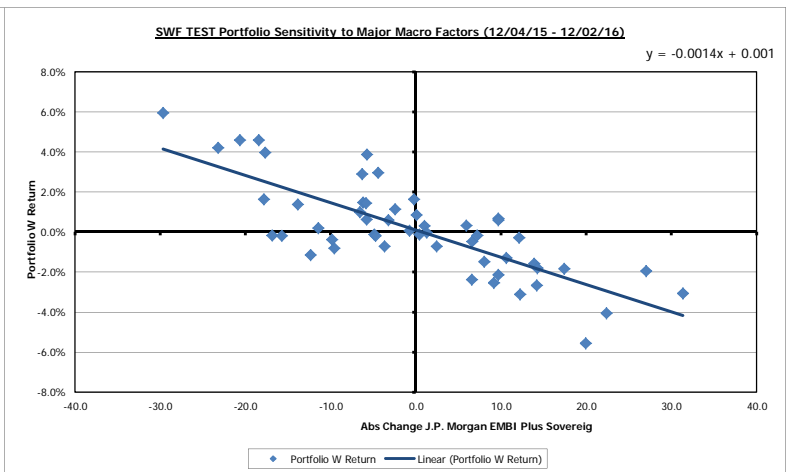
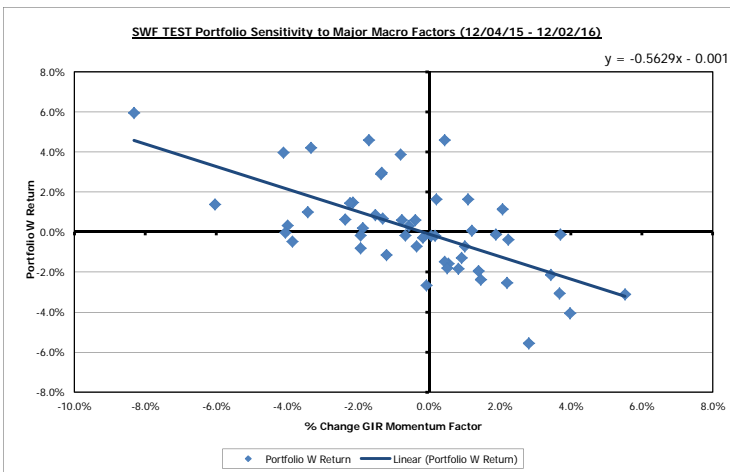
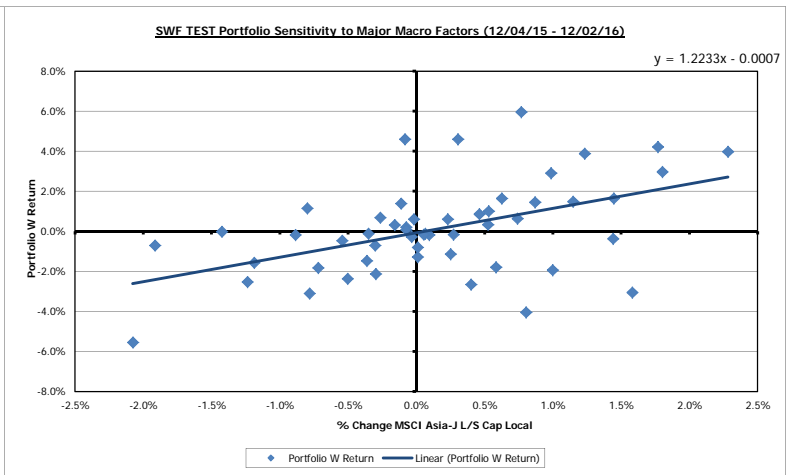
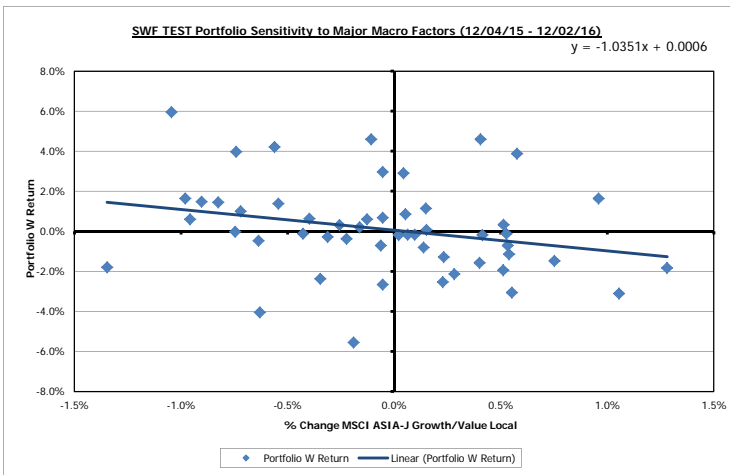
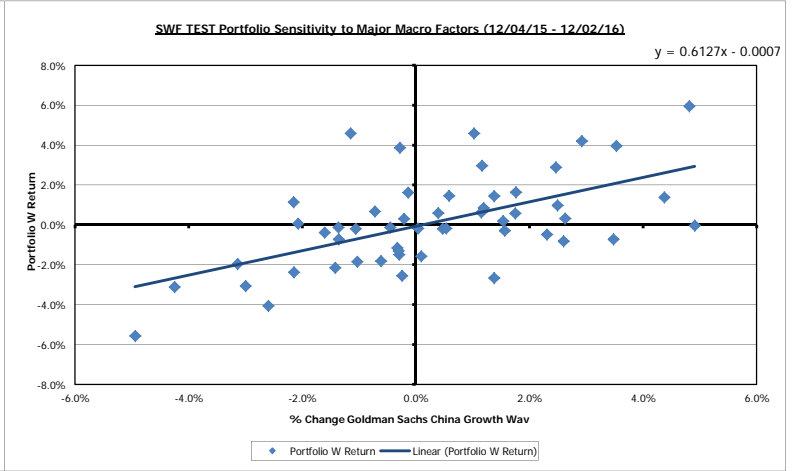
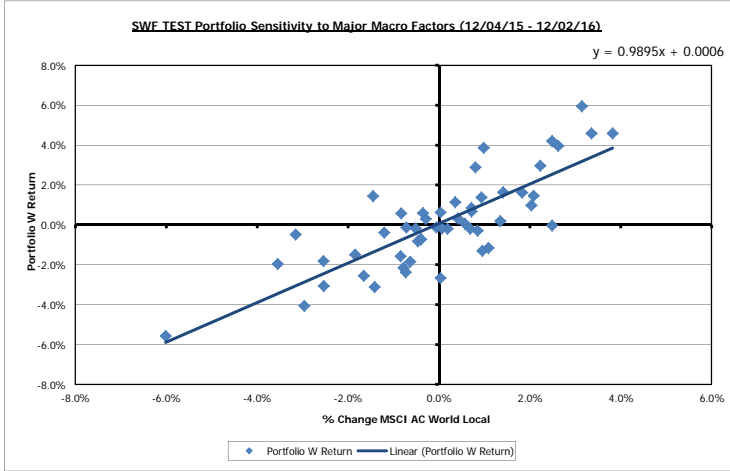
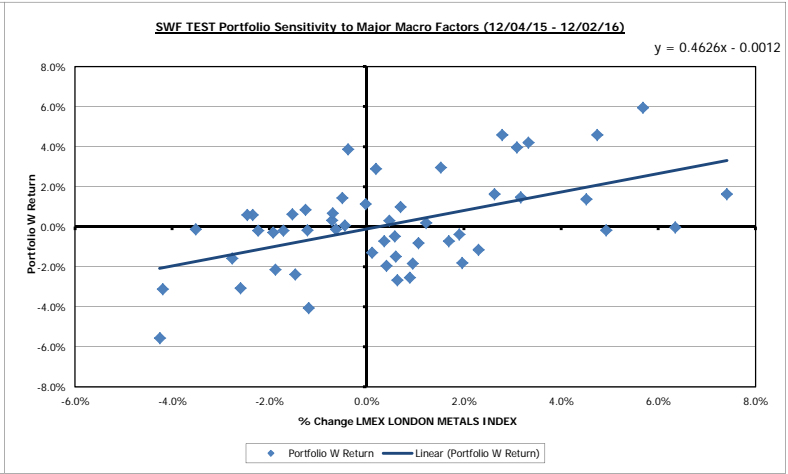
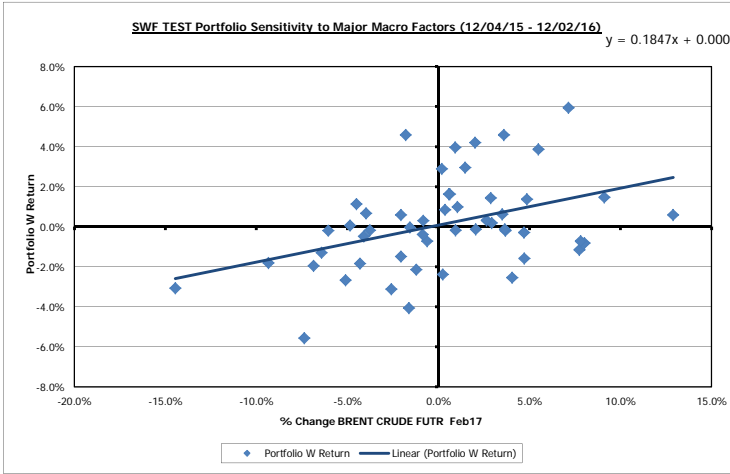
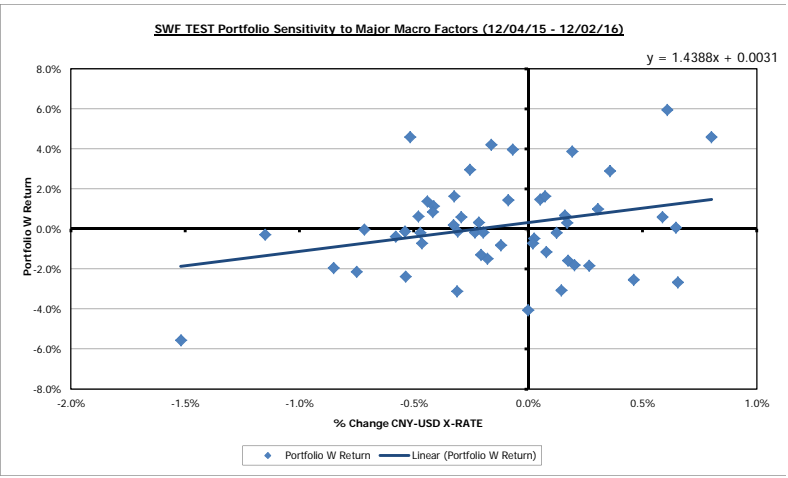
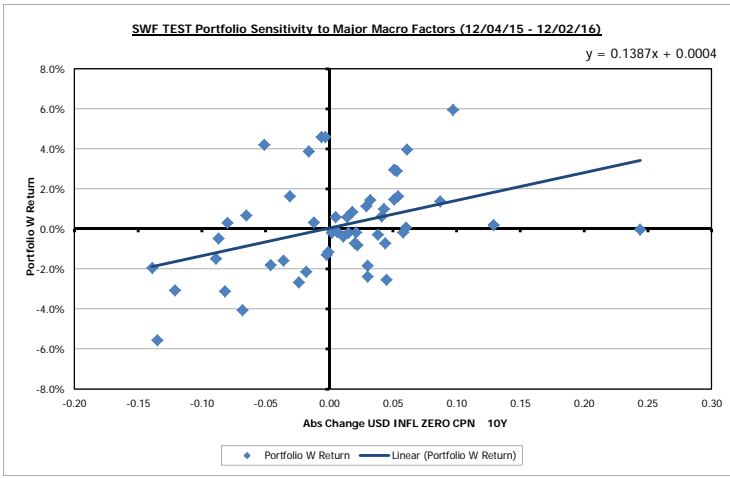


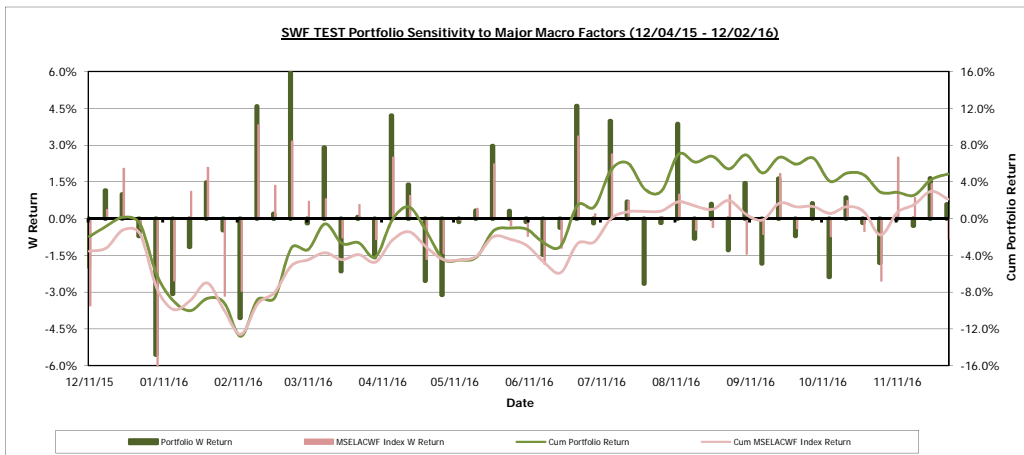
Annualized Vol	17%	14%	16%	4%	7%	19%	24%	21%	3%	37%	19%
Portfolio W Return	MSELACWF Index	GSWBCHIA Index	AAJGRVAL Index	AAJLSCAP Index	GSMFFMOM Index	JPEIPLSP Index	USSWIT10 Index	CNYUSD Curncy	COA Comdty	LME Index	
Portfolio W Return	1.0	0.8	0.6	(0.3)	0.5	(0.6)	(0.8)	0.4	0.3	0.4	0.5
MSCI AC World Local	MSELACWF Index	1.0	0.6	(0.1)	0.3	(0.5)	(0.7)	0.6	0.3	0.4	0.5
Goldman Sachs China Growth Wav	GSWBCHIA Index	0.6	1.0	(0.5)	0.3	(0.9)	(0.5)	0.6	0.3	0.5	0.5
MSCI ASIA-J Growth/Value Local	AAJGRVAL Index	(0.3)	(0.1)	(0.5)	1.0	(0.3)	0.5	0.2	(0.1)	(0.2)	(0.3)
MSCI Asia-J L/S Cap Local	AAJLSCAP Index	0.5	0.3	0.3	(0.3)	1.0	(0.3)	(0.0)	0.3	0.1	0.3
GIR Momentum Factor	GSMFFMOM Index	(0.6)	(0.5)	(0.9)	0.5	(0.3)	1.0	0.6	(0.5)	(0.2)	(0.4)
J.P. Morgan EMBI Plus Sovereig	JPEIPLSP Index	(0.8)	(0.7)	(0.5)	0.2	(0.3)	0.6	1.0	(0.5)	(0.2)	(0.5)
USD INFL ZERO CPN 10Y	USSWIT10 Index	0.4	0.6	0.6	(0.2)	(0.0)	(0.5)	(0.5)	1.0	0.1	0.4
CNY-USD X-RATE	CNYUSD Curncy	0.3	0.3	0.3	(0.1)	0.3	(0.2)	(0.2)	0.1	1.0	0.1
BRENT CRUDE FUTR Feb17	COA Comdty	0.4	0.4	0.5	(0.2)	0.1	(0.4)	(0.5)	0.4	0.1	1.0
LME LONDON METALS INDEX	LME Index	0.5	0.5	0.5	(0.3)	0.3	(0.5)	(0.5)	0.4	0.2	0.2





Latest 4w Change	Latest 12w Change	Latest 52w Change	Asset	Latest 4w z-Score	Latest 12w z-Score	Latest 52w z-Score
1.9%	-1.9%	4.8%	Portfolio W Return	0.4	(0.2)	0.3
4.0%	1.6%	2.1%	MSELACWF Index	1.1	0.2	0.2
10.3%	12.4%	15.6%	GSWBCHIA Index	2.4	1.6	1.0
-3.0%	-2.8%	-3.0%	.AAJGRVAL Index	(2.6)	(1.4)	(0.7)
0.2%	1.1%	8.2%	.AAJLSCAP Index	0.1	0.4	1.2
-4.8%	-5.7%	-19.5%	GSMEFMOM Index	(0.9)	(0.6)	(1.0)
22.9	47.1	(5.1)	JPEIPLSP Index	0.9	1.0	(0.1)
0.27	0.47	0.31	USSWIT10 Index	2.0	2.0	0.6
-1.6%	-2.6%	-6.8%	CNYUSD Currency	(1.8)	(1.7)	(2.1)
17.0%	10.3%	6.8%	COA Comdty	1.7	0.6	0.2
9.3%	18.0%	27.6%	LME X Index	1.8	2.0	1.5

Isolated Single Factor Change	Expected Portfolio Return	Asset
1.0%	1.0%	MSCI AC World Local
1.0%	0.6%	Goldman Sachs China Growth Wav
0.5%	-0.5%	MSCI ASIA-J Growth/Value Local
0.5%	0.6%	MSCI Asia-J L/S Cap Local
1.0%	-0.6%	GIR Momentum Factor
5	-0.7%	J.P. Morgan EMBI Plus Sovereig
0.1	0.7%	USD INFL ZERO CPN 10Y
0.5%	0.7%	CNY-USD X-RATE
3.0%	0.6%	BRENT CRUDE FUTR Feb17
1.5%	0.7%	LME X LONDON METALS INDEX



**Stock Return Correlation to Major Macro Factors**

Note: using excess returns, as opposed to returns, can produce significantly different results esp. if vol of returns and/or spread returns are low.

Correl wrt MSELACWF Index -->	yields											
	1.0	0.6	(0.1)	0.3	(0.5)	(0.7)	0.6	0.3	0.4	0.5		
Item	MSELACWF Index	GSWBCHIA Index	AAJGRVAL Index	AAJLSCAP Index	GSMFMOM Index	JPEIPLSP Index	USSWIT10 Index	CNYUSD Curncy	COA Comdty	LMEX Index		
1	PRU LN 0.8	SCI SP 0.6	SATS SP 0.4	1398 HK 0.6	ILMN 0.1	ALXN -0.1	SYF 0.6	BABA 0.4	REP SM 0.6	TRQ CN 0.6		
2	1299 HK 0.8	DBS SP 0.6	ILMN 0.3	2601 HK 0.5	EVK GY 0.1	ILMN -0.1	PRU LN 0.6	TMO 0.4	KEP SP 0.6	2318 HK 0.5		
3	2318 HK 0.7	2318 HK 0.6	BABA 0.3	2318 HK 0.5	SATS SP 0.0	PTLA -0.2	UNVR 0.5	1398 HK 0.3	CLNE 0.5	PRU LN 0.5		
4	2601 HK 0.7	PRU LN 0.6	EVK GY 0.3	939 HK 0.5	068270 KS 0.0	BDMN IJ -0.2	DBS SP 0.5	2318 HK 0.3	SCI SP 0.5	SCI SP 0.5		
5	REP SM 0.7	1398 HK 0.6	REGN 0.2	3988 HK 0.5	FIS -0.1	REGN -0.2	1299 HK 0.5	ILMN 0.3	LNG 0.4	DBS SP 0.5		
6	CAPL SP 0.7	CAPL SP 0.6	068270 KS 0.1	STAN LN 0.4	Q -0.1	SATS SP -0.2	LVLTL 0.4	JUNO 0.3	DBS SP 0.4	CAPL SP 0.5		
7	939 HK 0.7	3988 HK 0.5	ALXN 0.1	ST SP 0.4	INTUCH TB -0.1	Q -0.2	JUNO 0.4	KEP SP 0.3	HXL 0.4	HXL 0.5		
8	UNVR 0.7	REP SM 0.5	TMO 0.1	PRU LN 0.4	BDMN IJ -0.1	INTUCH TB -0.2	REGN 0.4	SCI SP 0.3	CAPL SP 0.4	LVLTL 0.4		
9	3988 HK 0.7	KEP SP 0.5	FIS 0.1	STE SP 0.3	SIA SP -0.2	SIA SP -0.2	REP SM 0.4	3988 HK 0.3	1398 HK 0.4	1398 HK 0.4		
10	HXL 0.7	2601 HK 0.5	PTLA 0.1	BABA 0.3	INFO -0.2	068270 KS -0.3	CAPL SP 0.4	DUFN VX 0.3	939 HK 0.3	3988 HK 0.4		
11	STE SP 0.7	HXL 0.5	Q 0.0	REP SM 0.3	ALXN -0.2	JUNO -0.3	VIRT 0.4	939 HK 0.3	3988 HK 0.3	REP SM 0.4		
12	SYF 0.6	STE SP 0.5	INTUCH TB 0.0	OLAM SP 0.3	TMO -0.2	MON -0.3	TRQ CN 0.4	HXL 0.3	DUFN VX 0.3	939 HK 0.4		
13	BABA 0.6	TRQ CN 0.5	BMRN 0.0	1299 HK 0.3	REGN -0.2	GILD -0.3	SCI SP 0.4	2601 HK 0.3	2601 HK 0.3	1299 HK 0.4		
14	SCI SP 0.6	OLAM SP 0.5	INFO 0.0	DUFN VX 0.3	BABA -0.2	FIS -0.3	HXL 0.4	FIS 0.3	PRU LN 0.3	SYF 0.4		
15	DBS SP 0.6	939 HK 0.5	SIA SP 0.0	SCI SP 0.3	PTLA -0.3	VIRT -0.4	TMO 0.4	CAPL SP 0.3	1299 HK 0.3	2601 HK 0.4		
16	TMO 0.6	JUNO 0.4	MRIN 0.0	BDMN IJ 0.3	GILD -0.3	SYF -0.4	3988 HK 0.4	OLAM SP 0.2	2318 HK 0.3	KEP SP 0.4		
17	LVLTL 0.6	STAN LN 0.4	GILD 0.0	CAPL SP 0.3	LNG -0.3	BMRN -0.4	2318 HK 0.4	PYPL 0.2	STE SP 0.3	TMO 0.3		
18	1398 HK 0.6	UNVR 0.4	CLNE 0.0	PYPL 0.3	MON -0.3	EVK GY -0.4	KEP SP 0.4	1299 HK 0.2	OLAM SP 0.3	MRIN 0.3		
19	TRQ CN 0.6	1299 HK 0.4	MON -0.1	DBS SP 0.3	SYF -0.3	PYPL -0.4	STE SP 0.3	VIRT 0.2	ST SP 0.3	ST SP 0.3		
20	KEP SP 0.6	DUFN VX 0.4	UNVR -0.1	SIA SP 0.2	UNVR -0.3	INFO -0.4	STAN LN 0.3	EVK GY 0.2	PYPL 0.2	OLAM SP 0.3		
21	STAN LN 0.6	MON 0.4	PYPL -0.1	ILMN 0.2	BMRN -0.3	MRIN -0.4	BMRN 0.3	LNG 0.2	UNVR 0.2	REGN 0.3		
22	FIS 0.5	SYF 0.4	DUFN VX -0.1	KEP SP 0.2	PYPL -0.3	LVLTL -0.4	PYPL 0.3	TRQ CN 0.2	STAN LN 0.2	SIA SP 0.3		
23	MRIN 0.5	MRIN 0.4	LVLTL -0.1	LNG 0.2	CLNE -0.3	TRQ CN -0.4	2601 HK 0.3	PTLA 0.2	TRQ CN 0.2	DUFN VX 0.3		
24	PYPL 0.5	LNG 0.4	JUNO -0.1	MRIN 0.2	ST SP -0.4	TMO -0.4	CLNE 0.3	REP SM 0.2	MON 0.2	STAN LN 0.3		
25	DUFN VX 0.5	CLNE 0.4	BDMN IJ -0.1	EVK GY 0.2	LVLTL -0.4	OLAM SP -0.4	LNG 0.3	DBS SP 0.2	INFO 0.2	UNVR 0.3		
26	LNG 0.5	VIRT 0.3	1299 HK -0.1	INTUCH TB 0.2	HXL -0.4	LNG -0.4	939 HK 0.3	BDMN IJ 0.2	LVLTL 0.2	BMRN 0.3		
27	INFO 0.5	LVLTL 0.3	STAN LN -0.1	LVLTL 0.2	JUNO -0.4	BABA -0.5	1398 HK 0.3	MRIN 0.2	MRIN 0.2	JUNO 0.3		
28	BMRN 0.5	PYPL 0.3	SYF -0.1	UNVR 0.2	DUFN VX -0.4	CLNE -0.5	OLAM SP 0.3	UNVR 0.2	BABA 0.2	LNG 0.3		
29	REGN 0.5	ST SP 0.3	HXL -0.2	INFO 0.2	MRIN -0.4	ST SP -0.5	PTLA 0.3	STE SP 0.2	VIRT 0.2	STE SP 0.3		
30	CLNE 0.5	BMRN 0.3	PRU LN -0.2	TMO 0.2	VIRT -0.4	UNVR -0.5	Q 0.2	PRU LN 0.1	SYF 0.2	VIRT 0.2		
31	EVK GY 0.4	INFO 0.3	TRQ CN -0.2	ALXN 0.2	OLAM SP -0.5	HXL -0.5	DUFN VX 0.2	Q 0.1	JUNO 0.2	CLNE 0.2		
32	OLAM SP 0.4	REGN 0.2	ST SP -0.2	HXL 0.2	1299 HK -0.5	STE SP -0.5	MRIN 0.2	STAN LN 0.1	BDMN IJ 0.1	PYPL 0.2		
33	Q 0.4	TMO 0.2	LNG -0.2	VIRT 0.1	STAN LN -0.5	PRU LN -0.5	MON 0.2	ALXN 0.1	EVK GY 0.1	Q 0.2		
34	JUNO 0.4	GILD 0.2	STE SP -0.2	CLNE 0.1	2601 HK -0.5	DBS SP -0.5	GILD 0.2	CLNE 0.1	INTUCH TB 0.1	INTUCH TB 0.2		
35	PTLA 0.4	BABA 0.2	OLAM SP -0.2	MON 0.1	TRQ CN -0.5	STAN LN -0.6	BABA 0.2	REGN 0.1	TMO 0.1	INFO 0.2		
36	MON 0.4	PTLA 0.2	REP SM -0.3	FIS 0.1	939 HK -0.5	SCI SP -0.6	INFO 0.2	INTUCH TB 0.1	ALXN 0.0	GILD 0.2		
37	ST SP 0.3	Q 0.1	939 HK -0.3	GILD 0.1	KEP SP -0.5	DUFN VX -0.6	FIS 0.2	ST SP 0.1	FIS 0.0	FIS 0.2		
38	ILMN 0.3	FIS 0.1	2318 HK -0.3	TRQ CN 0.1	3988 HK -0.5	KEP SP -0.6	INTUCH TB 0.1	BMRN 0.1	PTLA 0.0	BABA 0.2		
39	VIRT 0.3	ALXN 0.1	CAPL SP -0.3	JUNO 0.0	1398 HK -0.6	CAPL SP -0.6	EVK GY 0.1	INFO 0.1	GILD 0.0	PTLA 0.1		
40	GILD 0.3	SIA SP 0.1	VIRT -0.3	SYF 0.0	REP SM -0.6	939 HK -0.7	SATS SP 0.1	MON 0.0	SATS SP 0.0	BDMN IJ 0.1		
41	BDMN IJ 0.3	BDMN IJ 0.1	2601 HK -0.3	PTLA 0.0	2318 HK -0.6	2601 HK -0.7	ST SP 0.1	SATS SP 0.0	068270 KS -0.1	EVK GY 0.1		
42	ALXN 0.2	INTUCH TB 0.1	KEP SP -0.3	Q -0.1	STE SP -0.6	3988 HK -0.7	ILMN 0.0	SIA SP 0.0	SIA SP -0.1	ILMN 0.1		
43	INTUCH TB 0.2	EVK GY 0.0	3988 HK -0.4	SATS SP -0.1	PRU LN -0.6	1398 HK -0.7	068270 KS 0.0	068270 KS 0.0	BMRN -0.1	068270 KS 0.1		
44	SIA SP 0.2	ILMN 0.0	1398 HK -0.4	BMRN -0.1	CAPL SP -0.6	2318 HK -0.7	BDMN IJ 0.0	SYF 0.0	ILMN -0.1	ALXN 0.0		
45	SATS SP 0.1	SATS SP 0.0	DBS SP -0.5	REGN -0.2	DBS SP -0.6	REP SM -0.7	ALXN 0.0	LVLTL 0.0	Q -0.1	MON 0.0		
46	068270 KS 0.1	068270 KS -0.1	SCI SP -0.5	068270 KS -0.2	SCI SP -0.7	1299 HK -0.7	SIA SP -0.1	GILD -0.1	REGN -0.1	SATS SP -0.1		

**SWF TEST Portfolio Sensitivity to Major Macro Factors (12/04/15 - 12/02/16)**

- <-- Correl Bucket [Correl(Ticker,MSELACWF Index W Return)] -->				
<u>Low -ve Correl</u>	<u>Random</u>	<u>Low +ve Correl</u>	<u>Mod +ve Correl</u>	<u>Strong +ve Correl</u>
	068270 KS 0.11	BDMN IJ 0.26	LNG 0.51	1299 HK 0.77
	SATS SP 0.13	GILD 0.30	DUFN VX 0.52	PRU LN 0.80
	SIA SP 0.24	VIRT 0.33	PYPL 0.53	
	INTUCH TB 0.25	ILMN 0.33	MRIN 0.54	
	ALXN 0.25	ST SP 0.35	FIS 0.54	
		MON 0.37	STAN LN 0.56	
		PTLA 0.38	KEP SP 0.57	
		JUNO 0.40	TRQ CN 0.57	
		Q 0.42	1398 HK 0.60	
		OLAM SP 0.43	LVLT 0.61	
		EVK GY 0.44	TMO 0.61	
		CLNE 0.45	DBS SP 0.63	
		REGN 0.46	SCI SP 0.63	
		BMRN 0.47	BABA 0.63	
		INFO 0.50	SYF 0.64	
			STE SP 0.65	
			HXL 0.66	
			3988 HK 0.67	
			UNVR 0.67	
			939 HK 0.69	
			CAPL SP 0.69	
			REP SM 0.70	
			2601 HK 0.71	
			2318 HK 0.73	

<u>Correl Bucket</u>	<u>Long</u>	<u>Short</u>	<u>Net</u>	<u>Risk-adj Net</u>
(0.50)				
Low -ve Correl	(0.25)	0%	0%	0%
Random	0.25	11%	0%	11%
Low +ve Correl	0.50	32%	0%	32%
Mod +ve Correl	0.75	54%	0%	54%
Strong +ve Correl	1.00	3%	0%	3%
<i>Total</i>		<i>100%</i>	<i>0%</i>	<i>100%</i>
				<i>99%</i>

