6737	0.0001 **	0.0000 **
Big	0.3472	0.0784	-0.0670	-0.3209	-0.9640	0.0000 **	0.2860	0.2743	0.0024 **	0.0000 **
p(a)										
Small	0.4050	0.9974	1.0859	1.4564	1.3821	0.4733	0.0059 **	0.0065 **	0.0003 **	0.0000 **
2	0.8478	0.9055	0.8576	1.3645	1.4155	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	0.6473	0.7229	0.9692	1.3102	1.4817	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	0.4988	0.6092	0.7874	1.1377	1.5033	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
Big	0.6739	0.8141	0.8667	1.0833	1.3315	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
b										
Small	0.4287	0.7680	1.1256	1.2757	1.3687	0.0604	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	0.4006	0.5752	0.6853	0.9964	1.0676	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	0.1264	0.2832	0.4222	0.7152	0.8789	0.0843	0.0003 **	0.0000 **	0.0000 **	0.0000 **
4	0.1015	0.1561	0.0835	0.3504	0.5794	0.0271 *	0.0006 **	0.1164	0.0000 **	0.0000 **
Big	-0.0245	-0.0125	-0.0266	0.0281	0.2332	0.5244	0.7202	0.5484	0.5913	0.0184 *
p(s)										
Small	-0.3628	0.3090	-0.0262	-0.2086	-0.1963	0.3279	0.2177	0.9081	0.4272	0.3158
2	0.0755	-0.0364	-0.0562	-0.1341	-0.2596	0.5754	0.7962	0.7174	0.4549	0.1653
3	0.0944	0.0569	0.0705	-0.1968	-0.1430	0.3700	0.5321	0.5628	0.1633	0.3223
4	0.0497	0.0327	0.0023	-0.0054	-0.0140	0.3679	0.5979	0.9778	0.9543	0.9235
Big	-0.0562	0.0421	0.0795	0.1080	0.1804	0.1514	0.3118	0.0921	0.1494	0.1074
p(h)										
Small	0.5810	0.7169	0.3315	0.4475	0.1708	0.1664	0.0138	0.4684	0.2159	0.5390
2	0.2101	0.1031	0.2631	0.1142	0.0587	0.1417	0.6381	0.1895	0.6102	0.7661
3	0.1141	0.1742	0.0670	0.0954	-0.0245	0.4246	0.1789	0.6216	0.6625	0.8968
4	0.0644	0.1097	0.1763	0.0676	0.0514	0.4891	0.1414	0.0455	0.5166	0.8336
Big	0.0609	0.0775	0.1416	0.0950	0.1908	0.3131	0.1885	0.0594	0.2563	0.2456
p(l)										
Small	0.0071	0.0255	0.0237	0.0576	0.0723	0.9048	0.6354	0.6167	0.1823	0.2331
2	-0.0199	0.0267	-0.0181	0.0172	0.0331	0.3380	0.3847	0.7278	0.6087	0.3407
3	-0.0139	-0.0224	0.0005	0.0013	0.0299	0.4301	0.2821	0.9821	0.9750	0.4222
4	-0.0035	-0.0100	0.0029	0.0049	0.0230	0.7918	0.3587	0.8317	0.8144	0.4178
Big	-0.0008	0.0027	0.0068	-0.0042	0.0061	0.8967	0.8093	0.8006	0.7894	0.7453
p(j)										
Small	0.0150	0.0573	-0.0090	0.0256	0.0203	0.8542	0.1883	0.8665	0.5818	0.6433
2	-0.0123	0.0311	0.0139	0.0135	0.0149	0.5902	0.2262	0.6754	0.6308	0.7644
3	0.0077	-0.0025	-0.0052	-0.0089	0.0147	0.7028	0.8872	0.7951	0.8283	0.7632
4	0.0013	0.0054	0.0174	0.0022	-0.0193	0.8977	0.7356	0.1316	0.9163	0.4290
Big	0.0072	0.0049	0.0041	-0.0063	-0.0145	0.2673	0.5821	0.7129	0.7985	0.4125
p(k)										
Panel B: GRS			Panel C: AIC & SBC			Panel D: Adjusted R-squared				
			AIC	SBC						
System 1	6.6693 **		-19.3539	-19.3462	0.2465	0.5292	0.5412	0.6422	0.6751	
System 2	5.4212 **		-18.5594	-18.5517	0.5233	0.5765	0.5830	0.7368	0.6817	
System 3	4.4932 **		-17.6461	-17.6384	0.4264	0.5436	0.5781	0.6096	0.6687	
System 4	7.1323 **		-16.2537	-16.2460	0.4753	0.5766	0.5977	0.6385	0.6141	
System 5	10.0927 **		-14.7792	-14.7715	0.6707	0.7298	0.7125	0.6745	0.6339	

Table B: Australian Three-Factor Model with LIQD (M6) Regressions

$$R_{p,t} - R_{f,t} = a_p + b_p(R_{m,t} - R_{f,t}) + s_pSMB_t + h_pHML_t + l_pLIQD_t + j_pJAN_t + k_pJULY_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the Australian three-factor model with LIQD regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
a										
Small	0.0067	-1.7790	-1.6512	-1.7735	-1.4733	0.9913	0.0023 **	0.0024 **	0.0004 **	0.0000 **
2	-0.5631	-0.5815	-0.7418	-1.2973	-1.0320	0.0064 **	0.0198 *	0.0175 *	0.0001 **	0.0016 **
3	0.0493	-0.1404	-0.3737	-0.9546	-0.9303	0.7894	0.3696	0.0397	0.0015 **	0.0017 **
4	0.2920	0.1343	-0.0722	-0.3481	-0.8096	0.0047 **	0.1691	0.6038	0.0454 *	0.0045 **
Big	0.3302	0.1145	-0.0591	-0.2808	-0.7475	0.0001 **	0.1803	0.5155	0.0127 *	0.0000 **
p(a)										
b										
Small	0.6691	1.3400	1.2905	1.5922	1.3704	0.1799	0.0003 **	0.0019 **	0.0000 **	0.0000 **
2	0.9540	0.9645	0.9798	1.3912	1.3423	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	0.6893	0.7646	0.9453	1.3570	1.3645	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	0.5260	0.6451	0.8781	1.0910	1.4070	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
Big	0.7111	0.8383	0.9346	1.1166	1.3476	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
p(b)										
s										
Small	0.6217	0.9965	1.1906	1.4727	1.5047	0.0025 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	0.4586	0.6050	0.7805	1.0554	1.1720	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	0.1730	0.3692	0.4982	0.7507	0.9655	0.0069 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	0.1245	0.2056	0.1295	0.4379	0.6995	0.0004 **	0.0000 **	0.0091 **	0.0000 **	0.0000 **
Big	-0.0095	0.0231	0.0235	0.0703	0.3560	0.7638	0.4144	0.5370	0.1404	0.0000 **
p(s)										
h										
Small	-0.3497	0.3108	-0.0244	-0.1844	-0.1647	0.3689	0.1992	0.9187	0.4798	0.4090
2	0.0802	-0.0407	-0.0392	-0.1276	-0.2302	0.5467	0.7724	0.8004	0.4766	0.1660
3	0.1020	0.0733	0.0905	-0.1941	-0.1122	0.3241	0.4347	0.3885	0.1779	0.4068
4	0.0502	0.0410	0.0052	0.0155	0.0197	0.3643	0.5563	0.9512	0.8643	0.8924
Big	-0.0572	0.0468	0.0876	0.1132	0.2041	0.1538	0.2570	0.0568	0.1308	0.0631
p(h)										
l										
Small	0.0636	0.1279	0.1888	-0.1129	-0.2510	0.8603	0.6475	0.3785	0.6845	0.1396
2	0.0625	0.0322	0.0037	-0.0535	-0.2840	0.5842	0.7838	0.9785	0.6767	0.0242 *
3	-0.0156	-0.0750	-0.1746	0.0078	-0.3280	0.8607	0.3197	0.0738	0.9619	0.0132 **
4	0.0029	-0.0302	0.0544	-0.2151	-0.3449	0.9571	0.5843	0.3457	0.0093 **	0.0066 **
Big	0.0267	-0.0217	0.0089	-0.0243	-0.1818	0.4919	0.5865	0.8739	0.6741	0.0272 *
p(l)										
j										
Small	-0.0011	0.0186	0.0286	0.0407	0.0520	0.9862	0.7628	0.5295	0.4119	0.4362
2	-0.0202	0.0266	-0.0237	0.0113	0.0131	0.3452	0.3959	0.6422	0.7391	0.7360
3	-0.0174	-0.0311	-0.0127	-0.0003	0.0086	0.3000	0.1434	0.5434	0.9941	0.8312
4	-0.0046	-0.0144	0.0029	-0.0107	-0.0010	0.7209	0.2181	0.8372	0.6088	0.9669
Big	-0.0004	-0.0004	0.0043	-0.0079	-0.0101	0.9551	0.9760	0.8850	0.6468	0.5878
p(j)										
k										
Small	0.0083	0.0498	-0.0096	0.0170	0.0124	0.9272	0.2277	0.8384	0.6995	0.7811
2	-0.0139	0.0303	0.0101	0.0107	0.0079	0.5457	0.1932	0.7541	0.7169	0.8636
3	0.0056	-0.0066	-0.0100	-0.0104	0.0079	0.7788	0.6782	0.6183	0.7989	0.8625
4	0.0005	0.0032	0.0163	-0.0034	-0.0275	0.9690	0.8096	0.1491	0.8756	0.2298
Big	0.0068	0.0032	0.0022	-0.0082	-0.0211	0.2950	0.6610	0.8380	0.7455	0.2729
p(k)										
Panel B: GRS		Panel C: AIC & SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	4.8055 **	-19.2897	-19.2820	0.2200	0.5064	0.5398	0.6358	0.6803		
System 2	3.9826 **	-18.4842	-18.4765	0.5154	0.5754	0.5745	0.7363	0.6947		
System 3	2.5577 *	-17.6376	-17.6299	0.4195	0.5378	0.5947	0.6085	0.6917		
System 4	4.5196 **	-16.3193	-16.3116	0.4712	0.5689	0.5843	0.6655	0.6493		
System 5	5.7041 **	-14.8709	-14.8632	0.6695	0.7253	0.6988	0.6710	0.6433		

Table C: US Three-Factor Model with LIQV (M6) Regressions

$$R_{p,t} - R_{f,t} = a_p + b_{pus}(USR_{m,t} - USR_{f,t}) + s_{pus}USSMB_t + h_{pus}USHML_t + l_pLIQV_t + j_pJAN_t + k_pJULY_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the US three-factor model with LIQV regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
a					p(a)					
Small	-0.0596	-1.4015	-0.6146	-1.1908	-1.2441	0.9509	0.2427	0.6210	0.4360	0.2905
2	-0.4034	-0.7545	-0.4529	-0.9617	-0.7122	0.2917	0.0605	0.3889	0.3172	0.5011
3	0.0486	-0.2167	-0.2860	-0.9268	-0.6898	0.9052	0.6513	0.4575	0.2853	0.4202
4	0.1191	0.0382	0.0192	-0.4689	-0.8405	0.4722	0.8757	0.9426	0.3159	0.2437
Big	0.4687	-0.0843	0.0115	-0.1475	-0.6983	0.0083 **	0.7213	0.9548	0.6166	0.1803
b					p(b)					
Small	-0.0537	0.3874	0.0273	0.0224	0.0002	0.8875	0.3439	0.9365	0.9634	0.9996
2	0.0613	0.2244	0.0212	0.2456	0.1535	0.7361	0.2306	0.9184	0.4473	0.6239
3	0.3944	0.2364	0.1983	0.2745	0.3522	0.3161	0.1445	0.2656	0.3720	0.2160
4	0.1893	0.2486	0.2447	0.3425	0.3593	0.0041 **	0.0079 **	0.0300 *	0.0507	0.1822
Big	0.2227	0.4421	0.3476	0.3648	0.4487	0.0004 **	0.0000 **	0.0000 **	0.0039 **	0.0316 *
s					p(s)					
Small	0.3213	0.2962	0.1169	0.4213	0.3666	0.5077	0.5851	0.8279	0.4925	0.4796
2	0.1211	0.4939	0.3743	0.3981	0.4709	0.0792	0.0371 *	0.1487	0.3867	0.3043
3	0.1814	0.2598	0.3651	0.4445	0.3132	0.3491	0.1547	0.0784	0.2954	0.3623
4	0.2158	0.2067	0.2348	0.3942	0.5758	0.0144 *	0.0881	0.0963	0.0781	0.0343 *
Big	0.0593	0.2259	0.2158	0.2920	0.4249	0.5328	0.0164 *	0.0939	0.0479	0.0549
h					p(h)					
Small	-0.2566	-0.0057	-0.3110	-0.3480	-0.0478	0.5429	0.9918	0.5829	0.5796	0.9255
2	0.1211	0.1650	-0.1291	-0.1179	-0.3627	0.4633	0.3791	0.6092	0.7893	0.3902
3	0.2000	0.1119	0.0060	0.1135	-0.1624	0.3353	0.6357	0.9756	0.7988	0.6682
4	0.1953	0.1325	0.1050	0.0916	-0.0328	0.0119 *	0.2018	0.4188	0.6623	0.9122
Big	0.0687	0.2482	0.1609	0.1733	0.1364	0.4561	0.0369 *	0.1472	0.2543	0.5825
l					p(l)					
Small	1.0552	1.7166	1.7784	2.0826	1.9055	0.0004 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	0.8178	0.8502	1.1673	1.4014	1.4108	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	0.3759	0.5956	0.6965	1.0588	1.1374	0.0025 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	0.2412	0.3666	0.3882	0.6137	0.8991	0.0004 **	0.0000 **	0.0001 **	0.0000 **	0.0000 **
Big	0.1263	0.1645	0.2552	0.3074	0.6575	0.0351 *	0.0281 *	0.0004 **	0.0026 **	0.0000 **
j					p(j)					
Small	0.0242	0.0690	0.0891	0.1254	0.1406	0.6979	0.1992	0.1753	0.0060 **	0.0240 *
2	-0.0027	0.0486	0.0162	0.0674	0.0881	0.9103	0.0995	0.8203	0.2332	0.0098 **
3	-0.0097	-0.0103	0.0211	0.0309	0.0760	0.6527	0.5733	0.4041	0.6188	0.0712
4	-0.0025	-0.0049	0.0045	0.0191	0.0495	0.8646	0.6962	0.8065	0.5347	0.1476
Big	-0.0030	-0.0026	0.0035	-0.0048	0.0166	0.7400	0.7982	0.8774	0.7819	0.5335
k					p(k)					
Small	0.0486	0.1205	0.0720	0.1212	0.1177	0.5632	0.0008 **	0.1516	0.0019 **	0.0042 **
2	0.0219	0.0787	0.0674	0.0905	0.0987	0.5807	0.0022 **	0.0396 *	0.0063 **	0.0904
3	0.0205	0.0232	0.0326	0.0477	0.0845	0.3972	0.2527	0.1100	0.2258	0.0851
4	0.0130	0.0214	0.0296	0.0361	0.0349	0.4436	0.2446	0.1167	0.0680	0.1564
Big	0.0095	0.0113	0.0098	0.0051	0.0147	0.5039	0.4700	0.7023	0.8359	0.4968
Panel B: GRS		Panel C: AIC & SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	1.9259	-18.0799	-18.0722		0.2048	0.4147	0.3415	0.4361	0.4083	
System 2	0.7474	-17.0535	-17.0458		0.3361	0.3952	0.3986	0.4509	0.4290	
System 3	0.1591	-16.0256	-16.0179		0.2314	0.3642	0.3389	0.3423	0.3909	
System 4	0.2509	-14.5631	-14.5554		0.3129	0.3789	0.3253	0.3706	0.3715	
System 5	0.5738	-13.5884	-13.5807		0.1893	0.3806	0.2807	0.2396	0.3591	

Table D: US Three-Factor Model with LIQD (M6) Regressions

$$R_{p,t} - R_{f,t} = a_p + b_{pus}(USR_{m,t} - USR_{f,t}) + s_{pus}USSMB_t + h_{pus}USHML_t + l_pLIQD_t + j_pJAN_t + k_pJULY_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banks and finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the US three-factor model with LIQD regression's coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, the AIC and SBC test statistics in Panel C, the adjusted R^2 in Panel D. * indicates significance at 5% level and ** indicates significance at 1% level.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
	a					p(a)				
Small	0.1135	-1.1961	-0.6023	-0.8538	-0.9692	0.9183	0.3233	0.6419	0.6327	0.4072
2	-0.2441	-0.6312	-0.3419	-0.7812	-0.4489	0.5313	0.1261	0.5970	0.4833	0.6644
3	0.2087	-0.0103	-0.0739	-0.7545	-0.3987	0.6237	0.9846	0.8834	0.4647	0.6645
4	0.2090	0.1765	0.1066	-0.1660	-0.4674	0.2609	0.4790	0.7369	0.7508	0.5120
Big	0.5776	0.0763	0.1343	0.0518	-0.3795	0.0023 **	0.7339	0.5736	0.8531	0.4342
	b					p(b)				
Small	0.2563	0.8992	0.5952	0.6468	0.5943	0.5594	0.0243 *	0.1082	0.2580	0.1783
2	0.3019	0.4782	0.3893	0.6724	0.5883	0.0968	0.0195 *	0.1317	0.0892	0.0954
3	0.2930	0.4047	0.4102	0.5952	0.7020	0.1007	0.0460 *	0.0676	0.0975	0.0303 *
4	0.2907	0.3520	0.3678	0.5138	0.6225	0.0009 **	0.0006 **	0.0032 **	0.0154 *	0.0308 *
Big	0.3066	0.4811	0.4267	0.4483	0.6368	0.0002 **	0.0000 **	0.0000 **	0.0003 **	0.0013 **
	s					p(s)				
Small	0.4900	0.5795	0.4305	0.7926	0.7431	0.3322	0.2544	0.5010	0.2549	0.1629
2	0.5312	0.6371	0.5897	0.6569	0.7479	0.0454	0.0065 **	0.0558	0.1974	0.0873
3	0.2464	0.3610	0.5042	0.6435	0.5487	0.2232	0.0474 *	0.0502	0.1704	0.1489
4	0.2575	0.2702	0.3176	0.5112	0.7584	0.0066 **	0.0239 *	0.0398 *	0.0183 *	0.0072 **
Big	0.0833	0.2557	0.2773	0.3547	0.5566	0.3720	0.0051 **	0.0299 *	0.0115 *	0.0217 *
	h					p(h)				
Small	-0.1923	0.0912	-0.1981	-0.1634	0.1898	0.6760	0.8783	0.7182	0.8124	0.7122
2	0.1857	0.2239	-0.0209	0.0097	-0.1767	0.3264	0.2552	0.9460	0.9829	0.6775
3	0.2501	0.1783	0.1183	0.2206	0.0230	0.2180	0.4955	0.5499	0.6398	0.9538
4	0.2255	0.1786	0.1704	0.2015	0.1390	0.0087 **	0.1378	0.2434	0.3482	0.6416
Big	0.1008	0.2910	0.2301	0.2439	0.2672	0.2819	0.0074 **	0.0681	0.0761	0.2642
	l					p(l)				
Small	0.3493	0.6339	0.7826	0.5891	0.4469	0.3146	0.0204 *	0.0093 **	0.1033	0.1309
2	0.2262	0.2795	0.3762	0.4227	0.2699	0.0763	0.0231 *	0.0520	0.0242 *	0.2008
3	0.0047	0.0636	0.0343	0.2727	0.0959	0.9577	0.4401	0.7897	0.1537	0.6333
4	0.0159	0.0222	0.0364	-0.0723	-0.0706	0.7651	0.7213	0.6813	0.4669	0.7080
Big	-0.0653	-0.1007	-0.0699	-0.0990	-0.0951	0.3107	0.0716	0.2952	0.1771	0.3256
	j					p(j)				
Small	0.0372	0.0935	0.1204	0.1442	0.1513	0.6115	0.1400	0.1818	0.0188 *	0.0866
2	0.0047	0.0587	0.0290	0.0812	0.0928	0.8548	0.0667	0.7331	0.2300	0.0461 *
3	-0.0117	-0.0104	0.0181	0.0388	0.0727	0.5792	0.6095	0.5743	0.5307	0.1841
4	-0.0031	-0.0060	0.0035	0.0110	0.0391	0.8388	0.6862	0.8968	0.7623	0.3518
Big	-0.0073	-0.0091	-0.0025	-0.0124	0.0067	0.4612	0.4008	0.9228	0.5282	0.8449
	k					p(k)				
Small	0.0741	0.1621	0.1152	0.1720	0.1644	0.3786	0.0001 **	0.1133	0.0012 **	0.0014 **
2	0.0417	0.0993	0.0959	0.1247	0.1334	0.2389	0.0000 **	0.0122 *	0.0012 **	0.0300 *
3	0.0297	0.0377	0.0498	0.0736	0.1126	0.2933	0.0843	0.0378 *	0.0671	0.0226 *
4	0.0188	0.0303	0.0392	0.0512	0.0571	0.1521	0.1368	0.0637	0.0193 **	0.0469 *
Big	0.0126	0.0154	0.0162	0.0127	0.0310	0.3733	0.3350	0.4763	0.6069	0.2528
Panel B: GRS		Panel C: AIC & SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	2.3750 *	-17.6884	-17.6807	0.0659	0.2021	0.1474	0.1705	0.1542		
System 2	0.6909	-16.6342	-16.6265	0.1007	0.2294	0.1513	0.2052	0.1953		
System 3	0.2421	-15.6839	-15.6762	0.0911	0.1328	0.1303	0.1350	0.1831		
System 4	0.2855	-14.2338	-14.2261	0.1949	0.1954	0.1736	0.1982	0.1890		
System 5	0.3046	-13.2027	-13.1951	0.1703	0.3641	0.2103	0.1749	0.1972		

Table E: US Three-Factor Model with LIQT (M6) Regressions – Out-Of-Sample Test

$$R_{p,t} - R_{f,t} = a_p + b_{pus}(USR_{m,t} - USR_{f,t}) + s_{pus}USSMB_t + h_{pus}USHML_t + l_pLIQT_t + d_pD_t + db_{pus}(USR_{m,t} - USR_{f,t}) + ds_{pus}USSMB_t + dh_{pus}USHML_t + dl_pLIQT_t + e_{p,t}$$

At the end of December each year from 1990-2004, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banks and finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the US three-factor model with LIQT regression's coefficient estimates as well as dummy variables taking the value of 1 if the data is after December 2001 (the end-point of the analysis presented in Durand, Limkriangkrai and Smith (2006a) and their p -values in Panel A, the GRS test statistics in Panel B, the AIC and SBC test statistics in Panel C, the adjusted R^2 in Panel D. * indicates significance at 5% level and ** indicates significance at 1% level.

Size/Beta	Low	2	3	4	High	Low	2	3	4	High
	a					p(a)				
Small	1.3496	1.2989	2.0942	1.8296	1.7248	0.1107	0.1158	0.0009 **	0.0357 *	0.0175 *
2	0.7318	0.1576	1.3591	1.1527	1.5955	0.0117 *	0.4237	0.0001 **	0.0253 *	0.0096 **
3	0.5931	0.7097	0.7584	0.7090	1.3173	0.1064	0.0768	0.0310 *	0.2259	0.0018 **
4	0.4572	0.5998	0.4744	0.4225	0.4299	0.0093 **	0.0031 **	0.0374 *	0.2023	0.4155
Big	0.6240	0.6399	0.2930	0.2332	0.2136	0.0002 **	0.0624	0.1605	0.3070	0.6599
	b					p(b)				
Small	0.0264	0.4083	0.0527	0.0838	0.0130	0.9414	0.2510	0.8436	0.8040	0.9611
2	0.1137	0.4516	0.0493	0.2797	0.1456	0.4792	0.0000 **	0.7763	0.2033	0.4971
3	0.2133	0.2552	0.2209	0.3001	0.3154	0.1429	0.0715	0.1381	0.2224	0.1035
4	0.2394	0.2633	0.2930	0.3682	0.4030	0.0051 **	0.0008 **	0.0055 **	0.0170 *	0.0569
Big	0.2901	0.2197	0.3804	0.3978	0.4935	0.0001 **	0.2602	0.0000 **	0.0001 **	0.0074 **
	s					p(s)				
Small	0.2699	0.1181	0.0308	0.3522	0.2491	0.6173	0.7586	0.9238	0.3350	0.4715
2	0.3431	0.2045	0.2577	0.3191	0.3370	0.0873	0.0179 *	0.2314	0.2363	0.2075
3	0.1410	0.1822	0.3191	0.3742	0.1654	0.4153	0.2328	0.0734	0.0872	0.4212
4	0.1954	0.1572	0.2235	0.3620	0.5476	0.0376 *	0.1491	0.1029	0.0193 *	0.0189 *
Big	0.0518	0.3950	0.2184	0.2881	0.3858	0.5593	0.0785	0.0613	0.0188 *	0.0859
	h					p(h)				
Small	-0.1743	0.1104	-0.1134	-0.0580	0.2122	0.6537	0.7808	0.7281	0.8798	0.6113
2	0.1690	0.2518	-0.0469	0.0699	-0.2029	0.2164	0.0027 **	0.7986	0.7731	0.4644
3	0.2163	0.1142	0.0756	0.2187	-0.0411	0.2214	0.5351	0.6257	0.4968	0.8482
4	0.2117	0.1377	0.1568	0.1705	0.1046	0.0246 *	0.1049	0.1532	0.2728	0.6440
Big	0.0814	0.2362	0.1936	0.2075	0.2086	0.3169	0.2253	0.0289 *	0.0311 *	0.3696
	l					p(l)				
Small	-0.4618	-0.9420	-1.0757	-1.2231	-1.2249	0.0015 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	-0.3674	-0.0684	-0.6419	-0.8610	-0.9204	0.0000 **	0.0219 **	0.0000 **	0.0000 **	0.0000 **
3	-0.1687	-0.2752	-0.3968	-0.6443	-0.8142	0.0001 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	-0.1098	-0.1651	-0.1531	-0.3522	-0.5275	0.0005 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
Big	-0.0485	-0.5112	-0.0929	-0.1376	-0.3342	0.0811	0.0000 **	0.0111 *	0.0001 **	0.0000 **

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d						p(d)				
Small	-1.5756	-3.3335	-2.0356	-1.4975	-3.0826	0.8293	0.2847	0.6425	0.7121	0.2375
2	-1.0364	0.4496	-0.4077	-1.3784	-2.0598	0.6022	0.7919	0.8432	0.5861	0.4725
3	-0.1158	-1.5967	-0.0833	-1.2031	-1.1240	0.9641	0.4857	0.9736	0.7366	0.6129
4	-0.0555	-0.8059	-0.4491	-0.1197	0.0163	0.9778	0.5452	0.8059	0.9552	0.9966
Big	-0.0263	-2.2001	0.6940	0.6051	-0.1522	0.9875	0.1776	0.6606	0.8353	0.9534
db						p(db)				
Small	0.3857	0.3150	-0.1352	0.3527	0.6813	0.8526	0.7620	0.8965	0.8346	0.4539
2	0.4943	-0.0866	-0.0345	0.1764	0.2892	0.5727	0.8086	0.9709	0.7907	0.7769
3	-0.0054	0.2068	-0.0500	0.3356	0.1211	0.9942	0.7143	0.9556	0.7015	0.9068
4	0.1324	0.1285	-0.0384	0.0805	0.0856	0.8285	0.7792	0.9368	0.9025	0.9400
Big	-0.1050	0.5731	-0.0721	0.1321	0.4112	0.8087	0.2688	0.9423	0.8585	0.5653
ds						p(ds)				
Small	-0.0349	1.0940	0.7238	0.1241	0.8231	0.9881	0.4336	0.7125	0.9582	0.5533
2	-0.4618	-0.3117	-0.1107	0.2836	0.4725	0.6767	0.4532	0.9158	0.8697	0.7365
3	-0.1630	-0.1762	-0.1800	-0.2054	0.5135	0.8772	0.8137	0.8163	0.9226	0.5412
4	-0.0981	0.0463	-0.0262	-0.4334	-0.1791	0.6918	0.9040	0.9676	0.6638	0.8766
Big	-0.1834	-0.0564	-0.2744	-0.4653	-0.5137	0.7723	0.9467	0.7989	0.7408	0.5307
dh						p(dh)				
Small	0.4499	0.9594	0.6561	0.3369	0.7328	0.9285	0.5926	0.8215	0.9153	0.6943
2	0.5320	0.0446	0.3944	0.4137	0.5308	0.6462	0.9345	0.7890	0.8522	0.6091
3	0.4241	1.0371	0.5399	0.6237	0.0151	0.6885	0.4497	0.4295	0.6871	0.9896
4	0.2680	0.3198	0.2736	0.4285	-0.1254	0.6539	0.5674	0.6857	0.6839	0.8945
Big	0.5956	0.9367	0.1422	0.1020	-0.2623	0.3603	0.4642	0.8888	0.9312	0.7613
dl						p(dl)				
Small	0.8024	1.0085	0.8272	0.7371	0.8940	0.8042	0.5909	0.6737	0.8134	0.7057
2	0.4920	-0.0836	0.2004	0.5685	0.8136	0.6870	0.9357	0.8707	0.5388	0.6847
3	-0.1090	0.5532	-0.1936	0.5020	0.5347	0.9216	0.5659	0.9043	0.8274	0.6997
4	-0.2342	0.3299	0.2524	0.0823	0.2434	0.7839	0.6116	0.8329	0.9495	0.9289
Big	-0.2618	0.7781	-0.4693	-0.3522	0.5581	0.7474	0.3621	0.6794	0.8071	0.7341
Panel B: GRS		Panel C: AIC & SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	0.0904	-22.5456	-22.5423		0.1591	0.4663	0.5679	0.6204	0.6350	
System 2	0.5754	-21.6430	-21.6397		0.3310	0.3499	0.5045	0.6566	0.6580	
System 3	0.0999	-21.1486	-21.1453		0.2240	0.3733	0.4335	0.5462	0.6696	
System 4	0.1565	-19.7078	-19.7045		0.2877	0.3454	0.2294	0.4661	0.4889	
System 5	0.1400	-18.3560	-18.3527		0.2224	0.4188	0.2682	0.2730	0.3970	

Table F: Australian Three-Factor Model with LIQT (M6) without Dummy Variables Regressions

$$R_{p,t} - R_{f,t} = a_p + b_p(R_{m,t} - R_{f,t}) + s_pSMB_t + h_pHML_t + l_pLIQT_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the Australian three-factor model with LIQT regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
	a					p(a)				
Small	0.2801	0.3522	0.1846	0.1227	0.2273	0.7521	0.6272	0.7411	0.8668	0.6448
2	-0.4544	-0.1695	-0.2380	-0.1955	0.1599	0.1873	0.6214	0.5774	0.6282	0.7234
3	-0.0838	-0.2503	-0.1975	-0.3134	0.0183	0.7611	0.3295	0.5790	0.4940	0.9662
4	0.2172	-0.0353	-0.2632	-0.1968	-0.6373	0.1999	0.8281	0.1940	0.3942	0.1292
Big	0.3367	0.0123	-0.1371	-0.4188	-0.4891	0.0013	0.9250	0.2890	0.0218	0.1118
	b					p(b)				
Small	0.5735	0.6978	0.7355	1.0335	0.8718	0.2851	0.0534 *	0.0317 *	0.0027 **	0.0002 **
2	0.9167	0.8363	0.8350	1.0671	1.0015	0.0000 **	0.0000 **	0.0001 **	0.0000 **	0.0001 **
3	0.7305	0.8048	0.9056	1.1648	1.0971	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	0.5481	0.6976	0.9329	1.0573	1.3723	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
Big	0.7081	0.8692	0.9580	1.1574	1.2797	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
	s					p(s)				
Small	0.5781	0.3147	0.6296	0.7056	0.7233	0.0796	0.1913	0.0001 **	0.0058 **	0.0001 **
2	0.4528	0.4906	0.5969	0.6149	0.5513	0.0001 **	0.0000 **	0.0002 **	0.0000 **	0.0003 **
3	0.2166	0.3569	0.3113	0.5117	0.4077	0.0364 *	0.0007 **	0.0019 **	0.0018 **	0.0116 *
4	0.1535	0.2509	0.2437	0.2399	0.3998	0.0106 *	0.0000 **	0.0019 **	0.0093 **	0.0179 *
Big	0.0086	0.0490	0.0581	0.1018	0.1322	0.8479	0.2801	0.2499	0.1691	0.2151
	h					p(h)				
Small	-0.3453	0.3976	0.0517	-0.1016	-0.0897	0.3357	0.0558	0.7997	0.6824	0.5818
2	0.0746	-0.0127	-0.0307	-0.0818	-0.1896	0.5714	0.9070	0.8288	0.6052	0.2996
3	0.0863	0.0508	0.0893	-0.1707	-0.0842	0.4068	0.5697	0.4194	0.2375	0.5646
4	0.0460	0.0260	0.0007	0.0120	0.0158	0.3820	0.6862	0.9930	0.8933	0.9100
Big	-0.0565	0.0422	0.0891	0.1045	0.2034	0.1370	0.2938	0.0644	0.1361	0.0522 *
	l					p(l)				
Small	-0.0743	-0.7685	-0.6086	-0.7734	-0.7558	0.7933	0.0000 **	0.0000 **	0.0004 **	0.0000 **
2	0.0020	-0.1633	-0.1830	-0.4413	-0.5657	0.9835	0.1756	0.1402	0.0000 **	0.0000 **
3	0.0478	0.0260	-0.1290	-0.2283	-0.4902	0.5953	0.7634	0.2194	0.1010	0.0009 **
4	0.0310	0.0559	0.0836	-0.1377	-0.1888	0.5395	0.2615	0.1490	0.0615	0.1074
Big	0.0051	0.0283	0.0282	0.0493	-0.1546	0.8780	0.5117	0.5404	0.4263	0.1370
Panel B: GRS		Panel C: AIC and SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	2.4361	-19.2906	-19.2873		0.2311	0.5816	0.5869	0.6925	0.7263	
System 2	0.3119	-18.6447	-18.6414		0.5092	0.5781	0.5847	0.7780	0.7370	
System 3	0.4564	-17.7072	-17.7039		0.4189	0.5222	0.5927	0.6286	0.7219	
System 4	1.2053	-16.5781	-16.5748		0.4799	0.5697	0.5877	0.6548	0.6220	
System 5	1.2478	-15.0325	-15.0292		0.6687	0.7293	0.7037	0.6754	0.6404	

Table G: US Three-Factor Model with LIQT (M6) without Dummy Variables Regressions

$$R_{p,t} - R_{f,t} = a_p + b_{pus}(USR_{m,t} - USR_{f,t}) + s_{pus}USSMB_t + h_{pus}USHML_t + l_pLIQT_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the US three-factor model with LIQT regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
	a					p(a)				
Small	1.2936	1.3314	2.1326	2.0270	1.7100	0.1733	0.0882	0.0030 **	0.0267 *	0.0080 **
2	0.6383	0.6214	1.3771	1.3269	1.5848	0.0326 *	0.0344 *	0.0006 **	0.0065 **	0.0094 **
3	0.5157	0.6606	0.8002	0.7449	1.1900	0.1766	0.1339	0.0201 *	0.2663	0.0150 *
4	0.4195	0.5681	0.5144	0.4962	0.4442	0.0079 **	0.0059 **	0.0256 *	0.1566	0.4354
Big	0.6004	0.1378	0.3004	0.2251	0.1890	0.0006 **	0.5207	0.2035	0.4071	0.6833
	b					p(b)				
Small	0.0533	0.4359	0.0794	0.0831	0.0494	0.8912	0.1938	0.7720	0.8068	0.8396
2	0.1484	0.2427	0.0676	0.2672	0.1734	0.3882	0.1614	0.7200	0.1663	0.4352
3	0.2368	0.2764	0.2219	0.3071	0.3620	0.1200	0.0830	0.1335	0.2596	0.0959
4	0.2514	0.2764	0.2870	0.3631	0.4084	0.0010 **	0.0007 **	0.0073 **	0.0179 *	0.0693
Big	0.2974	0.4586	0.3814	0.4020	0.5005	0.0001 **	0.0000 **	0.0000 **	0.0006 **	0.0038 **
	s					p(s)				
Small	0.3095	0.1636	0.0523	0.3471	0.3356	0.5668	0.6341	0.8802	0.3650	0.3239
2	0.3861	0.4253	0.2685	0.3032	0.4024	0.0941	0.0269 *	0.2586	0.2681	0.1253
3	0.1668	0.2049	0.3206	0.3790	0.2596	0.3610	0.1915	0.0677	0.1582	0.2696
4	0.2115	0.1709	0.2138	0.3522	0.5807	0.0132 *	0.1164	0.1267	0.0330 *	0.0161 *
Big	0.0613	0.2110	0.2163	0.2865	0.4254	0.5013	0.0204 *	0.0827	0.0521 *	0.0469 *
	h					p(h)				
Small	-0.1717	0.1004	-0.1787	-0.1545	0.1858	0.6773	0.7620	0.6438	0.6712	0.5852
2	0.1889	0.2333	-0.0894	-0.0145	-0.2169	0.1853	0.1846	0.6939	0.9468	0.3752
3	0.2313	0.1159	0.0423	0.1730	-0.0343	0.2008	0.5905	0.7634	0.6345	0.8684
4	0.2196	0.1383	0.1289	0.1303	0.0710	0.0043 **	0.1165	0.2462	0.3690	0.7706
Big	0.0887	0.2521	0.1797	0.1874	0.1936	0.2562	0.0037 **	0.0678	0.0838	0.3905
	i					p(i)				
Small	-0.4723	-1.0362	-1.0903	-1.3144	-1.3024	0.0035 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	-0.3692	-0.5412	-0.6421	-0.9192	-0.9864	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	-0.1538	-0.2697	-0.4054	-0.6415	-0.8301	0.0010 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	-0.1071	-0.1595	-0.1480	-0.3690	-0.5439	0.0008 **	0.0000 **	0.0001 **	0.0000 **	0.0000 **
Big	-0.0487	-0.0617	-0.0842	-0.1095	-0.3391	0.1046	0.0721	0.0534 *	0.0085 **	0.0000 **
Panel B: GRS		Panel C: AIC and SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	3.7193 **	-18.0466	-18.0433		0.1864	0.5558	0.5468	0.6516	0.6809	
System 2	3.7903 **	-17.3834	-17.3801		0.3369	0.4975	0.4920	0.6996	0.6974	
System 3	3.6674 **	-16.4031	-16.3998		0.1849	0.3427	0.4580	0.5084	0.6560	
System 4	2.1675	-15.4323	-15.4290		0.2981	0.3292	0.2364	0.4792	0.4979	
System 5	2.1409	-14.3990	-14.3957		0.1798	0.3619	0.2438	0.2169	0.4128	

Table H: Parsimonious US Three-Factor Model Regressions

$$R_{p,t} - R_{f,t} = a_p + b_{pus}(USR_{m,t} - USR_{f,t}) + s_{pus}USSMB_t + l_pLIQT_t + e_{p,t}$$

At the end of December each year from 1990-2001, all of the stocks publicly listed on the Australian Stock Exchange (ASX), with the exception of those in banking, finance, insurance, investment and financial services, and property trusts, are used to form 25 portfolios based on their size and beta values. Individual firms' betas are estimated using past monthly returns over the period 24-60 months (i.e. $t-2$ to $t-5$ years) prior to formation. Stocks are first sorted into size quintiles based on their market values (at $t-1$) and subsequently into beta quintiles based on their pre-estimated beta values, in order to form the 25 portfolios. These portfolios are then divided into five systems, with each individual system representing each beta quintile. Therefore, System 1 contains the five portfolios in the lowest beta quintile, while System 5 contains the five portfolios in the highest beta quintile. The full information maximum likelihood (FIML) is then used to estimate the regression coefficients in each system. This table reports the parsimonious regression coefficient estimates and their p -values in Panel A, the GRS test statistics in Panel B, and the AIC and SBC test statistics in Panel C. * indicates significance at 5% level and ** indicates significance at 1% level. Panel D reports the value of adjusted R^2 for each equation in the system.

Panel A: Coefficient Estimates and P-Values										
Size/Beta	Low	2	3	4	High	Low	2	3	4	High
	a					p(a)				
Small	1.3486	1.3314	2.1326	2.0270	1.7100	0.1558	0.0882	0.0030 **	0.0267 *	0.0080 **
2	0.7093	0.6214	1.3771	1.3269	1.5848	0.0194 *	0.0344 *	0.0006 **	0.0065 **	0.0094 **
3	0.5646	0.6606	0.8002	0.7449	1.1900	0.1449	0.1339	0.0201 *	0.2663	0.0150 *
4	0.4516	0.5681	0.5144	0.4962	0.4442	0.0045 **	0.0059 **	0.0256 *	0.1566	0.4354
Big	0.6318	0.1378	0.3004	0.2251	0.1890	0.0004 **	0.5207	0.2035	0.4071	0.6833
	b					p(b)				
Small	0.0389	0.4359	0.0794	0.0831	0.0494	0.9198	0.1938	0.7720	0.8068	0.8396
2	0.1315	0.2427	0.0676	0.2672	0.1734	0.4465	0.1614	0.7200	0.1663	0.4352
3	0.2244	0.2764	0.2219	0.3071	0.3620	0.1437	0.0830	0.1335	0.2596	0.0959
4	0.2435	0.2764	0.2870	0.3631	0.4084	0.0015 **	0.0007 **	0.0073 **	0.0179 *	0.0693
Big	0.2893	0.4586	0.3814	0.4020	0.5005	0.0002 **	0.0000 **	0.0000 **	0.0006 **	0.0038 **
	s					p(s)				
Small	0.2832	0.1636	0.0523	0.3471	0.3356	0.6025	0.6341	0.8802	0.3650	0.3239
2	0.3616	0.4253	0.2685	0.3032	0.4024	0.1169	0.0269 *	0.2586	0.2681	0.1253
3	0.1520	0.2049	0.3206	0.3790	0.2596	0.4108	0.1915	0.0677	0.1582	0.2696
4	0.2010	0.1709	0.2138	0.3522	0.5807	0.0182 *	0.1164	0.1267	0.0330 *	0.0161 *
Big	0.0516	0.2110	0.2163	0.2865	0.4254	0.5763	0.0204	0.0827	0.0521	0.0469
	h					p(h)				
Small	-0.1913	0.1004	-0.1787	-0.1545	0.1858	0.6426	0.7620	0.6438	0.6712	0.5852
2	0.1632	0.2333	-0.0894	-0.0145	-0.2169	0.2606	0.1846	0.6939	0.9468	0.3752
3	0.2123	0.1159	0.0423	0.1730	-0.0343	0.2447	0.5905	0.7634	0.6345	0.8684
4	0.2076	0.1383	0.1289	0.1303	0.0710	0.0068 **	0.1165	0.2462	0.3690	0.7706
Big	0.0770	0.2521	0.1797	0.1874	0.1936	0.3318	0.0037 **	0.0678	0.0838	0.3905
	l					p(l)				
Small	-0.4668	-1.0362	-1.0903	-1.3144	-1.3024	0.0039 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
2	-0.3732	-0.5412	-0.6421	-0.9192	-0.9864	0.0000 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
3	-0.1565	-0.2697	-0.4054	-0.6415	-0.8301	0.0008 **	0.0000 **	0.0000 **	0.0000 **	0.0000 **
4	-0.1090	-0.1595	-0.1480	-0.3690	-0.5439	0.0006 **	0.0000 **	0.0001 **	0.0000 **	0.0000 **
Big	-0.0505	-0.0617	-0.0842	-0.1095	-0.3391	0.0911	0.0721	0.0534	0.0085 **	0.0000 **
Panel B: GRS		Panel C: AIC and SBC			Panel D: Adjusted R-squared					
		AIC	SBC							
System 1	4.0564 **	-18.0480	-18.0447		0.1865	0.5558	0.5468	0.6516	0.6809	
System 2	3.7903 **	-17.3834	-17.3801		0.3375	0.4975	0.4920	0.6996	0.6974	
System 3	3.6674 **	-16.4031	-16.3998		0.1856	0.3427	0.4580	0.5084	0.6560	
System 4	2.1675	-15.4323	-15.4290		0.2987	0.3292	0.2364	0.4792	0.4979	
System 5	2.1409	-14.3990	-14.3957		0.1803	0.3619	0.2438	0.2169	0.4128	