

Alpha & Beta

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가

가

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7

Research Center

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‘Alpha & Beta’ ECM(Error Correction Model;) 가
 ‘Quantitative Research’ . 가
 가 , ECM()
 black-box , .
 .

1. ECM() 가

가 가 (fair value) , . 가 , fair value
 , , 가 . 가 가
 , 가 가
 .
 가 ‘ECM(Error Correction Model;)’ .
 ‘(error)’ ‘(correction)’ . ‘(error)’ 가가 , 가
 (fair value) ‘(correction)’ , ‘(correction)’ 가가 , 가 (fair value)
 . ‘ECM(Error Correction Model;)’ 가 - 가
 . ‘가’ , 가 가
 5 , 9 ECM() 99 98.5%
 (KOSPI p.8 [2] , ECM p.7 [1]).
 ‘가’ , black-box
 p.9 [2] KOSPI
 (qualitative) 가 .
 KOSPI 가 , .

2.

(ordinary beta) (benchmark index) 1% ()
 % 가 ()
 .
 , 가 .
 ,
 (ordinary beta) 가 . 가
 beta’ ‘Bull beta’, ‘Bear
 beta’ .
 .
 ‘Bear beta’ (‘Bull beta’
 p.21 [6]).
 KOSPI 가 Bear beta가 1
 , Bull beta가 1 .

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I. 7

- 7 KOSPI : 762pt (: 800pt, : 724pt)
- : , 가 , G7 ,
- : , (3), CRB Industrials ,
/

1.

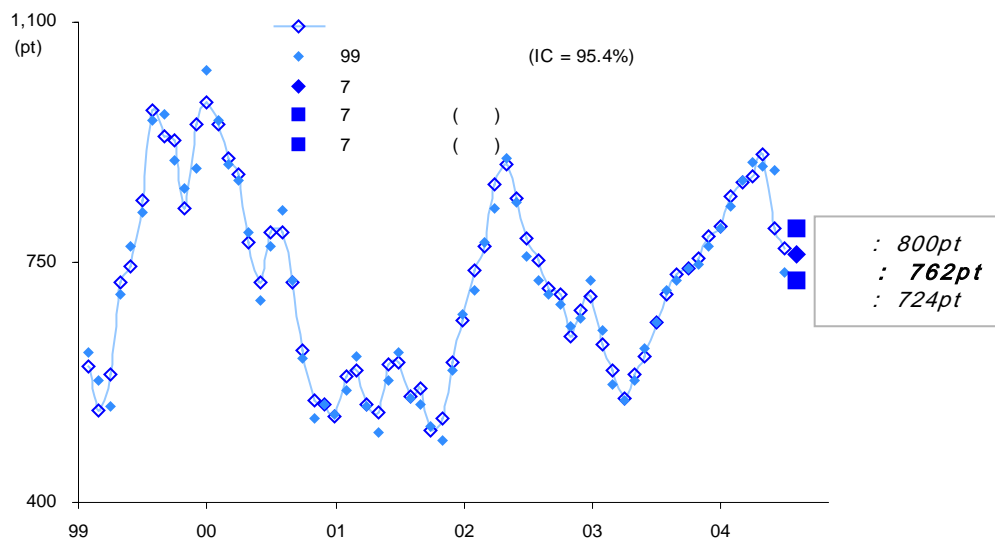
7 KOSPI ‘ 가 ’ 7 KOSPI 가 762pt ,
772pt (p.7 [1] [1]). 95%
: 762pt 7 KOSPI 800pt 724pt . 6
KOSPI 5 799pt 788pt , 6
772pt .

7 KOSPI 가 7 KOSPI
, 가 G7
(p.7 [1]). G7 3
KOSPI (p.13 [3 - 8]
) . 4 가 7
4 ()
(p.12 [3 - 6]).

7 KOSPI , (3) CRB Industrials
() KOSPI (p.7 [1]). CRB
Industrials 가 , KOSPI
가 (p.11 [3 - 3]). 가
5 가 (p.11 [3 - 1]
) ,
가 .



가
 , G7
.
.

[1] KOSPI 7



: 1) 1993 1 2004 6 ([1]).
2) 가 , 가 95% .
3) 7 가 ARIMA .
4) 99 1 - step out - of sample test (),
IC(Information Coefficient) , KOSPI 99
95.4% .
: Datastream,

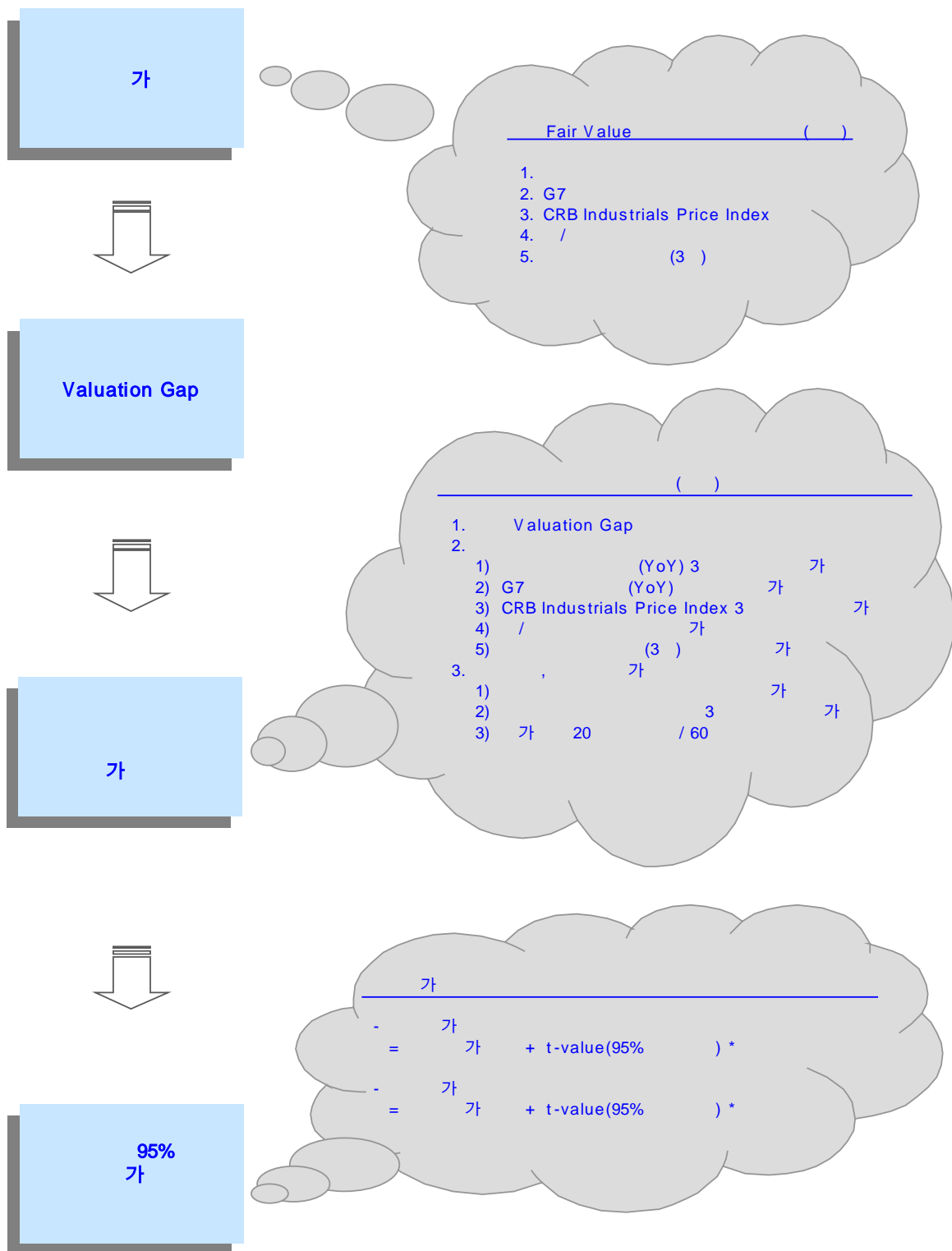
[1] KOSPI 7

				(%)	(pt)
		(YoY) 3	가	1.69	13.05
		(3)	가	1.19	9.21
		CRB Industrials Price Index 3	가	1.06	8.17
		Valuation Gap		0.64	4.91
	/	가		0.35	2.67
		3	가	-2.30	-17.78
	가	20	/ 60	-1.84	-14.16
	G7	(YoY)	가	-1.79	-13.80
			가	-0.11	-0.84
				-0.15	-1.17
				4.93	38.01
				-6.04	-46.59
()				-1.26	-9.74
6 : 771.61pt				7 : 761.87pt	

: 7 가 ARIMA .
:

2. KOSPI

[2] KOSPI

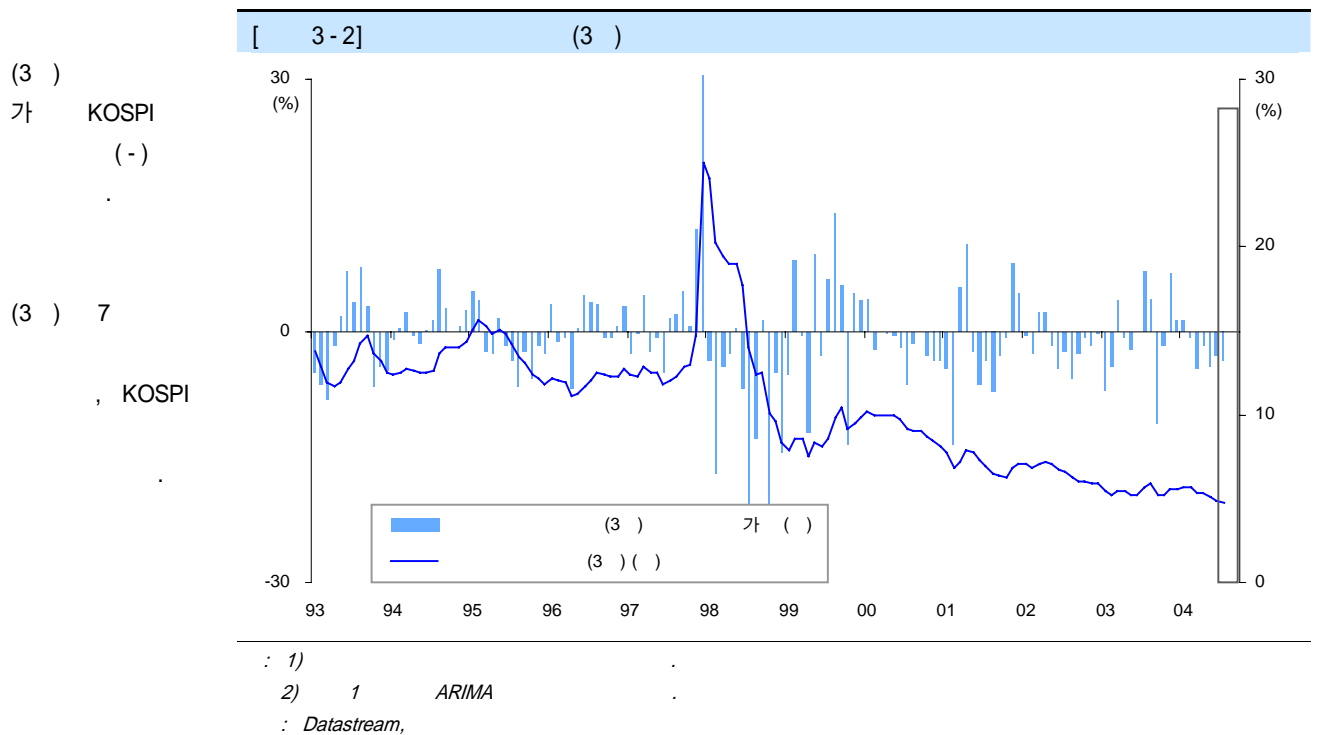
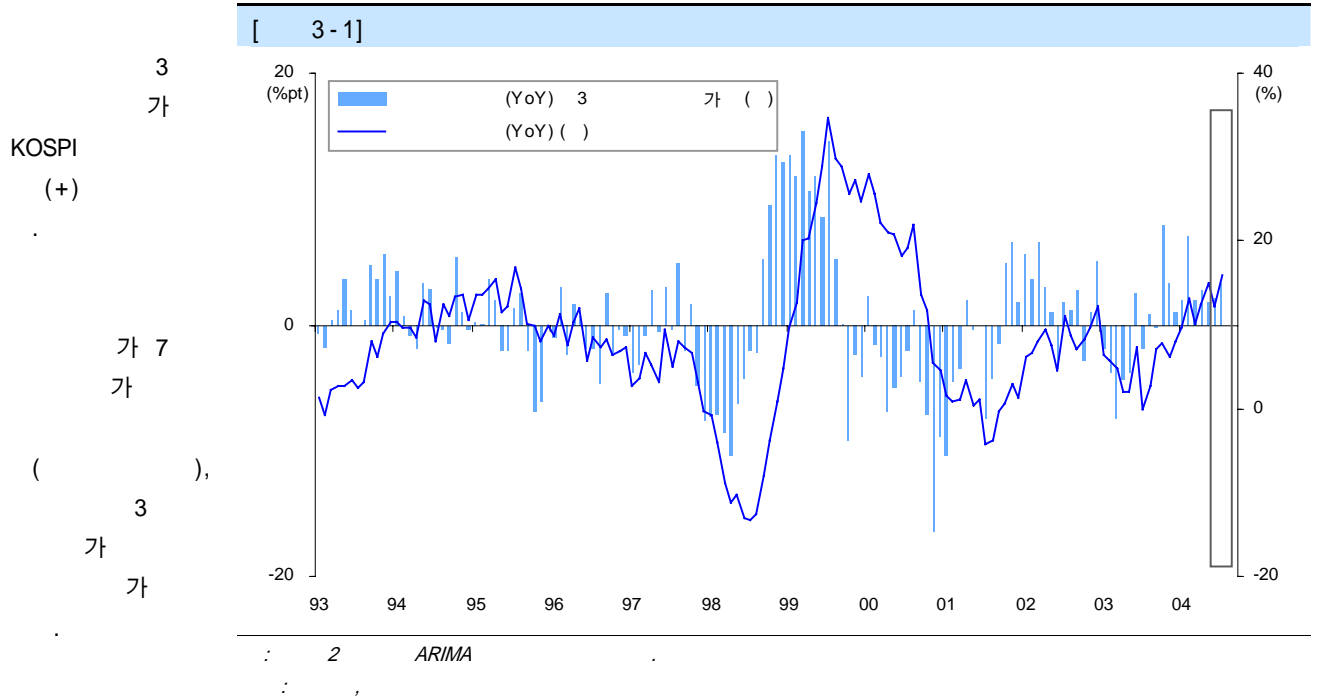


KOSPI

[2 - 1] Fair value			t-value	
			0.01	7.17 *
G7			0.03	5.37 *
CRB Industrials Price Index			-0.25	-2.42 *
/			-0.91	-10.81 *
(3)			-0.18	-5.20 *
			14.47	13.83 *
Adj. R2 ()			0.79	
: 1)	1993	1 2004 6		
2)	KOSPI			
3) *	95%			
:				

[2 - 2]					
				t-value	
Valuation Gap				-0.08	-4.00 *
3 가				0.50	9.93 *
G7 가				3.17	8.41 *
CRB Industrials Price Index 3 가				-0.11	-3.63 *
/ 가				-0.25	-3.06 *
(3) 가				-0.34	-11.16 *
가				0.03	2.45 *
3 가				0.19	10.55 *
가 20 / 60				1.27	25.30 *
				-0.15	-0.71
Adj. R2 ()				0.90	
: 1) 1993 1 2004 6					
2) KOSPI					
3) 가 (가 20 / 60) ' 가 20					
/ 60 , 8					
4) * 95%					
:					

3. KOSPI



CRB Industrials
Price Index 3
가

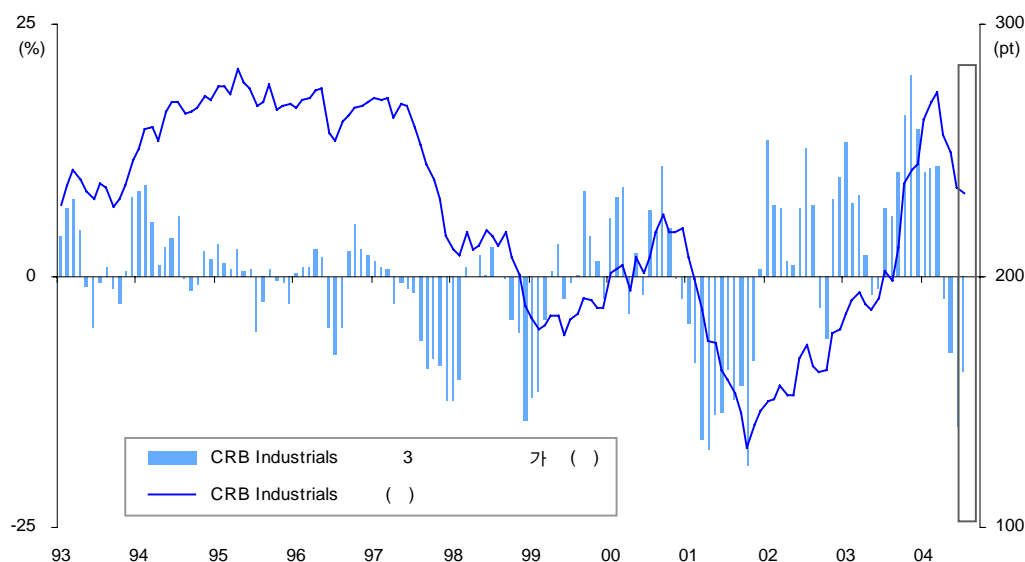
KOSPI
(-)

CRB Industrials
Price Index
가

KOSPI

가

[3 - 3] CRB Industrials Price Index



: 1) CRB Industrials Price Index

2) 1 ARIMA

: Datastream,

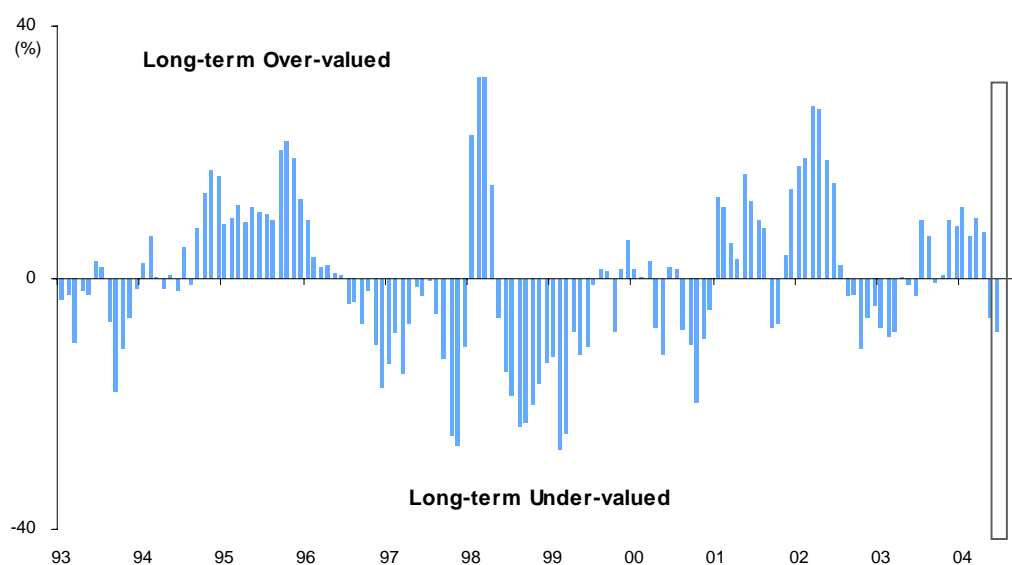
Valuation gap
KOSPI
(-)

4 KOSPI
가

,
2
가

가
KOSPI

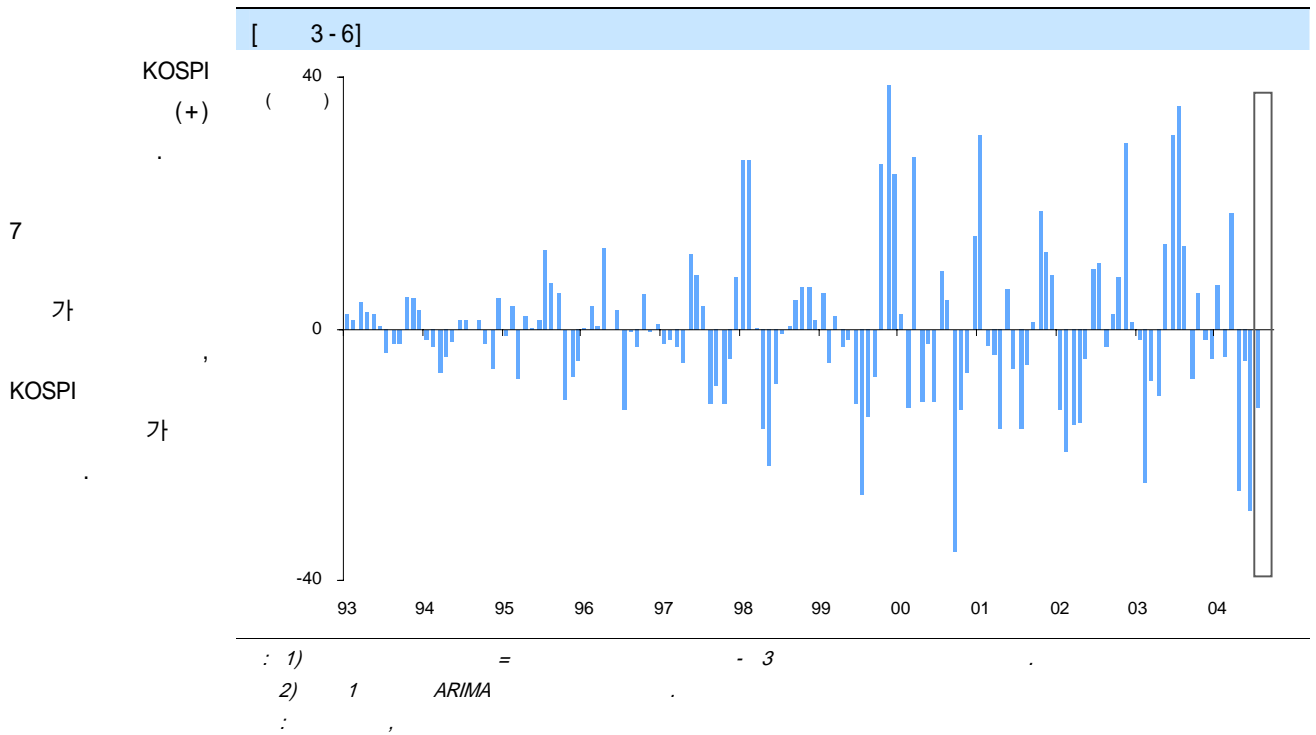
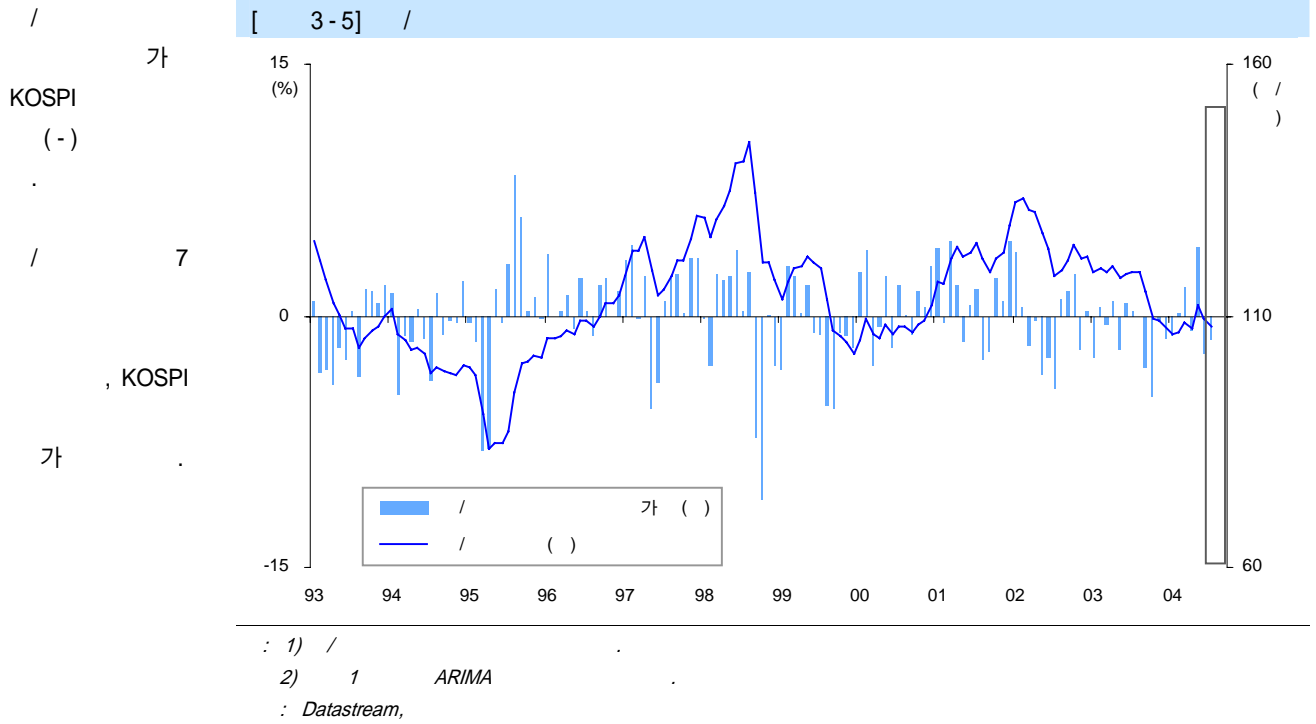
[3 - 4] Valuation Gap

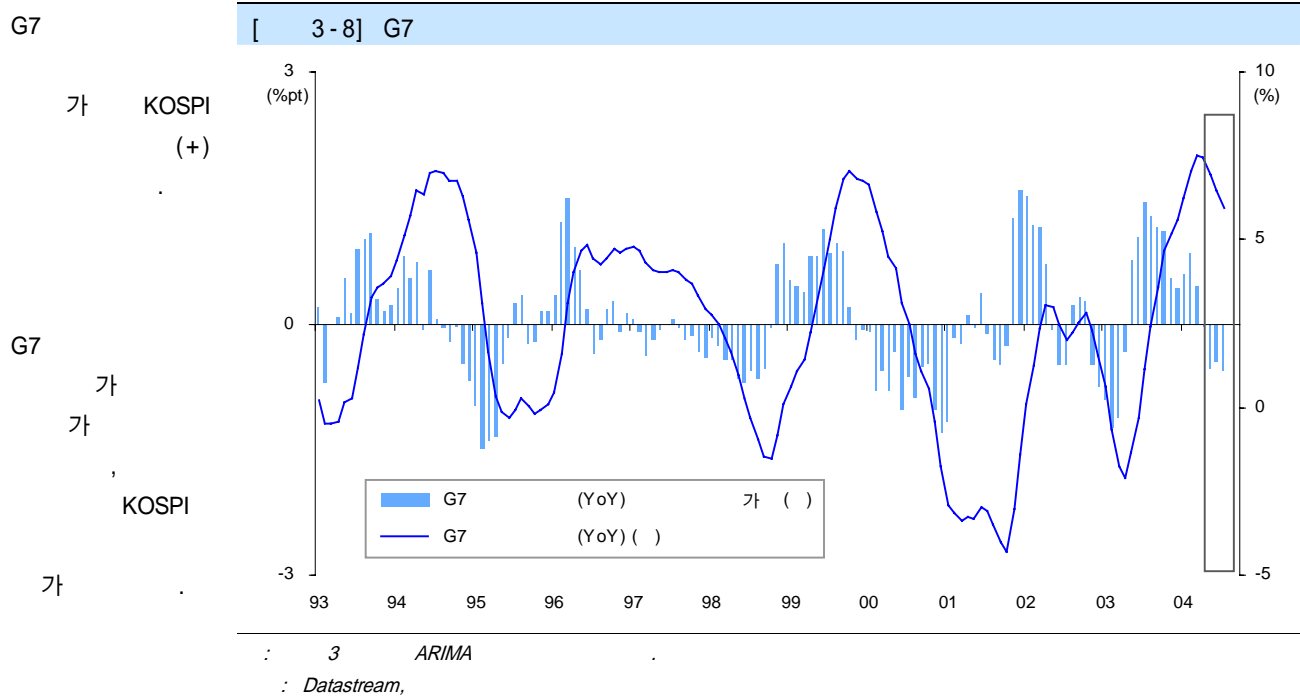
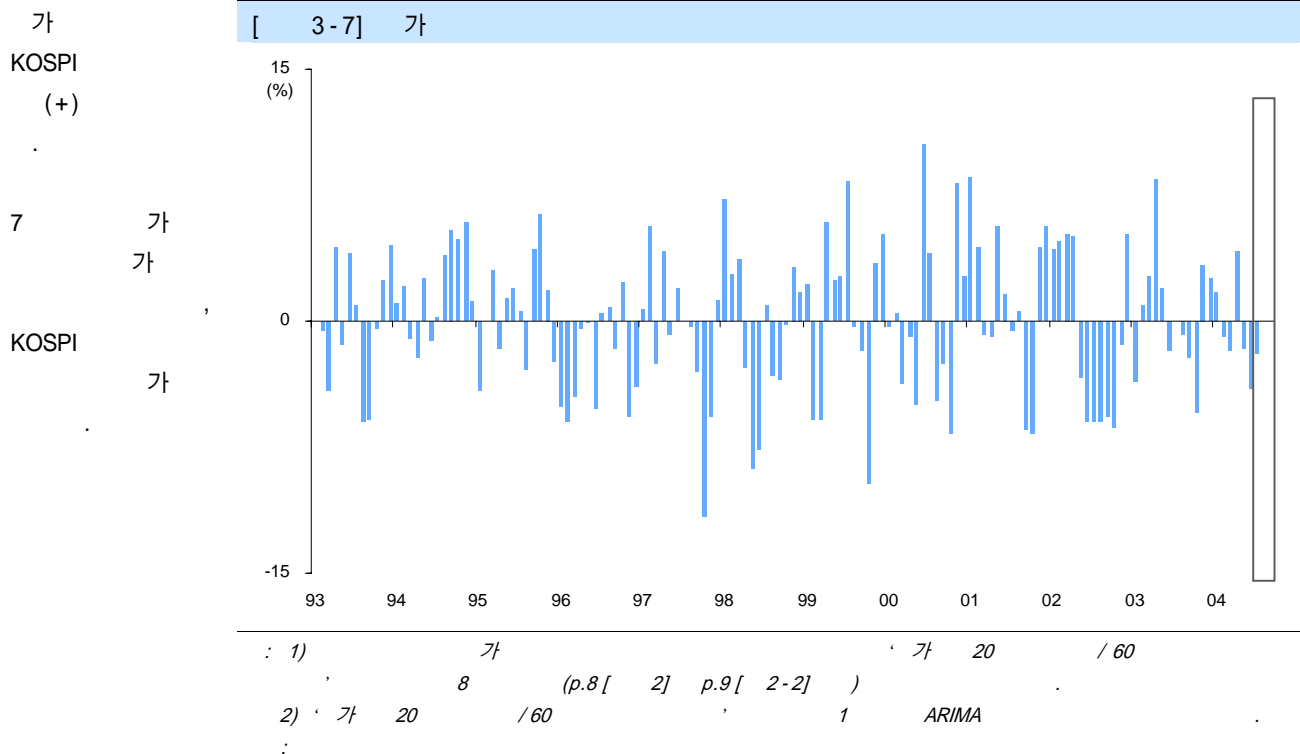


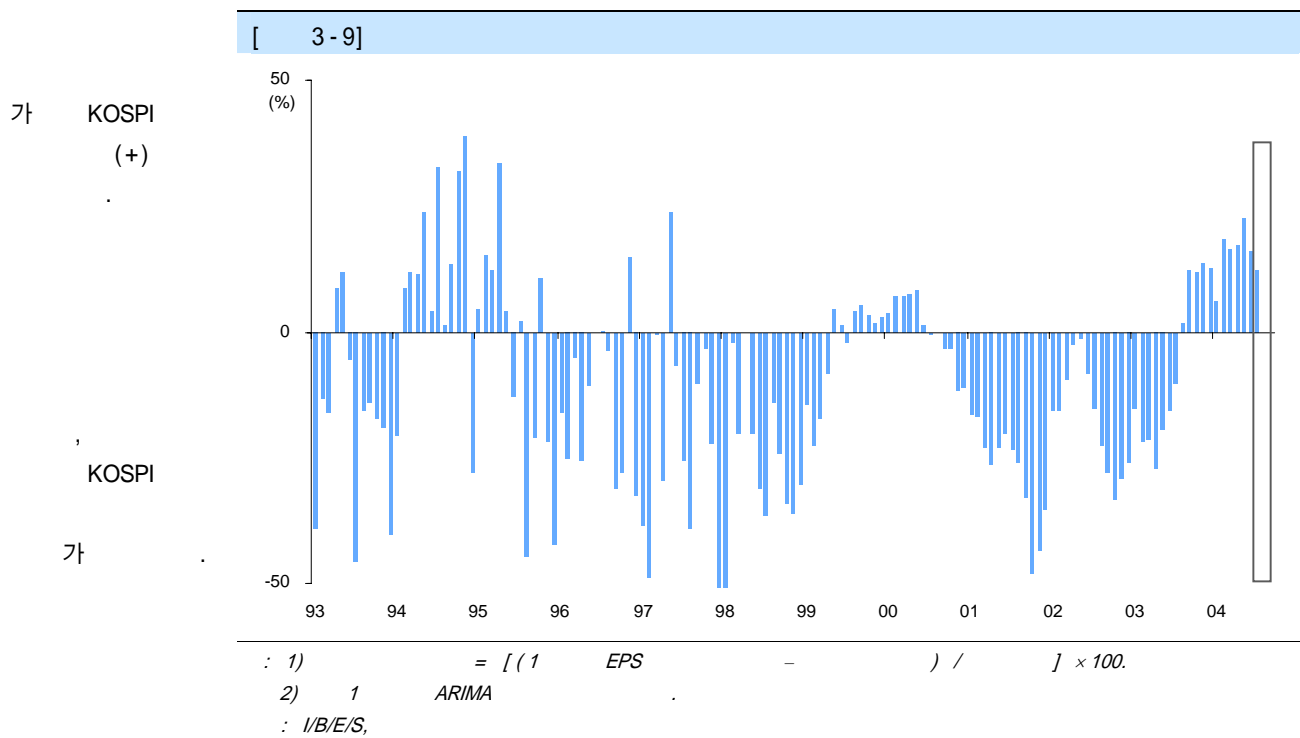
: 1) $Valuation\ Gap = [(가 - Fair\ Value) / Fair\ Value] \times 100$

2) 1

:



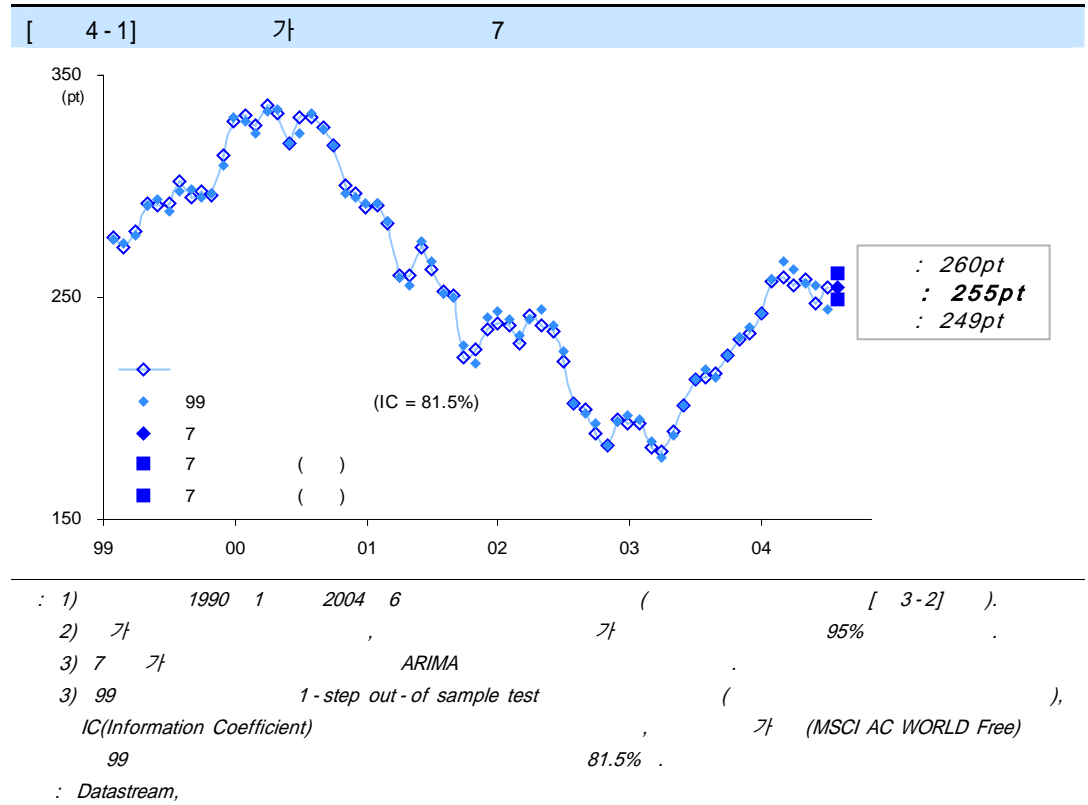






B Back to the Basics

4. 가

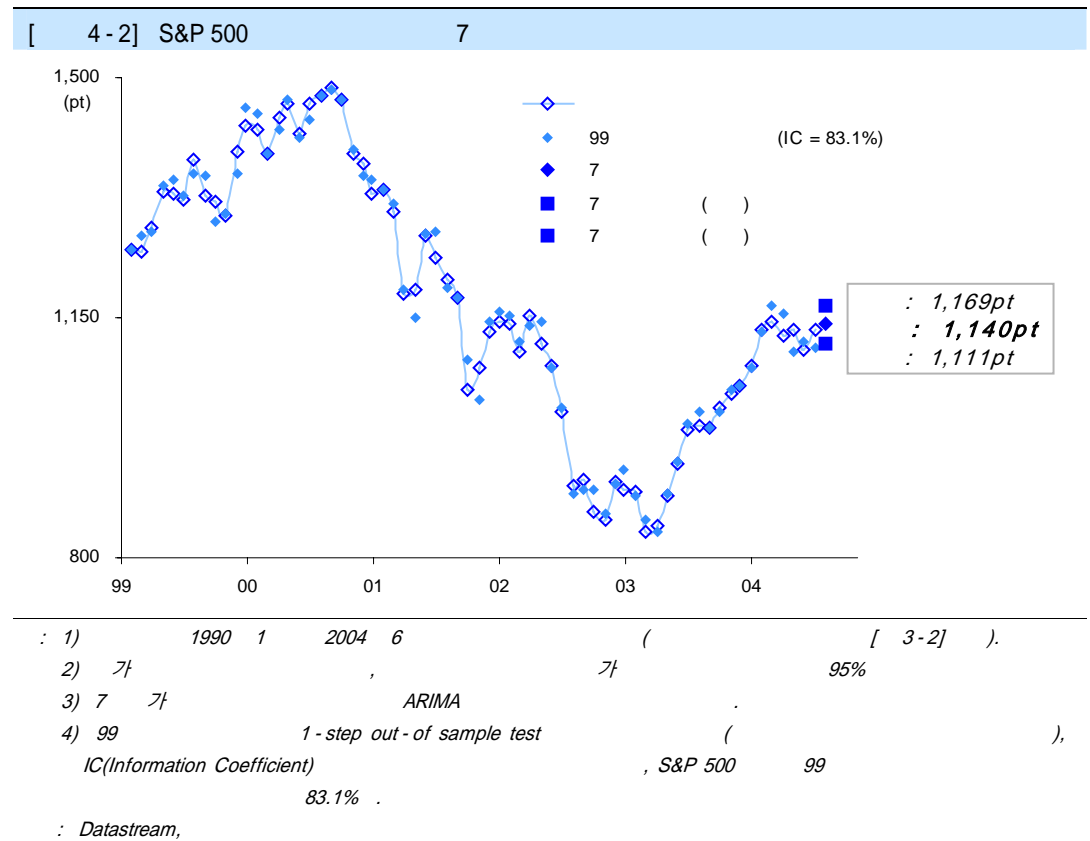
4.1 : MSCI AC WORLD Free



[3 - 1]		가		7		
				(%)	(pt)	
	G7	가		0.59	1.50	
	Trade-weighted Dollar Index		가	0.17	0.43	
	Valuation Gap			0.04	0.10	
		()	3	가	-0.53	-1.35
		(2)	가		-0.13	-0.32
			가		-0.08	-0.19
	가 20	/ 60			-0.07	-0.17
	CRB Price Index		가		-0.01	-0.03
					0.04	0.09
				0.80	2.04	
				-0.81	-2.07	
()				0.02	0.06	
6 : 254.56pt				7	: 254.62pt	

: 7 가 ARIMA .
:

4.2 : S&P 500

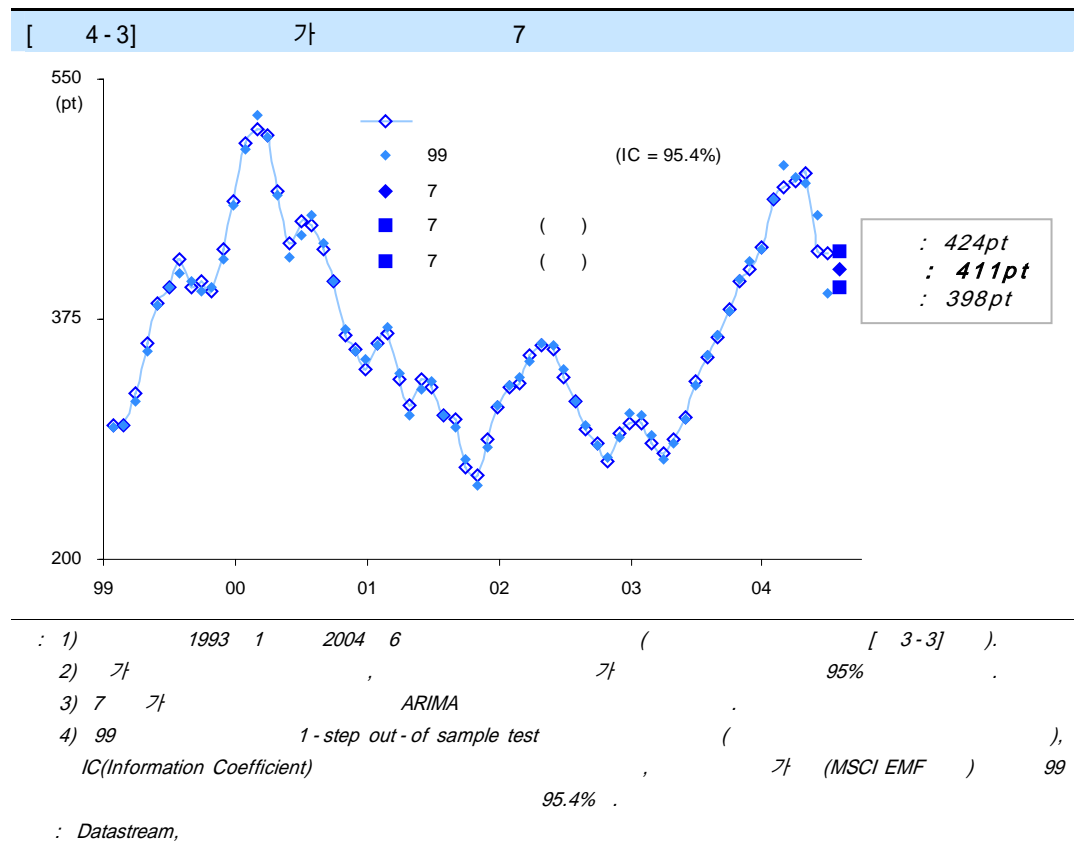


[3 - 2] S&P 500 7

	(%)	(pt)
가 20 / 60	1.20	13.64
가	0.71	8.05
Valuation Gap	0.16	1.83
() 3 가	-1.19	-13.51
(3) 가	-0.30	-3.39
가	-0.17	-1.97
Trade-weighted Dollar Index 가	-0.07	-0.77
CRB Price Index 가	-0.03	-0.29
	0.36	4.05
	2.08	23.52
	-1.76	-19.92
()	0.68	7.65
6 : 1132.35pt	7 : 1140.00pt	

: 7 가 ARIMA
:

4.3 : MSCI EMF

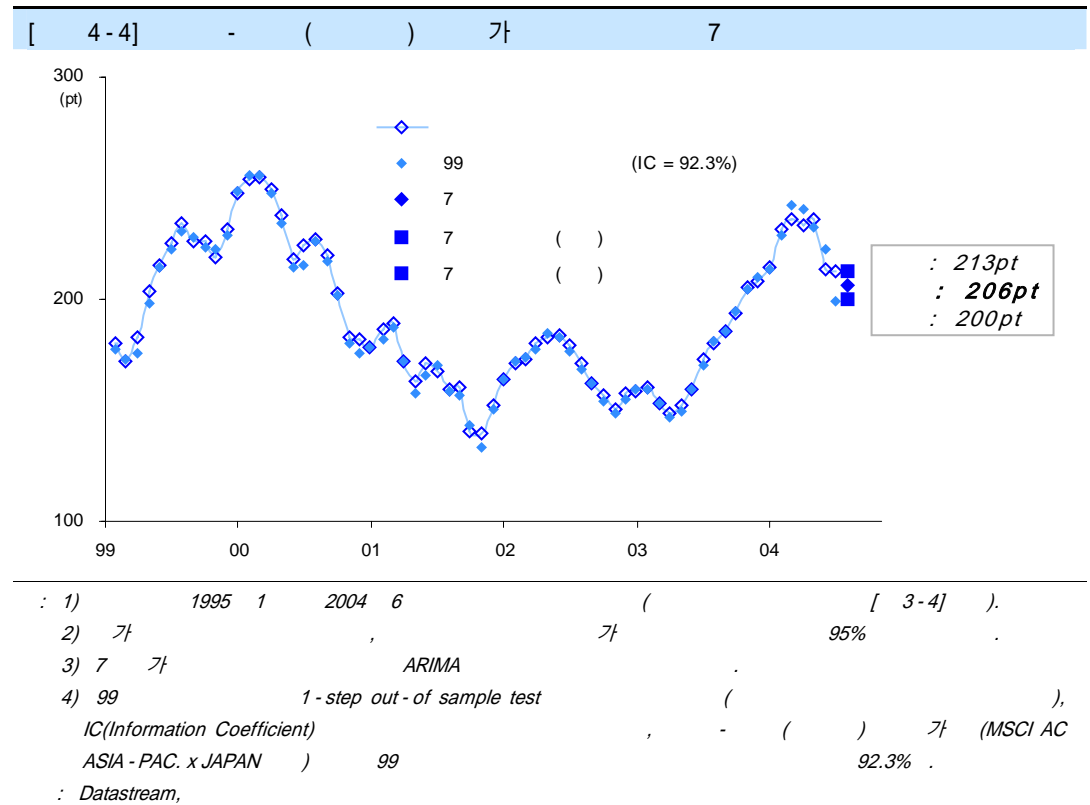


[3 - 3] 가 7

		(%)	(pt)
Valuation Gap		0.35	1.47
G7 (YoY) 가		-1.67	-7.08
(3) 3 가		-0.66	-2.80
() 3 가		-0.36	-1.51
		-0.16	-0.68
CRB Industrials Price Index 가		-0.14	-0.57
가 20 / 60		-0.12	-0.51
Trade-weighted Dollar Index 가		-0.11	-0.48
		-0.08	-0.36
		0.35	1.47
		-3.22	-13.63
()		-2.95	-12.52
6	: 423.84pt	7	: 411.32pt

: 7 가 ARIMA .
:

4.4 - () : MSCI AC ASIA-PAC. x JP



[3 - 4] - () 가 7

		(%)	(pt)
Valuation Gap		1.21	2.58
Trade-weighted Dollar Index 3	가	0.18	0.37
G7 (YoY)	가	-2.10	-4.47
가 20 / 60		-0.85	-1.81
() 3 가		-0.53	-1.12
(3) 가		-0.31	-0.66
CRB Industrials Price Index	가	-0.21	-0.44
	가	-0.15	-0.33
		-0.09	-0.20
		1.39	2.95
		-4.15	-8.82
()		-2.86	-6.07
6 : 212.51pt	7 : 206.44pt		

: 7 가 ARIMA .
:

II.

1. 7

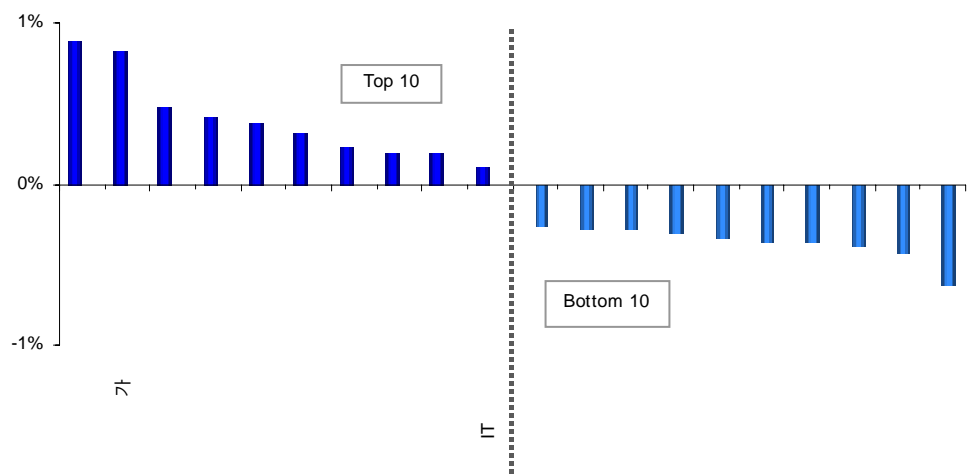
가 (pp.21 - 23).

(p.7 [1] [1]) 'Bear beta'가
(p.25 [4 - 1]).
, 1)

(p.16 [4 - 1] [3 - 1]) 'Bear beta'가
(p.25 [4 - 1]) 2) 'Bull beta'가 'Bear beta'
가 (p.26 [4 - 2]).
(p.29 [5]) 가 (pp.30 - 41 [9 - 1]-[20 - 3]).

, 7 , , ,

[5] 7 () : Top 10 vs. Bottom 10

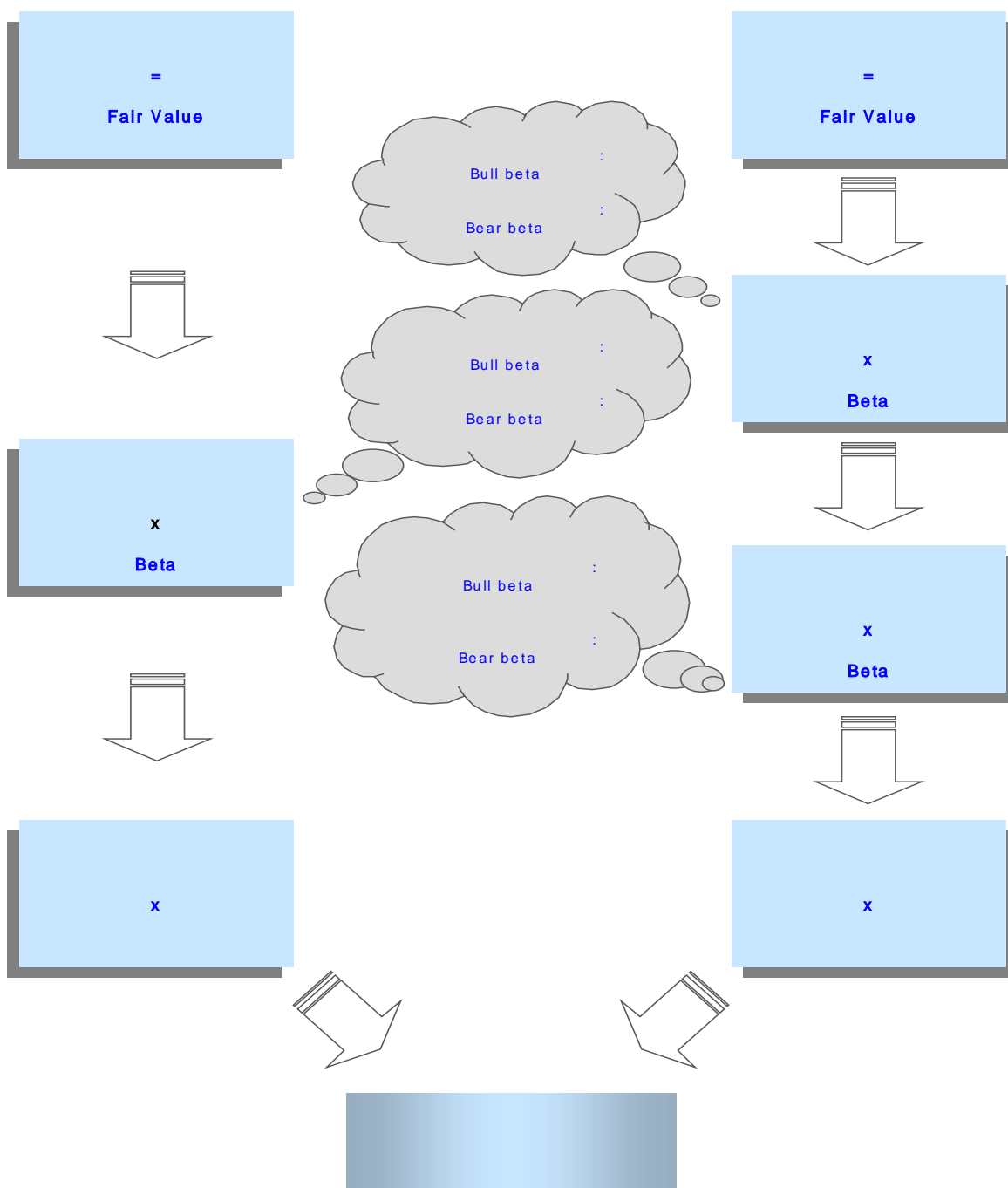


: 1) , Bull beta() Bear beta()

2) Bull beta Bear beta 가 (beta)

:

[6]



∴ 1) beta 가 . () ‘Bull beta’
 , () ‘Bear beta’ (beta ()
)). 가
‘Bull beta’ , ‘Bear beta’ .
2) beta .
3) beta .
∴

2.1 Bull beta Bear beta ?

Ordinary beta

(ordinary beta) (benchmark index) 1%
 () % 가 . '1'
 가 . 가 '1'
 가 , '1'
 가 .

(ordinary beta) 가 '1'
 () , 가 '1'
 () .

Bull beta vs. Bear beta

()
 . ,
 가 .
 ,
 가 (ordinary beta)가 가 .
 가
 가 'Bull beta', 'Bear beta'
 .
 2 , .
 Bull beta Bear beta
 ,
 () 가 ()
 Bull beta , Bear beta
 .
 가 .

(Bull beta Bear beta Appendix)

2.2

?

가

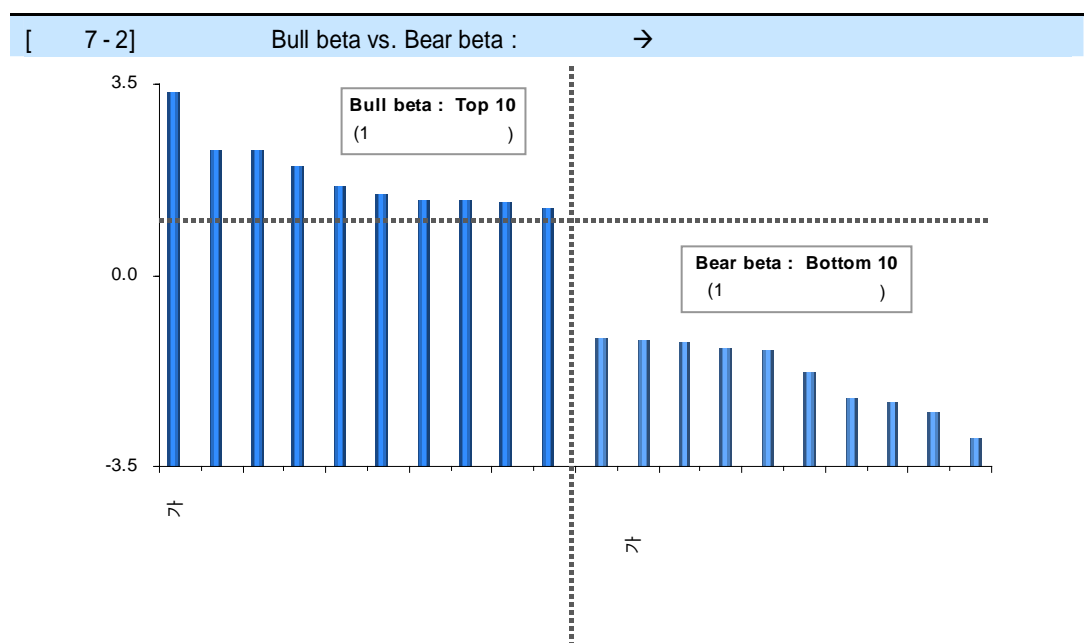
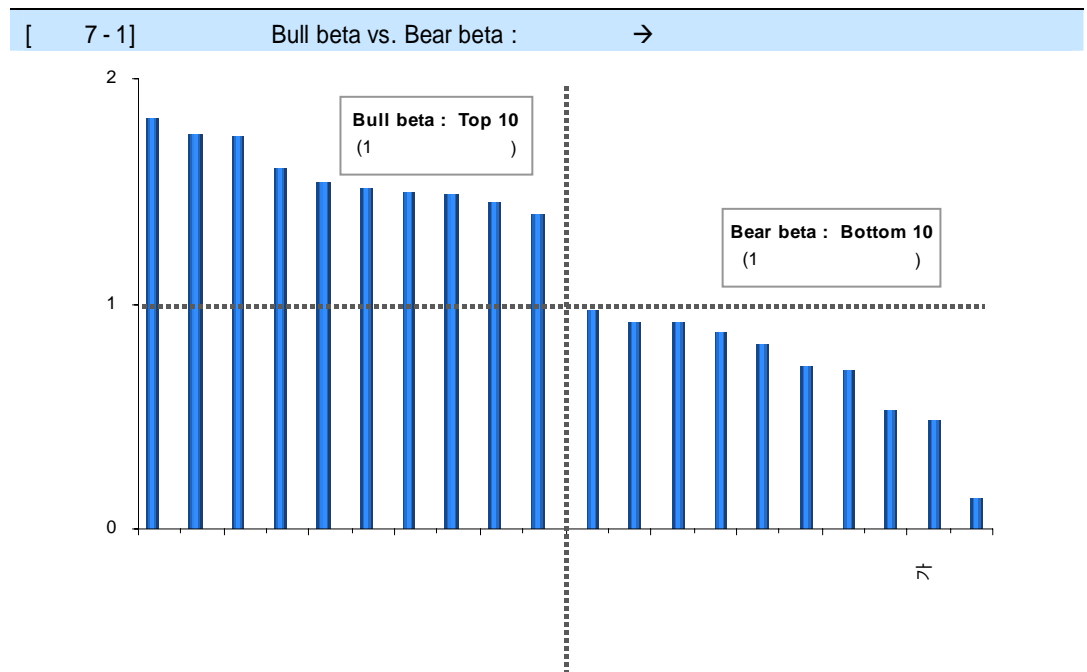
.
,

2

Bull beta Bear beta
가

(
Appendix)

3. Bull beta vs. Bear beta



: Bull beta 1 (가 (-)), Bear beta 1 (가 (-)).

pp.25 - 26 [4 - 1] - [4 - 2] .

:

3.1 Bull beta vs. Bear beta : →

[4 - 1]

Bull Beta				Bear Beta				Ordinary Beta			
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.65	0.95	0.91	0.78	1.08	0.93	1.03	1.11	0.93	1.02	0.96	1.01
1.09	0.88	0.75	1.08	1.27	0.81	0.88	0.66	1.10	0.97	0.84	1.01
0.38	0.98	1.23	0.71	0.98	0.98	1.33	1.28	0.82	1.06	1.18	1.07
1.02	1.18	1.19	0.43	1.08	1.25	1.30	0.61	0.99	1.13	1.17	0.69
0.91	1.09	1.11	0.90	1.04	0.99	0.98	0.94	0.94	1.08	1.07	0.91
0.87	0.69	0.69	0.60	1.21	1.01	0.91	1.22	0.94	0.96	0.87	0.85
0.97	0.32	0.53	0.80	1.12	0.66	1.13	0.93	0.84	0.66	0.86	0.85
0.94	0.91	0.29	1.47	1.34	1.14	0.79	0.77	0.94	1.12	0.61	1.15
0.65	0.88	0.78	0.76	1.04	1.04	0.99	1.07	0.78	1.09	1.08	1.27
0.64	0.88	0.78	0.76	1.00	1.04	0.99	1.07	0.74	1.09	1.08	1.27
0.78	0.88	0.78	0.76	1.11	1.04	0.99	1.07	0.95	1.09	1.08	1.27
1.12	0.66	0.91	1.60	0.81	0.64	0.63	1.17	0.99	0.99	0.90	1.63
0.57	1.43	1.27	1.29	1.01	0.85	1.08	1.24	0.75	1.18	1.12	1.01
1.32	0.68	0.76	1.10	1.05	0.54	0.62	0.92	1.36	0.70	0.74	1.00
1.40	1.48	1.86	1.65	1.17	1.05	1.40	1.08	1.44	1.25	1.56	1.48
1.21	0.65	NA	1.08	0.91	0.72	NA	1.02	1.28	0.75	NA	1.03
1.30	0.44	0.62	1.29	1.21	0.38	0.60	1.06	1.22	0.60	0.65	0.84
1.44	1.07	0.97	1.09	1.23	1.04	1.01	0.91	1.23	1.10	1.06	1.05
1.60	0.88	0.76	1.34	1.25	0.95	1.01	0.68	1.27	1.11	1.20	1.22
1.16	0.96	0.91	1.36	1.26	1.01	1.16	0.67	1.06	1.17	1.30	1.23
1.74	0.60	0.44	1.19	1.27	0.70	0.64	0.70	1.35	0.87	0.97	1.18
1.23	1.03	1.24	1.57	1.13	1.08	0.96	0.87	1.34	1.22	1.06	1.41
1.02	1.42	1.08	1.01	1.20	0.89	0.43	0.80	0.99	1.04	0.81	0.93
1.75	0.70	0.39	0.74	1.29	1.03	0.38	0.50	1.06	1.00	0.33	0.59
1.09	1.32	1.21	1.06	1.03	1.37	1.06	1.31	0.97	1.29	1.24	1.00
0.93	1.32	1.21	1.06	0.87	1.37	1.06	1.31	0.87	1.29	1.24	1.00
1.83	1.32	1.21	1.06	1.71	1.37	1.06	1.31	1.43	1.29	1.24	1.00
1.48	1.07	0.89	0.79	1.30	0.85	1.03	0.94	1.25	0.92	0.94	0.88
0.68	0.37	0.43	0.47	0.76	0.52	0.74	0.88	0.58	0.48	0.48	0.57
0.64	0.27	0.99	0.45	0.72	0.55	1.24	0.92	0.54	0.43	0.84	0.57
0.95	0.36	0.72	0.80	1.05	0.17	1.04	0.74	0.83	0.35	0.97	0.66
0.42	0.79	0.87	0.49	0.65	0.60	0.72	0.47	0.51	0.71	0.75	0.47
0.29	0.86	1.00	0.47	0.53	0.70	0.88	0.47	0.39	0.75	0.82	0.47
1.27	0.97	0.89	NA	1.18	0.34	0.36	NA	1.11	0.64	0.63	NA
1.37	1.38	1.44	1.16	0.99	1.10	1.11	1.02	1.26	1.17	1.17	0.98
1.33	1.24	1.17	1.13	0.92	0.91	0.95	1.18	1.23	1.03	0.95	0.99
1.37	1.59	1.54	1.15	1.32	1.35	1.08	2.27	1.12	1.16	1.18	0.96
1.60	1.61	1.59	1.78	1.10	1.14	1.19	1.19	1.36	1.48	1.60	1.50
1.16	1.49	1.52	1.19	0.96	1.33	1.20	0.57	1.05	1.34	1.21	0.90
1.46	1.39	1.08	1.73	1.16	1.61	1.27	0.85	1.23	1.48	1.36	1.46
1.51	1.89	1.60	1.81	1.08	1.65	2.26	-0.08	0.96	1.83	1.71	1.18
1.07	1.58	1.55	0.95	0.98	1.79	2.04	0.79	1.04	1.46	1.53	0.84
1.03	1.28	1.08	1.98	2.04	1.48	1.21	1.07	1.13	1.30	1.23	1.26
1.45	1.45	0.65	1.14	1.37	2.21	1.35	0.55	1.14	1.73	1.42	1.16
1.36	1.59	1.35	1.44	1.25	1.30	0.96	0.40	1.32	1.35	1.26	1.19
1.39	0.93	0.87	1.39	1.14	1.28	0.93	0.72	1.23	1.42	1.06	1.35
1.54	0.93	0.87	1.39	1.13	1.28	0.93	0.72	1.24	1.42	1.06	1.35
1.18	0.93	0.87	1.39	1.16	1.28	0.93	0.72	1.21	1.42	1.06	1.35
1.49	1.44	0.99	1.92	1.13	1.76	0.15	1.01	1.24	1.60	1.62	1.63
0.54	1.01	1.22	0.89	0.92	1.22	1.29	1.06	0.68	1.01	1.22	0.95
0.44	1.04	1.23	0.59	0.70	1.22	1.19	1.06	0.49	1.02	1.18	0.80
0.60	0.93	1.30	1.22	1.08	1.20	1.85	1.07	0.81	0.96	1.49	1.11
0.06	0.34	0.52	0.27	0.20	0.84	0.95	1.18	0.27	0.61	0.79	0.71
0.08	0.17	1.01	0.24	0.13	0.75	1.68	1.23	0.30	0.51	1.80	0.72
0.01	0.32	0.90	0.75	0.48	0.67	1.24	0.45	0.17	0.52	0.94	0.49
0.42	0.66	0.64	0.70	1.13	0.90	0.80	1.27	1.01	0.75	0.69	0.78

1) Ordinary beta () , Bull beta Bear beta
 () , Bear beta '1' () 가 .

2) , Ordinary beta '0.93' 1%
 0.93% Bull beta '0.65' Bear beta '1.08' 1%
 0.65% 1.08%

3.2

Bull beta vs. Bear beta :

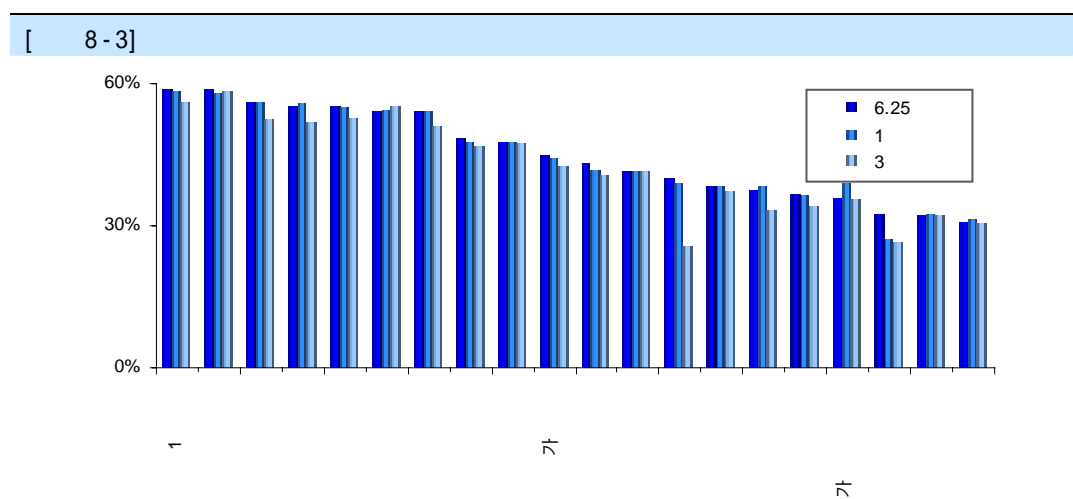
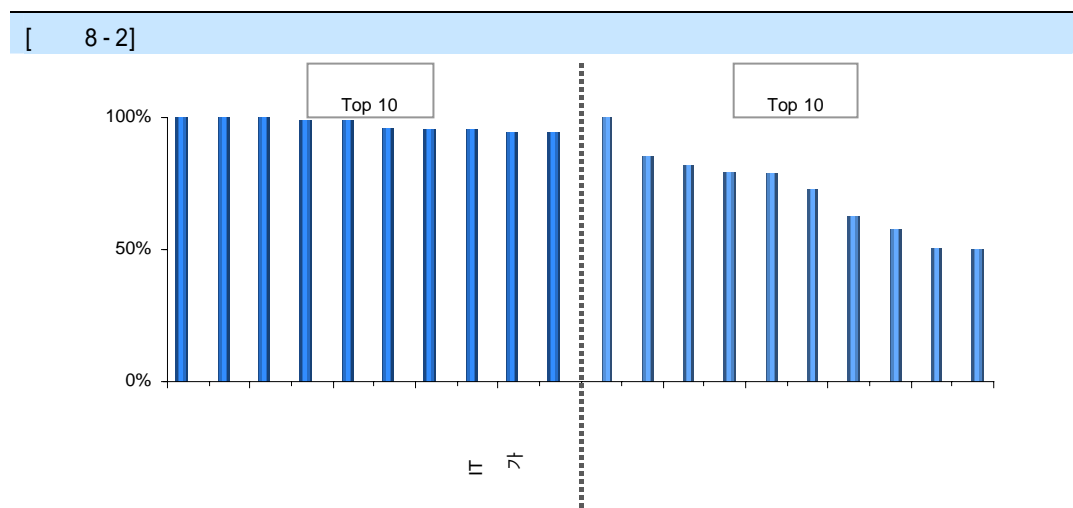
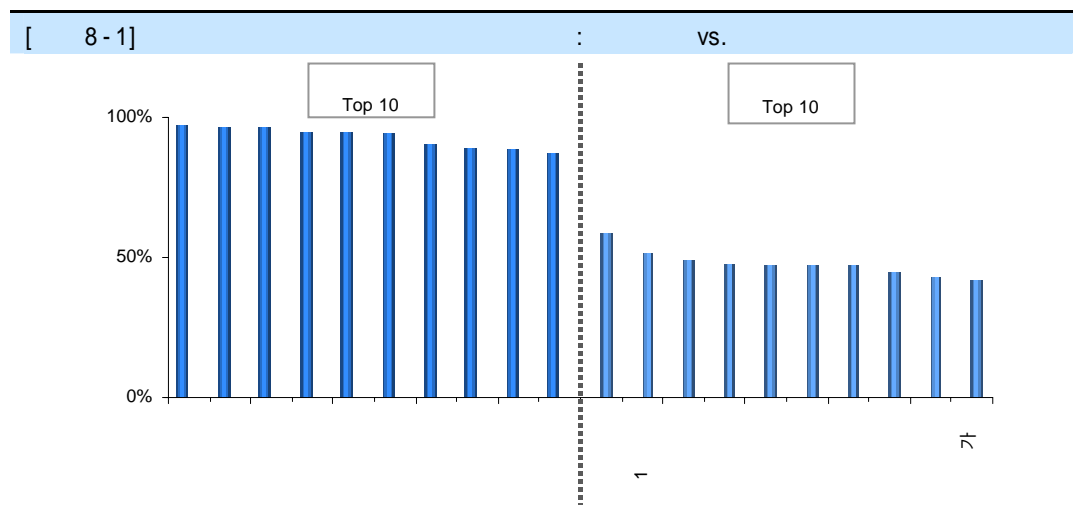


[4 - 2]																
	Bull Beta			Bear Beta			Ordinary Beta									
	1.40	1.00	1.28	1.19	0.81	0.72	1.24	1.11	1.25							
1	0.10	0.04	0.63	1.76	1.30	-1.39	1.34	0.92	0.90							
	-0.03	-0.27	0.00	-1.24	0.55	0.57	0.53	0.48	0.15							
	0.33	0.27	0.51	2.16	0.54	0.89	1.17	0.52	0.97							
	2.28	0.18	-0.77	-0.43	-1.39	0.60	-0.22	0.17	-0.36							
	2.67	3.04	1.59	0.34	0.43	1.18	0.05	0.06	0.42							
	0.31	1.26	0.65	-1.16	-0.02	0.06	0.14	0.24	-0.05							
	0.44	0.39	-0.21	-2.51	0.13	0.39	0.17	0.03	0.64							
	0.19	0.16	0.00	-1.79	-0.68	0.77	-0.09	0.06	0.40							
	1.54	-0.21	0.75	0.19	-0.51	0.32	-0.29	-0.36	0.33							
	1.62	-0.22	0.87	0.33	-0.70	0.39	-0.30	-0.35	0.43							
	0.97	-0.03	0.25	-0.57	0.49	-0.03	-0.25	-0.44	-0.08							
	0.84	1.89	1.14	0.55	0.46	0.42	-0.01	0.44	0.39							
	2.30	3.18	0.75	-0.50	-1.66	1.35	-0.22	-0.32	1.09							
	1.19	2.64	3.47	-0.67	-0.97	1.45	-0.28	-0.46	0.98							
	1.12	-0.17	1.14	-0.17	-0.09	0.97	1.00	0.24	0.57							
가	1.38	NA	0.85	0.91	NA	0.94	0.78	NA	1.25							
	1.14	2.47	0.12	-0.91	0.07	-0.54	-0.51	-0.06	-0.01							
	2.37	1.62	0.71	0.93	0.23	-0.74	0.34	0.30	1.29							
	0.78	-0.28	0.79	0.55	-0.78	1.87	0.09	0.08	1.25							
	1.35	-0.30	0.94	0.70	-0.80	1.44	0.30	0.10	1.30							
	-0.33	-0.34	0.52	0.52	-1.27	1.74	-0.49	0.06	1.00							
	0.33	0.23	0.73	1.94	-1.96	0.55	0.97	0.00	0.91							
	1.15	-0.10	0.14	0.47	-1.01	1.11	-0.06	0.10	0.65							
	0.40	0.37	0.16	-0.21	-2.63	-0.53	-0.39	-0.11	-0.26							
	0.27	0.03	-3.70	-1.30	-0.84	0.51	0.28	0.21	-1.08							
	0.26	0.07	-3.85	-1.37	-0.95	0.56	0.24	0.21	-1.11							
	0.25	-0.28	-3.22	-1.17	-0.42	0.18	0.38	0.11	-0.94							
	-0.02	0.90	-0.38	0.38	0.47	0.65	-0.12	0.12	0.16							
	1.41	1.54	-4.23	0.49	0.31	0.85	0.24	0.27	-0.23							
	1.21	1.16	-3.35	0.54	0.26	0.79	0.16	-0.20	-0.23							
가	-0.12	0.89	1.93	-1.18	0.01	0.36	0.31	0.07	0.20							
	0.84	0.80	0.34	1.09	0.92	0.55	0.34	0.28	0.13							
	1.08	0.74	0.33	0.82	0.34	0.54	0.25	0.17	0.20							
	0.41	0.00	NA	-2.33	-2.77	NA	-0.12	-0.06	NA							
	1.38	0.82	0.05	-2.40	-2.68	2.69	1.11	0.75	0.45							
	0.41	0.52	1.04	-2.97	-0.78	2.18	1.09	0.55	0.62							
	3.37	-5.04	4.34	7.20	0.15	1.93	0.05	0.87	1.45							
	1.07	0.72	0.53	1.54	1.79	0.44	1.61	1.44	0.76							
	1.49	1.29	-1.37	0.40	0.32	0.89	0.26	0.17	-0.25							
	0.74	0.64	0.58	0.10	0.20	1.58	0.77	0.62	0.93							
	0.30	0.14	0.33	1.02	0.44	0.13	0.19	0.05	0.54							
	0.73	0.76	0.47	-0.46	-0.24	0.05	0.10	0.00	-0.12							
	0.89	1.63	0.69	-1.07	-0.19	-0.13	0.53	0.86	0.04							
	0.13	0.14	0.15	-0.65	-0.85	-1.24	0.23	0.09	-0.02							
	1.21	0.71	1.87	-1.34	-1.10	0.73	0.64	0.40	0.92							
IT	0.15	0.77	0.79	0.09	-0.07	2.09	0.34	-0.10	0.99							
	0.20	0.93	0.67	-0.02	0.23	2.05	0.35	-0.09	0.89							
	0.11	0.62	0.91	0.23	-0.43	2.14	0.34	-0.09	1.11							
	0.43	0.27	0.52	1.01	0.58	1.07	0.69	0.54	0.79							
	-0.03	-0.19	-0.05	-1.69	-0.47	1.89	0.49	0.06	0.49							
	0.06	-0.07	1.38	-2.26	-0.75	0.83	0.07	-0.02	0.70							
	0.19	0.16	0.87	0.12	-0.06	1.54	0.45	-0.08	0.45							
	2.73	0.10	1.48	1.35	-0.26	1.36	0.82	0.26	0.71							
	2.01	-0.93	2.03	1.43	-0.82	1.58	0.70	-0.16	0.72							
	가	3.34	0.36	0.81	0.95	-0.53	0.52	1.06	0.16	0.28						
		1.39	0.86	0.94	0.62	-0.06	1.10	0.10	0.15	0.22						
	: 1)															
	Ordinary beta			()			2									
	beta			()			, Bull beta									
	()			()			Bull beta '1'									
), Bear beta '1'			()										
가																
2)																
, Ordinary beta '1.34'																
1%																
Bull beta '0.10'																
Bear beta '1.76'																
0.10%																
1.76%																
1%																
가																
가																
:																

3.3 Bull beta vs. Bear beta

[4 - 3]													
	Bull Beta				Bear Beta				Ordinary Beta				
AC WORLD	1.00	-	-	-	1.00	-	-	-	1.00	-	-	-	
WORLD	1.01	-	1.00	-	1.00	-	1.00	-	1.00	-	1.00	-	
EAFE	0.94	-	0.88	-	0.99	-	0.95	-	1.00	-	0.99	-	
PACIFIC	0.42	0.42	0.40	1.01	1.00	0.86	0.97	0.97	0.79	0.65	0.78	1.00	
NORTH AMERICA	1.06	-	1.08	1.01	1.01	-	1.03	1.00	1.00	-	1.00	1.00	
EUROPE	1.08	0.94	1.05	1.01	1.16	0.81	1.12	1.00	1.07	0.88	1.07	1.00	
EM	0.71	0.48	1.00	-	0.89	0.52	1.00	-	0.88	0.69	1.00	-	
EM ASIA	1.11	0.83	1.20	0.97	1.04	0.66	1.17	1.16	1.04	0.86	1.10	1.01	
EM LATIN AMER.	0.45	0.16	0.78	0.15	1.31	0.83	1.57	0.78	0.94	0.78	0.96	0.78	
EM EUROPE	1.11	0.96	0.96	1.04	1.17	0.82	0.93	1.02	1.09	0.90	0.77	1.02	
AC ASIA-PACIFIC	0.53	0.48	-	1.00	1.00	0.83	-	1.00	0.83	0.68	-	1.00	
AC ASIA-PAC. x JP	0.83	0.65	-	0.74	0.91	0.62	-	0.90	0.85	0.71	-	0.79	
AC ASIA x JP	1.02	0.74	-	0.93	0.98	0.57	-	1.04	0.94	0.80	-	0.92	
AUSTRALIA	0.45	0.43	0.43	0.15	0.56	0.46	0.54	0.44	0.45	0.42	0.45	0.30	
HONG KONG	0.78	0.49	0.75	0.85	0.80	0.32	0.77	0.79	0.73	0.65	0.71	0.67	
JAPAN	0.44	0.53	0.42	0.81	0.76	0.84	0.76	0.80	0.74	0.63	0.73	0.91	
NEW ZEALAND	0.00	0.10	0.02	-0.18	0.34	0.32	0.34	0.31	0.15	0.12	0.15	0.12	
SINGAPORE	0.94	0.71	0.95	0.68	0.75	0.40	0.75	0.52	0.69	0.60	0.68	0.65	
CHINA	0.90	0.57	1.00	0.79	0.99	0.30	1.21	1.05	0.96	0.85	0.97	0.92	
INDIA	0.27	0.07	0.34	0.00	0.73	0.31	0.76	0.84	0.52	0.43	0.53	0.49	
INDONESIA	-0.51	-0.32	0.10	0.10	1.17	0.57	1.12	1.41	0.64	0.48	0.72	0.62	
KOREA	1.40	1.11	1.45	1.05	1.17	0.82	1.15	1.34	1.22	1.02	1.25	1.17	
MALAYSIA	0.26	0.25	0.54	0.51	0.38	0.42	0.52	0.35	0.32	0.24	0.39	0.39	
PAKISTAN	0.38	0.32	0.10	-0.11	0.53	0.17	0.62	0.47	0.20	0.18	0.23	0.05	
PHILIPPINES	-0.27	-0.24	0.16	0.06	0.26	0.11	0.24	0.13	0.33	0.24	0.44	0.38	
TAIWAN	1.54	1.20	1.44	1.10	0.85	0.79	0.96	0.91	1.10	0.98	1.11	0.95	
THAILAND	0.70	0.43	0.91	0.57	0.92	0.56	1.19	0.96	0.66	0.52	0.73	0.70	
AC AMERICAS	1.06	-	-	1.00	1.01	-	-	1.00	1.00	-	-	1.00	
CANADA	0.81	0.72	0.84	0.71	1.00	0.79	1.00	0.80	0.76	0.73	0.76	0.73	
S&P 500	1.05	1.00	1.07	1.00	1.00	1.00	1.02	1.01	1.00	1.00	1.00	1.00	
ARGENTINA	0.36	0.44	0.38	0.44	0.69	0.12	0.66	0.17	0.54	0.37	0.63	0.37	
BRAZIL	0.50	0.08	0.64	0.05	1.08	0.43	1.12	0.35	0.76	0.66	0.82	0.66	
CHILE	0.02	0.13	0.16	0.14	0.41	0.51	0.51	0.50	0.40	0.34	0.33	0.34	
COLOMBIA	-0.06	-0.14	0.27	-0.18	0.30	0.10	0.05	-0.02	0.26	0.14	0.28	0.14	
MEXICO	0.16	0.28	0.35	0.21	0.97	0.94	1.05	0.86	0.78	0.67	0.65	0.67	
PERU	0.51	0.30	0.59	0.16	-0.08	-0.16	0.69	-0.36	0.50	0.30	0.64	0.30	
VENEZUELA	0.27	-0.12	0.73	0.07	0.47	-0.24	0.63	0.06	0.50	0.43	0.65	0.43	
AC EUROPE	1.07	0.93	-	1.00	1.16	0.81	-	1.00	1.07	0.88	-	1.00	
AUSTRIA	0.28	0.14	0.27	0.26	0.91	0.63	0.88	0.67	0.46	0.36	0.45	0.38	
BELGIUM	1.24	1.26	1.27	1.17	1.42	1.20	1.44	1.21	1.20	1.06	1.19	1.04	
DENMARK	0.99	0.88	0.96	0.77	1.14	0.95	1.10	0.90	0.83	0.75	0.83	0.67	
FINLAND	1.95	1.65	1.99	1.87	1.56	0.88	1.59	1.32	1.58	1.46	1.57	1.26	
FRANCE	1.36	1.27	1.37	1.29	1.35	1.16	1.36	1.11	1.29	1.16	1.29	1.10	
GERMANY	1.52	1.41	1.54	1.54	1.78	1.58	1.80	1.38	1.55	1.39	1.54	1.28	
GREECE	0.41	0.59	0.41	0.57	0.63	0.73	0.68	0.77	0.73	0.65	0.73	0.59	
IRELAND	0.82	0.86	0.80	0.54	1.14	0.82	1.10	0.87	0.89	0.82	0.89	0.68	
ITALY	0.82	0.71	0.85	0.91	1.03	0.82	1.05	0.89	0.86	0.78	0.86	0.73	
NETHERLANDS	1.21	1.24	1.26	1.25	1.49	1.32	1.54	1.36	1.35	1.21	1.34	1.16	
NORWAY	0.57	0.67	0.58	0.53	1.49	1.31	1.48	1.12	0.93	0.82	0.92	0.75	
PORTUGAL	0.24	0.30	0.23	0.21	1.08	1.02	1.08	0.80	0.65	0.59	0.65	0.50	
SPAIN	1.07	0.78	1.06	1.19	1.18	0.84	1.17	0.81	1.01	0.87	1.00	0.87	
SWEDEN	1.27	1.05	1.23	1.20	1.75	1.40	1.72	1.16	1.38	1.24	1.37	1.11	
SWITZERLAND	1.05	1.03	1.05	0.98	1.18	1.04	1.17	0.93	1.05	0.96	1.05	0.87	
UK	0.95	0.99	0.97	0.85	1.01	0.85	1.01	0.90	0.92	0.81	0.92	0.82	
CZECH	0.26	0.50	0.44	0.17	0.80	0.56	0.54	0.53	0.58	0.58	0.37	0.36	
HUNGARY	0.15	0.32	0.19	0.14	1.09	0.87	0.90	0.65	0.58	0.55	0.45	0.39	
POLAND	0.54	0.33	0.70	0.46	1.19	0.67	0.76	0.66	0.73	0.69	0.65	0.50	
RUSSIA	0.04	0.44	0.49	0.33	1.36	0.95	1.56	1.18	0.88	0.71	0.73	0.79	
TURKEY	0.45	0.37	1.18	0.27	0.31	-0.50	0.80	0.23	0.47	0.31	0.74	0.45	
ISRAEL	0.53	0.62	0.85	0.38	0.65	0.43	0.33	0.50	0.73	0.67	0.59	0.54	
JORDAN	-0.06	-0.05	0.06	-0.03	0.23	0.30	0.02	0.19	0.08	0.04	0.16	0.07	
SOUTH AFRICA	0.52	0.33	0.52	0.55	0.77	0.38	0.64	0.65	0.72	0.58	0.74	0.60	
EGYPT	-0.16	-0.36	0.04	-0.03	0.03	-0.67	0.15	0.52	-0.02	-0.15	0.19	0.13	
MOROCCO	0.19	0.26	-0.02	-0.07	0.21	0.36	-0.07	0.10	0.14	0.20	0.03	0.04	
: 1)													
가 (2) , Bull beta Bear beta													
가 (2) , Bull beta '1' (
), Bear beta '1' (
2) , , , , 47 (
가 , 'Bull beta' , '1.40' , '1.11'													
, '1.45' , '1.05' - , ,													
:													

4. 가



: p.29 [5]

[5]		가													
		/ (%)			/ (%)				/ (%)						
		R2			가				6.25	1M	3M	6M	12M		
		-	-	-	60.79	39.21	59.05	40.95	43.77	43.56	42.91	39.67	34.86	39.67	
1		55.73	44.27	53.20	61.25	38.75	70.33	29.67	44.89	44.03	43.20	42.23	38.55	42.23	
		89.19	10.81	48.55	50.34	49.66	70.97	29.03	26.46	26.69	25.15	24.78	19.09	24.78	
		48.27	51.73	46.85	68.96	31.04	70.35	29.65	58.68	58.12	56.05	54.17	52.63	54.17	
		84.43	15.57	33.68	52.11	47.89	52.48	47.52	20.25	26.07	26.24	17.91	18.06	17.91	
		43.58	56.42	53.92	51.75	48.25	57.37	42.63	24.84	22.97	24.72	21.97	19.99	21.97	
		96.12	3.88	35.77	92.64	7.36	90.86	9.14	26.92	25.40	23.90	22.59	24.77	22.59	
		77.40	22.60	39.25	87.86	12.14	91.46	8.54	32.28	32.33	32.28	28.45	22.43	28.45	
		94.85	5.15	44.84	57.48	42.52	58.84	41.16	11.95	11.31	9.10	8.14	5.67	8.14	
		59.30	40.70	32.94	24.52	75.48	25.01	74.99	24.31	23.61	22.49	23.62	15.75	23.62	
		55.28	44.72	25.08	18.44	81.56	15.23	84.77	27.94	27.06	25.56	26.65	18.44	26.65	
		72.95	27.05	34.39	52.83	47.17	55.29	44.71	13.07	13.54	15.75	14.24	4.89	14.24	
		97.06	2.94	17.89	56.57	43.43	67.15	32.85	14.33	12.24	17.00	9.46	20.67	9.46	
		64.75	35.25	27.32	99.67	0.33	99.95	0.05	58.61	57.69	58.26	55.36	53.29	55.36	
		55.43	44.57	41.85	16.83	83.17	15.70	84.30	29.53	26.87	26.68	25.54	15.47	25.54	
		50.95	49.05	49.99	20.31	79.69	20.23	79.77	29.40	30.19	29.75	24.11	18.30	24.11	
		66.52	33.48	29.62	0.00	100.00	0.00	100.00	32.67	27.07	26.61	28.68	14.46	28.68	
가		51.81	48.19	41.74	98.87	1.13	98.76	1.24	9.70	11.56	9.81	8.11	5.02	8.11	
		57.24	42.76	60.87	63.21	36.79	67.02	32.98	41.94	41.62	39.94	37.45	28.91	37.45	
		77.95	22.05	51.14	49.73	50.27	46.80	53.20	46.69	45.56	44.68	42.76	33.16	42.76	
		87.01	12.99	45.73	49.07	50.93	45.70	54.30	48.67	47.59	46.71	44.47	34.05	44.47	
		77.97	22.03	47.15	52.21	47.79	48.71	51.29	43.26	41.76	40.51	39.67	31.16	39.67	
		64.85	35.15	54.03	75.94	24.06	75.91	24.09	36.00	38.81	35.35	30.01	22.82	30.01	
		90.68	9.32	42.88	73.41	26.59	67.64	32.36	23.11	23.28	22.85	20.51	17.31	20.51	
		94.38	5.62	26.81	64.11	35.89	83.41	16.59	24.60	24.91	23.70	21.28	13.62	21.28	
		55.22	44.78	44.41	99.63	0.37	99.24	0.76	25.78	24.41	23.70	24.29	20.44	24.29	
		52.51	47.49	40.08	99.98	0.02	99.99	0.01	28.36	26.64	26.38	28.95	24.41	28.95	
		64.35	35.65	32.22	95.93	4.07	96.07	3.93	14.83	14.07	12.73	10.70	8.07	10.70	
		94.77	5.23	47.42	100.00	0.00	100.00	0.00	56.40	56.13	52.58	48.03	43.47	48.03	
		52.72	47.28	47.95	94.54	5.46	95.89	4.11	37.83	37.61	35.38	32.74	28.41	32.74	
		60.34	39.66	40.96	94.54	5.46	95.83	4.17	36.70	36.49	34.16	31.55	27.25	31.55	
		58.64	41.36	37.62	94.54	5.46	96.19	3.81	44.61	44.37	42.79	39.73	36.30	39.73	
		73.38	26.62	29.27	92.62	7.38	87.83	12.17	19.61	19.43	19.28	14.64	13.16	14.64	
가		59.97	40.03	26.22	95.44	4.56	94.06	5.94	24.41	24.38	23.84	18.75	17.00	18.75	
		88.71	11.29	26.37	65.26	34.74	65.26	34.74	2.20	2.14	3.29	1.30	4.96	1.30	
		36.16	63.84	64.19	-	-	-	-	51.50	51.48	47.18	43.63	34.25	43.63	
		53.14	46.86	52.35	-	-	-	-	55.55	55.98	51.91	48.26	38.63	48.26	
		57.44	42.56	-1.28	-	-	-	-	4.24	4.30	1.79	37.48	47.17	37.48	
		52.91	47.09	51.12	-	-	-	-	23.14	20.41	18.92	15.48	13.89	15.48	
		41.41	58.59	48.87	-	-	-	-	55.34	55.13	52.94	47.87	41.18	47.87	
	IT		55.95	44.05	69.89	24.26	75.74	25.93	74.07	49.86	49.98	49.99	47.57	44.38	47.57
	IT		68.42	31.58	18.61	100.00	0.00	100.00	0.00	40.27	38.80	25.78	16.66	18.94	16.66
			72.43	27.57	34.89	95.36	4.64	93.29	6.71	4.94	5.44	4.90	0.86	2.36	0.86
			62.47	37.53	28.67	74.80	25.20	80.67	19.33	37.71	38.27	33.35	26.95	18.03	26.95
			73.71	26.29	50.88	42.25	57.75	54.18	45.82	28.05	28.20	22.66	17.82	19.83	17.82
			58.99	41.01	31.11	27.26	72.74	27.26	72.74	3.61	4.61	1.26	2.00	3.07	2.00
			76.66	23.34	54.62	26.18	73.82	24.99	75.01	34.96	35.00	33.98	31.41	26.65	31.41
			75.50	24.50	50.87	37.21	62.79	36.40	63.60	30.85	31.38	30.40	27.62	23.10	27.62
			77.59	22.41	47.49	14.27	85.73	14.78	85.22	38.65	38.34	37.09	35.12	30.94	35.12
		66.24	33.76	64.09	20.88	79.12	21.00	79.00	54.05	54.44	55.20	54.28	51.30	54.28	
		74.99	25.01	32.35	99.77	0.23	99.96	0.04	43.77	43.64	43.58	41.10	36.00	41.10	
		96.93	3.07	14.36	99.50	0.50	99.89	0.11	47.69	47.57	47.19	44.08	39.30	44.08	
		87.02	12.98	31.89	100.00	0.00	100.00	0.00	41.30	41.20	41.29	39.01	33.85	39.01	
		84.38	15.62	6.66	96.78	3.22	99.35	0.65	25.73	25.81	25.25	25.36	22.37	25.36	
		65.47	34.53	5.31	100.00	0.00	100.00	0.00	29.66	29.72	28.80	28.93	25.54	28.93	
가			57.79	42.21	7.43	92.35	7.65	97.14	2.86	12.45	12.15	10.44	8.56	10.26	8.56
			96.25	3.75	29.03	56.65	43.35	54.65	45.35	54.01	53.99	51.22	43.85	42.12	43.85
: 1)		가				()				()					

: 1)

. R²

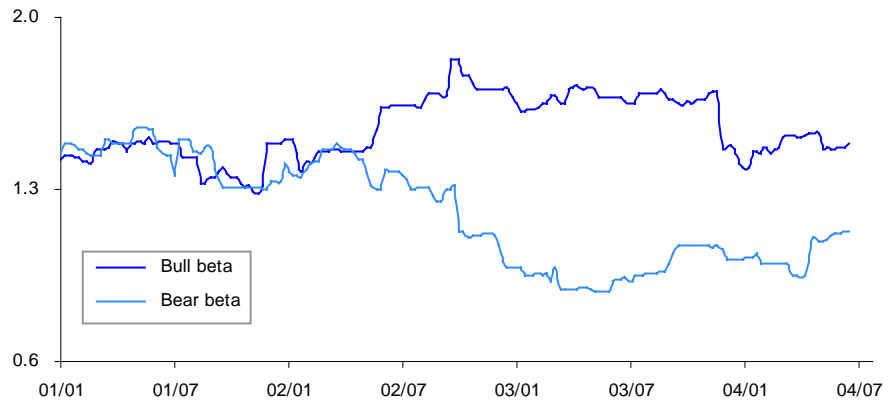
2)

:

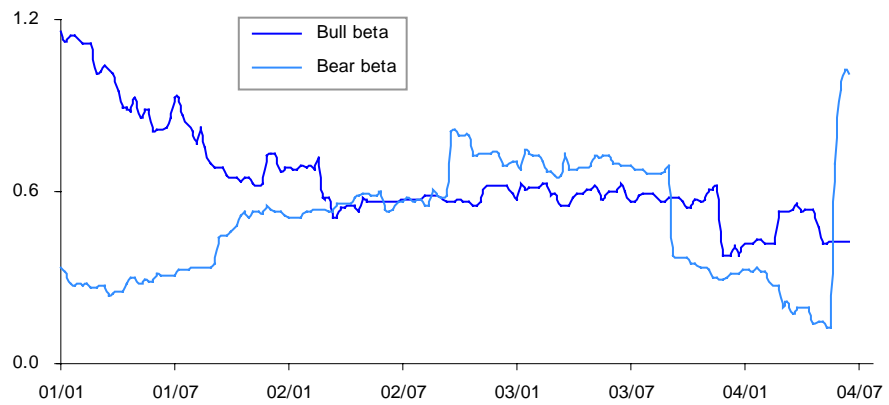
5. Beta 가

5.1

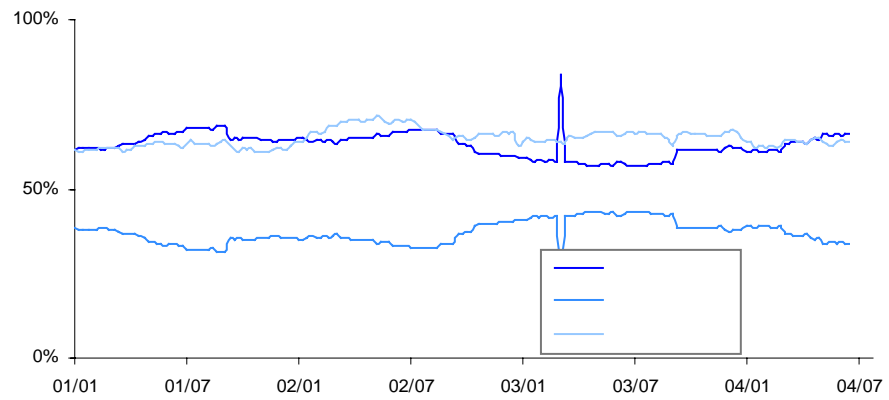
[9 - 1] Bull beta vs. Bear beta : →



[9 - 2] Bull beta vs. Bear beta : →



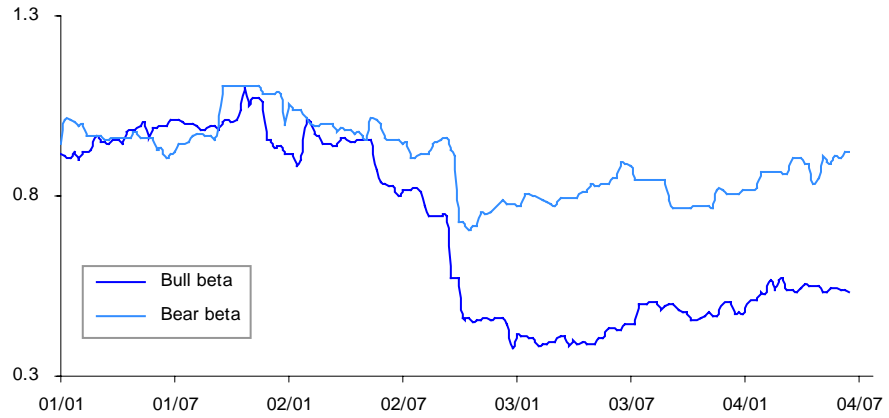
[9 - 3]



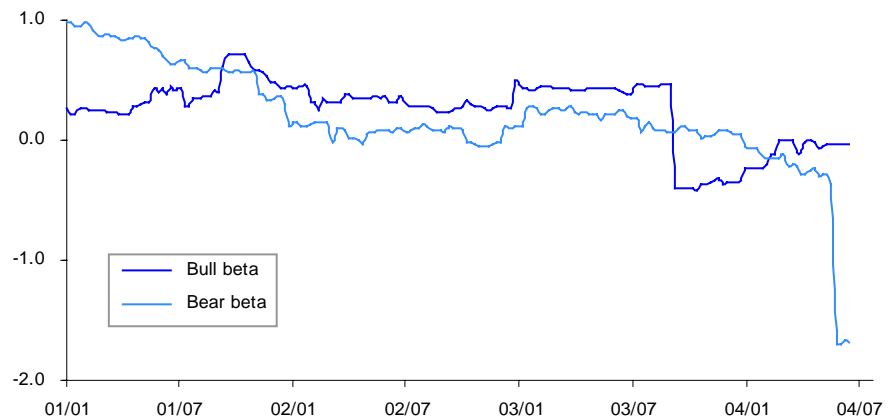
: 1) Bull beta Bear beta 가 (beta)
2) , 1
R² .
:

3.2

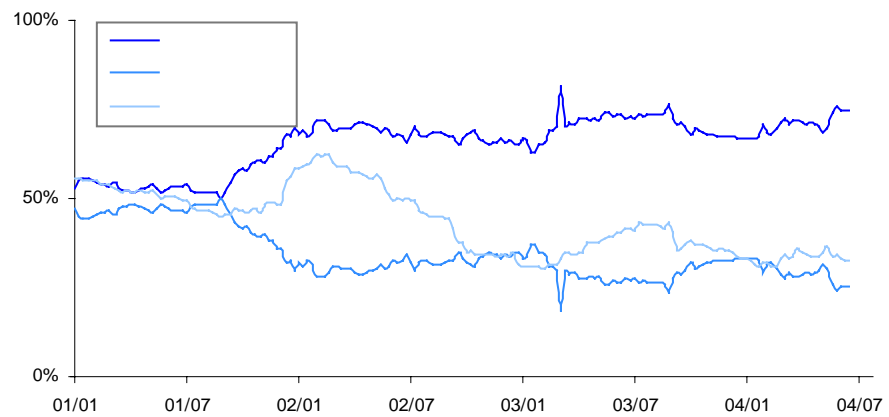
[10 - 1] Bull beta vs. Bear beta : →



[10 - 2] Bull beta vs. Bear beta : →



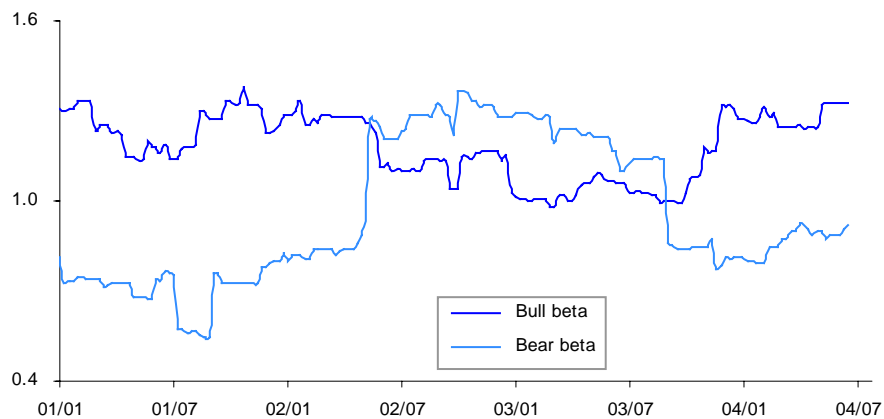
[10 - 3]



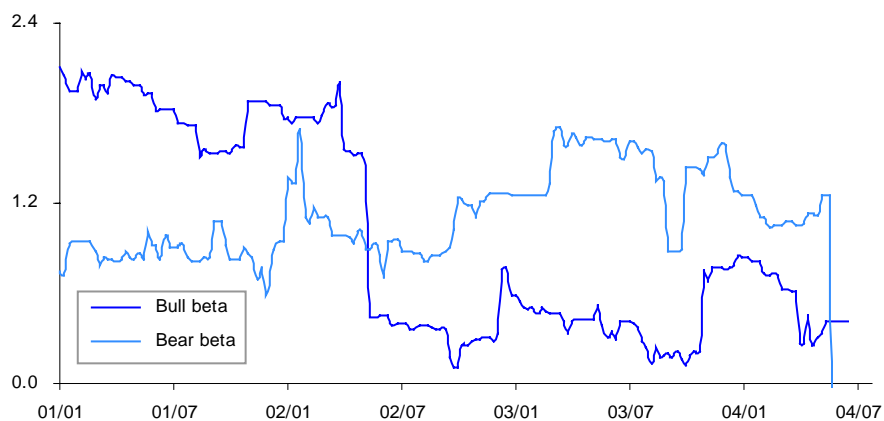
: 1) Bull beta Bear beta
2) R^2 .

3.3

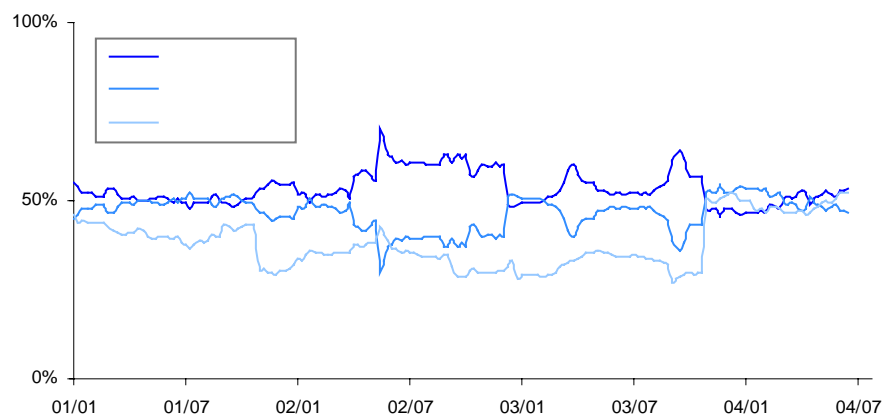
[11 - 1] Bull beta vs. Bear beta : →



[11 - 2] Bull beta vs. Bear beta : →



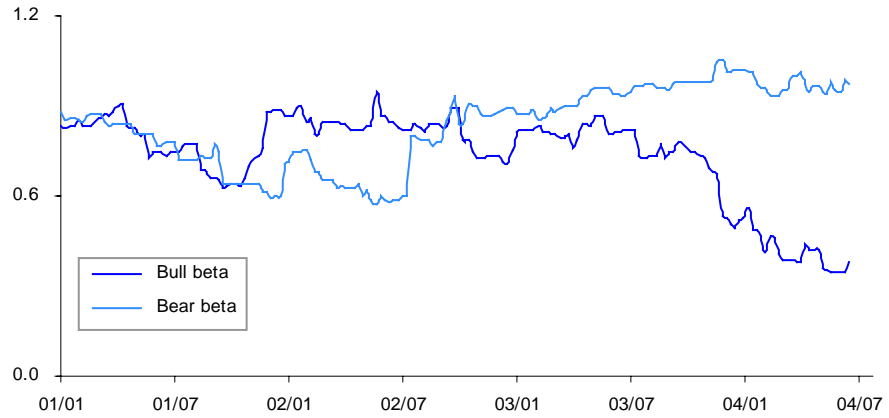
[11 - 3]



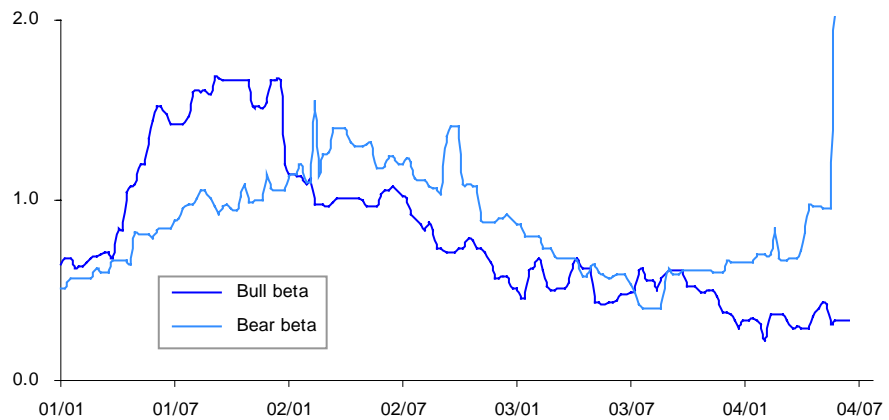
: 1) Bull beta Bear beta β (beta).
 2) R^2 .

3.4 1

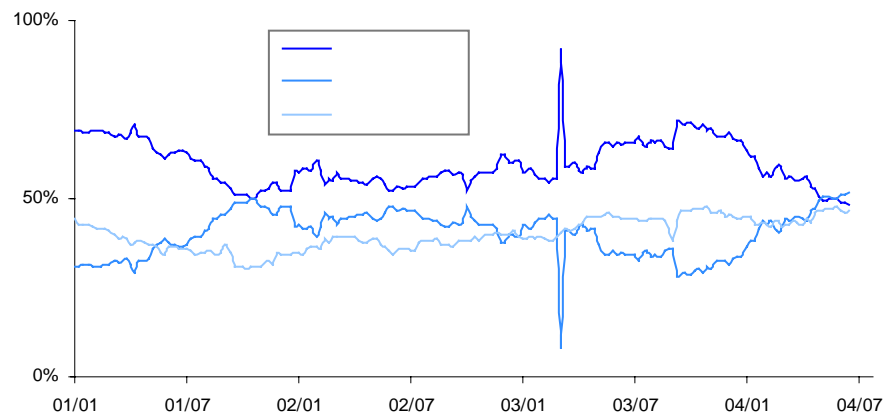
[12 - 1] Bull beta vs. Bear beta : → 1



[12 - 2] Bull beta vs. Bear beta : 1 → 1



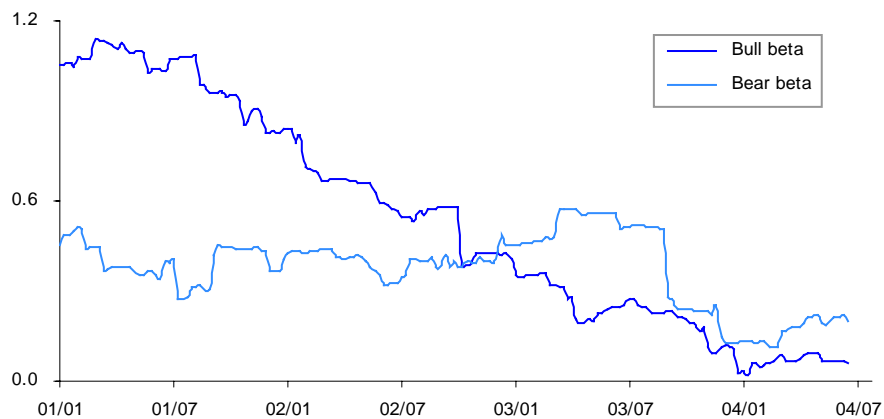
[12 - 3] 1



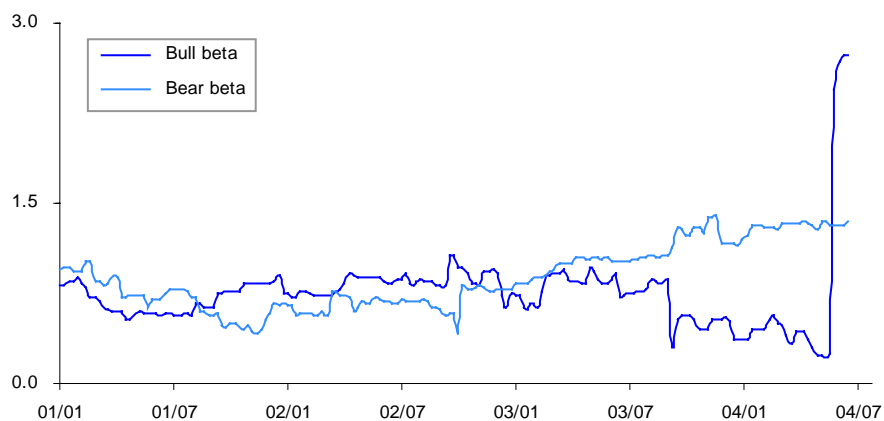
: 1) Bull beta Bear beta
2) R^2 .

3.5

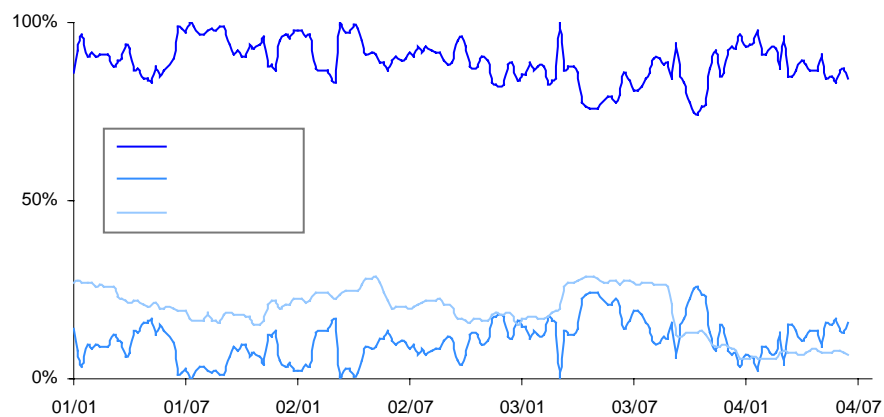
[13-1] Bull beta vs. Bear beta : →



[13-2] Bull beta vs. Bear beta : →



[13-3]



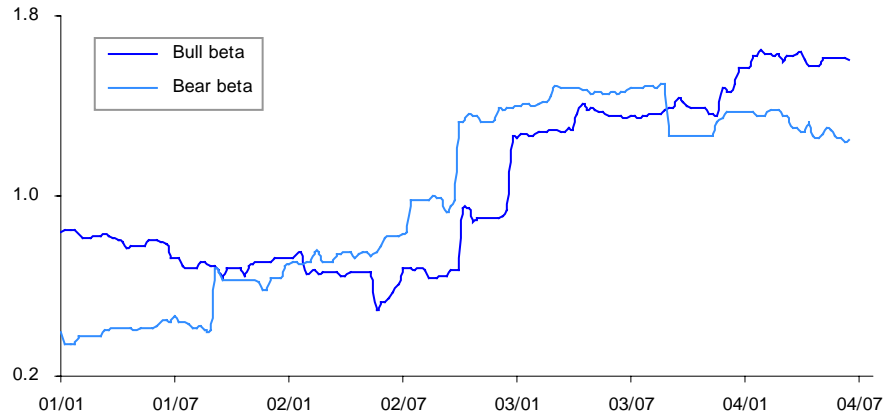
: 1) Bull beta Bear beta R^2 (beta).

2)

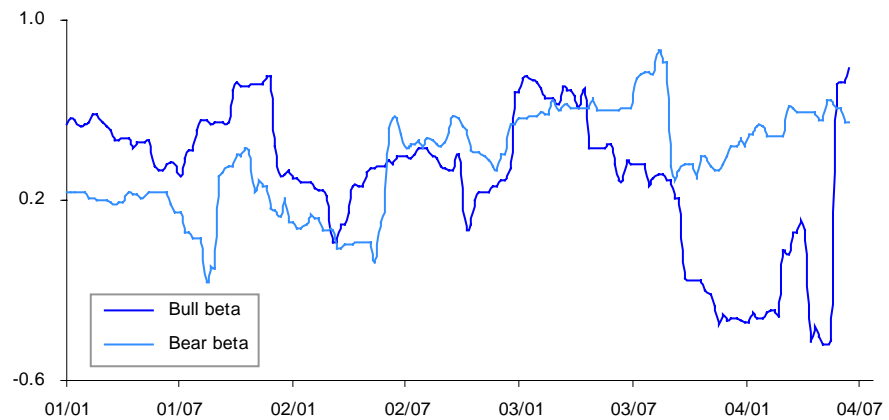
:

3.6

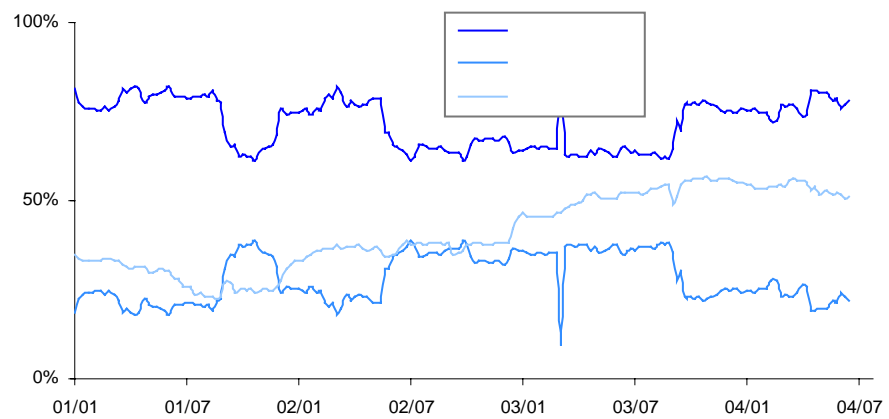
[14 - 1] Bull beta vs. Bear beta : →



[14 - 2] Bull beta vs. Bear beta : →



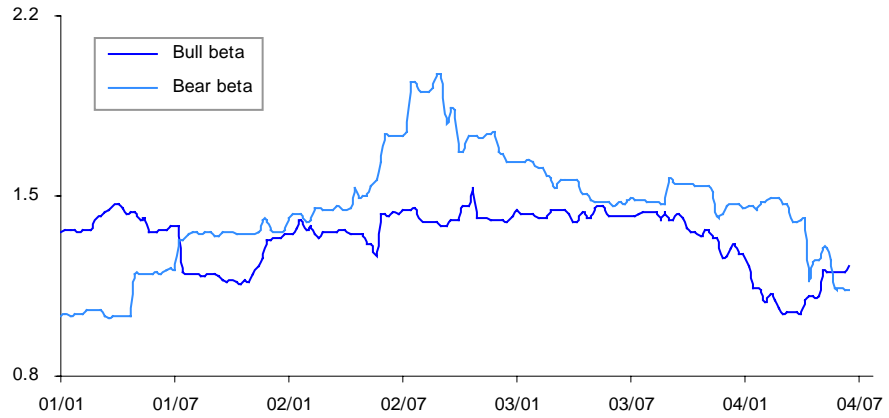
[14 - 3]



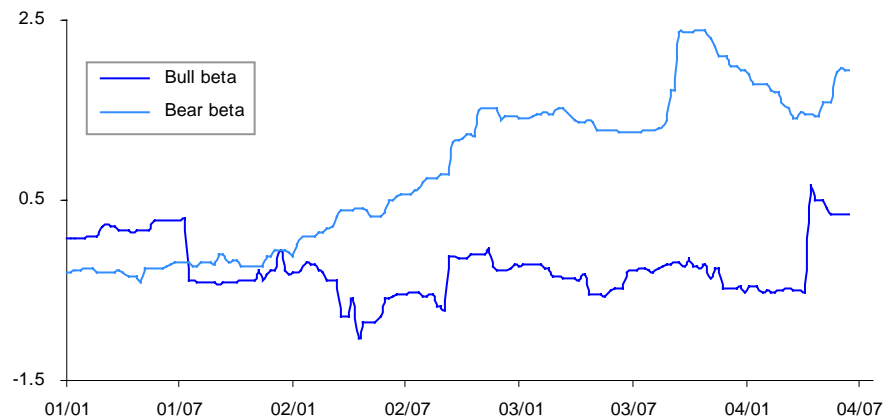
: 1) Bull beta Bear beta
2) R^2

3.7 가

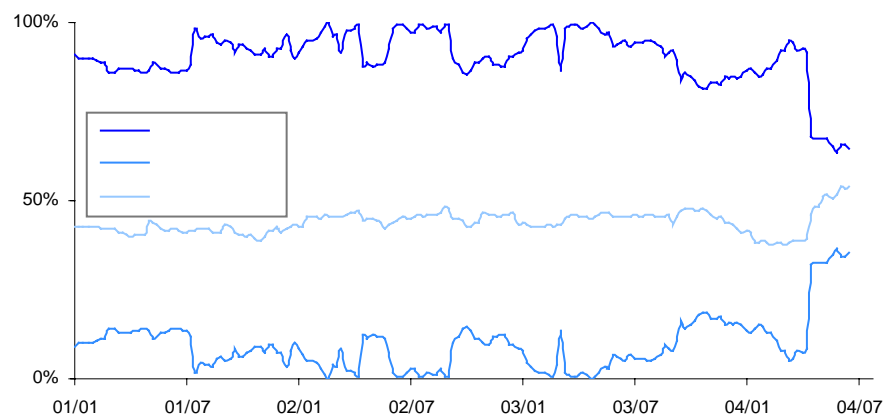
[15 - 1] Bull beta vs. Bear beta : → 가



[15 - 2] Bull beta vs. Bear beta : 가 → 가



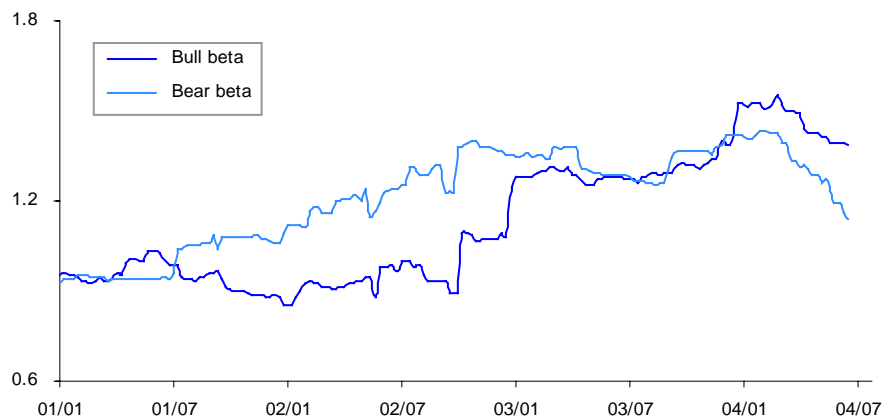
[15 - 3] 가



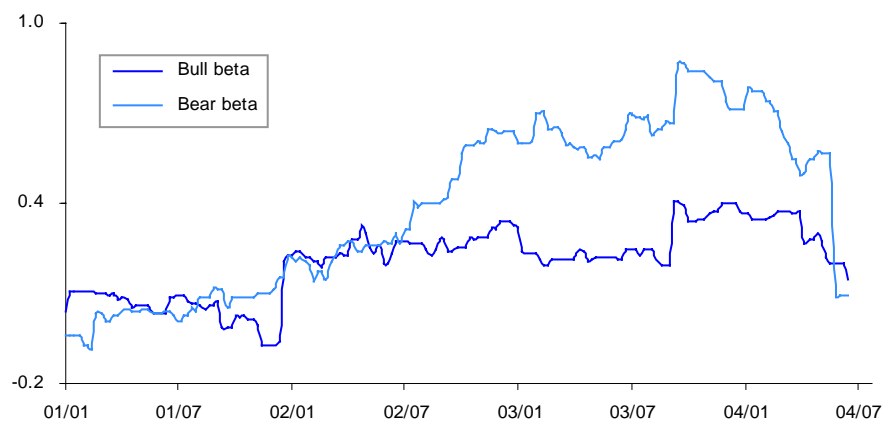
: 1) Bull beta Bear beta 가 (beta)
 2) , 1
 R^2 .
 :

3.8 (+)

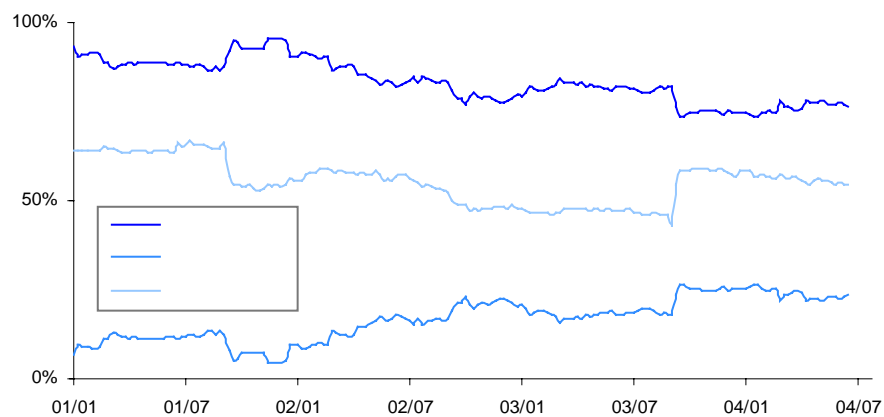
[16 - 1] Bull beta vs. Bear beta : →



[16 - 2] Bull beta vs. Bear beta : →



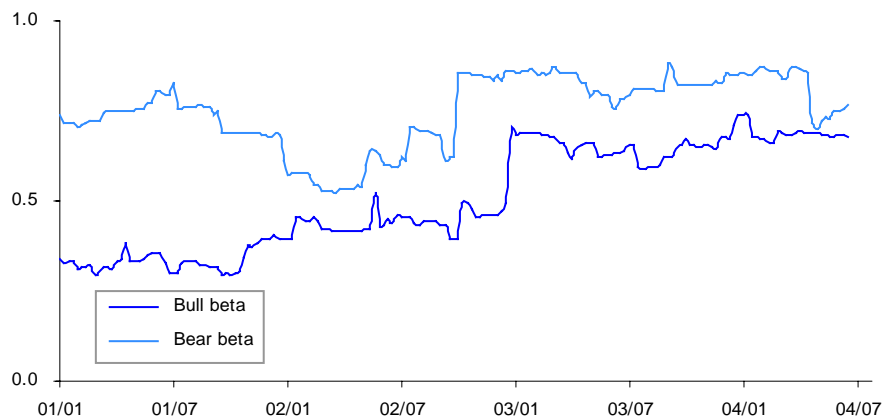
[16 - 3]



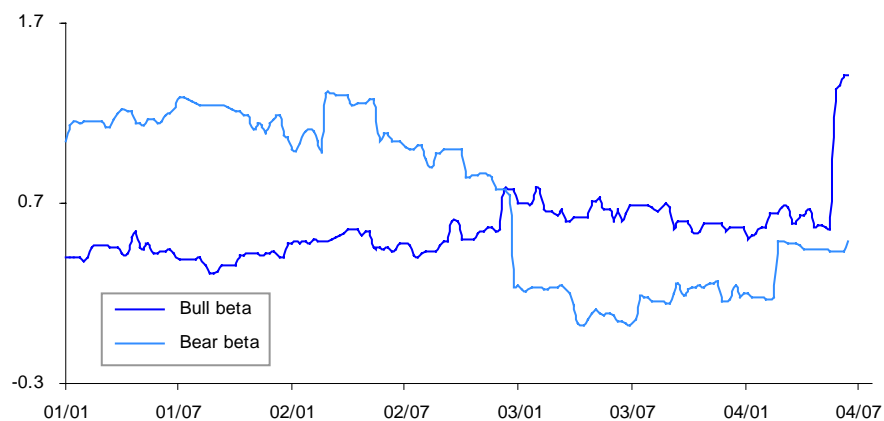
: 1) Bull beta Bear beta 가 (beta)
2) , 1
R² .
:

3.9

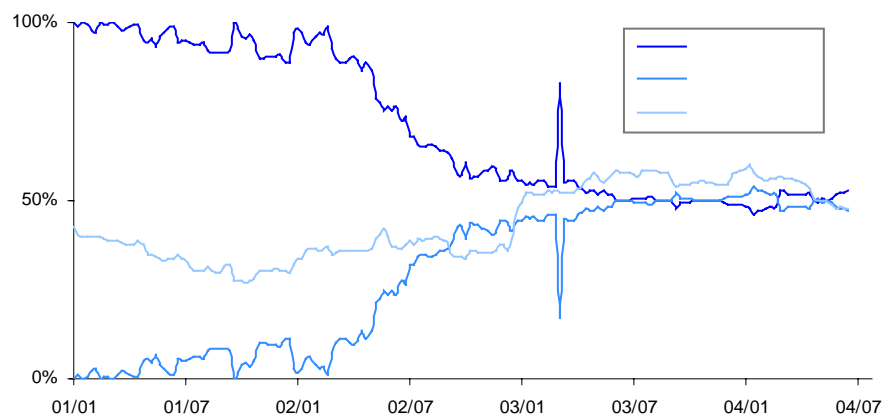
[17 - 1] Bull beta vs. Bear beta : →



[17 - 2] Bull beta vs. Bear beta : →



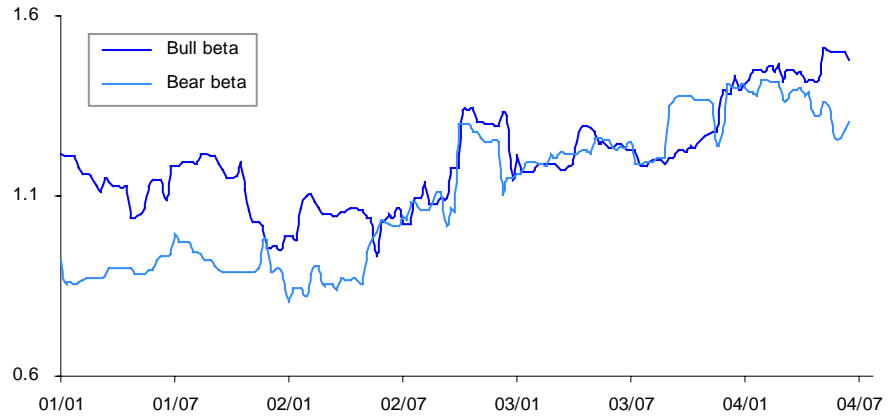
[17 - 3]



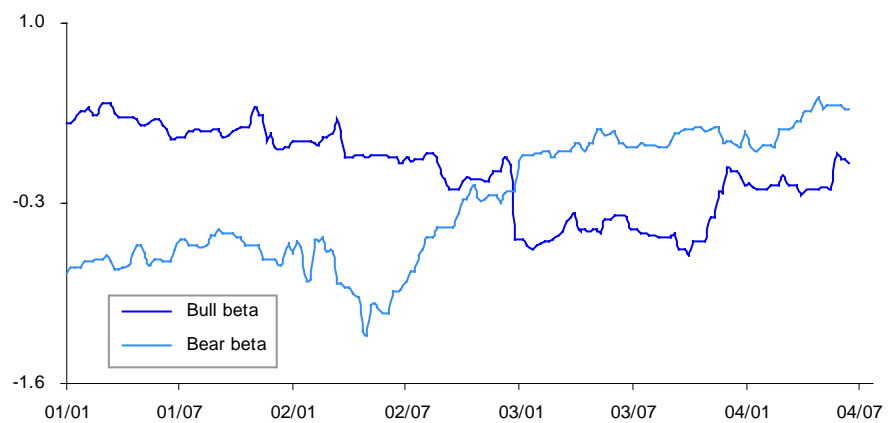
: 1) Bull beta Bear beta β (beta).
 2) R^2 .

3.10

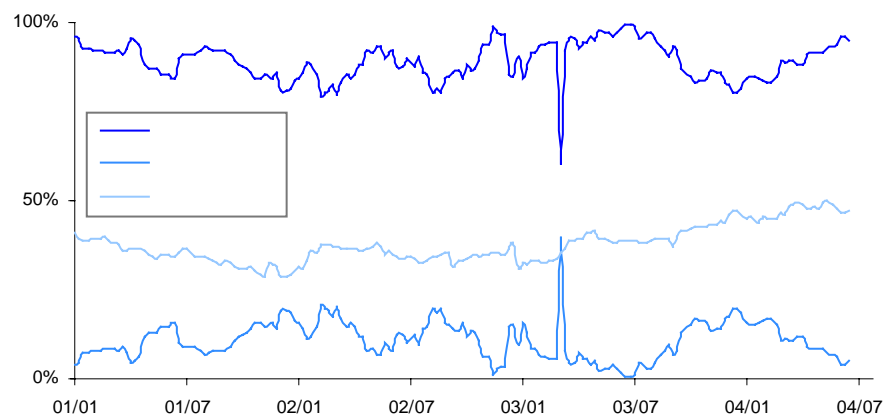
[18-1] Bull beta vs. Bear beta : →



[18-2] Bull beta vs. Bear beta : →



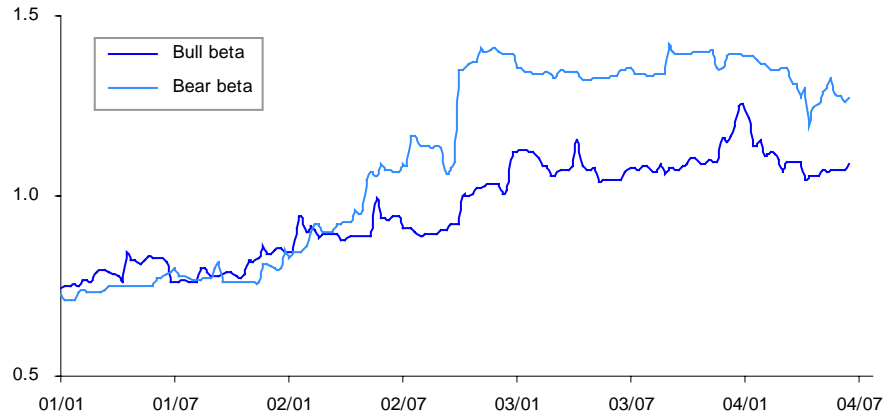
[18-3]



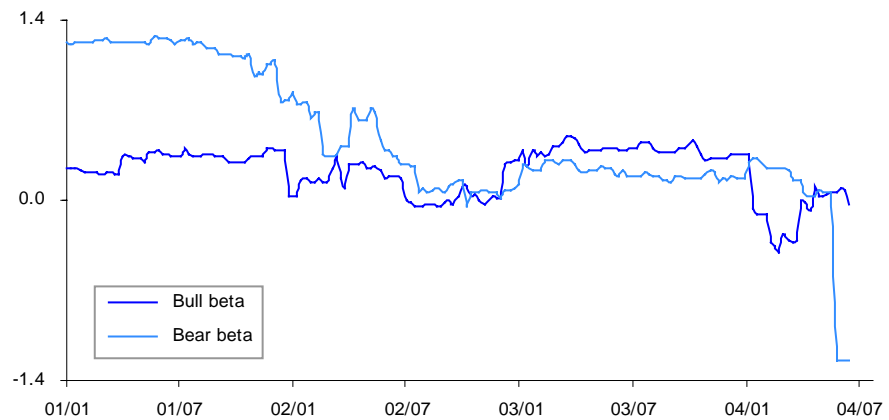
: 1) Bull beta Bear beta
2) R^2 .

3.11

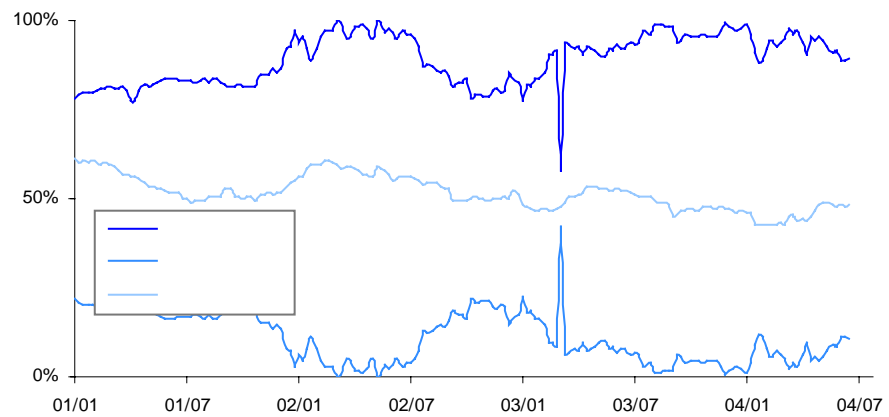
[19-1] Bull beta vs. Bear beta : →



[19-2] Bull beta vs. Bear beta : →



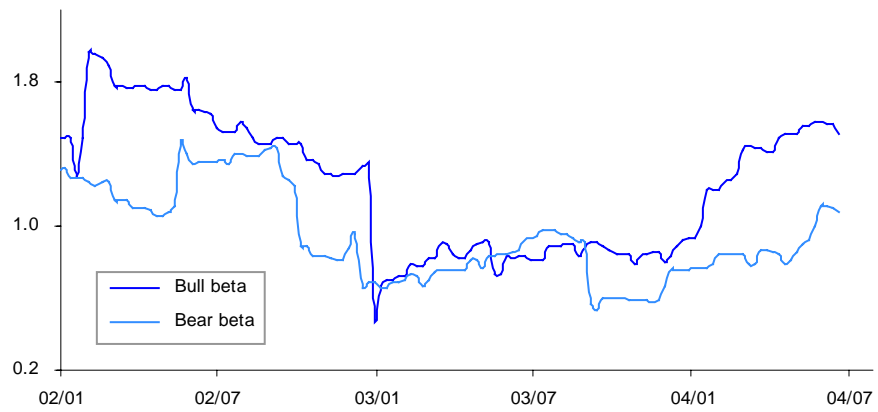
[19-3]



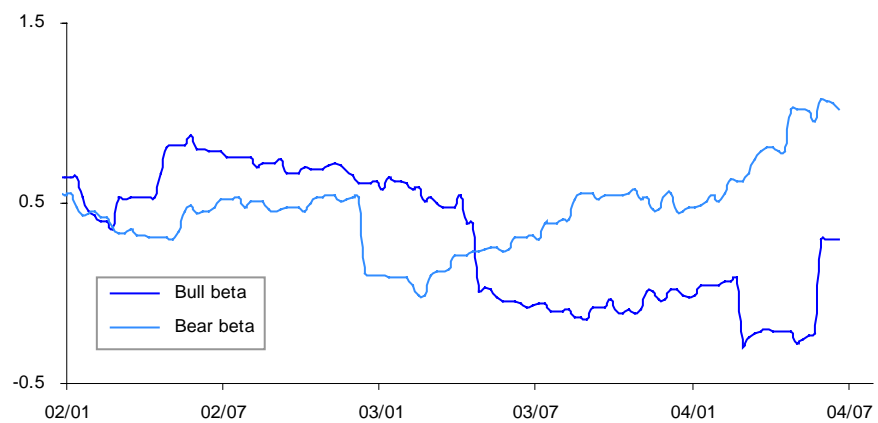
: 1) Bull beta Bear beta β (beta).
 2) R^2 .

3.12

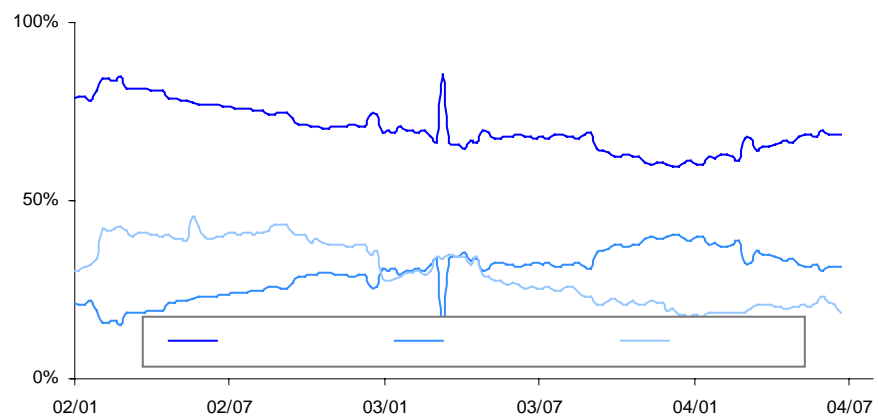
[20 - 1] Bull beta vs. Bear beta : →



[20 - 2] Bull beta vs. Bear beta : →



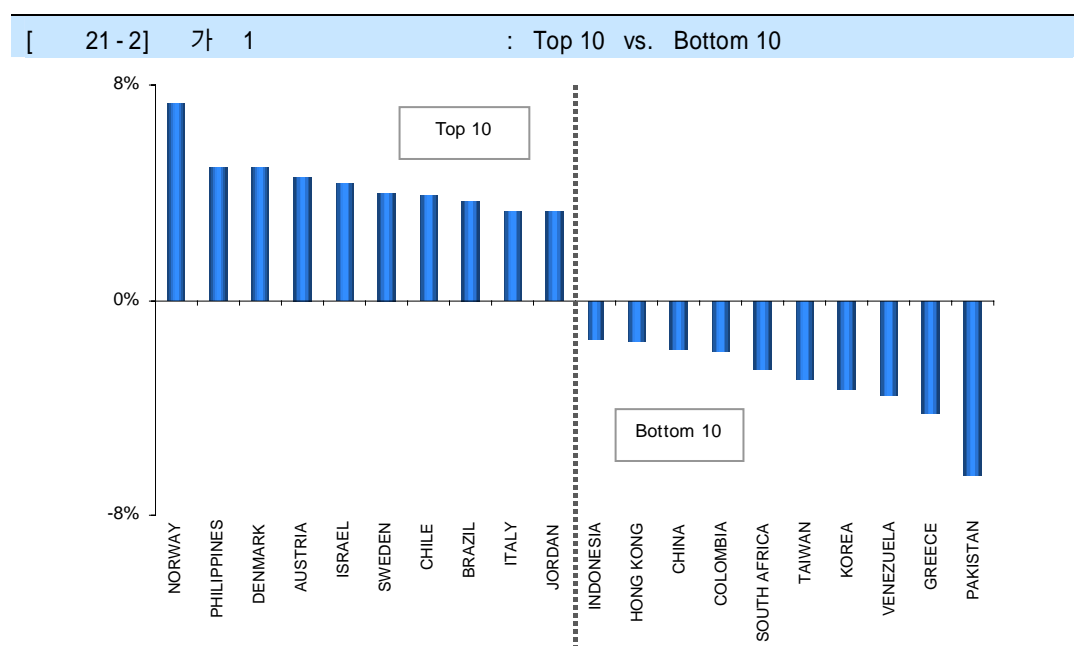
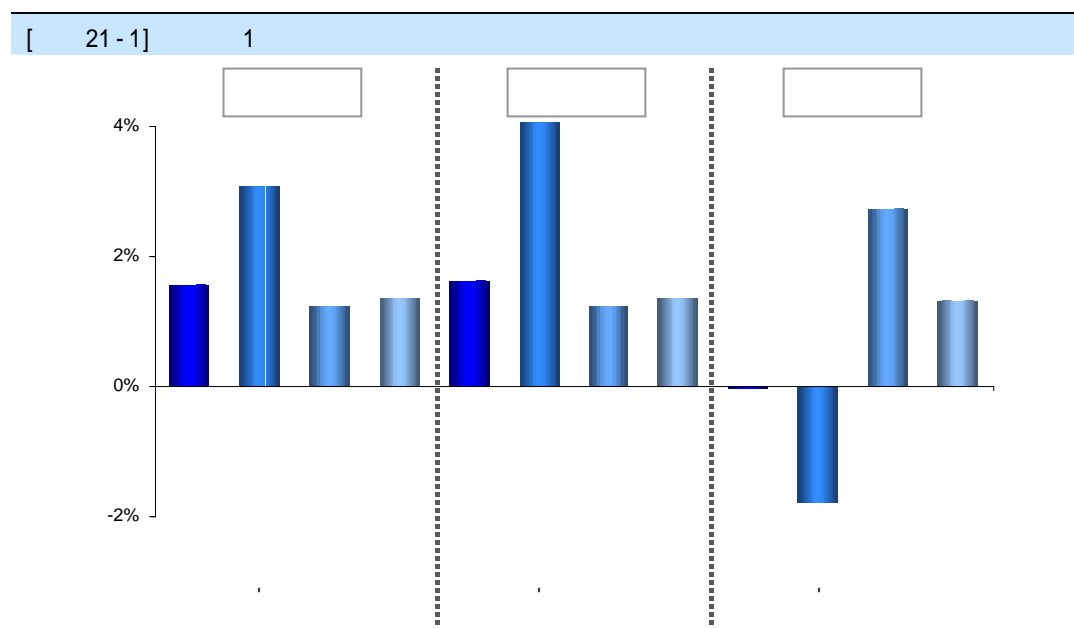
[20 - 3]



: 1) Bull beta Bear beta
2) R^2 .

III. Performance

1. 가



: 6.25 . p.43 [6] .
: Datastream,

[6]	가	(%)						Information Ratio ()					
		1M	3M	6M	12M	YTD	Low	High	1M	3M	6M	12M	YTD
AC WORLD		1.56	-0.48	2.02	21.96	2.02	21.96	-2.82	-	-	-	-	-
WORLD		1.63	0.05	2.25	21.65	2.25	21.80	-2.41	0.12	0.72	0.33	-0.47	0.33
EA FE		2.19	-0.49	3.24	29.72	3.24	29.93	-2.57	0.83	-0.01	1.33	9.43	1.33
PACIFIC		4.07	-4.26	7.39	39.16	7.39	39.16	-5.55	2.03	-2.44	4.27	13.71	4.27
NORTH AMERICA		1.22	0.45	1.52	16.26	1.52	17.26	-2.33	-0.53	1.32	-0.70	-7.72	-0.70
EUROPE		1.36	1.22	1.51	25.97	1.51	27.86	-5.14	-0.27	1.76	-0.54	4.84	-0.54
EM		-0.02	-10.56	-2.62	29.60	-2.62	29.60	-13.29	-1.29	-7.03	-3.89	7.65	-3.89
EM ASIA		-1.80	-12.34	-5.68	26.06	-5.68	26.06	-15.97	-1.97	-6.28	-5.17	3.25	-5.17
EM LAT IN AMER.		2.75	-9.57	-3.93	32.17	-3.93	32.17	-12.02	0.98	-5.63	-3.86	8.05	-3.86
EM EUROPE		1.33	1.02	1.23	25.44	1.23	27.61	-5.45	-0.30	1.55	-0.83	4.13	-0.83
AC ASIA-PACIFIC		3.09	-5.65	5.08	36.87	5.08	36.87	-7.23	1.20	-3.33	2.47	12.45	2.47
AC ASIA-PAC. x JP		-1.01	-8.87	-3.06	24.37	-3.06	24.37	-11.36	-2.27	-6.14	-4.51	2.54	-4.51
AC ASIA x JP		-1.54	-10.68	-4.33	26.69	-4.33	26.69	-14.11	-2.10	-6.04	-4.72	4.08	-4.72
AUSTRALIA		1.87	2.87	6.79	16.36	6.79	16.36	-0.74	0.75	7.09	10.61	-11.73	10.61
HONG KONG		-1.53	-7.30	-1.36	29.27	-1.36	29.27	-13.79	-2.33	-4.50	-2.52	5.81	-2.52
JAPAN		2.88	-0.33	10.91	30.19	10.91	30.19	-3.25	1.35	0.11	7.83	6.50	7.83
NEW ZEALAND		3.02	1.35	6.20	12.71	6.20	18.87	-0.17	3.83	3.88	7.40	-15.69	7.40
SINGAPORE		0.99	-2.28	1.92	23.16	1.92	23.16	-5.17	-0.90	-1.76	-0.11	1.18	-0.11
CHINA		-1.82	-10.06	-12.78	36.30	-12.78	36.30	-18.02	-1.62	-4.00	-7.10	7.75	-7.10
INDIA		0.79	-13.20	-18.62	31.87	-18.62	33.68	-22.43	-0.60	-5.20	-10.13	5.81	-10.13
INDONESIA		-1.47	2.31	9.85	44.13	9.85	57.97	-12.04	-2.03	1.33	4.22	13.72	4.22
KOREA		-3.35	-14.15	-3.64	20.50	-3.64	20.50	-19.06	-1.99	-5.82	-3.04	-0.87	-3.04
MALAYSIA		1.08	-10.38	2.20	16.82	2.20	16.82	-11.42	-0.66	-11.41	0.21	-6.17	0.21
PAKISTAN		-6.50	-6.96	-0.79	17.53	-0.79	17.53	-12.71	-5.29	-5.40	-2.77	-2.90	-2.77
PHILIPPINES		4.97	11.95	9.16	29.00	9.16	32.99	-2.19	3.56	9.76	5.45	5.46	5.45
TAIWAN		-2.91	-10.91	-4.75	17.03	-4.75	17.03	-17.89	-2.05	-4.83	-3.59	-3.09	-3.59
THAILAND		0.78	1.29	-13.04	42.90	-13.04	42.90	-14.88	-0.79	0.99	-8.57	12.37	-8.57
AC AMERICAS		1.24	0.29	1.44	16.47	1.44	17.45	-2.43	-0.49	1.08	-0.80	-7.44	-0.80
CANADA		1.84	-0.73	3.39	21.46	3.39	21.46	-4.43	0.41	-0.27	1.56	-0.68	1.56
S&P 500		1.23	0.73	2.02	16.41	2.02	17.50	-2.02	-0.53	1.75	0.00	-7.40	0.00
ARGENTINA		0.20	-16.21	-9.64	25.52	-9.64	37.00	-21.23	-0.70	-7.53	-5.43	2.04	-5.43
BRAZIL		3.71	-8.25	-9.04	45.79	-9.04	45.79	-15.13	1.58	-4.22	-5.86	15.25	-5.86
CHILE		3.90	0.66	2.03	23.24	2.03	23.24	-5.95	3.32	1.35	0.01	1.37	0.01
COLOMBIA		-1.88	-4.14	30.11	65.71	30.11	66.46	-12.77	-3.01	-1.91	16.28	30.97	16.28
MEXICO		1.32	-3.84	14.36	41.04	14.36	42.28	-6.72	-0.23	-2.72	11.01	19.29	11.01
PERU		-1.18	-15.15	-10.17	48.56	-10.17	49.24	-15.15	-2.20	-7.75	-5.79	14.10	-5.79
VENEZUELA		-3.55	-11.92	13.64	68.25	13.64	73.48	-18.21	-4.23	-6.90	6.82	28.08	6.82
AC EUROPE		1.37	0.94	1.56	26.11	1.56	28.13	-5.12	-0.26	1.48	-0.49	5.04	-0.49
AUSTRIA		4.59	5.37	25.98	46.31	25.98	46.31	-1.07	3.25	5.40	23.68	28.79	23.68
BELGIUM		1.98	3.54	9.52	25.92	9.52	28.61	-2.30	0.81	5.03	9.41	5.01	9.41
DENMARK		4.92	4.14	12.17	27.89	12.17	29.59	-1.83	5.12	6.38	13.65	7.38	13.65
FINLAND		3.27	-20.03	-7.09	-4.12	-7.09	7.17	-27.84	1.80	-9.30	-4.75	-13.81	-4.75
FRANCE		1.96	3.05	5.38	20.97	5.38	23.68	-1.80	0.55	3.71	3.63	-0.98	3.63
GERMANY		2.11	2.39	0.18	23.79	0.18	26.65	-4.49	0.63	2.58	-1.70	1.52	-1.70
GREECE		-4.22	-0.09	5.27	31.83	5.27	33.98	-8.54	-7.40	0.36	2.76	8.50	2.76
IRELAND		2.99	5.28	13.41	23.11	13.41	23.59	-2.32	3.11	5.90	11.49	1.32	11.49
ITALY		3.32	4.46	6.81	15.53	6.81	17.75	-1.16	3.34	6.37	6.24	-8.24	6.24
NETHERLANDS		2.34	2.91	1.35	14.96	1.35	17.20	-3.13	1.09	3.85	-0.72	-6.72	-0.72
NORWAY		7.31	5.06	19.14	48.73	19.14	49.91	-1.66	8.89	5.35	16.21	27.39	16.21
PORTUGAL		1.92	-2.92	8.84	28.58	8.84	31.37	-7.91	0.61	-3.25	7.93	8.76	7.93
SPAIN		2.08	1.35	4.03	17.67	4.03	20.74	-3.86	0.68	1.92	2.03	-4.55	2.03
SWEDEN		3.99	2.62	14.99	40.46	14.99	42.73	-3.36	2.77	2.51	10.91	16.41	10.91
SWITZERLAND		0.94	1.27	4.12	18.68	4.12	21.42	-3.79	-1.10	2.11	2.53	-3.81	2.53
UK		1.44	2.66	0.63	11.65	0.63	13.53	-1.90	-0.26	4.79	-2.07	-14.74	-2.07
CZECH		2.04	-5.21	18.47	43.01	18.47	43.01	-9.21	0.57	-3.45	13.56	16.45	13.56
HUNGARY		-0.14	2.92	24.52	49.63	24.52	49.63	-5.16	-2.02	2.29	16.79	22.01	16.79
POLAND		1.60	-3.34	8.18	32.36	8.18	35.03	-9.42	0.05	-2.36	4.70	7.05	4.70
RUSSIA		2.23	-18.90	4.94	24.53	4.94	47.08	-22.79	0.20	-6.70	1.35	1.14	1.35
TURKEY		2.93	-13.36	-8.77	62.78	-8.77	70.42	-16.70	0.77	-6.56	-5.19	18.22	-5.19
ISRAEL		4.38	6.53	20.69	27.27	20.69	37.20	0.00	6.37	8.32	20.65	5.54	20.65
JORDAN		3.29	1.58	6.65	39.45	6.65	39.45	-3.75	3.09	2.99	4.86	18.50	4.86
SOUTH AFRICA		-2.54	-6.72	-4.85	15.58	-4.85	15.58	-11.75	-4.21	-5.19	-6.61	-5.95	-6.61
EGYPT		-0.69	-1.56	18.61	75.49	18.61	87.74	-10.42	-2.04	-0.82	9.99	32.84	9.99
MOROCCO		-0.66	1.29	11.26	16.47	11.26	19.58	-3.29	-3.48	2.66	14.95	-8.79	14.95

: 1) 6.25 , 가 1 .

2) Information Ratio = [-] / .

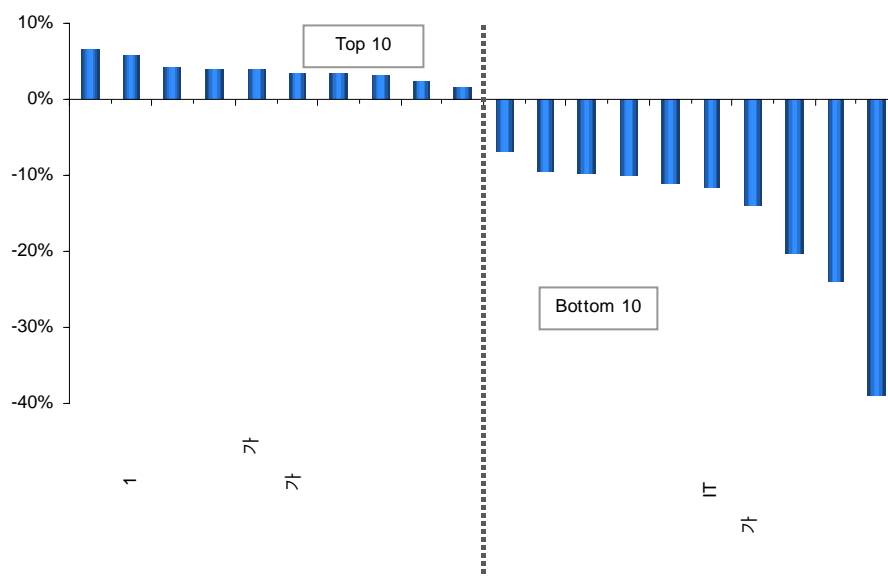
3) , , , , 47가 (

가)

: Datastream,

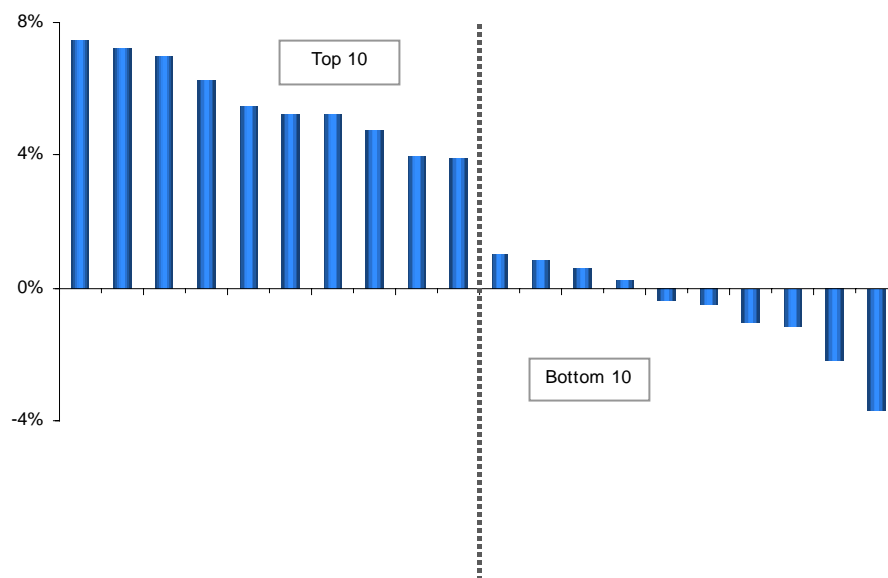
2. 가

[22 - 1] 1 : Top 10 vs. Bottom 10



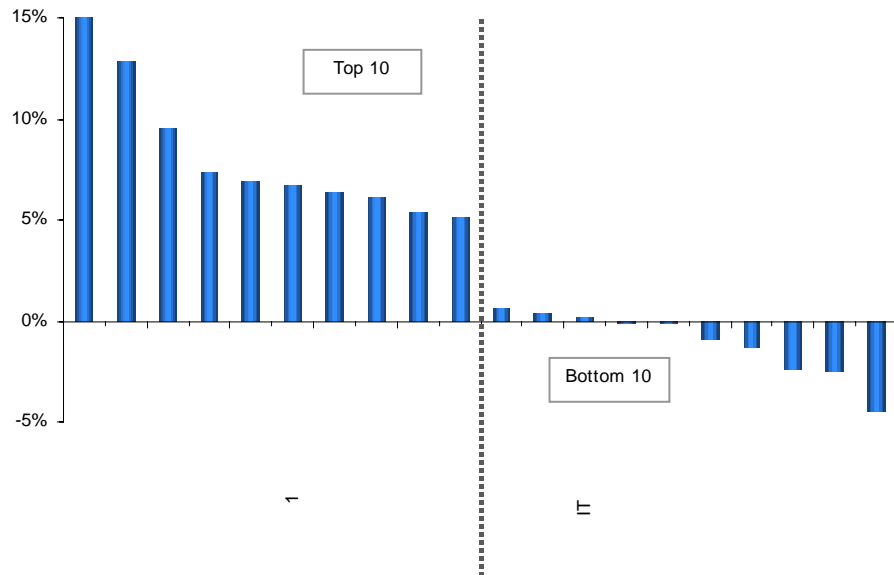
: 6.25 . p.46 [7 - 1] .

[22 - 2] 1 : Top 10 vs. Bottom 10



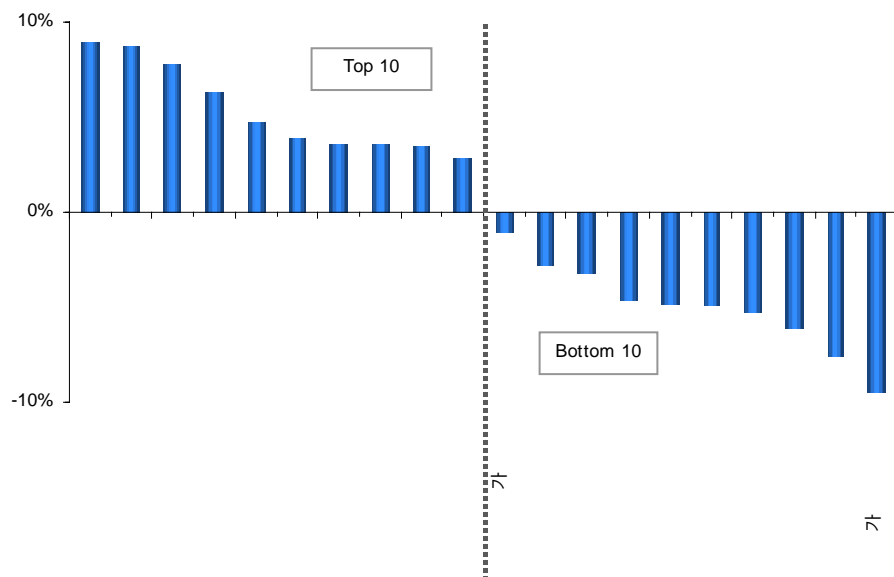
: 6.25 . p.47 [7 - 2] .
: Datastream,

[22 - 3] 1 : Top 10 vs. Bottom 10



: 6.25 . p.48 [7 - 3] .
: Datastream,

[22 - 4] 1 : Top 10 vs. Bottom 10



: 6.25 . p.49 [7 - 4] .
: Datastream,

2.1

가

[7 - 1]		가												
		(%)						Information Ratio ()						
		1M	3M	6M	12M	YTD	Low	High	1M	3M	6M	12M	YTD	
KOSPI		-3.09	-11.52	-3.91	16.29	-3.91	16.29	-16.78	-	-	-	-	-	
1		2.20	-8.20	-8.15	19.52	-8.15	21.90	-15.82	2.12	1.24	-1.94	1.73	-1.94	
		-1.96	-4.94	-1.82	22.29	-1.82	31.78	-18.82	0.44	2.02	0.80	2.60	0.80	
		5.77	-9.59	-11.71	18.20	-11.71	18.41	-18.10	3.40	0.72	-3.47	0.99	-3.47	
		-10.07	-32.97	-27.70	-1.28	-27.70	9.03	-36.63	-2.21	-6.26	-8.49	-7.20	-8.49	
		-6.03	-3.47	-11.95	20.93	-11.95	30.07	-14.99	-1.31	3.35	-4.25	2.67	-4.25	
		-3.44	-15.00	-18.81	-9.95	-18.81	7.68	-21.43	-0.16	-1.53	-7.49	-14.27	-7.49	
		-3.41	-5.65	-6.47	-1.07	-6.47	9.37	-16.05	-0.19	2.89	-1.53	-10.95	-1.53	
		-3.99	-8.41	-0.11	2.59	-0.11	6.96	-15.03	-0.44	1.34	1.89	-7.29	1.89	
		2.68	-10.13	-18.20	26.87	-18.20	39.35	-23.44	2.50	0.59	-7.03	4.60	-7.03	
		4.17	-2.02	-18.07	20.48	-18.07	31.86	-26.21	3.16	4.14	-6.89	1.74	-6.89	
		-1.69	-28.86	-18.98	52.17	-18.98	69.90	-32.95	0.46	-4.67	-4.98	11.54	-4.98	
		-20.21	29.72	2.06	54.55	2.06	58.67	-23.55	-4.59	8.19	1.52	10.57	1.52	
		1.62	-8.31	-1.46	10.28	-1.46	16.82	-16.60	1.77	1.08	0.96	-2.81	0.96	
		1.17	-11.72	-19.07	39.42	-19.07	46.00	-26.13	1.68	-0.06	-5.64	9.09	-5.64	
		-2.88	-18.23	-20.69	-1.09	-20.69	21.33	-26.21	0.07	-1.88	-5.59	-6.19	-5.59	
		3.92	-10.13	-19.79	97.01	-19.79	104.85	-30.70	2.15	0.37	-4.79	23.56	-4.79	
가		1.01	13.29	-3.83	23.65	-3.83	30.38	-6.32	2.08	12.10	0.04	3.61	0.04	
		-2.67	-14.87	-13.80	12.58	-13.80	13.65	-18.34	0.18	-1.39	-5.09	-2.05	-5.09	
		2.04	-13.49	-14.83	35.19	-14.83	35.19	-18.10	1.84	-0.76	-4.98	8.93	-4.98	
		6.58	-4.40	-14.26	55.98	-14.26	59.54	-15.55	3.79	2.66	-4.55	18.21	-4.55	
		-0.40	-18.01	-15.15	25.69	-15.15	26.71	-22.06	0.88	-2.37	-4.71	4.06	-4.71	
		-13.92	-19.93	-9.21	2.43	-9.21	10.64	-31.17	-3.49	-2.39	-1.81	-5.22	-1.81	
		-3.10	-17.97	-23.49	-27.03	-23.49	7.06	-27.46	-0.01	-2.94	-11.49	-26.07	-11.49	
		-3.37	-16.65	-9.98	-5.45	-9.98	7.61	-18.32	-0.14	-1.97	-2.84	-9.92	-2.84	
		-4.23	-17.80	-21.40	-21.71	-21.40	9.05	-24.39	-0.57	-2.63	-9.25	-23.43	-9.25	
		-6.31	-18.59	-17.28	-13.31	-17.28	7.81	-21.84	-1.66	-3.08	-7.45	-19.15	-7.45	
		3.08	-15.19	-33.74	-41.46	-33.74	13.13	-47.70	2.20	-1.09	-9.47	-19.88	-9.47	
		0.79	-8.68	-11.44	7.28	-11.44	16.44	-12.96	1.79	1.34	-3.94	-4.72	-3.94	
		2.52	-0.79	3.96	21.00	3.96	24.28	-6.38	3.64	7.88	6.51	4.23	6.51	
		2.37	-1.31	3.61	18.26	3.61	22.07	-7.89	3.75	7.55	6.17	1.75	6.17	
		3.47	2.37	6.27	39.98	6.27	43.83	-5.48	2.71	6.79	5.57	11.73	5.57	
	가		2.64	-5.51	0.22	0.25	0.22	10.72	-11.33	3.84	3.62	2.60	-11.30	2.60
		3.45	-2.22	5.02	15.12	5.02	18.85	-7.43	5.55	7.23	6.35	-0.94	6.35	
		-0.20	-15.86	-13.83	-33.89	-13.83	12.40	-45.04	0.89	-1.18	-3.29	-16.56	-3.29	
		-7.00	-18.33	-12.12	-2.03	-12.12	6.26	-25.01	-1.64	-2.65	-3.88	-8.99	-3.88	
		-6.91	-17.17	-10.23	18.89	-10.23	18.89	-24.12	-1.49	-2.05	-2.76	1.20	-2.76	
		-38.96	-83.39	-93.57	-99.00	-93.57	2.17	-99.19	-6.16	-9.58	-12.01	-17.39	-12.01	
		-9.81	-28.06	-23.46	-40.35	-23.46	4.48	-45.17	-3.05	-7.12	-9.10	-23.39	-9.10	
		-3.72	-9.91	5.60	26.08	5.60	27.18	-16.28	-0.28	0.58	4.00	4.66	4.00	
IT		-5.09	-16.10	3.17	25.59	3.17	25.59	-23.95	-0.72	-1.57	2.97	4.48	2.97	
IT			-3.93	12.20	11.24	-6.26	11.24	24.84	-24.74	-0.36	6.87	4.90	-6.99	4.90
			-11.47	-33.16	-30.37	-60.65	-30.37	5.59	-63.63	-3.62	-6.95	-9.62	-29.68	-9.62
			-0.58	12.41	8.12	72.80	8.12	72.80	-9.39	0.91	6.60	4.12	17.36	4.12
			-11.18	-23.90	-23.29	-37.79	-23.29	7.20	-43.60	-2.91	-3.98	-7.87	-23.78	-7.87
			-24.07	-37.20	-44.56	-53.67	-44.56	15.22	-63.19	-4.24	-6.36	-11.44	-21.69	-11.44
			-8.15	-24.78	-19.15	1.21	-19.15	6.05	-28.70	-1.83	-4.64	-6.81	-7.45	-6.81
			-9.50	-23.32	-22.60	-14.29	-22.60	4.66	-28.42	-3.02	-4.66	-9.08	-15.72	-9.08
		-6.90	-26.10	-15.82	20.49	-15.82	20.49	-29.89	-1.08	-4.40	-4.54	1.76	-4.54	
		-4.45	-15.33	9.35	36.46	9.35	36.46	-23.74	-0.46	-1.25	5.21	9.05	5.21	
		0.69	-7.38	-5.79	-11.75	-5.79	10.47	-14.90	2.05	2.52	-1.24	-19.74	-1.24	
		1.35	-8.24	-12.39	-16.85	-12.39	9.29	-23.95	2.83	2.18	-6.07	-24.18	-6.07	
		0.29	-6.81	-1.13	-8.36	-1.13	11.61	-14.86	1.50	2.40	1.46	-13.77	1.46	
		1.27	-2.97	-6.71	1.53	-6.71	6.98	-20.21	3.11	6.58	-2.02	-9.70	-2.02	
		0.54	-7.19	-12.62	-1.06	-12.62	4.47	-26.38	2.58	2.98	-5.55	-9.87	-5.55	
	가	3.82	15.03	21.92	12.17	21.92	27.96	-5.44	2.82	13.03	15.19	-2.73	15.19	
		-3.26	7.44	69.58	198.16	69.58	199.51	-8.06	-0.05	5.22	22.10	59.47	22.10	

: 1) 6.25 , 가 1 .

2) Information Ratio = [-] / .

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2.2

가

[7-2]		가											
		(%)						Information Ratio ()					
		1M	3M	6M	12M	YTD	Low	High	1M	3M	6M	12M	YTD
AC WORLD Free		1.56	-0.48	2.02	21.96	2.02	21.96	-2.82	-	-	-	-	-
		2.80	-2.68	-3.17	33.80	-3.17	33.80	-5.54	1.37	-1.96	-5.08	13.34	-5.08
1		2.87	1.60	-0.53	28.27	-0.53	28.43	-2.09	1.71	2.21	-2.91	7.57	-2.91
		3.02	-7.87	-7.76	41.81	-7.76	41.81	-10.98	1.17	-4.78	-6.99	16.80	-6.99
		2.51	-0.44	-0.79	25.92	-0.79	26.14	-3.14	1.20	0.03	-2.95	4.40	-2.95
		3.72	2.40	4.68	30.25	4.68	30.25	-0.59	3.32	3.49	3.47	11.56	3.47
		3.87	0.83	12.53	42.35	12.53	43.20	-0.37	2.99	1.18	11.00	23.05	11.00
		5.23	-3.60	7.11	40.57	7.11	42.82	-4.02	4.79	-2.61	4.85	19.27	4.85
		3.15	-1.55	1.38	35.68	1.38	35.68	-5.00	1.83	-0.93	-0.63	13.79	-0.63
		5.24	3.21	4.38	41.78	4.38	41.78	-0.35	4.65	3.32	2.30	20.66	2.30
		1.22	-8.06	6.08	47.70	6.08	47.70	-10.41	-0.26	-3.81	2.47	16.39	2.47
		1.00	-1.63	4.26	28.10	4.26	28.10	-3.35	-0.75	-1.43	2.98	8.07	2.98
가		3.98	1.14	3.77	25.58	3.77	25.70	-0.01	3.57	1.86	2.34	5.54	2.34
		0.80	-6.77	-1.77	22.72	-1.77	22.72	-13.83	-0.96	-4.74	-2.98	0.67	-2.98
		3.76	-6.31	-4.33	36.95	-4.33	42.07	-10.87	2.02	-3.54	-4.46	10.55	-4.46
		4.72	2.21	3.94	24.40	3.94	25.21	-0.76	3.58	2.65	2.24	3.16	2.24
		1.89	0.00	2.98	24.44	2.98	24.44	-1.44	0.50	0.55	1.20	3.21	1.20
		6.80	5.49	6.00	37.86	6.00	38.48	-0.71	5.64	5.05	3.64	14.43	3.64
		6.95	5.61	5.22	37.19	5.22	37.78	-0.75	5.59	5.02	2.82	12.93	2.82
		6.26	5.04	9.51	40.81	9.51	41.56	-0.55	5.19	4.74	7.28	20.23	7.28
		1.75	-6.48	2.40	35.04	2.40	35.04	-7.55	0.17	-4.55	0.33	11.17	0.33
		2.23	0.73	8.31	46.25	8.31	46.25	-0.87	0.92	1.13	6.53	27.63	6.53
가		1.26	-0.72	8.50	34.66	8.50	35.48	-2.78	-0.57	-0.31	8.32	17.27	8.32
		-1.03	-2.22	-4.40	9.23	-4.40	10.97	-8.67	-4.25	-2.18	-7.84	-15.73	-7.84
		1.80	1.70	7.58	25.00	7.58	25.02	-0.78	0.35	2.37	6.34	3.32	6.34
		1.14	0.67	5.02	19.37	5.02	22.03	-1.66	-0.93	2.04	5.48	-5.37	5.48
		1.38	0.35	4.49	19.89	4.49	23.85	-2.06	-0.38	1.32	4.19	-4.08	4.19
		1.66	6.31	11.24	25.98	11.24	30.74	-1.07	0.22	10.59	14.23	6.99	14.23
		-0.68	2.53	1.67	9.34	1.67	15.18	-2.83	-4.08	4.56	-0.55	-19.17	-0.55
		-1.15	2.81	-0.80	5.00	-0.80	14.02	-4.76	-4.40	4.45	-3.99	-23.25	-3.99
		-2.21	-1.14	-0.12	2.63	-0.12	7.77	-7.65	-3.65	-0.59	-1.89	-15.99	-1.89
		0.61	-3.20	0.79	22.65	0.79	22.65	-5.37	-1.44	-3.29	-1.63	0.96	-1.63
IT		0.20	-2.16	-0.20	21.76	-0.20	22.13	-4.58	-2.10	-2.02	-3.00	-0.29	-3.00
		2.42	-2.55	12.47	29.54	12.47	29.54	-3.76	1.14	-2.07	11.11	7.57	11.11
		-0.36	-7.93	-3.60	18.18	-3.60	18.18	-11.99	-2.29	-7.71	-6.05	-4.00	-6.05
		1.94	-0.20	4.46	27.75	4.46	27.75	-4.12	0.58	0.32	3.02	7.26	3.02
		1.63	-1.93	-0.33	25.51	-0.33	25.51	-8.93	0.07	-1.30	-2.11	3.02	-2.11
		7.46	20.72	38.37	90.04	38.37	94.16	0.00	3.40	9.31	19.12	32.57	19.12
		1.36	0.66	0.06	17.68	0.06	17.68	-3.56	-0.26	1.36	-2.39	-4.68	-2.39
		5.49	7.09	-0.85	13.39	-0.85	14.20	-5.46	4.72	7.17	-2.79	-7.04	-2.79
		3.48	-6.62	5.82	43.87	5.82	44.88	-14.70	1.33	-3.70	2.11	12.98	2.11
		1.27	-2.39	-0.91	11.21	-0.91	14.52	-9.47	-0.35	-2.13	-3.13	-10.28	-3.13
가		0.58	-5.35	6.39	43.29	6.39	43.29	-9.14	-0.66	-3.17	3.20	14.39	3.20
		-3.71	-6.38	-10.19	30.26	-10.19	30.26	-17.50	-3.26	-4.08	-8.57	5.32	-8.57
		1.09	-4.06	-2.64	10.40	-2.64	15.64	-9.80	-0.72	-4.07	-4.91	-14.03	-4.91
		1.93	-3.99	-3.48	5.11	-3.48	11.79	-9.56	0.57	-4.36	-6.09	-21.12	-6.09
		-0.48	-4.17	-0.96	21.83	-0.96	25.52	-10.23	-2.43	-3.20	-2.40	-0.11	-2.40
		2.08	-0.90	4.17	17.52	4.17	23.22	-1.82	0.93	-0.60	3.24	-7.82	3.24
		1.96	-0.13	4.56	16.56	4.56	22.10	-0.82	0.67	0.48	3.92	-9.62	3.92
		3.67	-4.31	0.82	18.97	0.82	21.26	-5.37	3.54	-4.67	-1.68	-4.88	-1.68
		3.98	4.93	8.09	27.55	8.09	32.84	-0.79	2.96	5.82	6.97	7.16	6.97

: 1) 6.25 , 가 1

2) Information Ratio = [-] /

: Datastream,

2.3

가

[7 -3]		가											
		(%)						Information Ratio ()					
		1M	3M	6M	12M	YTD	Low	High	1M	3M	6M	12M	YTD
S&P 500		1.23	0.73	2.02	16.41	2.02	17.50	-2.02	-	-	-	-	-
		3.28	0.39	-1.90	26.96	-1.90	27.99	-3.27	2.12	-0.28	-3.39	10.01	-3.39
1		2.29	2.88	-0.42	21.32	-0.42	21.81	-1.18	1.20	2.10	-2.39	4.97	-2.39
		6.69	-5.35	-9.13	40.07	-9.13	44.14	-11.49	3.31	-3.08	-5.96	14.46	-5.96
		1.31	-0.94	1.48	28.38	1.48	28.68	-4.27	0.09	-1.22	-0.39	9.48	-0.39
		4.72	6.88	5.35	25.43	5.35	26.35	-1.15	5.04	7.81	4.02	11.03	4.02
		6.37	2.69	14.77	39.74	14.77	42.06	-0.24	5.37	1.79	12.61	24.05	12.61
		14.96	20.10	17.22	31.06	17.22	36.37	0.00	10.60	14.77	9.29	8.60	9.29
		1.33	-1.46	3.16	8.40	3.16	17.72	-1.98	0.17	-2.74	1.60	-11.49	1.60
		5.35	5.95	4.65	42.08	4.65	42.58	-1.34	4.87	4.38	2.17	22.60	2.17
		3.22	17.09	18.59	20.18	18.59	27.23	-0.33	1.53	10.40	11.72	2.62	11.72
		2.05	1.73	6.65	25.97	6.65	27.42	-1.66	0.98	1.17	5.65	10.56	5.65
		5.15	7.55	1.55	15.80	1.55	17.32	0.00	5.75	9.84	-0.65	-0.86	-0.65
		9.54	16.74	0.25	-7.52	0.25	25.03	-17.43	3.75	8.87	-0.98	-13.57	-0.98
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		3.71	6.81	-3.73	14.30	-3.73	15.49	-4.11	2.22	6.16	-6.10	-2.14	-6.10
		1.17	0.21	1.25	17.82	1.25	18.74	-1.94	-0.10	-0.63	-0.94	1.64	-0.94
가		5.80	7.97	1.26	40.59	1.26	41.97	-2.83	4.71	5.58	-0.62	20.38	-0.62
		6.08	10.23	0.92	41.87	0.92	43.47	-3.05	4.96	6.87	-0.85	19.95	-0.85
		4.93	1.61	2.48	36.93	2.48	37.65	-7.76	3.27	0.64	0.34	16.43	0.34
		0.80	-2.46	5.58	25.24	5.58	30.11	-3.93	-0.41	-2.67	3.13	8.29	3.13
		5.08	-0.69	8.90	33.11	8.90	38.72	-2.17	4.97	-1.37	7.65	17.09	7.65
		0.86	6.27	12.91	23.26	12.91	28.08	-1.59	-0.68	8.38	14.87	10.47	14.87
		-1.33	-3.33	-9.50	0.06	-9.50	4.60	-11.76	-4.23	-4.89	-12.85	-17.16	-12.85
		1.55	2.44	7.78	25.23	7.78	25.23	-0.88	0.45	1.74	5.89	8.42	5.89
		-0.67	-0.91	4.18	12.78	4.18	15.16	-2.89	-3.83	-3.00	3.60	-6.11	3.60
		-2.40	-5.48	0.84	5.45	0.84	5.56	-8.59	-5.37	-7.67	-1.33	-11.67	-1.33
		2.94	0.11	11.87	37.00	11.87	38.99	-3.33	3.03	-0.68	10.77	22.26	10.77
		-1.21	1.45	0.55	3.10	0.55	10.55	-4.89	-4.31	1.01	-2.03	-16.80	-2.03
		-2.48	1.41	-2.61	-3.74	-2.61	7.44	-7.91	-5.65	0.81	-5.53	-22.06	-5.53
		-0.91	-3.10	-4.80	-7.65	-4.80	2.99	-14.74	-2.28	-3.33	-5.60	-18.15	-5.60
		0.26	-2.97	1.18	16.47	1.18	16.47	-5.79	-1.54	-4.64	-1.08	0.06	-1.08
가		-0.14	0.00	0.97	15.23	0.97	16.38	-3.98	-2.09	-0.90	-1.38	-1.52	-1.38
		2.03	-3.00	7.41	22.90	7.41	22.90	-5.13	1.12	-3.88	5.42	5.82	5.42
		-0.14	-8.66	-4.81	13.64	-4.81	13.64	-13.63	-1.37	-8.73	-6.20	-2.38	-6.20
		0.39	0.30	6.97	23.29	6.97	23.29	-4.62	-1.49	-0.54	6.03	7.88	6.03
	IT	1.53	1.55	-1.10	23.45	-1.10	23.45	-8.44	0.28	0.71	-2.61	5.38	-2.61
		12.84	43.63	54.14	112.53	54.14	140.91	0.00	5.39	14.34	20.84	38.48	20.84
	IT	0.14	1.95	0.04	9.72	0.04	11.53	-3.74	-1.23	1.40	-2.27	-6.62	-2.27
		5.14	7.36	-0.65	11.81	-0.65	12.87	-5.49	4.61	5.88	-2.43	-3.54	-2.43
		2.19	0.19	6.90	53.97	6.90	53.97	-11.85	0.59	-0.32	2.65	21.16	2.65
		1.77	-1.30	-0.61	10.00	-0.61	14.52	-8.97	0.68	-2.23	-2.64	-5.74	-2.64
		4.62	1.82	-3.90	29.79	-3.90	29.79	-8.99	3.86	0.99	-5.19	11.83	-5.19
		-4.47	-4.14	-12.10	NA	-12.10	NA	-19.12	-3.19	-3.05	-8.35	NA	-8.35
		1.83	-2.92	1.12	2.10	1.12	14.45	-7.52	0.82	-4.88	-0.90	-13.27	-0.90
		0.60	-5.08	-5.24	-7.22	-5.24	7.58	-10.44	-0.84	-7.45	-7.06	-21.27	-7.06
		7.41	7.10	35.18	62.74	35.18	73.01	-0.57	7.40	7.34	19.76	24.87	19.76
가		1.47	-2.04	2.03	7.42	2.03	17.83	-2.64	0.44	-3.54	0.00	-12.60	0.00
		3.19	-1.35	-0.20	40.18	-0.20	40.18	-12.81	1.16	-1.36	-1.34	14.30	-1.34
		1.91	-2.92	0.70	7.13	0.70	11.62	-4.95	1.54	-5.26	-1.86	-13.23	-1.86
		4.88	6.71	11.61	28.41	11.61	33.50	-1.80	3.79	5.31	9.22	12.87	9.22

: 1) 6.25 , 가 1 .

2) Information Ratio = [-] / .

: Datastream,

2.4

가

[7-4]		가													
		(%)							Information Ratio ()						
		1M	3M	6M	12M	YTD	Low	High	1M	3M	6M	12M	YTD		
MSCI EMF		-0.02	-10.56	-2.62	29.60	-2.62	29.60	-13.29	-	-	-	-	-		
1		0.38	-12.70	-9.06	35.16	-9.06	35.16	-15.67	0.31	-1.28	-4.36	4.54	-4.36		
		2.50	-8.84	-12.09	21.21	-12.09	21.21	-15.05	1.94	0.88	-5.83	-6.09	-5.83		
		-0.29	-15.01	-10.65	37.72	-10.65	37.72	-18.31	-0.18	-2.33	-4.68	5.65	-4.68		
		3.57	-5.22	-2.06	40.67	-2.06	40.67	-7.13	3.33	4.16	0.48	10.37	0.48		
		1.53	-8.49	-0.83	37.52	-0.83	37.52	-11.40	1.37	1.41	1.52	7.95	1.52		
		1.93	-6.49	1.88	26.95	1.88	27.61	-9.53	1.88	2.71	3.40	-2.21	3.40		
		-0.75	-12.53	-4.38	28.41	-4.38	28.41	-16.81	-0.52	-1.16	-1.27	-0.98	-1.27		
		-3.24	-18.52	8.54	45.48	8.54	45.48	-24.39	-2.12	-3.24	5.07	8.97	5.07		
		4.74	-3.77	-17.59	21.70	-17.59	31.10	-26.26	1.98	2.79	-6.93	-3.32	-6.93		
		-0.73	4.47	50.25	108.85	50.25	108.85	-6.06	-0.22	4.07	15.74	25.62	15.74		
		7.78	-1.61	15.88	23.79	15.88	31.49	-8.28	3.29	3.27	8.05	-3.04	8.05		
		0.45	-10.64	-3.66	36.93	-3.66	36.93	-14.17	0.32	-0.04	-0.66	5.52	-0.66		
		-5.24	-12.32	-0.73	30.90	-0.73	30.90	-19.46	-3.33	-0.76	0.95	0.74	0.95		
		3.60	-15.90	-9.71	48.66	-9.71	48.66	-20.62	2.04	-2.44	-3.88	11.66	-3.88		
가		3.52	-10.39	-1.57	56.48	-1.57	56.49	-18.29	1.54	0.05	0.36	10.08	0.36		
		-1.32	-13.87	-7.57	29.55	-7.57	29.55	-16.34	-1.01	-2.03	-3.76	-0.04	-3.76		
		-0.89	-18.44	-14.42	38.75	-14.42	38.75	-21.11	-0.48	-3.58	-6.58	5.65	-6.58		
		-2.83	-20.73	-14.65	35.17	-14.65	35.17	-23.44	-1.58	-4.70	-6.73	3.44	-6.73		
		8.76	-6.64	-12.64	56.74	-12.64	57.31	-13.58	3.65	1.40	-4.22	12.28	-4.22		
		-9.42	-18.26	-8.12	16.84	-8.12	16.84	-23.84	-4.44	-2.98	-2.61	-6.45	-2.61		
		-4.62	-18.12	-15.76	-5.79	-15.76	4.18	-21.80	-2.43	-3.96	-8.07	-25.85	-8.07		
		-1.02	-13.11	-7.68	2.86	-7.68	6.05	-16.36	-1.10	-1.81	-4.24	-22.58	-4.24		
		2.79	-5.77	3.06	34.33	3.06	34.33	-7.54	3.32	3.68	4.85	4.27	4.85		
		3.88	-4.78	2.74	54.70	2.74	54.70	-6.91	3.27	4.26	4.34	21.46	4.34		
		2.15	-6.20	-1.59	15.42	-1.59	17.36	-9.53	3.77	4.73	1.21	-19.59	1.21		
		2.76	-5.93	0.91	20.36	0.91	21.85	-10.39	4.77	4.84	3.88	-12.28	3.88		
	가		-1.08	-10.44	-19.14	-8.20	-19.14	8.34	-22.28	-1.03	0.07	-11.97	-28.92	-11.97	
		2.57	2.24	7.53	20.16	7.53	26.04	-2.54	4.94	13.14	10.28	-9.17	10.28		
IT		2.50	2.37	8.06	19.04	8.06	25.32	-2.74	4.59	13.00	10.68	-10.05	10.68		
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
		0.14	-8.88	-0.85	28.84	-0.85	28.84	-11.44	0.13	1.16	1.46	-0.72	1.46		
		0.10	-8.86	0.25	35.01	0.25	35.01	-11.38	0.10	1.13	2.29	5.02	2.29		
		-0.99	-8.55	-23.30	-42.84	-23.30	11.88	-55.32	-0.56	0.74	-8.31	-29.38	-8.31		
		-4.98	-24.15	-16.95	-26.90	-16.95	5.28	-33.76	-2.37	-6.00	-6.96	-25.57	-6.96		
		1.67	-3.61	0.82	23.34	0.82	23.77	-8.27	1.56	4.65	2.57	-5.18	2.57		
	IT		-4.25	-14.21	0.11	27.74	0.11	27.74	-20.07	-1.75	-1.53	1.39	-1.11	1.39	
	가		0.34	22.36	3.90	-13.52	3.90	25.70	-28.82	0.14	9.23	2.13	-13.46	2.13	
		IT		2.23	1.27	-7.64	59.32	-7.64	62.16	-12.43	1.53	4.75	-2.25	14.21	-2.25
			6.27	12.54	36.89	32.67	36.89	49.92	-0.05	4.06	11.11	19.66	1.42	19.66	
			8.96	-1.21	-0.01	46.56	-0.01	46.56	-17.39	4.54	4.91	1.35	10.30	1.35	
			-6.05	-13.35	-11.49	-1.75	-11.49	5.77	-20.38	-3.17	-1.30	-4.73	-18.67	-4.73	
			-7.54	-20.64	-1.19	32.77	-1.19	32.77	-25.98	-2.78	-4.03	0.70	1.75	0.70	
		-4.81	-16.14	1.81	30.45	1.81	30.45	-22.96	-1.67	-2.02	1.96	0.43	1.96		
		2.38	-5.16	2.45	29.11	2.45	29.11	-8.31	1.99	4.07	4.19	-0.49	4.19		
		2.66	-4.51	-2.51	14.88	-2.51	18.73	-9.84	2.53	4.88	0.10	-15.32	0.10		
		2.09	-5.80	7.85	46.69	7.85	46.69	-9.35	1.44	3.16	7.54	14.14	7.54		
		0.33	-10.53	-10.18	23.07	-10.18	23.21	-14.81	0.36	0.02	-6.81	-6.39	-6.81		
가			0.36	-9.49	-8.72	24.09	-8.72	24.36	-14.01	0.36	0.81	-5.37	-5.23	-5.37	
		-0.75	-19.48	-20.93	17.95	-20.93	19.78	-26.93	-0.61	-3.43	-8.82	-6.72	-8.82		
		1.23	-13.69	-2.60	36.05	-2.60	41.55	-16.47	1.01	-2.13	0.02	4.97	0.02		

: 1) 6.25 , 가 1 .

2) Information Ratio = [-] / .

: Datastream,

IV. Appendix

1. ECM(Error Correction Model;)

1)

가 (fair value) , . 가가 ,
 fair value , , 가
 . 가 , 가
 , 가 가 .

가 ? 'ECM(Error Correction
 Model;)' . ' (error)' '
 (correction)' . ' (error)' ' (correction)'
 . ' (error)' 가가 , 가 (fair value)
 , ' (correction)' 가가 , 가 (fair value)
 . 'ECM(Error Correction Model;)' 가 -
 가 .

2)

'ECM(Error Correction Model;)' . ECM
 . 가 , ,
 가 , 가 (fair value)
 . ' Fair value ' , '
 , . ECM .

ECM . ' Fair value
 , 가 , , 가 ,
 (Cointegration,)가 . ' Fair value '
 (가)
 . ' , 가
 , ' valuation gap', '
 , ' (, 가)' 가 .

3) 例 : 가

‘ECM(Error Correction Model;)’

- **Fair value**

$$P_t = a + b_1 IP_t + b_2 LI_t + b_3 CRB_t + b_4 FX_t + b_6 TB_t + \varepsilon_t$$

-

$$R_t = \alpha + \beta \varepsilon_{t-1} + \gamma_1 \Delta IP_t + \gamma_2 \Delta LI_t + \gamma_3 \Delta CRB_t + \gamma_4 \Delta FX_t + \gamma_5 \Delta CB_t \\ + \delta_1 \Delta ERR_t + \delta_2 \Delta FNB_t + \delta_3 \Delta PM_t + u_t$$

- **Fair value**

P_t : KOSPI

IP_t :

LI_t : G7

CRB_t : CRB Industrials Price Index

FX_t : /

TB_t : (3)

ε_t : ‘ Fair value ’

a, b : ‘ Fair value ’

-

R_t : KOSPI

ε_{t-1} : valuation gap

ΔIP_t : 3 가

ΔLI_t : G7 가

ΔCRB_t : CRB Industrials Price Index 3 가

ΔFX_t : / 가

ΔCB_t : (3) 가

ΔERR_t : (MSCI AC WORLD Free) 가

ΔFNB_t : (3 가)

ΔPM_t : 가 (KOSPI ‘20 / 60 ,)

(residuals)

u_t : ‘ , ’

$\alpha, \beta, \gamma, \delta$: ‘ , ’

4)

‘ECM(Error Correction Model;)’
 ECM 가 ‘Engle-Granger’(2003)가
 2 ‘Engle-Yoo’ 3

1) 1 : ‘Fair value’ KOSPI () ,
 () ‘ (OLS; Ordinary
 Least Squares method)’ ‘valuation gap’ .

2) 2 : KOSPI () ‘valuation gap’, ‘
 ’ (, 가)
 (OLS; Ordinary Least Squares method)’ ‘ , .

3) 3 : 2 (starting value) ‘ ,
 ’2 (2-step Maximum Likelihood method)’ .
 가

2. ARIMA Model

ARIMA(Autoregressive, Integrated, Moving Average)

$$ARIMA(p, d, q)$$

$$X_t = \alpha + \beta_1 X_{t-1} + \dots + \beta_p X_{t-p} + \varepsilon_t + \gamma_1 \varepsilon_{t-1} + \dots + \gamma_q \varepsilon_{t-q}$$

$$X_{t-p} : \text{AR} \quad p$$

$$\varepsilon_{t-q} : \text{MA} \quad q$$

$$\varepsilon_t :$$

p q (Maximum Likelihood method), AIC(Akaike Information Criterion) SC(Schwarz Criterion)

$ARIMA(p, d, q)$ p q d (stationary) (non-stationary) (stationary) (unit-root test) d '0' 가 '1' 가 ().

$$ARIMA(p, d, q)$$

3. Bull beta vs. Bear beta

(ordinary beta) (benchmark index) 1%

() % 가 ' 1' .

가 . 가 ' 1' .

가 , ' 1' .

가 . (ordinary beta)

가 ' 1' () ,

가 ' 1' () .

.

() .

가 .

, . 가

(ordinary beta)가 가 .

가 . 가 ' Bull beta' ,

' Bear beta' .

Bull beta Bear beta .

$$R_i = \alpha_{1i} + \alpha_{2i} D + \beta_{1i} R_B + \beta_{2i} R_B D + \varepsilon_i$$

R_i : i (i)

R_B : i (i) (Benchmark)

D : Bull market Bear market (dummy)
(Bull market = 0, Bear market = 1)

ε_i :

α_{1i}, α_{2i} :

β_{1i}, β_{2i} :

() ' (OLS; Ordinary Least Squares method)'
, Bull beta Bear beta .

$$\text{Bull beta} = \beta_{1i}$$

$$\text{Bear beta} = \beta_{1i} + \beta_{2i}$$

, (ordinary beta) , β_i .

$$R_i = \alpha_i + \beta_i R_B + \varepsilon_i$$

4. 가 (vs.)

가 .

$$R_i = \alpha_i + \beta_i DM + \gamma_i GS_i + \varepsilon_i$$

R_i : i

DM : (Domestic Market)

GS_i : (Global Sector) i

ε_i : i

α_i : i

β_i : i

γ_i : i

‘ (OLS; Ordinary Least Squares method)’ ,

i .

$$= \frac{\beta_i}{\beta_i + \gamma_i} \times 100$$

$$= \frac{\gamma_i}{\beta_i + \gamma_i} \times 100$$



가	02 - 3774 - 1900		02 - 6284 - 1700		031 - 234 - 1770		063 - 273 - 7000
	02 - 443 - 7007		02 - 2091 - 0700		031 - 922 - 7600		053 - 421 - 7007
	02 - 3420 - 2700		02 - 581 - 0600		031 - 389 - 1700		053 - 754 - 7003
	02 - 554 - 8100		02 - 560 - 5000		032 - 506 - 0070		051 - 805 - 7001
	02 - 575 - 0900		02 - 752 - 1800		042 - 471 - 0700		051 - 552 - 7772
	02 - 925 - 1700		02 - 718 - 6700		043 - 254 - 0700		052 - 268 - 3700
	02 - 7575 - 400		02 - 3416 - 0770		061 - 721 - 0700		054 - 272 - 5200
	02 - 2062 - 0100		02 - 419 - 9933		062 - 228 - 0700		055 - 268 - 6700
	02 - 595 - 4100		031 - 705 - 7000		062 - 365 - 0700		

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)150-891

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