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APPENDICES

APPENDIX A

THE DERIVATION OF THE LIM-TERRY MODEL

It is much easier to understand the model by beginning with valuing series B warrants. At time T_A, series A warrants will be expired. There are two cases to be considered. First, in the case that series A warrants are not exercised, the model does not have to be adjusted for the cross-dilution effect. Series B warrants at time T_B will be valued as

$$W^u_{B,T_B} = max\left\{0, \frac{V_{T_B} + n_B K_B}{N + n_B} - K_B\right\}$$

At time T_A , series B warrants will be

$$W^u_{B,T_A} = \frac{1}{N + n_B}\left[V_{T_A} N\left(d^u_1\right) - N K_B e^{-r(T_B - T_A)} N\left(d^u_2\right)\right]$$

where

$$d^u_1 = \frac{ln\left(\frac{V_{T_A}}{NK_B}\right) + \left[r + \frac{\sigma^2}{2}\right](T_B - T_A)}{\sigma\sqrt{T_B - T_A}}$$

$$d^u_2 = d^u_1 - \sigma\sqrt{T_B - T_A}$$

and $N(\cdot)$ denotes the standard cumulative normal distribution.

The other case is exercising series A warrants. In this case, the value of the firm at time T_A will increase by $n_A K_A$. The number of shares will rise to $N + n_A$. The value of series B warrants will be

$$\begin{aligned} W^e_{B,T_B} &= max\left\{0, \frac{V_{T_B} + n_A K_A + n_B K_B}{N + n_A + n_B} - K_B\right\} \\ &= max\left\{0, \frac{1}{N + n_A + n_B}\left[V_{T_B} - \left(\left(N + n_A\right) K_B - n_A K_A\right)\right]\right\} \end{aligned}$$

Series B warrants will be exercised if the value of the firm exceeds

$(n_A K_A - (N + n_A) K_B)$. The closed-form formula will be

$$W^e_{B,T_A} = \frac{1}{N + n_A + n_B} \left[V_{T_A} N(d^e_1) - \left[(N + n_A) K_B e^{-r(T_B - T_A)} - n_A K_A \right] N(d^e_2) \right]$$

where

$$d^e_1 = \frac{ln\left(\frac{V_{T_A}}{\left[(N+n_A)K_B - n_A K_A e^{r(T_B - T_A)}\right]}\right) + \left[r + \frac{\sigma^2}{2}\right](T_B - T_A)}{\sigma\sqrt{T_B - T_A}}$$

$$d^e_2 = d^e_1 - \sigma\sqrt{T_B - T_A}$$

For series A warrants, the subtle slippage effect will occur only if series B warrants are exercised. The value of series A warrants have to be shared by the value of series B warrants. If series A warrants are exercised, the series A warrantholders will hold an amount of shares in the firm. Some time in the future series B warrants will be exercised, the value of the firm will dilute, including the shares of series A warrantholders. This, thus, affects the value of series A warrants.

$$\begin{aligned} W_{A,T_A} &= max\left\{0, \tfrac{1}{N+n_A}\left(V_{T_A} + n_A K_A - n_B W^e_{B,T_A}\right) - K_A\right\} \\ &= max\left\{0, \tfrac{1}{N+n_A}\left(V_{T_A} - N K_A - n_B W^e_{B,T_A}\right)\right\} \end{aligned}$$

In this case, series A warrants will be exercised only if the value of the firm exceeds $NK_A + n_B W^e_{B,T_A}$. However, the value of the firm also exists in W^e_{B,T_A}. Therefore, there is some firm value threshold that if the value of the firm exceeds, series A warrants will be exercised. Let it be V^*.

$$V^* = NK_A + n_B W^e_{B,T_A}(V^*)$$

The value of V^* has to be solved iteratively. The current value of series A warrants can be determined using the risk-neutral pricing method of Cox and Ross (1976). Series A warrants have no value when the value of the firm is less than V^*. If the value of the firm is higher than V^*, series A warrants will have value as described above.

$$W_{A,0} = e^{-rT_A}\left[\int_0^{V^*} 0\, dF\left(V_{T_A} \mid V_0\right) + \frac{1}{N+n_A}\int_{V^*}^{\infty}\left(V_{T_A} - NK_A - n_B W^e_{B,T_A}\right) dF\left(V_{T_A} \mid V_0\right)\right]$$

where $F\left(V_{T_A} \mid V_0\right)$ denotes the distribution of the value of the firm at T_A conditional upon its current value.

Substituting for W^e_{B,T_A}, the equation becomes

$$W_{A,0} = e^{-rT_A}\left\{\int_0^{V^*} 0\, dF\left(V_{T_A} \mid V_0\right) + \frac{1}{N+n_A}\int_{V^*}^{\infty}\left(V_{T_A} - NK_A - \frac{n_B}{N+n_A+n_B}\left[V_{T_A} N\left(d_1^e\right) - \left[\left(N+n_A\right)K_B e^{-r(T_B-T_A)} - n_A K_A\right] N\left(d_2^e\right)\right]\right) dF\left(V_{T_A} \mid V_0\right)\right\}$$

Taking the appropriate integratal of above equation, the series A closed-form formula can be determined.

$$
\begin{aligned}
W_{A,0} &= e^{-rT_A}\left\{0 + \tfrac{1}{N+n_A}\left(V_{T_A}N\left(d_1^*\right) - NK_AN\left(d_2^*\right)\right.\right.\\
&- \tfrac{n_B}{N+n_A+n_B}\left[V_{T_A}M\left(d_1^*, d_1^{'}; \sqrt{\tfrac{T_A}{T_B}}\right)\right.\\
&- \left.\left.\left.\left[\left(N+n_A\right)K_Be^{-r(T_B-T_A)} - n_AK_A\right]M\left(d_2^*, d_2^{'}; \sqrt{\tfrac{T_A}{T_B}}\right)\right]\right)\right\}\\
&= \tfrac{1}{N+n_A}\left\{V_0N\left(d_1^*\right) - NK_Ae^{-rT_A}N\left(d_2^*\right)\right.\\
&- \tfrac{n_B}{N+n_A+n_B}\left[V_0M\left(d_1^*, d_1^{'}; \sqrt{\tfrac{T_A}{T_B}}\right)\right.\\
&- \left.\left.\left[\left(N+n_A\right)K_Be^{-rT_B} - n_AK_Ae^{-rT_A}\right]M\left(d_2^*, d_2^{'}; \sqrt{\tfrac{T_A}{T_B}}\right)\right]\right\}
\end{aligned}
\tag{A.1}
$$

where

$$
\begin{aligned}
d_1^* &= \frac{\ln\left(\frac{V_0}{V^*}\right) + \left[r + \frac{\sigma^2}{2}\right](T_A)}{\sigma\sqrt{T}_A}\\
d_2^* &= d_1^* - \sigma\sqrt{T_A}\\
d_1^{'} &= \frac{\ln\left(\frac{V_0}{(1+\lambda_A)K_B - \lambda_AK_Ae^{r(T_B-T_A)}}\right) + \left[r + \frac{\sigma^2}{2}\right](T_B)}{\sigma\sqrt{T_B}}\\
d_2^{'} &= d_1^{'} - \sigma\sqrt{T_B}
\end{aligned}
$$

and $M(a, b; \rho)$ denotes the bivariate cumulative normal distribution with a and b as upper limits and ρ as the correlation coefficient.

The current value of series B warrants is obtained using the same method as in series A. In the case that series A warrants are exercised, the value of series B warrants will be $\int_0^{v^*} W_{B,T_A}^e dF\left(V_{T_A}|V_0\right)$. In the other case, the value of series B warrants will be $\int_{v^*}^{\infty} W_{B,T_A}^u dF\left(V_{T_A}|V_0\right)$. The current total value of series B warrants is

$$
W_{B,0} = e^{-rT_A}\left[\int_0^{v^*} W_{B,T_A}^u dF\left(V_{T_A}|V_0\right) + \int_{v^*}^{\infty} W_{B,T_A}^e dF\left(V_{T_A}|V_0\right)\right]
$$

Substituting for W^u_{B,T_A} and W^e_{B,T_A} and taking the appropriate integrals, the series B closed-form formula can be obtained.

$$\begin{aligned} W_{B,0} = & \ \tfrac{1}{N+n_B}\left[V_0 M\left(-d_1^*, d_1''; -\sqrt{\tfrac{T_A}{T_B}}\right) - NK_B e^{-rT_B} M\left(-d_2^*, d_2''; -\sqrt{\tfrac{T_A}{T_B}}\right)\right] \\ & + \ \tfrac{1}{N+n_A+n_B}\left[V_0 M\left(d_1^*, d_1'; \sqrt{\tfrac{T_A}{T_B}}\right)\right. \\ & + \ \left.\left[n_A K_A e^{-rT_A} - (N+n_A) K_B e^{-rT_B}\right] M\left(d_2^*, d_2'; \sqrt{\tfrac{T_A}{T_B}}\right)\right] \end{aligned} \tag{A.2}$$

where

$$\begin{aligned} d_1'' = & \ \frac{\ln\left(\frac{V_0}{NK_B}\right) + \left[r + \frac{\sigma^2}{2}\right] T_B}{\sigma\sqrt{T_B}} \\ d_2'' = & \ d_1'' - \sigma\sqrt{T_B} \end{aligned}$$

APPENDIX B

MODEL COMPARISONS

B.1 Lim-Terry and Darsinos-Satchell

For series A warrants, the Lim-Terry model and the Darsinos-Satchell model are obviously different. The Lim-Terry model takes into account the subtle slippage effect whereas the Darsinos-Satchell model does not. Nevertheless, for series B warrants, both models consider the cross-dilution effect. The difference is the way each model adjusted for this effect. The two models view the threshold of the firm value differently.

The Lim-Terry model seperates the case that series A warrants will or will not be exercised by V^*. If the value of the firm is higher than V^*, series A warrants will be exercised. The total value of series B warrants is defined as follows.

$$W_{B,0} = e^{-rT_A}\left[\int_0^{v^*} W_{B,T_A}^{u} dF\left(v_{T_A} \mid v_0\right) + \int_{v*}^{\infty} W_{B,T_A}^{e} dF\left(v_{T_A} \mid v_0\right)\right]$$

For the Darsinos-Satchell model, the warrantholders will exercise series A warrant when the value of the firm exceeds K_A. However, instead of using K_A as a beginning of the interval for integration, the threshold is based on the exercise decision of series B warrants (K_B and $K_B + \lambda_A K_B$). The exercise decision of series A warrants is accounted in an aspect of probability. The total value of series B warrants is defined as follows.

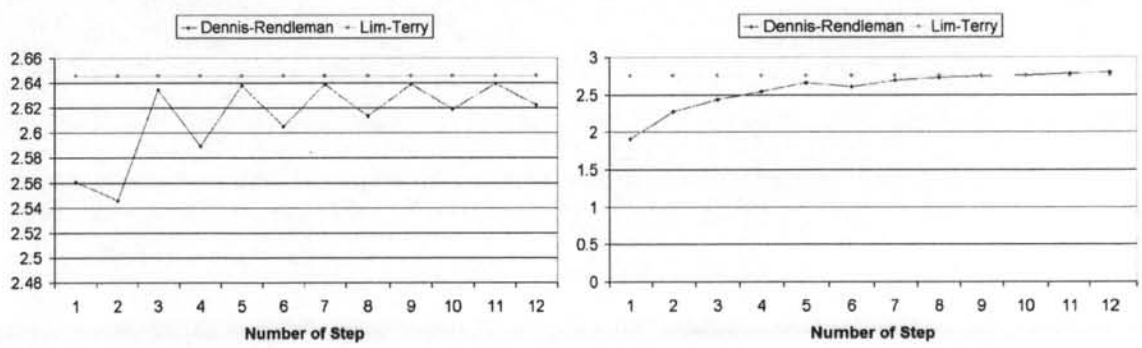
$$\begin{aligned} W_{B,0} = \; & e^{-rT_A}\Big[\left(1 - Prob\left(v_{T_A} > K_A\right)\right) \times \textstyle\int_{K_B}^{\infty} W_{B,T_A}^{u} dF\left(v_{T_A} \mid v_0\right) \\ & + \; Prob\left(v_{T_A} > K_A\right) \times \textstyle\int_{K_B+\lambda_A K_B}^{\infty} W_{B,T_A}^{e} dF\left(v_{T_A} \mid v_0\right)\Big] \end{aligned}$$

B.2 Lim-Terry and Dennis-Rendleman

In general, the idea of valuing multiple warrants is the same for the Lim-Terry model and the Dennis-Rendleman model. The Lim-Terry model as a continuous time model extends the Black-Scholes framework to price multiple warrants. The idea is to take into account the subtle slippage effect and the cross-dilution effect. The Dennis-Rendleman model, in turn, extends the binomial model since it is more flexible than the Black-Scholes model. The binomial model can handle the cases that the warrants are exercised before maturity or when there are divedend payments. Furthermore, since the warrants normally issue with a long term maturity (Some of them have maturity up to 10 years.), assumption of constant firm volatility can be problematic. The binomial can handle this case by adjusting the volatility in each step of the tree.

Figure B.1 represents warrant prices of the Dennis-Rendleman model compared with warrant prices of the Lim-Terry model. It can be seen that for series A warrants, the warrant price of the Dennis-Rendleman model is close to the Lim-Terry model for odd step number. For series B warrants, when the step number is large, the prices of the Dennis-Rendleman model are a little higher than the prices of the Lim-Terry model. For larger number of steps, the prices of the Dennis-Rendleman model are expected to remain stable. Conjecturally, it might be possible to consider the Dennis-Rendleman model as a discrete-time model of the Lim-Terry model.

Figure B.1: Warrant Price Comparison of the Lim-Terry Model and the Dennis-Rendleman Model



(a) Series A Warrant Price

(b) Series B Warrant Price

Figure B.2: Price Difference Between Each Step of the Dennis-Rendleman Model

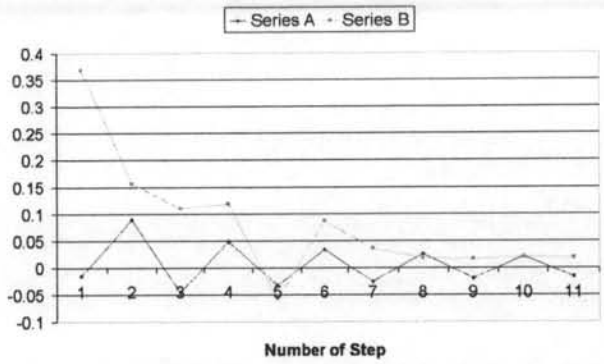
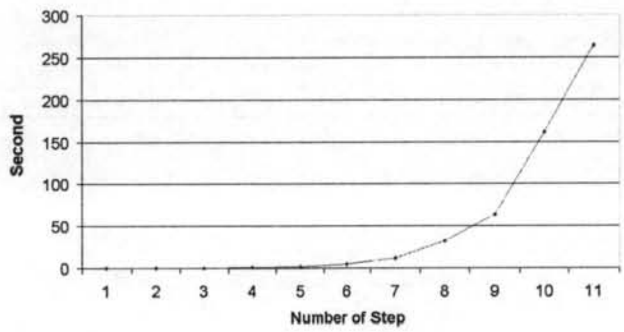


Figure B.3: Computation Time of the Dennis-Rendleman Model



The warrant price differences and the computation time in each step number are represented in figure B.2 and B.3, respectively. When considering the computation time and price differences, the appropriate number of time step for each interval (from time 0 to T_A and from time T_A and T_B) is five. The computation time is approximatly one second and both warrant prices in figure B.1 are almost stable. The value of series A warrants changes by the maximum of 0.02 percent while the value of series B warrants changes by the maximum of 0.06 percent.

APPENDIX C

MEAN ABSOLUTE PRICING ERROR

Table C.1: Statistics of Model Comparison

Series A Warrant

	In-the-money		At-the-money		Out-of-the-money	
	Mean Difference	t-Stat	Mean Difference	t-Stat	Mean Difference	t-Stat
GS-LT	0.6578	64.96	0.4850	13.28	NA	NA
GS-DS	0.0845	47.92	0.0553	14.40	NA	NA
GS-DR	0.7031	64.57	0.4465	10.46	NA	NA
DS-LT	0.5734	65.48	0.4297	12.81	NA	NA
DS-DR	0.6186	64.43	0.3912	9.83	NA	NA
DR-LT	-0.0453	-32.24	0.0385	4.23	NA	NA

Series B Warrant

	In-the-money		At-the-money		Out-of-the-money	
	Mean Difference	t-Stat	Mean Difference	t-Stat	Mean Difference	t-Stat
GS-LT	0.7544	49.19	0.4202	26.51	0.4731	27.44
GS-DS	0.6333	49.81	0.3513	24.01	0.4310	35.35
GS-DR	0.7909	49.19	0.4522	23.97	0.5007	23.87
DS-LT	0.1211	33.23	0.0688	16.83	0.0421	6.64
DS-DR	0.1576	34.63	0.1009	17.64	0.0696	7.29
DR-LT	-0.0365	-22.33	-0.0320	-6.99	-0.0276	-5.21

Table C.2: Descriptive Statistics of Each Model

Series A Warrant

	In-the-money				At-the-money				Out-of-the-money			
	GS	LT	DS	DR	GS	LT	DS	DR	GS	LT	DS	DR
Mean	0.8764	0.2185	0.7919	0.1733	0.8002	0.3152	0.7449	0.3537	NA	NA	NA	NA
Median	0.6531	0.1804	0.5954	0.1415	0.4602	0.1447	0.4091	0.2436	NA	NA	NA	NA
Maximum	4.7548	2.0406	4.5080	1.8106	11.2563	8.0985	11.1662	7.3571	NA	NA	NA	NA
Minimum	0.0004	0.0000	0.0004	0.0000	0.0050	0.0014	0.0004	0.0016	NA	NA	NA	NA
S.D.	0.7306	0.1770	0.6511	0.1437	1.3531	0.7195	1.2971	0.6195	NA	NA	NA	NA
Skewness	1.5168	1.6516	1.3805	2.0521	5.1622	6.1856	5.2333	6.5129	NA	NA	NA	NA
Kurtosis	5.634	10.048	5.0410	14.598	32.491	50.339	33.471	56.786	NA	NA	NA	NA
Observations	3871	3871	3871	3871	394	394	394	394	NA	NA	NA	NA

Series B Warrant

	In-the-money				At-the-money				Out-of-the-money			
	GS	LT	DS	DR	GS	LT	DS	DR	GS	LT	DS	DR
Mean	0.9976	0.2432	0.3643	0.2067	0.7333	0.3133	0.3822	0.2814	0.5928	0.4071	0.4295	0.4571
Median	0.7703	0.1699	0.2035	0.1511	0.5975	0.1832	0.2528	0.1254	0.4923	0.3896	0.3942	0.4912
Maximum	6.4452	1.5663	2.4211	1.2482	2.4534	1.1856	1.5410	1.2045	2.1671	0.9883	1.3093	1.0881
Minimum	0.0006	0.0004	0.0006	0.0000	0.0008	0.0001	0.0001	0.0002	0.0005	0.0007	0.0001	0.0000
S.D.	1.0254	0.2457	0.4007	0.1992	0.5576	0.2837	0.3509	0.2973	0.4651	0.2267	0.2794	0.2593
Skewness	2.5998	2.2528	2.1358	2.0171	1.2251	1.0501	1.0251	0.9219	0.9455	0.0698	0.1882	-0.1727
Kurtosis	11.543	9.663	8.798	8.450	3.756	2.993	3.164	2.463	2.978	1.936	1.916	1.852
Observations	2980	2980	2980	2980	829	829	829	829	1167	1167	1167	1167

APPENDIX D

REGRESSION STATISTICS OF EACH MODEL

Table D.1: Series A Regression Statistics of the Galai-Schneller model

Dependent Variable:	(MARKETA-MODELAGS)/MARKETA			
Method: Least Squares		Sample: 1 4468		
Date: 04/11/07 Time: 14:21		Included observations: 4468		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.991798	0.180983	5.480074	0
(VGS-KA)/KA	-0.097072	0.019514	-4.974412	0
TA	0.00194	0.011931	0.162563	0.8709
VOLGS	-2.586316	0.20564	-12.57691	0
R	-5.811257	2.867186	-2.026816	0.0427
R-squared	0.444341	Mean dependent var		-0.836683
Adjusted R-squared	0.443843	S.D. dependent var		0.830226
S.E. of regression	0.619149	Akaike info criterion		1.880176
Sum squared resid	1710.869	Schwarz criterion		1.887343
Log likelihood	-4195.313	F-statistic		892.2259
Durbin-Watson stat	0.235181	Prob(F-statistic)		0

Table D.2: Series A Regression Statistics of the Lim-Terry Model

Dependent Variable:	(MARKETA-MODELALT)/MARKETA			
Method: Least Squares		Sample: 1 4468		
Date: 04/11/07 Time: 14:21		Included observations: 4468		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.171315	0.078121	2.192952	0.0284
(VLT-KA)/KA	-0.018189	0.006129	-2.967651	0.003
TA	-0.037272	0.006574	-5.66981	0
VOLLT	-0.413544	0.082416	-5.017745	0
R	1.871196	1.317219	1.420566	0.1555
R-squared	0.149605	Mean dependent var		-0.118534
Adjusted R-squared	0.148843	S.D. dependent var		0.337075
S.E. of regression	0.310979	Akaike info criterion		0.502934
Sum squared resid	431.6069	Schwarz criterion		0.510102
Log likelihood	-1118.555	F-statistic		196.2878
Durbin-Watson stat	0.352938	Prob(F-statistic)		0

Table D.3: Series A Regression Statistics of the Darsinos-Satchell model

Dependent Variable:	(MARKETA-MODELADS)/MARKETA			
Method: Least Squares		Sample: 1 4468		
Date: 04/11/07 Time: 14:21		Included observations: 4468		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.923937	0.170592	5.416049	0
(VDS-KA)/KA	-0.070074	0.018377	-3.813166	0.0001
TA	-0.008392	0.011114	-0.755059	0.4503
VOLDS	-2.455762	0.186002	-13.2029	0
R	-4.436298	2.69551	-1.64581	0.0999
R-squared	0.416683	Mean dependent var		-0.754506
Adjusted R-squared	0.41616	S.D. dependent var		0.758347
S.E. of regression	0.579449	Akaike info criterion		1.747639
Sum squared resid	1498.5	Schwarz criterion		1.754807
Log likelihood	-3899.226	F-statistic		797.0178
Durbin-Watson stat	0.244502	Prob(F-statistic)		0

Table D.4: Series A Regression Statistics of the Dennis-Rendleman Model

Dependent Variable:	(MARKETA-MODELADR)/MARKETA			
Method: Least Squares		Sample: 1 4468		
Date: 04/11/07 Time: 14:21		Included observations: 4468		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.044345	0.07278	0.609301	0.5424
(VDR-KA)/KA	-0.043266	0.007324	-5.907088	0
TA	-0.040653	0.006346	-6.406439	0
VOLDR	-0.052906	0.108669	-0.486849	0.6264
R	3.153677	1.172169	2.690462	0.0072
R-squared	0.137231	Mean dependent var		-0.027655
Adjusted R-squared	0.136458	S.D. dependent var		0.306802
S.E. of regression	0.285101	Akaike info criterion		0.329175
Sum squared resid	362.7651	Schwarz criterion		0.336342
Log likelihood	-730.376	F-statistic		177.47
Durbin-Watson stat	0.349401	Prob(F-statistic)		0

Table D.5: Series B Regression Statistics of the Galai-Schneller Model

Dependent Variable:	(MARKETB-MODELBGS)/MARKETB			
Method: Least Squares		Sample: 1 5269		
Date: 04/11/07 Time: 14:21		Included observations: 5269		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.285081	0.131794	9.750668	0
(VGS-KB)/KB	-0.266695	0.040824	-6.53273	0
TB	-0.13933	0.017739	-7.854467	0
VOLGS	-2.264003	0.325937	-6.946131	0
R	0.068744	1.346208	0.051065	0.9593
R-squared	0.662646	Mean dependent var		-0.78771
Adjusted R-squared	0.66239	S.D. dependent var		0.922009
S.E. of regression	0.535726	Akaike info criterion		1.590561
Sum squared resid	1510.782	Schwarz criterion		1.596796
Log likelihood	-4185.334	F-statistic		2584.945
Durbin-Watson stat	0.024638	Prob(F-statistic)		0

Table D.6: Series B Regression Statistics of the Lim-Terry Model

Dependent Variable:	(MARKETB-MODELBLT)/MARKETB			
Method: Least Squares		Sample: 1 5269		
Date: 04/11/07 Time: 14:21		Included observations: 5269		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.50144	0.060565	8.279382	0
(VLT-KB)/KB	-0.018795	0.016111	-1.166585	0.2434
TB	-0.053161	0.010546	-5.040934	0
VOLLT	-1.145398	0.135436	-8.457115	0
R	7.802126	0.781988	9.977301	0
R-squared	0.507866	Mean dependent var		-0.089431
Adjusted R-squared	0.507492	S.D. dependent var		0.380451
S.E. of regression	0.266996	Akaike info criterion		0.197785
Sum squared resid	375.2549	Schwarz criterion		0.204019
Log likelihood	-516.0639	F-statistic		1358.066
Durbin-Watson stat	0.034975	Prob(F-statistic)		0

Table D.7: Series B Regression Statistics of the Darsinos-Satchell Model

Dependent Variable:	(MARKETB-MODELBDS)/MARKETB			
Method: Least Squares		Sample: 1 5269		
Date: 04/11/07 Time: 14:21		Included observations: 5269		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.005205	0.063091	15.9326	0
(VDS-KB)/KB	-0.04974	0.014995	-3.317081	0.0009
TB	-0.085407	0.010504	-8.13086	0
VOLDS	-1.769489	0.140411	-12.60223	0
R	5.54575	0.767701	7.223842	0
R-squared	0.699648	Mean dependent var		-0.188323
Adjusted R-squared	0.69942	S.D. dependent var		0.493579
S.E. of regression	0.270605	Akaike info criterion		0.224638
Sum squared resid	385.4683	Schwarz criterion		0.230872
Log likelihood	-586.8089	F-statistic		3065.531
Durbin-Watson stat	0.038526	Prob(F-statistic)		0

Table D.8: Series B Regression Statistics of the Dennis-Rendleman Model

Dependent Variable:	(MARKETB-MODELBDR)/MARKETB			
Method: Least Squares		Sample: 1 5269		
Date: 04/11/07 Time: 14:21		Included observations: 5269		
Newey-West HAC Standard Errors & Covariance (lag truncation=9)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.67937	0.071044	9.562664	0
(VDR-KB)/KB	-0.081772	0.015265	-5.356867	0
TB	-0.059932	0.01043	-5.746317	0
VOLDR	-1.201438	0.15502	-7.750206	0
R	4.85648	0.790773	6.141437	0
R-squared	0.482212	Mean dependent var		0.004318
Adjusted R-squared	0.481819	S.D. dependent var		0.377021
S.E. of regression	0.271398	Akaike info criterion		0.230487
Sum squared resid	387.7293	Schwarz criterion		0.236721
Log likelihood	-602.217	F-statistic		1225.583
Durbin-Watson stat	0.033018	Prob(F-statistic)		0

BIOGRAPHY

Miss Gunyawee Teekathananont was born on April 11, 1983 in Bangkok. During 1998-2001, she attended Triam Udom Suksa School where she demonstrated not only competence in mathematics, physics and informatics but also substance in public contributions. In 2000, she was the committee in English club and mathematics club. At the undergraduate level, she received a 2^{nd} class honours degree in Computer Engineering from Chulalongkorn University in 2005. Subsequently, she joined the Master of Science Program in Finance in 2005.