



**Table 2. Estimated coefficients for indices in the Norwegian Thinly Traded market**

Pindx; Oslo Stock Exchange value-weighted market index.	Sampling Interval	$\mu$	$\lambda$	$\phi_1$	$\theta_1 / \phi_2$	$m$	$a_1$	$b_1$	$v$	Log-Likelihood
Daily returns		0.1138	-0.0465	-----	-0.2444	0.1345	0.1527	0.7481	6.1971	-3848.1
(unrestricted)		{0.9592}	{-0.4041}	-----	{-11.620}	{3.3876}	{4.8512}	{13.959}	{9.1516}	
Daily returns		-----	0.0680	-----	-0.2478	0.1316	0.1515	0.7471	6.4612	-3848.5
(restricted: $\mu=0$ )		-----	{3.6885}	-----	{-11.781}	{3.6370}	{5.2922}	{14.985}	{9.0749}	
Weekly returns		2.9417	-0.9714	0.0711	-----	0.7950	0.0443	0.8618	7.3948	-1305.9
(unrestricted)		{1.9469}	{-1.8382}	{1.6339}	-----	{1.3992}	{1.9205}	{11.189}	{3.0429}	
Weekly returns		-----	0.0446	0.0738	-----	0.7754	0.0550	0.8545	7.4130	-1308.7
(restricted: $\mu=0$ )		-----	{1.0331}	{1.6773}	-----	{1.6654}	{2.1798}	{12.743}	{3.3155}	
Monthly returns		2.7378	-0.1999	-----	-0.0796	48.9908	0.2033	0.0010	-----	-416.2
(unrestricted)		{0.4179}	{-0.2274}	-----	{-0.6836}	{4.9282}	{0.8562}	{0.0059}	-----	
Monthly returns		-----	0.0451	-----	-0.1141	45.0828	0.1045	0.0010	-----	-415.1
(restricted: $\mu=0$ )		-----	{0.4581}	-----	{-1.1966}	{5.5305}	{0.5800}	{0.0053}	-----	
Nhhvw; Norwegian School of Economics and business administration (NHH) value-weighted market										Log-Likelihood
Nhhvw; Norwegian School of Economics and business administration (NHH) value-weighted market	Sampling Interval	$\mu$	$\lambda$	$\phi_1$	$\theta_1 / \phi_2$	$m$	$a_1$	$b_1$	$v$	Likelihood
Daily returns		0.1515	-0.0660	-----	-0.2393	0.1624	0.1751	0.7145	5.7895	-3776.3
(unrestricted)		{0.7463}	{-0.3423}	-----	{-11.085}	{3.0732}	{4.4916}	{10.514}	{9.3663}	
Daily returns		-----	0.0762	-----	-0.2397	0.1568	0.1693	0.7227	5.8865	-3777.1
(restricted: $\mu=0$ )		-----	{4.2181}	-----	{-11.074}	{2.9206}	{4.2842}	{10.353}	{9.1732}	
Weekly returns		3.01993	-0.99274	0.10518	-----	1.08395	0.06145	0.80977	6.99355	-1301.6
(unrestricted)		{1.9589}	{-1.8028}	{2.4075}	-----	{1.7288}	{2.1391}	{9.5444}	{3.5395}	
Weekly returns		-----	0.04356	0.11245	-----	0.93772	0.07735	0.81243	7.29068	-1304.2
(restricted: $\mu=0$ )		-----	{1.0566}	{2.5571}	-----	{2.0320}	{2.3504}	{11.521}	{3.4917}	
Monthly returns		15.5924	-2.2517	-----	-0.1347	42.1192	0.1252	0.0010	-----	-411.6
(unrestricted)		{1.6608}	{-1.6473}	-----	{-1.3060}	{5.1329}	{0.6706}	{0.0087}	-----	
Monthly returns		-----	0.0579	-----	-0.1695	40.9416	0.1792	0.0010	-----	-412.5
(restricted: $\mu=0$ )		-----	{0.6252}	-----	{-1.6683}	{5.3599}	{0.8282}	{0.0057}	-----	
Peql; Oslo Stock Exchange equal-weighted market index.										Log-Likelihood
Peql; Oslo Stock Exchange equal-weighted market index.	Sampling Interval	$\mu$	$\lambda$	$\phi_1$	$\theta_1 / \phi_2$	$m$	$a_1$	$b_1$	$v$	Likelihood
Daily returns		0.0724	-0.0398	0.1704	-----	0.0646	0.1281	0.8080	4.9358	-3347.2
(unrestricted)		{1.7491}	{-1.1104}	{8.3681}	-----	{3.8863}	{5.6104}	{24.813}	{11.112}	
Daily returns		-----	0.0398	0.1728	-----	0.0594	0.1293	0.8134	4.7798	-3347.9
(restricted: $\mu=0$ )		-----	{2.3172}	{8.5055}	-----	{4.1379}	{5.8318}	{27.250}	{12.264}	
Weekly returns		0.77214	-0.28237	0.13203	0.14599	1.02155	0.13291	0.74212	3.80610	-1212.3
(unrestricted)		{1.2356}	{-1.1498}	{3.1237}	{3.6284}	{2.2412}	{2.3730}	{8.7398}	{5.4179}	
Weekly returns		-----	0.01592	0.13689	0.15294	0.98429	0.13126	0.74786	3.87108	-1213.2
(restricted: $\mu=0$ )		-----	{0.4701}	{3.2344}	{3.8063}	{2.2807}	{2.3539}	{9.1450}	{5.2348}	
Monthly returns		3.38613	-0.39115	0.26954	-----	41.36666	0.17247	0.00100	-----	-405.17
(unrestricted)		{0.2074}	{-0.1625}	{2.3005}	-----	{3.7903}	{0.3067}	{0.0031}	-----	
Monthly returns		-----	-0.00928	0.36567	-----	36.87881	0.17722	0.00100	-----	-403.15
(restricted: $\mu=0$ )		-----	{-0.0890}	{3.8912}	-----	{4.4761}	{0.9275}	{0.0115}	-----	
Nhhew; Norwegian School of Economics and business administration (NHH) equal-weighted market										Log-Likelihood
Nhhew; Norwegian School of Economics and business administration (NHH) equal-weighted market	Sampling Interval	$\mu$	$\lambda$	$\phi_1$	$\theta_1 / \phi_2$	$m$	$a_1$	$b_1$	$v$	Likelihood
Daily returns		0.0469	0.0204	0.1698	-----	0.0552	0.1353	0.8255	5.4370	-3518.5
(unrestricted)		{1.0214}	{0.4479}	{7.9987}	-----	{3.0378}	{5.5372}	{25.348}	{9.9381}	
Daily returns		-----	0.0677	0.1708	-----	0.0560	0.1363	0.8240	5.4282	-3518.8
(restricted: $\mu=0$ )		-----	{3.8015}	{8.0929}	-----	{3.1812}	{5.6098}	{25.867}	{10.002}	
Weekly returns		0.22971	-0.03270	0.13512	0.15770	1.00162	0.15088	0.73495	4.71361	-1254.6
(unrestricted)		{0.7214}	{-0.2824}	{3.0373}	{3.6944}	{2.3457}	{2.7249}	{9.4187}	{4.6829}	
Weekly returns		-----	0.05403	0.13474	0.15847	0.98998	0.15205	0.73546	4.73468	-1254.8
(restricted: $\mu=0$ )		-----	{1.4257}	{3.0332}	{3.7264}	{2.3952}	{2.7807}	{9.7099}	{4.6616}	
Monthly returns		6.46523	-0.86461	-----	-0.27517	45.91235	0.09415	0.00100	-----	-413.71
(unrestricted)		{0.4723}	{-0.4496}	-----	{-2.7915}	{4.8832}	{0.4122}	{0.0052}	-----	
Monthly returns		-----	0.05262	-----	-0.24301	48.61379	0.00116	0.00100	-----	-413.52
(restricted: $\mu=0$ )		-----	{0.5730}	-----	{-2.6850}	{15.661}	{0.0149}	{0.0038}	-----	

**Table 3. Conditional and unconditional variance estimations**

The Table reports the conditional mean and the conditional variance implied by the GARCH-M model in (2) and (3) in contrast to the conditional mean and unconditional variance in (4) from section 2.3. The differences are reported in column 4 (Difference).

<b>PINDEX</b>	GARCH-M	Unconditional Model	Difference
Mean daily series	0.05075	0.04394	0.00681
Variance daily series	1.35676	1.48817	-0.13141
Mean weekly series	-5.28179	0.07721	-5.35900
Variance weekly series	8.46532	8.57937	-0.11405
Mean monthly series	-9.57155	0.08568	-9.65722
Variance monthly series	61.5660	49.7685	11.7975
<b>NHHvw</b>	GARCH-M	Unconditional Model	Difference
Mean daily series	0.05432	0.05773	-0.00341
Variance daily series	1.47137	1.60493	-0.13356
Mean weekly series	-5.33573	0.08440	-5.42012
Variance weekly series	8.41681	8.47967	-0.06287
Mean monthly series	-92.9448	0.14726	-93.0921
Variance monthly series	48.2033	48.0679	0.13538
<b>Pequil</b>	GARCH-M	Unconditional Model	Difference
Mean daily series	0.03217	0.02643	0.00574
Variance daily series	1.01034	1.06857	-0.05823
Mean weekly series	-1.53598	0.00888	-1.54486
Variance weekly series	8.17405	7.21932	0.95473
Mean monthly series	-16.1902	-0.24586	-15.9443
Variance monthly series	50.0488	41.4614	8.58734
<b>NHHew</b>	GARCH-M	Unconditional Model	Difference
Mean daily series	0.07565	0.06390	0.01174
Variance daily series	1.40945	1.29761	0.11184
Mean weekly series	-0.05716	0.10590	-0.16306
Variance weekly series	8.77279	7.62397	1.14882
Mean monthly series	-37.4053	0.59653	-38.0018
Variance monthly series	50.7403	48.4568	2.28357

**Table 4. Likelihood ratio tests**

Tests of the conditional CAPM and of the conditional GARCH-M model of Norwegian excess market returns for the period 1983-1994.

**Panel A: Tests of the conditional CAPM.**

PINDEX	Daily Returns	Weekly Returns	Monthly Returns
$\chi^2$ test statistic	0.70460	5.6306	2.1944
(prob.value) 1 df.	{0.40124}	{0.01765}	{0.13851}
NHHvw			
$\chi^2$ test statistic	1.48130	5.924	1.7778
(prob.value) 1 df.	{0.22357}	{0.01494}	{0.18242}
Peql			
$\chi^2$ test statistic	1.29040	1.8224	3.498
(prob.value) 1 df.	{0.25597}	{0.17703}	{0.06144}
NHHew			
$\chi^2$ test statistic	0.53140	0.14890	1.7778
(prob.value) 1 df.	{0.46602}	{0.69959}	{0.18242}

**Panel B: Tests of the conditional GARCH-M model versus the unconditional model of excess market return.**

PINDEX	Daily Returns	Weekly Returns	Monthly Returns
$\chi^2$ test statistic	241.2546	18.9570	3.2852
(prob.value) 3 df.	{0.00000}	{0.00028}	{0.34971}
NHHvw			
$\chi^2$ test statistic	238.7190	19.4999	3.5680
(prob.value) 3 df.	{0.00000}	{0.00022}	{0.31205}
Peql			
$\chi^2$ test statistic	241.5034	20.1152	1.2035
(prob.value) 3 df.	{0.00000}	{0.00016}	{0.75216}
NHHew			
$\chi^2$ test statistic	253.7890	25.7793	0.2292
(prob.value) 3 df.	{0.00000}	{0.00001}	{0.97274}

**Panel A:** This panel reports the results of testing the null hypothesis,  $H_0: \mu = 0$ , in the model described in (2) and (3) in section 2.3. The numbers in brackets are probabilities.

**Panel B:** This panel reports the results of testing the null hypothesis,  $H_0: \lambda = a_1 = b_1 = 0$ , in the model described in (2) and (3) in section 2.3. The numbers in brackets are probabilities.

**Panel A and B:** Estimation of the daily and weekly return series is obtained assuming  $\varepsilon_t$  has a student-t density distribution with  $v$  degrees of freedom, while estimation of the monthly return series are obtained assuming  $\varepsilon_t$  has a normal distribution. The test statistic is distributed as a chi-square variable with degrees of freedom referenced in the table.

