

Sources of the Stock Price Fluctuations in Chinese Equity Market

Appendix A

Table A.1. Monthly Summary Statistics of the Chinese Stock Market

	Dividends Growth	Price-Dividend Ratio	Total Returns
Mean	0.09	4.36	0.11
Standard Deviation	1.60	0.39	1.37
1 st Order Autocorrelation	-0.35	0.94	-0.06

Notes: Data are annualized monthly observations from 1994M07 to 2011M05.

Table A.2. State-Space Estimation Results Using Monthly Data

(Variables: dividends growth and price-dividend, lag = 1)

(Restriction: $\rho_{\mu g} = 0$)

Parameters	Estimates	Standard Errors
a_g	0.1072	0.0419
ϕ_g	0.1967	0.2449
a_μ	0.1192	0.0424
ϕ_μ	0.9459	0.0192
σ_d	1.6218	0.0829
σ_μ	0.0083	0.0024
σ_g	0.0218	0.0076
$\rho_{d\mu}$	0.4830	0.0872
ρ_{dg}	-0.8756	0.0444
Log-Likelihood Value	-200.39007	
	Implied Parameters Estimates	
σ_r	1.5412	0.0790
ρ_{dr}	0.9981	0.0003
$\rho_{\mu r}$	0.4275	0.0905
ρ_{gr}	-0.9040	0.0386
	Model Constants	
κ	0.0674	--
ρ	0.9875	--
	ZILC Indication	
σ_μ / σ_r	0.0054	--
σ_g / σ_d	0.0135	--

Notes: data are annualized monthly observations from 1994M07 to 2011M05. The model is estimated by imposing the restriction $\rho_{\mu g} = 0$. a_g is the average dividend growth rate; ϕ_g is the

AR(1) parameter in the expected dividend growth process; a_μ is the average return; ϕ_μ is the AR(1) parameter in the expected return process; σ_d is the size of the news shock to the realized dividend growth; σ_μ is the size of the shock to the expected return; σ_g is the size of the shock to the expected dividend growth; $\rho_{d\mu}$ is the correlation between the news shock to realized dividend growth and the shock to the expected return; ρ_{dg} is the correlation between the news shock to the realized dividend growth and the shock to the expected dividend growth. Implied parameters estimates are calculated from the implicit restriction (3.9) and their standard errors are computed using the Delta method. σ_r is the size of the news shock to the realized returns; ρ_{dr} is the correlation between the news shock to realized dividend growth and the news shock to realized returns; $\rho_{\mu r}$ is the correlation between the shock to the expected returns and the news shock to the realized returns; ρ_{gr} is the correlation between the shock to the expected dividend growth and the news shock to the realized returns.

Table A.3. State-Space Variance Decomposition Using Monthly Data

(Variables: dividend growth and price-dividend, lag = 1)

(Restriction: $\rho_{\mu g} = 0$)

Variance Decomposition of Price-Dividend Ratio (%)	
Contribution of expected return μ_t	98.06%
Contribution of expected dividend growth g_t	0.50%
Covariance contribution	0%
Approximation error (1 minus the above three)	1.44%

Notes: data are annualized monthly observations from 1994M07 to 2011M05. The covariance contribution is by construction 0% since the model is estimated by imposing $\rho_{\mu g} = 0$ and the

covariance contribution can be shown to be equal to $-\frac{2}{(1-\rho\phi_g)(1-\rho\phi_\mu)} \cdot \sigma_\mu \cdot \sigma_g \cdot \rho_{\mu g}$. The last

line reports the approximation error of the Campbell-Shiller linearization which is defined to be 100% minus the above three lines.

Appendix B

Table B.1. State-Space Estimation Results Using Returns

(Variables: returns and price-dividend, lag = 1)

(Restriction: $\rho_{\mu g} = 0$)

Parameters	Estimates	Standard Errors
a_g	0.0722	0.0447
ϕ_g	0.0396	0.1072
a_μ	0.0868	0.0351
ϕ_μ	0.9930	6.89e-6
σ_r	0.8048	0.0682
σ_g	0.0305	0.0037
σ_μ	0.0036	0.0003
$\rho_{r\mu}$	-0.9475	0.135
ρ_{rg}	0.3197	0.0401
Log-Likelihood Value	49.1995	
	Implied Parameters Estimates	
σ_d	0.6183	0.0519
ρ_{dr}	0.9988	0.0003
$\rho_{d\mu}$	-0.9308	0.0168
ρ_{dg}	0.3655	0.0429
	Model Constants	
κ	0.0646	--
ρ	0.9881	--
	ZILC Indication	
σ_μ / σ_r	0.0044	--
σ_g / σ_d	0.0493	--

Notes: data are annualized quarterly observations from 1995Q3 to 2011Q1. The model is estimated by imposing the restriction $\rho_{\mu g} = 0$. a_g is the average dividend growth rate; ϕ_g is the AR(1) parameter in the expected dividend growth process; a_μ is the average return; ϕ_μ is the AR(1) parameter in the expected return process; σ_r is the size of the news shock to the realized returns; σ_μ is the size of the shock to the expected return; σ_g is the size of the shock to the expected dividend growth; $\rho_{r\mu}$ is the correlation between the shock to the expected returns and the news shock to the realized returns; ρ_{rg} is the correlation between the shock to the expected dividend growth and the news shock to the realized returns. Implied parameters estimates are calculated from the implicit restriction (3.9) and their standard errors are computed using the Delta method. σ_d is the size of the news shock to the realized dividend growth; $\rho_{d\mu}$ is the correlation between the news shock to realized dividend growth and the shock to the expected return; ρ_{dg} is the correlation between the news shock to the realized dividend growth and the shock to the expected dividend growth.; ρ_{dr} is the correlation between the news shock to realized dividend growth and the news shock to realized returns.

Table B.2. State-Space Variance Decomposition Using Returns

(Variables: returns and price-dividend, lag = 1)

(Restriction: $\rho_{\mu g} = 0$)

Variance Decomposition of Price-Dividend Ratio (%)	
Contribution of expected return μ_t	2271.97%
Contribution of expected dividend growth g_t	0.89%
Covariance contribution	0%
Approximation error (1 minus the above three)	-2172.85%

Notes: data are annualized quarterly observations from 1995Q3 to 2011Q1. The covariance contribution is by construction 0% since the model is estimated by imposing $\rho_{\mu g} = 0$ and the

covariance contribution can be shown to be equal to $-\frac{2}{(1-\rho\phi_g)(1-\rho\phi_\mu)} \cdot \sigma_\mu \cdot \sigma_g \cdot \rho_{\mu g}$. The last

line reports the approximation error of the Campbell-Shiller linearization which is defined to be 100% minus the above three lines.

Appendix C

Table C.1. State-Space Estimation Results Using Alternative Identifying Restrictions

(Variables: dividends growth and price-dividend, lag = 1)

(Restriction: $\rho_{dg} = 0$)

Parameters	Estimates	Standard Errors
a_g	0.0847	0.0459
ϕ_g	0.6470	0.0741
a_μ	0.0969	0.0475
ϕ_μ	0.8136	0.0434
σ_d	0.0509	0.0172
σ_μ	0.0868	0.0196
σ_g	0.1304	0.0127
$\rho_{d\mu}$	-0.3272	0.0652
$\rho_{\mu g}$	0.9450	0.0226
Log-Likelihood Value	65.8884	
	Implied Parameters Estimates	
σ_r	0.2020	0.0212
ρ_{dr}	0.9605	0.0297
$\rho_{\mu r}$	-0.5773	0.0842
ρ_{gr}	-0.2784	0.1023
	Model Constants	
κ	0.0646	--
ρ	0.9881	--
	ZILC Indication	
σ_μ / σ_r	0.4298	--
σ_g / σ_d	2.5649	--

Notes: data are annualized quarterly observations from 1995Q3 to 2011Q1. The model is estimated by imposing the restriction $\rho_{dg} = 0$. a_g is the average dividend growth rate; ϕ_g is the AR(1) parameter in the expected dividend growth process; a_μ is the average return; ϕ_μ is the AR(1) parameter in the expected return process; σ_d is the size of the news shock to the realized dividend growth; σ_μ is the size of the shock to the expected return; σ_g is the size of the shock to the expected dividend growth; $\rho_{d\mu}$ is the correlation between the news shock to realized dividend growth and the shock to the expected return; $\rho_{\mu g}$ is the correlation between the shock to the expected return and the shock to the expected dividend growth. Implied parameters estimates are calculated from the implicit restriction (3.9) and their standard errors are computed using the Delta method. σ_r is the size of the news shock to the realized returns; ρ_{dr} is the correlation between the news shock to realized dividend growth and the news shock to realized returns; $\rho_{\mu r}$ is the correlation between the shock to the expected returns and the news shock to the realized returns; ρ_{gr} is the correlation between the shock to the expected dividend growth and the news shock to the realized returns.

Table C.2. State-Space Variance Decomposition Using Alternative Identifying Restrictions

(Variables: dividend growth and price-dividend, lag = 1)

(Restriction: $\rho_{dg} = 0$)

Variance Decomposition of Price-Dividend Ratio (%)	
Contribution of expected return μ_t	510.29%
Contribution of expected dividend growth g_t	197.74%
Covariance contribution	-561.95%
Approximation error (1 minus the above three)	-46.08%

Notes: data are annualized quarterly observations from 1995Q3 to 2011Q1. The last line reports the approximation error of the Campbell-Shiller linearization which is defined to be 100% minus the above three lines.