

# WEEKLY REVIEW

## Equity Derivatives – Volatility Research

### Derivatives Analyst

Gilles Leclerc : + 33 1 58 55 12 81

### Strategist/Economist

René Defossez : +442032169218

### *Consolidation logic*

- The short term consolidation we mentioned last week has occurred. It is the logical consequence of tension on an overbought position on the RSI. It has emerged from the triggering of a double top on an hourly base which gave a target of some 2,400 pts. Hence, the daily MACD has entered downward mode, leaving it upward bound on a weekly base, however, and still moving upward on a monthly base (on a monthly close at the present level). We underlined last week the rarity of a turnaround for the monthly macd and its technical significance. To observe a new acceleration, however, we will have to wait for the market to move back over 2,450 pts. However, if the index fails and moves below 2,400 pts, standard consolidation of the movement since last May would lead us to 2,325 pts (38.2% retracement).
- From Wednesday onwards, however, the singular blindness and amnesia that seemed to have struck investors this summer started to fade. The realisation dawned that they had been dazzled and mesmerised by what Mario Draghi has said about risk premiums slapped on Eurozone peripheral debts and that, as a result, they were too aggressive in buying the rumour. It seems that these same investors are selling even before the news is announced (expected early September when the European Central Bank is due to meet). Last week, the Federal Reserve made clear its intention to take further measures to stimulate the economy, with another round of quantitative easing on the cards. Regarding the ECB, the big question is whether it will set a ceiling for Spanish and Italian bond yields. As the Bundesbank is fiercely opposed, we doubt this will happen. These renewed uncertainties coinciding with the return of traders to their desks has caused intra-EMU spreads to shoot up anew.
- Last week markets showed an increase in tension with an average rise of 110 bps for implied volatilities one year out for the indices we follow. Asian indices saw their volatility rise by 140bps on average, versus +96 bps for their European peers. IV at six months for the stocks in our sample rose by 31bps. Average implied volatilities for the components of the 16 sectors are up, versus 2 down. The Construction sector (+69 bps to 31.4%) has seen the sharpest rise followed by Chemicals (+63 bps) and Basic Resources (+62 bps). The steepest fall is for the Auto sector (-13 bps to 32.6%) and Consumer goods (-8 bps to 26.1%).

### Table of contents

<b>1 - Index Trends</b>	<b>Page 2</b>
<b>2 - Index Implied Volatilities</b>	<b>Page 3</b>
<b>3 - Index Structured Products</b>	<b>Page 6</b>
<b>4 - Interest Rates</b>	<b>Page 7</b>
<b>5 - Single Stocks Volatilities</b>	<b>Page 9</b>

# 1 - Index Trends

## European Indices

24/08/2012			Week		1 month		Performances 31/12/2011
<b>CAC 40</b>	<b>3 433.21</b>	↘	<b>-1.58%</b>	↗	<b>4.66 %</b>	↗	<b>8.65%</b>
<b>DJ Euro Stoxx 50</b>	<b>2 434.23</b>	↘	<b>-1.51%</b>	↗	<b>5.78 %</b>	↗	<b>5.08%</b>
<b>DAX 30</b>	<b>6 971.07</b>	↘	<b>-0.99%</b>	↗	<b>4.21 %</b>	↗	<b>18.19%</b>

## US & Asian Indices

24/08/2012			Week		1 month		Performances 31/12/2011
<b>Dow Jones IA</b>	<b>13 157.97</b>	↘	<b>-0.88%</b>	↗	<b>0.63 %</b>	↗	<b>7.70%</b>
<b>Nasdaq Comp.</b>	<b>3 069.79</b>	↘	<b>-0.22%</b>	↗	<b>3.78 %</b>	↗	<b>17.84%</b>
<b>S&amp;P 500</b>	<b>1 411.13</b>	↘	<b>-0.50%</b>	↗	<b>1.82 %</b>	↗	<b>12.21%</b>
<b>Nikkei 225</b>	<b>9 070.76</b>	↘	<b>-0.24%</b>	↗	<b>5.88 %</b>	↗	<b>7.28%</b>

<b>Oil Nymex WTI</b>	<b>95.85</b>	↘	<b>-0.17%</b>	↗	<b>8.57%</b>	↘	<b>-0.17%</b>
----------------------	--------------	---	---------------	---	--------------	---	---------------

The short term consolidation we mentioned last week has occurred. It is the logical consequence of tension on an overbought position on the RSI. It has emerged from the triggering of a double top on an hourly base which gave a target of some 2,400 pts. Hence, the daily MACD has entered downward mode, leaving it upward bound on a weekly base, however, and still moving upward on a monthly base (on a monthly close at the present level). We underlined last week the rarity of a turnaround for the monthly macd and its technical significance. To observe a new acceleration, however, we will have to wait for the market to move back over 2,450 pts. However, if the index fails and moves below 2,400 pts, standard consolidation of the movement since last May would lead us to 2,325 pts (38.2% retracement).

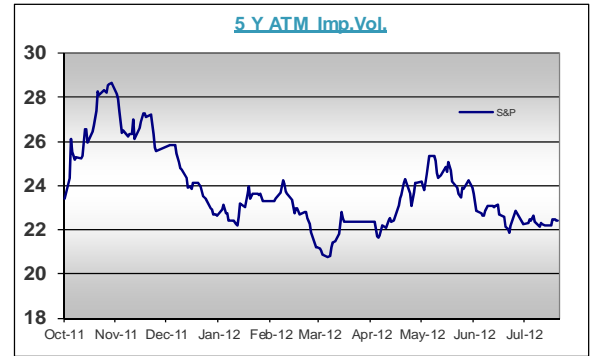
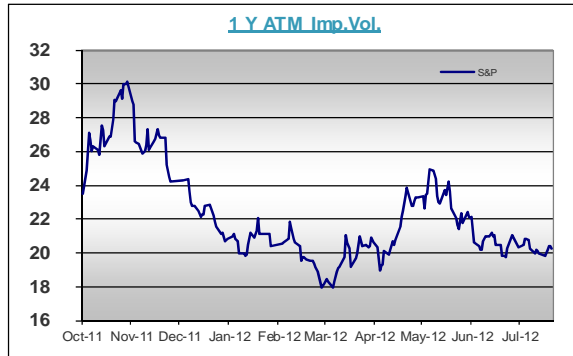
17 sector indices in the Euro Stoxx out of 18 consolidated last week. The steepest falls were for basic resources (-3.6%) Energy (-3.4%) and Telecoms (-2.38%), with the sole rise for Food & Beverages (+0.55%).



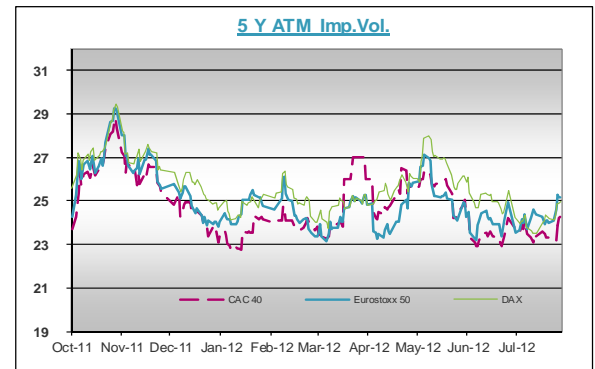
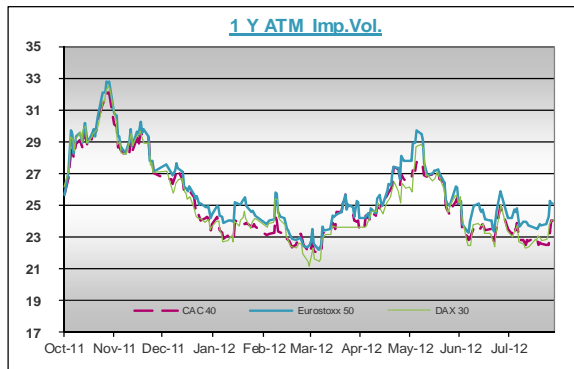
SX5E Index (EURO STOXX 50 Price EUR) Graph 6

## 2.1 - Index Implied Volatilities

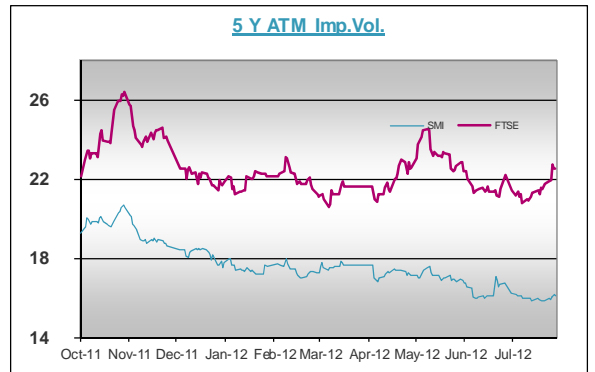
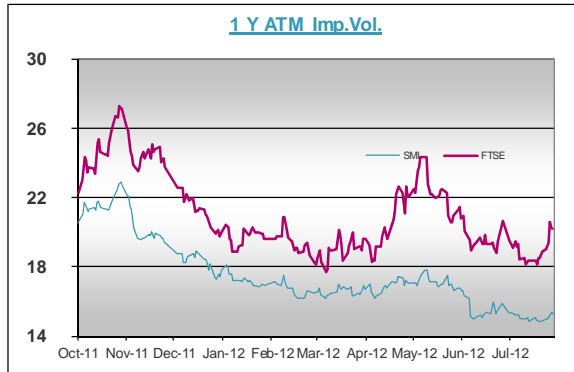
### U.S.A.



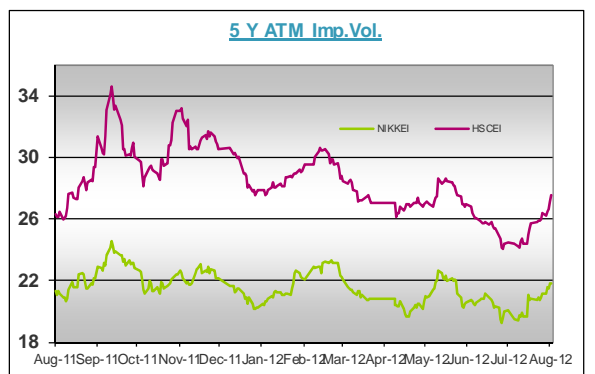
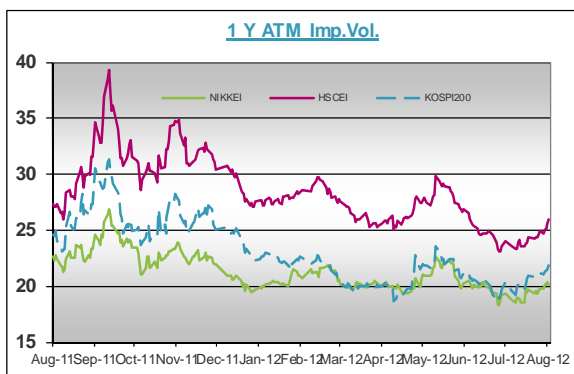
### Europe (Euro zone)



### Europe (Ex-Euro)

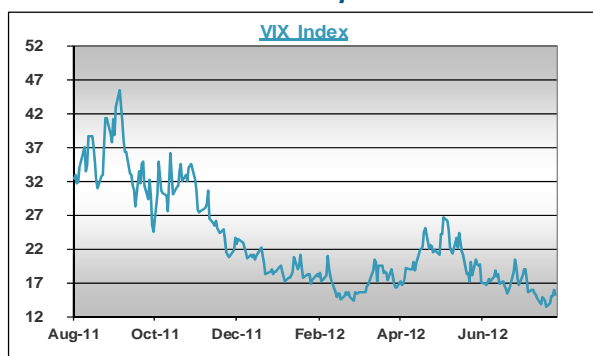


### Asia



## 2.2 – Volatility indices

### S&P volatility index

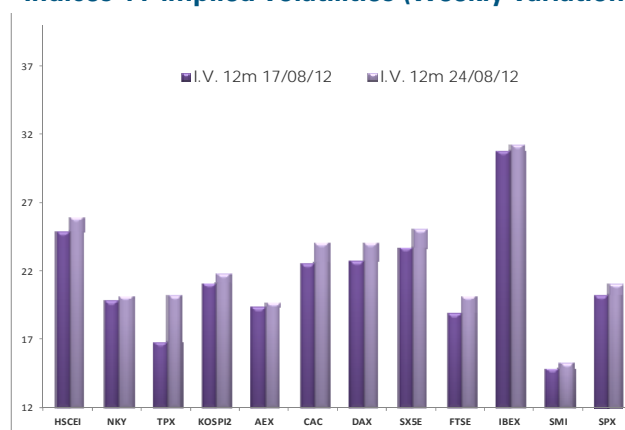


### Euro Stoxx 50 volatility index



Last week markets showed an increase in tension with an average rise of 110 bps for implied volatilities one year out for the indices we follow. Asian indices saw their volatility rise by 140bps on average, versus +96 bps for their European peers. The steepest rise in IV was for the Topix with +343 bps, followed by CAC (+147 bps). The Euro Stoxx 50 is not far behind with +136 bps for the IV at one year and a skew that has flattened.

### Indices 1Y implied volatilities (Weekly variations)

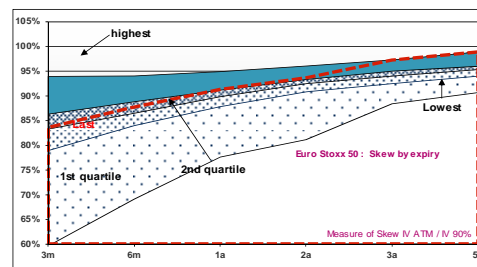
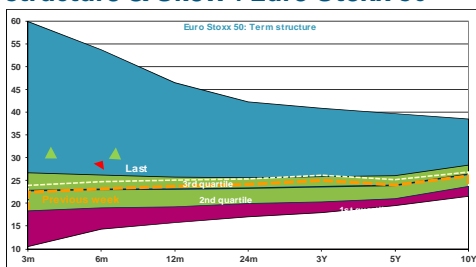


### Maturities

	6m	12m	18m	24m	3Y	5Y	10Y
AEX	19.2	19.7	20.2	20.3	21.7	20.5	23.4
CAC 40	23.5	24.1	24.4	24.3	25.2	24.3	25.9
DAX 30	23.2	24.1	24.4	24.8	26.2	25.0	28.2
EUROSTOXX 50	24.8	25.1	25.5	25.4	26.2	25.2	26.9
FTSE	19.1	20.2	21.2	21.9	24.0	22.5	26.6
HSCEI	24.4	26.0	26.9	27.3	28.1	27.5	28.8
S&P	18.7	21.1	21.8	22.6	24.7	23.2	26.9
KOSPI2	20.9	21.8	22.2	22.5	23.4	22.7	24.3
NIKKEI	18.7	20.2	20.7	21.2	22.2	21.8	23.7
SMI	14.6	15.3	16.0	16.1	17.3	16.1	18.7

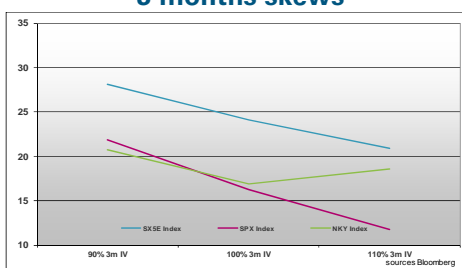
## 2.3 –Term structure, skews and dividends

### Term structure & Skew : Euro Stoxx 50

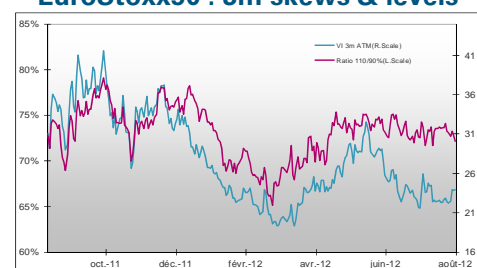


### Skews

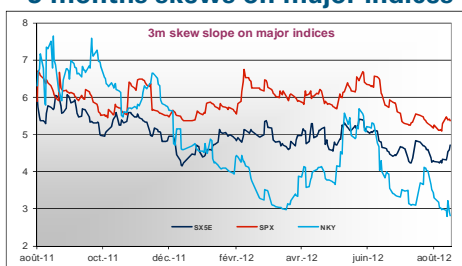
#### 3 months skews



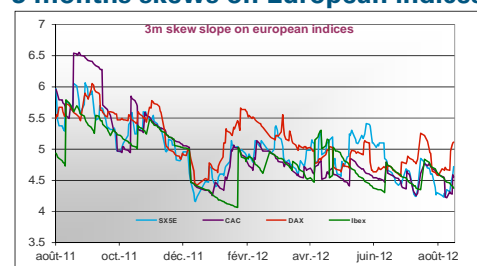
#### EuroStoxx50 : 3m skews & levels



#### 3 months skews on major indices

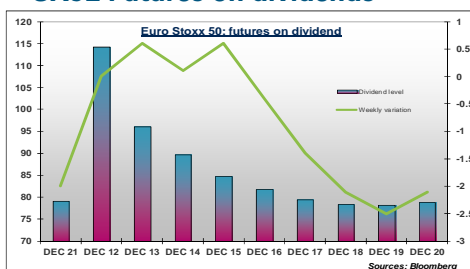


#### 3 months skews on European indices

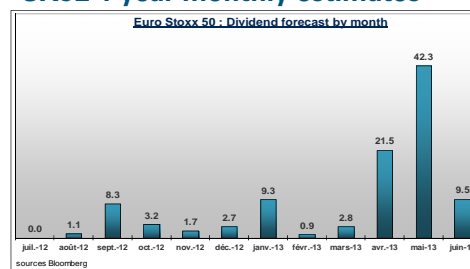


### Dividends

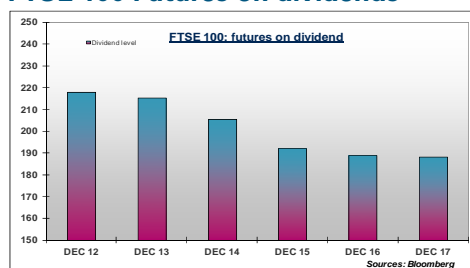
#### SX5E Futures on dividends



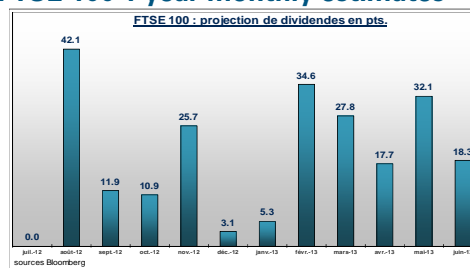
#### SX5E 1 year monthly estimates



#### FTSE 100 Futures on dividends



#### FTSE 100 1 year monthly estimates



### 3. - Index Structured Products (indicative prices)

Funding in domestic interest rates

#### Domestic Currencies

Vanilla CALL 100%	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Gearings in domestic Currencies</b>					
1Y			1.1%		
5Y	24.5%	27.2%	29.0%	15.0%	19.8%
10Y	71.8%	87.4%	71.2%	36.1%	60.8%

Asian 3M 100%	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Gearings in domestic Currencies</b>					
1Y			1.7%		
5Y	40.2%	44.1%	53.9%	27.1%	36.0%
10Y	130.0%	148.8%	149.3%	72.5%	119.4%

CALL 100% vs PS 100/80	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Gearings in domestic Currencies</b>					
1Y	82.9%	87.8%	90.7%	56.8%	75.9%
5Y	121.6%	132.7%	124.8%	64.8%	95.5%
10Y	162.3%	197.3%	166.7%	74.4%	118.2%

Reverse Convertible	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Annual Coupon vs Put ATM 100%</b>					
3M	4.3%	4.1%	3.1%	3.7%	2.8%
6M	6.6%	6.2%	5.1%	5.7%	5.0%
1Y	10.7%	10.5%	8.9%	8.4%	8.4%

Sweet Reverse	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Final Coupon vs PDI(K=100%,B=80% European)</b>					
3M	1.3%	1.0%	0.6%	1.0%	0.4%
6M	3.5%	3.1%	2.4%	2.9%	2.1%
1Y	7.6%	7.2%	6.0%	5.9%	5.7%

AIRBAG	SX5E (EUR)	CAC (EUR)	FTSE (GBP)	DAX (EUR)	SPX (USD)
<b>Gearing*CALL 100% vs PDI(K=100%,B=80% European)</b>					
1Y	114.6%	117.6%	117.0%	71.5%	94.2%
3Y	185.2%	201.0%	196.3%	93.2%	140.6%
5Y	217.6%	247.9%	210.0%	98.9%	168.5%

#### Quanto

Vanilla CALL 100%	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
1Y						
5Y	21.5%	23.0%	16.7%	24.6%	26.6%	14.6%
10Y	47.4%	67.0%	39.9%	83.2%	97.4%	40.4%

Asian 3M 100%	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
1Y						
5Y	40.5%	42.7%	31.2%	39.9%	42.7%	26.1%
10Y	104.6%	138.8%	82.6%	148.4%	164.4%	79.7%

CALL 100% vs PS 100/80	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
1Y	55.7%	64.4%	48.2%	63.4%	63.9%	62.5%
5Y	44.0%	59.3%	33.8%	67.0%	66.4%	59.9%
10Y	58.7%	94.7%		106.7%	107.2%	90.8%

Reverse Convertible	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
3M	2.7%	2.8%	2.4%	4.2%	3.9%	3.8%
6M	4.3%	4.6%	4.0%	6.4%	6.0%	5.9%
1Y	6.7%	7.4%	6.3%	9.5%	8.9%	8.9%

Sweet Reverse	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
3M	0.4%	0.4%	0.2%	1.3%	1.0%	1.1%
6M	1.8%	2.1%	1.5%	3.4%	3.0%	3.1%
1Y	4.3%	4.9%	4.0%	6.7%	6.1%	6.3%

AIRBAG	FTSE (EUR)	FTSE (USD)	SPX (EUR)	SX5E (USD)	CAC (USD)	DAX (USD)
<b>Gearings Quanto</b>						
1Y	64.1%	76.3%	53.0%	81.3%	77.9%	79.6%
3Y	82.8%	112.9%	60.5%	120.7%	116.6%	117.4%
5Y	89.1%	130.5%	64.8%	147.0%	141.8%	140.3%



## 4 - Interest Rates

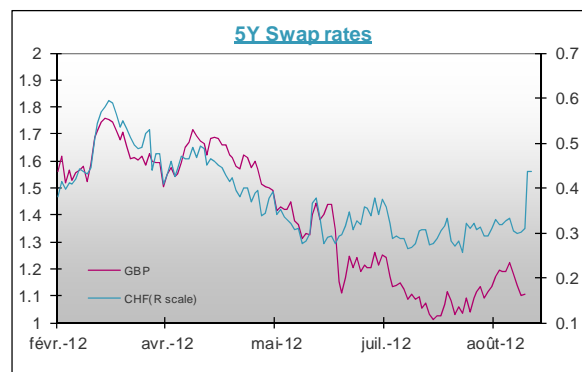
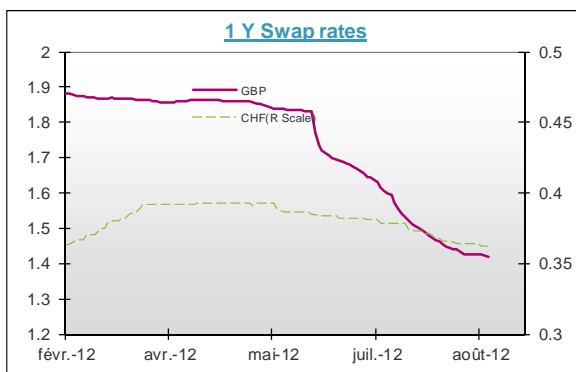
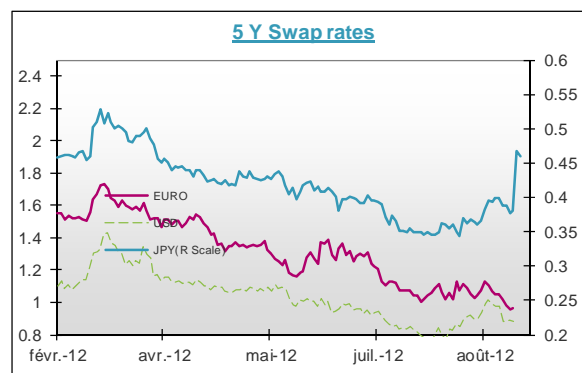
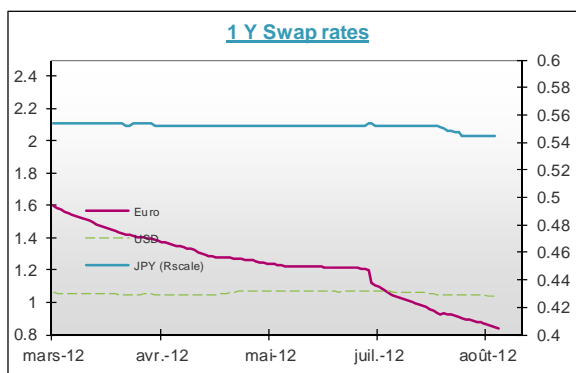
From Wednesday onwards, however, the singular blindness and amnesia that seemed to have struck investors this summer started to fade. The realisation dawned that they had been dazzled and mesmerised by what Mario Draghi has said about risk premiums slapped on Eurozone peripheral debts and that, as a result, they were too aggressive in buying the rumour. It seems that these same investors are selling even before the news is announced (expected early September when the European Central Bank is due to meet). The market has been jolted out of its summer torpor by several phenomena. First, some rather poor macroeconomic data has been published, notably the European PMI for August (which came in well below 50) and the confirmation of the slowdown in German GDP growth (1% year-on-year in Q2). Other factors include the deterioration in the international environment and the accumulation of risks (fiscal cliff in the US, slowdown in activity in emerging countries, rise in commodity prices unrelated to growth, etc.). Last week, the Federal Reserve made clear its intention to take further measures to stimulate the economy, with another round of quantitative easing on the cards.

Regarding the ECB, the big question is whether it will set a ceiling for Spanish and Italian bond yields. As the Bundesbank is fiercely opposed, we doubt this will happen. Also, the open conflict between the ECB and Bundesbank is bizarre as well as worrisome. Bizarre in that, within the ECB, the German central bank has no more weight than any other national central bank. In theory it has no right of veto. Nor is Mario Draghi required to sit down with Jens Weidmann to thrash out points of discord, as happened a few weeks ago. In appearance, if not in substance, the Bundesbank counts for more than the other national central banks. As regards the Federal Reserve, rather contradictory information has been doing the rounds in recent trading sessions, notably since the publication of the minutes of the last FOMC meeting. As backdrop are doubts about the effectiveness of the balance sheet policies: the Federal Reserve has purchased much sovereign debt, the Bank of England too, but the effects on the real economy have been disappointing to say the least (growth is slowing in the US, the UK is in recession).

These renewed uncertainties coinciding with the return of traders to their desks has caused intra-EMU spreads to shoot up anew.

René Defossez

### 4 – 1 Charts



#### 4 – 2 Swap Rates

USD	Swap Rates	/1 W	/1M
3M	0.425	-0.01	-0.02
6M	0.712	-0.01	-0.01
12M	1.037	-0.01	-0.03
2Y	0.446	-0.04	0.01
3Y	0.533	-0.06	0.02
5Y	0.891	-0.09	0.05
10Y	1.485	-0.11	0.10

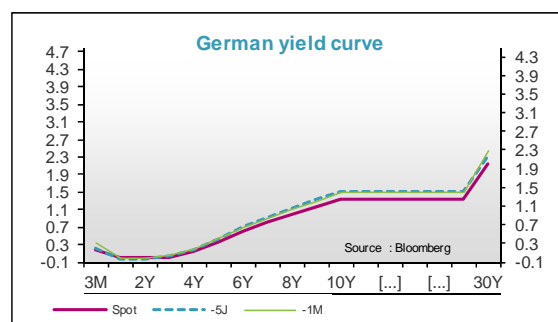
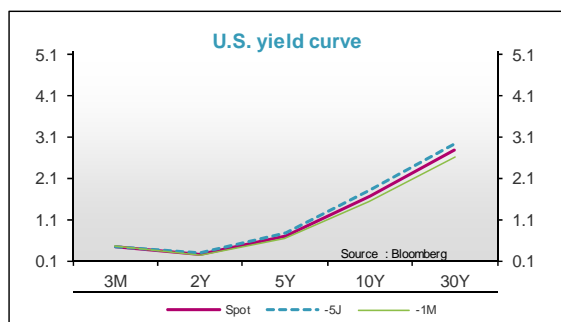
GBP	Swap Rates	/1 W	/1M
3M	0.691	-0.01	-0.08
6M	0.946	-0.01	-0.10
12M	1.418	-0.01	-0.11
2Y	0.817	-0.06	-0.02
3Y	0.852	-0.07	-0.01
5Y	1.099	-0.09	-0.02
10Y	1.630	-0.11	-0.02

JPY	Swap Rates	/1 W	/1M
3M	0.194	-	-0.00
6M	0.329	-	-0.01
12M	0.545	-	-0.01
2Y	0.300	-0.01	0.01
3Y	0.305	-0.02	0.02
5Y	0.376	-0.02	0.03
10Y	0.621	-0.03	0.06

EUR	Swap Rates	/1 W	/1M
3M	0.303	-0.03	-0.13
6M	0.572	-0.04	-0.15
12M	0.844	-0.03	-0.15
2Y	0.524	-0.02	-0.13
3Y	0.616	-0.04	-0.17
5Y	0.959	-0.09	-0.15
10Y	1.498	-0.10	-0.12

CHF	Swap Rates	/1 W	/1M
3M	0.048	-0.00	-0.02
6M	0.158	-0.00	-0.02
12M	0.362	-0.00	-0.01
2Y	0.082	-0.02	-0.03
3Y	0.122	-0.03	-0.04
5Y	0.302	-0.02	-0.03
10Y	0.715	-0.03	-0.04

#### 4 – 3 Yield Curve (gov)



#### 4 – 4 Currency Cross rates

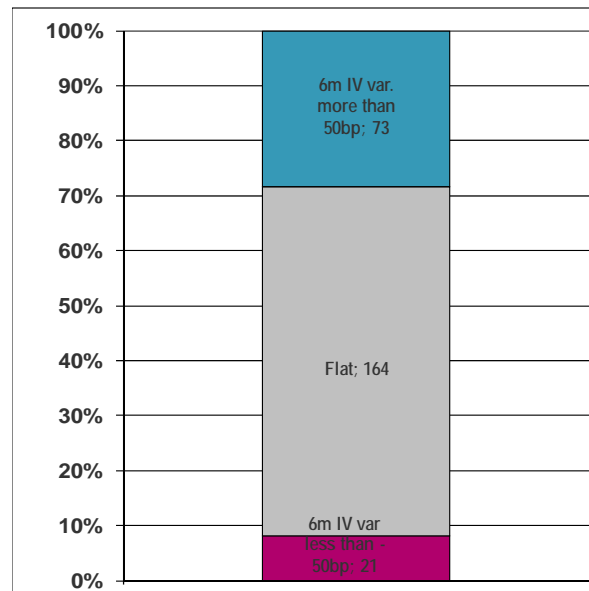
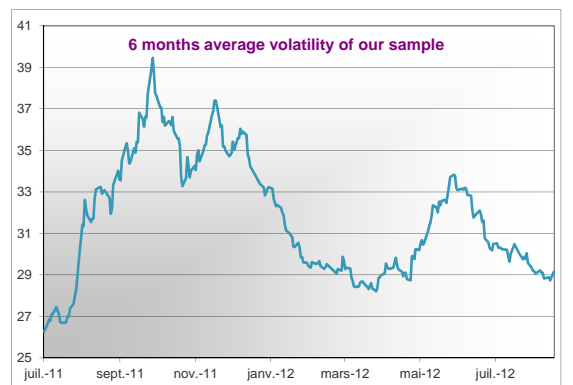
Spot	EUR	USD	GBP	CHF	JPY
EUR	-	0.7983	1.2630	0.8326	1.0144
USD	1.2527	-	1.5823	1.0431	1.2706
GBP	0.7918	0.6320	-	0.6592	0.8031
CHF	1.2010	0.9587	1.5169	-	1.2182
JPY	98.58	78.70	124.52	82.09	-

Sources Bloomberg



## 5- Single Stocks Volatility

IV at six months for the stocks in our sample rose by 31bps. 63% of the stocks in our sample remained stable, 28% of these have seen a substantial rise, over 50bps.



### Most positive spreads between IV and HV

Shares	6m H.V.	6m H.V.	Spread I.V.-H.V.
DEUTSCHE POSTBANK	16.2	16.2	11.8
UNITED UTILITIES	16.3	16.3	8.8
NOKIA	64.4	64.4	8.5
SYNTHESE	5.9	5.9	8.4
PRUDENTIAL	28.0	28.0	7.7
LAND SECURITIES	19.9	19.9	6.8
TUI AG	47.3	47.3	6.7
SEVEN & I HLDG	14.6	14.6	5.6
IBERDROLA	40.0	40.0	5.5
SAINSBURY	18.1	18.1	5.4
RESONA HLDG	22.5	22.5	5.3
IMPERIAL TOBACCO	18.0	18.0	5.1
FRESENIUS	17.4	17.4	5.0
WM MORRISON	16.7	16.7	4.1
ANGLO AMERICAN	33.1	33.1	4.0

### Most negative spreads between IV and HV

Shares	6m H.V.	6m H.V.	Spread I.V.-H.V.
TOKYO ELEC. POWER	63.5	63.5	-24.7
UNICREDITO	73.4	73.4	-17.6
Dow Jones Ind.	12.8	12.8	-12.8
COMMERZBANK	53.7	53.7	-11.7
SOCIETE GENERALE	48.4	58.8	-10.5
CREDIT AGRICOLE	45.9	56.3	-10.4
BNP	39.1	48.4	-9.3
BARCLAYS	40.4	49.6	-9.2
INTESA SAN PAOLO	46.3	55.3	-9.1
ROYAL BANK OF SCOTLAND	41.0	49.2	-8.2
TESCO	19.5	27.7	-8.1
MAN GROUP	46.8	54.9	-8.1
ALSTOM	36.6	44.4	-7.8
MAN	24.1	31.7	-7.6
VEOLIA	38.0	45.4	-7.4


























































































## 5.1 – Extreme Levels in 6m Implied Volatility Ranked by Index

	ATM IV Levels				IV Var. since		17/08/2012	
	6m	12m	18m	24m	6m	12m	18m	24m
<b>CAC 40</b>	23.5	24.1	24.4	24.3	1.52	1.47	1.29	1.01
PEUGEOT	56.9	53.9	52.2	51.5	-3.17	0.63	1.48	1.38
NATIXIS	48.8	48.2	48.3	47.6	1.11	0.93	0.84	0.77
SOCIETE GENERALE	48.4	47.2	46.6	46.2	-0.50	2.54	1.40	0.99
CREDIT AGRICOLE	45.9	44.4	44.0	43.0	0.88	-1.59	-1.89	-1.99
VALLOUREC	44.3	44.5	45.4	45.5	0.70	0.66	0.57	0.50
TOTAL	22.1	22.6	23.1	23.4	1.33	1.23	1.10	0.99
UNIBAIL RODAMCO	21.4	21.0	21.5	21.2	0.36	0.30	0.24	0.21
AIR LIQUIDE	21.4	21.7	22.2	22.3	0.04	0.02	0.04	0.02
L'OREAL	21.0	21.3	21.6	21.7	-0.46	-0.48	-0.52	-0.51
SANOFI AVENTIS	20.3	20.7	21.2	21.3	0.52	0.36	0.32	0.28
<b>DAX 30</b>	23.2	24.1	24.4	24.8	1.82	1.30	0.94	0.82
TUI AG	54.0	54.3	54.2	54.8	-0.12	-0.14	-0.09	-0.09
COMMERZBANK	42.0	45.1	46.3	48.3	-0.09	-0.08	-0.04	0.02
INFINEON	41.8	41.2	41.6	41.4	1.60	1.32	1.20	1.11
DEUTSCHE BANK	40.6	39.8	40.0	38.9	4.65	3.56	2.87	1.80
Heidelberger Cement	36.8	37.5	38.1	38.5	1.22	0.62	0.52	0.36
HENKEL	22.8	23.3	23.9	24.0	0.48	0.36	0.31	0.25
FRESENIUS	22.4	22.6	22.8	23.3	0.18	0.16	0.16	0.17
LINDE	22.1	22.7	23.1	23.3	-0.09	-0.08	-0.05	-0.08
SIEMENS	22.0	23.2	23.4	23.8	1.20	1.10	0.72	0.72
Beiersdorf AG	22.0	21.1	20.7	20.5	-0.05	-0.03	-0.02	-0.02
<b>EUROSTOXX 50</b>	24.8	25.1	25.5	25.4	1.58	1.36	1.22	1.20
NOKIA	73.0	72.4	71.2	67.2	6.31	9.73	12.70	11.63
UNICREDITO	55.8	54.0	53.5	53.8	0.48	0.14	0.71	0.34
INTESA SAN PAOLO	46.3	47.1	49.3	50.0	-0.84	0.35	0.19	0.28
IBERDROLA	45.5	41.5	38.8	36.5	1.47	1.15	1.05	1.00
BBVA	43.8	41.7	40.6	40.0	1.03	0.85	0.77	0.70
TELEFONICA	34.5	33.4	32.7	32.2	1.13	1.44	0.92	0.85
ENEL	31.9	30.8	31.0	30.3	0.11	0.16	0.11	0.16
ENI	26.1	26.1	25.9	25.9	0.79	0.77	0.68	0.58
ANHEUSER-BUSCH INBEV N	21.7	21.7	21.8	21.5	0.14	0.11	0.08	0.08
UNILEVER AMST	16.9	17.2	17.3	17.4	0.11	0.07	0.06	0.05
<b>FTSE</b>	19.1	20.2	21.2	21.9	1.58	1.29	1.21	0.97
MAN GROUP	46.8	42.1	41.2	39.9	0.85	0.50	0.57	0.48
ROYAL BANK OF SCOTLAND	41.0	42.4	43.6	44.1	1.05	0.71	0.63	0.50
LLOYDS	40.5	42.0	42.9	43.3	0.20	0.04	0.10	0.04
BARCLAYS	40.4	41.4	42.3	42.9	0.40	0.47	0.23	0.35
RIO TINTO	38.0	38.1	39.1	39.3	0.68	0.71	0.91	0.91
ASTRAZENECA	17.6	18.7	19.2	19.9	0.24	0.12	0.15	0.10
GLAXOSMITHKLINE	17.6	18.7	19.4	19.9	0.27	0.17	0.18	0.12
UNILEVER LDN	17.4	18.3	19.1	19.5	0.01	-0.04	-	-0.03
NATIONAL GRID	16.6	18.0	19.0	19.5	0.28	0.17	0.17	0.12
SCOTTISH & SOUTHERN EN.	16.1	17.2	18.4	18.8	-0.99	-0.67	-0.40	-0.18
<b>SMI</b>	14.6	15.3	16.0	16.1	0.21	0.42	0.19	0.31
NOBEL BIOCARE	39.6	40.2	40.5	40.5	0.29	0.25	0.27	0.20
CLARIANT	36.5	36.7	37.1	36.9	-	0.38	0.33	0.30
JULIUS BAER	31.4	31.5	31.9	31.8	0.05	0.03	0.01	0.01
CREDIT SUISSE	31.2	32.6	33.9	34.2	-0.58	-0.52	-0.40	-0.43
LONZA	30.4	30.3	30.7	30.4	0.46	0.35	0.29	0.27
ROCHE	16.2	17.6	19.1	19.6	0.19	0.12	0.11	0.07
NESTLE	14.5	15.6	16.7	17.0	0.47	0.67	0.62	0.46
SYNTHES	14.3	15.6	16.7	17.5	0.01	-	-	0.01
SWISSCOM	13.8	13.7	14.3	14.0	1.18	0.58	0.22	-0.10
NOVARTIS	12.2	13.5	14.1	15.0	-0.21	0.33	-0.12	0.23

	ATM IV Levels				IV Var. since		17/08/2012	
	6m	12m	18m	24m	6m	12m	18m	24m
<b><u>HSCEI</u></b>	24.4	26.0	26.9	27.3	0.92	1.11	1.23	1.24
ALUMINIUM CORP OF CHINA	40.0	40.5	40.7	40.8	0.48	0.68	0.75	0.79
CHINA LIFE INS.	32.2	32.7	33.0	33.2	0.93	0.75	0.66	0.62
CHINA TELECOM	31.4	31.4	31.5	31.5	-0.50	-0.20	-0.07	0.03
PING AN INSURANCE	31.0	31.8	32.1	32.3	0.05	0.19	0.31	0.38
CHINA SHENHUA ENERGY	30.7	30.9	31.2	31.2	0.99	0.71	0.57	0.50
BANK OF COMMUNICATION	30.0	30.5	31.0	31.0	0.13	0.31	0.41	0.47
PETROCHINA	26.4	27.6	28.3	28.7	0.35	0.29	0.39	0.48
CHINA PETROLEUM & CHEM	25.8	26.0	26.1	26.1	0.49	-0.13	-0.42	-0.58
CHINA CONST. BANK	25.5	25.7	26.1	26.0	0.14	0.10	0.12	0.14
BANK OF CHINA	23.8	24.1	24.7	24.6	0.49	0.24	0.14	0.08
<b><u>KOSPI</u></b>	20.9	21.8	22.2	22.5	0.66	0.70	0.75	0.79
LG.PHILIPS LCD CO LT	37.0	37.0	36.9	36.9	-1.06	-1.06	-1.05	-1.04
SAMSUNG HEAVY INDUST	35.6	35.8	35.8	35.9	-2.67	-2.28	-2.08	-1.96
SK CORP	35.6	35.7	35.7	35.7	0.15	0.14	0.14	0.12
HYNIX SEMICONDUCTOR	35.6	35.8	35.9	35.9	-3.47	-2.70	-2.37	-2.20
HYUNDAI HEAVY INDUST	34.9	35.2	35.2	35.2	-0.54	-0.08	0.15	0.27
KIA MOTORS CORP	29.8	29.9	29.8	29.9	-0.03	-0.02	-0.02	-0.02
SAMSUNG FIRE & MARIN	29.5	30.2	30.5	30.7	-0.20	-0.18	-0.17	-0.15
SHINHAN FINANCIAL GR	28.7	28.7	28.6	28.6	-0.01	-0.01	-0.02	-0.01
KOREA ELECTRIC POWER	22.9	22.7	22.6	22.5	-0.38	-0.09	0.01	0.04
POSCO	22.1	22.3	22.3	22.3	0.12	-0.10	-0.20	-0.25
<b><u>NIKKEI</u></b>	18.7	20.2	20.7	21.2	0.36	0.35	0.40	0.43
SONY	42.9	42.5	41.9	41.7	-0.28	-0.68	-0.94	-1.12
NOMURA HLDG	41.2	41.7	41.6	41.9	1.29	2.72	3.42	3.84
TOKYO ELEC. POWER	38.7	37.6	36.6	36.3	1.72	1.10	0.76	0.57
MATSUSHITA EL.	38.1	37.7	37.1	36.9	0.59	0.77	0.70	0.63
NIPPON STEEL	35.2	35.7	35.8	36.0	-0.53	0.03	0.32	0.52
SEVEN & I HLDG	20.2	20.8	20.8	21.0	0.19	1.00	1.24	1.52
ASTELLAS PHARMA	19.8	20.7	21.1	21.4	-1.31	-0.73	-0.38	-0.16
KDDI	18.9	19.8	20.2	20.5	-0.23	0.17	0.45	0.64
TAKEDA PHARMA	17.7	18.4	18.6	18.8	-0.19	-0.32	-0.36	-0.39
NTT DOCOMO	16.6	17.9	18.4	18.8	-0.27	-0.02	0.24	0.43
<b><u>Dow Jones Ind.</u></b>	-	-	-	-	-	-	-	-
Morgan Stanley	44.1	46.4	47.6	48.3		0.10	0.05	0.07
Citigroup Inc	39.6	41.6	42.1	42.8	1.36	1.49	0.53	-0.10
Bank of America Corp	39.2	42.3	43.8	45.1	-0.08	-0.16	-0.18	-0.15
Hewlett-Packard Co	37.0	39.0	40.2	41.0	1.96	1.60	1.41	1.28
Alcoa Inc	35.0	37.3	38.6	39.1	0.29	0.23	0.14	0.14
Coca-Cola Co/The	15.7	17.1	17.8	18.9	0.74	0.45	0.38	0.31
Procter & Gamble Co	13.9	15.4	16.4	17.0			0.03	0.03
PepsiCo Inc	13.7	15.3	16.5	17.3	0.18	0.17	0.14	0.12
Johnson & Johnson	12.8	14.2	15.1	15.6	-0.04	-0.03	-0.04	-0.03
Dow Jones Ind.	-	-	-	-	-	-	-	-
<b><u>RUSSIAN ADR</u></b>								
ROSTELECOM	47.7	39.3	36.3	-	-0.19	0.01	-0.04	-
NOVA TEK OAO	42.5	43.3	44.1	44.5	-	-0.26	-0.15	-0.19
SURGURNEFTGAZ	39.1	38.9	39.1	38.9	-0.15	-0.19	-0.06	-0.12
OAO GAZPROM	35.1	34.8	35.4	35.2	-0.14	-0.19	-0.03	-0.13
ROSNEFT OIL CO	34.4	35.0	35.2	35.7	0.13	-	0.13	0.03
LUKOIL	24.8	25.8	26.3	27.3	-0.07	-0.16	-0.01	-0.12
<b><u>BRAZILIAN ADR</u></b>								
CIA SIDERURGICA NAC.	44.4	43.8	43.8	43.4	-0.43	-0.35	-0.32	-0.28
GERDAU SA	40.3	41.0	41.4	41.9	1.19	1.22	1.18	1.16
CIA VALE DO RIO DOCE	36.7	37.2	37.7	38.3	1.08	0.82	0.76	0.75
PETROLEO BRASILEIRO	35.5	36.5	37.0	37.7	0.54	0.44	0.40	0.36
ITAU UNIBANCO HOLDING	32.9	32.9	32.9	33.0	0.62	0.49	0.44	0.41
BANCO BRADESCO SA	30.1	30.4	31.1	31.2	0.59	0.49	0.46	0.42

## 5.2 – Single stocks 6m Implied Volatility Ranked by Sector



Average implied volatilities for the components of the 16 sectors are up, versus 2 down. The Construction sector (+69 bps to 31.4%) has seen the sharpest rise followed by Chemicals (+63 bps) and Basic Resources (+62 bps). The steepest fall is for the Auto sector (-13 bps to 32.6%) and Consumer goods (-8 bps to 26.1%).

Sectors/Members	Levels on			Move(*)		Sectors/Members	Levels on			Move(*)	
	10/8/12	17/8/12	24/8/2012				10/8/12	17/8/12	24/8/2012		
<b>Auto. &amp; Parts</b>	33.0	32.7	32.6			SUMITOMO MITSUI FIN	24.8	24.3	24.3		
BMW	32.2	31.8	33.0			UBS	35.1	29.8	29.9		
CONTINENTAL	35.5	35.1	35.9			UNICREDITO	56.5	55.3	55.8		
DAIMLER CHRYSLER	32.5	32.5	32.1			VTB BANK-GDR	40.8	42.0	42.0		
DENSO	27.5	26.9	27.3			WOORI FINANCE HOLDI	34.4	34.7	34.5		
HONDA MOTOR	29.1	27.6	27.3								
HYUNDAI MOBIS	30.7	31.0	30.6			<b>Basic Ressources</b>	35.6	35.7	36.3		
HYUNDAI MOTOR CO	30.4	31.2	30.6			Alcoa Inc	34.5	34.7	35.0		
KIA MOTORS CORP	29.5	29.8	29.8			ALUMINIUM CORP OF CI	37.8	39.6	40.0		
MICHELIN	32.7	32.8	33.2			ANGLO AMERICAN	37.1	35.9	37.2		
NISSAN MOTOR	28.9	28.0	26.8			BHP BILLITON	31.7	31.3	31.9		
PEUGEOT	61.1	60.0	56.9			CHINA SHENHUA ENERC	30.1	29.7	30.7		
RENAULT	36.3	35.4	36.1			CIA SIDERURGICA NAC	44.0	44.9	44.4		
TOYOTA MOTOR	25.0	24.4	25.0			CIA VALE DO RIO DOCE	34.1	35.6	36.7		
VOLKSWAGEN	30.4	31.2	31.4			GERDAU SA	40.0	39.1	40.3		
						MITTAL STEEL	42.2	41.2	42.9		
<b>Banks</b>	36.5	35.2	35.6			MMC NORILSK ADR	37.2	38.3	38.1		
BANCO BRADESCO SA	30.5	29.5	30.1			NIPPON STEEL	36.0	35.7	35.2		
Bank of America Corp	39.6	39.2	39.2			POSCO	21.8	22.0	22.1		
BANK OF CHINA	23.1	23.3	23.8			RIO TINTO	35.7	37.3	38.0		
BANK OF COMMUNICATI	29.3	29.9	30.0			XSTRATA	35.9	34.7	36.2		
BARCLAYS	41.5	40.0	40.4								
BBVA	44.1	42.8	43.8			<b>Chemicals</b>	25.4	25.4	26.0		
BNP	39.6	38.5	39.1			AIR LIQUIDE	21.1	21.3	21.4		
BSCH	45.2	44.3	40.6			BASF	25.4	25.2	27.4		
CHINA CONST. BANK	24.8	25.4	25.5			BAYER	25.6	25.9	28.1		
Citigroup Inc	38.4	38.3	39.6			CLARIANT	36.9	36.1	36.5		
COMMERZBANK	42.4	42.1	42.0			Dow Chemical Co/The	28.9	28.7	29.0		
CREDIT AGRICOLE	46.0	45.0	45.9			GIVAUDAN	18.9	19.6	20.0		
CREDIT SUISSE	32.1	31.8	31.2			LINDE	21.8	22.2	22.1		
DEUTSCHE BANK	37.3	35.9	40.6			LONZA	29.6	29.9	30.4		
DEUTSCHE POSTBANK	27.9	28.0	28.0			SHIN-ETSU CHEM.	25.1	24.3	24.4		
HSBC	25.2	25.2	26.1			SYNGENTA	20.6	20.9	21.2		
ICICI BANK-ADR	36.2	36.2	36.8								
ITAU UNIBANCO HOLDIN	32.8	32.3	32.9			<b>Construction &amp; Mat.</b>	31.2	30.7	31.4		
INTESA SAN PAOLO	50.2	47.1	46.3			BOUYGUES	28.9	29.0	29.6		
JPMorgan Chase & Co	30.0	29.4	29.7			HOLCIM	24.8	25.2	25.7		
LLOYDS	41.3	40.3	40.5			LAFARGE	34.3	34.5	34.9		
MITSUBISHI UFJ FINI	25.9	25.4	25.8			SAINT GOBAIN	36.4	35.1	36.2		
MIZUO FINANCIAL	28.1	26.2	26.2			VINCI	31.3	29.5	30.3		
OTP BANK PLC	36.5	37.0	35.8								
RESONA HLDG	27.9	27.3	27.8			<b>Financial Serv.</b>	31.7	31.7	32.0		
ROYAL BANK OF SCOTL	57.5	40.0	41.0			American Express Co	26.3	24.7	24.9		
SOCIETE GENERALE	46.3	44.0	48.4			Goldman Sachs Group Inc	29.1	29.2	29.7		
STANDARD CHARTEREI	32.1	31.0	31.2								

Sectors/Members	Levels on			Move(*)	Sectors/Members	Levels on			Move(*)
	10/8/12	17/8/12	24/8/2012			10/8/12	17/8/12	24/8/2012	
JULIUS BAER	28.3	31.3	31.4	←	DEUTSCHE POST	24.2	23.7	25.5	↑
LAND SECURITIES	25.9	26.1	26.6	↑	EADS	30.5	31.0	31.4	↑
MAN GROUP	45.0	46.0	46.8	↑	General Electric Co	22.5	22.9	23.5	↑
Mastercard Inc	25.8	25.9	25.9	←	HITACHI	30.0	30.1	28.5	↓
MITSUBISHI ESTATE	29.3	27.5	27.2	↓	HYUNDAI HEAVY INDUS	35.4	35.5	34.9	↓
Morgan Stanley	43.7	43.9	44.1	↑	MAN	23.8	24.0	24.1	↑
NOMURA HLDG	40.8	39.9	41.2	↑	MITSUBISHI	25.1	24.8	24.7	↓
ORIX	25.7	25.5	25.6	↑	ROLLS ROYCE	26.2	26.0	26.9	↑
<b><u>Food &amp; Beverage</u></b>	18.1	18.2	18.3		SAMSUNG HEAVY INDU	38.2	38.2	35.6	↓
Coca-Cola Co/The	14.9	15.0	15.7	↑	SCHNEIDER	36.2	34.4	35.6	↑
DANONE	21.9	21.8	22.1	↑	SGS	16.9	17.1	17.0	↓
DIAGEO	18.7	19.3	18.9	↓	SIEMENS	20.6	20.8	22.0	↑
NESTLE	13.9	14.0	14.5	↑	THYSSEN KRUP	36.5	35.9	36.1	↑
PepsiCo Inc	13.9	13.5	13.7	↑	WOLSELEY	32.5	33.2	33.1	↓
PERNOD RICARD	23.2	23.9	23.5	↓	<b><u>Insurance</u></b>	30.3	29.9	30.5	
SABMILLER	21.7	21.9	22.1	↑	AEGON	37.2	37.4	38.3	↑
UNILEVER AMST	17.7	16.8	16.9	↑	ALLIANZ	25.4	25.7	28.0	↑
UNILEVER LDN	17.1	17.3	17.4	←	AVIVA	31.6	31.2	31.2	↑
<b><u>Health Care</u></b>	19.3	19.3	19.3		AXA	35.7	34.1	35.3	↑
Abbott Laboratories	15.9	15.8	15.9	↑	BALOISE	21.0	20.7	20.8	↑
ASTELLAS PHARMA	21.6	21.1	19.8	↓	CHINA LIFE INS.	31.7	31.3	32.2	↑
ASTRAZENECA	18.2	17.4	17.6	↑	GENERALI	36.4	35.4	35.7	↑
Eli Lilly & Co	23.1	23.2	23.1	↓	ING	40.7	40.1	41.2	↑
FRESENIUS	22.0	22.3	22.4	↑	LEGAL & GENERAL	30.0	30.0	30.4	↑
GLAXOSMITHKLINE	17.0	17.3	17.6	↑	MUENCHENER RUCKVE	23.0	22.6	23.2	↑
Johnson & Johnson	12.7	12.9	12.8	←	PING AN INSURANCE	31.1	31.0	31.0	←
Medtronic Inc	23.6	23.1	23.3	↑	PRUDENTIAL	35.0	34.9	35.6	↑
Merck & Co Inc	18.1	18.8	19.0	↑	SAMSUNG FIRE & MARI	29.7	29.7	29.5	↓
NOBEL BIOCARE	39.4	39.3	39.6	↑	SWISS LIFE	28.3	27.3	27.1	↓
NOVARTIS	12.7	12.4	12.2	↓	SWISS REINSURANCE	27.7	27.9	28.0	↑
Pfizer Inc	17.2	17.3	17.2	↓	ZURICH FIN. SERVICES	20.4	20.1	19.9	↓
ROCHE	15.9	16.0	16.2	↑	<b><u>Media</u></b>	25.3	24.4	24.7	
SANOFI AVENTIS	19.1	19.8	20.3	↑	BSKYB	20.4	20.2	20.4	↑
SYNTHES	14.2	14.2	14.3	←	LAGARDERE	31.8	31.9	32.4	↑
TAKEDA PHARMA	18.3	17.9	17.7	↓	PEARSON	23.9	18.7	18.9	↑
<b><u>Ind. Goods &amp; Serv.</u></b>	27.8	27.6	27.8		PUBLICIS	23.6	23.8	23.7	↓
3M Co	19.3	18.2	18.8	↑	REED ELSEVIER	22.9	22.9	22.9	←
ABB	23.4	23.7	24.5	↑	VIVENDI	30.8	29.8	30.3	↑
ALSTOM	37.8	36.1	36.6	↑	WPP	23.6	23.7	24.1	↑
BAE SYSTEMS	22.2	21.8	22.1	↑	<b><u>Oil &amp; Gas</u></b>	30.7	30.7	31.0	
					BG GROUP	30.7	30.6	31.2	
					BP	24.3	23.2	24.0	

Sectors/Members	Levels on			Move(*)	Sectors/Members	Levels on			Move(*)
	10/8/12	17/8/12	24/8/2012			10/8/12	17/8/12	24/8/2012	
CHINA PETROLEUM & C	25.9	25.3	25.8	↑	<b>Technologies</b>	33.7	33.4	33.9	↔
ENI	24.7	25.3	26.1	↑	ALCATEL LUCENT	61.3	56.1	57.1	↑
LUKOIL	24.6	24.9	24.8	↓	Apple Inc	29.5	29.1	31.0	↑
NOVA TEK OAO	42.5	42.7	42.5	↓	CANON	30.1	29.1	27.9	↓
OAO GAZPROM	35.1	35.2	35.1	↓	CAP GEMINI	34.6	38.5	38.9	↑
PETROCHINA	26.4	26.1	26.4	↑	Cisco Systems Inc	28.1	26.8	26.7	↓
PETROLEO BRASILEIRO	35.4	35.0	35.5	↑	Google Inc	25.2	23.8	23.8	↔
REPSOL	42.9	40.6	43.1	↑	Hewlett-Packard Co	35.1	35.0	37.0	↑
ROSNEFT OIL CO	33.7	34.3	34.4	↑	HYNIX SEMICONDUCTOR	38.2	39.0	35.6	↓
ROYAL DUTCH SHELL "A"	19.1	19.1	19.3	↑	INFINEON	41.7	40.2	41.8	↑
SK CORP	35.6	35.4	35.6	↑	INFOSYS TECH-ADR	32.3	31.9	31.4	↓
S-OIL CORP	32.1	33.0	31.3	↓	Intel Corp	23.1	23.6	25.1	↑
SURGURNEFTEGAZ	38.6	39.3	39.1	↓	International Business Machines	19.5	19.2	19.8	↑
TOTAL	19.9	20.7	22.1	↑	LG.PHILIPS LCD CO LTD	37.4	38.1	37.0	↓
<b>Person,House, Goods</b>	25.7	26.2	26.1	↔	Microsoft Corp	23.5	22.0	22.3	↑
ADIDAS	27.3	26.7	27.0	↑	NOKIA	66.6	66.7	73.0	↑
Altria Group Inc	15.2	15.1	16.6	↑	Oracle Corp	27.1	26.7	26.9	↑
BRIT. AMER. TOBACCO	17.4	18.6	18.9	↑	QUALCOMM Inc	28.0	27.8	28.0	↑
CIE FIN. RICHEMONT	28.7	28.9	29.4	↑	SAMSUNG ELECTRONIC	30.1	31.0	32.2	↑
FUJIFILM HLDG	29.1	29.3	29.0	↓	SAP	23.8	24.5	25.1	↑
HENKEL	22.2	22.4	22.8	↑	STMICROELECTRONICS	41.8	43.3	44.2	↑
IMPERIAL TOBACCO	22.8	23.0	23.1	↔	YAHOO JAPAN	31.2	29.1	26.5	↓
LG ELECTRONICS INC	36.9	37.0	34.6	↓	<b>Telecoms</b>	28.3	28.0	28.3	↔
L'OREAL	20.7	21.5	21.0	↓	AT&T Inc	16.2	16.3	16.6	↑
LVMH	27.1	27.5	26.9	↓	BT GROUP	22.5	22.3	22.7	↑
MATSUSHITA EL.	34.7	37.5	38.1	↑	CHINA TELECOM	31.9	31.9	31.4	↓
PHILIPS	26.5	26.3	27.2	↑	DEUTSCHE TELEKOM	24.1	23.2	24.0	↑
Procter & Gamble Co	13.9	13.9	13.9	↔	France TELECOM	24.8	24.3	25.1	↑
RECKITT BENCKISER	19.7	19.9	19.7	↓	KDDI	19.3	19.1	18.9	↓
SONY	41.1	43.2	42.9	↓	MOBILE TELES-ADR	32.1	32.7	33.9	↑
SWATCH GROUP	27.8	27.8	25.9	↓	MTN GROUP LTD	21.9	21.9	21.8	↓
<b>Retail</b>	23.9	23.7	23.9	↔	NTT DOCOMO	16.9	16.8	16.6	↓
AHOLD	19.5	19.3	19.7	↑	ORASCOM TEL-GDR	47.0	46.5	47.5	↑
CARREFOUR	34.4	34.3	34.4	↑	Portugal Telecom SGPS	54.7	54.7	54.5	↓
Home Depot Inc	25.2	23.7	23.7	↔	ROSTELECOM	47.7	47.9	47.7	↓
MARKS & SPENCER	22.3	21.9	21.7	↓	SOFTBANK	28.9	28.8	29.3	↑
METRO	29.0	28.8	29.2	↑	SWISSCOM	14.0	12.7	13.8	↑
PPR	25.8	25.9	26.3	↑	TELECOM ITALIA	40.8	40.4	41.1	↑
SAINSBURY	23.5	23.4	23.5	↑	TELEFONICA	36.1	33.4	34.5	↑
SEVEN & I HLDG	19.1	20.0	20.2	↑	TPSA	17.8	17.9	17.6	↓
TESCO	19.8	19.4	19.5	↑	Verizon Communications Inc	17.0	17.3	18.0	↑
WM MORRISON	20.5	20.4	20.8	↑	VODAFONE	17.7	18.3	18.6	↑



Sectors/Members	Levels on			Move(*)		Sectors/Members	Levels on			Move(*)	
	10/8/12	17/8/12	24/8/2012				10/8/12	17/8/12	24/8/2012		
<u>Travel &amp; leisure</u>	32.1	31.6	31.8								
ACCOR	36.1	35.5	36.2	↑							
EAST JAPAN RAILWAY	19.2	19.7	20.4	↑							
LUFTHANSA	31.1	31.1	31.3	↑							
McDonald's Corp	17.4	17.5	17.2	↓							
TUI AG	56.6	54.2	54.0	↓							
<u>Utilities</u>	26.9	26.9	27.4								
CENTRICA	20.3	19.0	19.2	↑							
CEZ AS	23.3	23.1	22.7	↓							
E.ON	26.1	25.6	27.5	↑							
EDF	28.8	27.2	27.1	↓							
ENDESA	32.4	31.5	32.1	↑							
ENEL	32.6	31.7	31.9	↑							
Energias de Portugal SA	23.3	23.1	23.6	↑							
GDF Suez	24.6	24.0	25.8	↑							
IBERDROLA	41.9	44.0	45.5	↑							
KOREA ELECTRIC POW	23.7	23.3	22.9	↓							
NATIONAL GRID	17.1	16.3	16.6	↑							
OEST ELEKTRIZ-A	27.1	26.0	26.5	↑							
RWE	26.0	25.3	26.9	↑							
SCOTTISH & SOUTHERN	17.1	17.1	16.1	↓							
TOKYO ELEC. POWER	33.4	37.0	38.7	↑							
UNITED UTILITIES	20.0	25.0	25.1	↑							
VEOLIA	40.5	37.4	38.0	↑							

## Appendix: interpreting/using the skew curve and forward curve

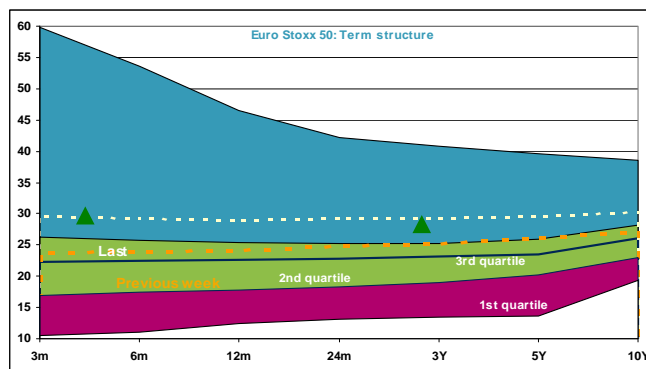
For some time now, our weekly reports have included two charts showing the forward curve and skew curve for the Euro Stoxx 50. Not everyone is necessarily familiar with these two concepts, which are mostly used by volatility experts. So for those that might find it useful, we have attempted to provide some clarification in the following paragraphs.

### What are we talking about?

Let us begin at the start, by defining the terms used.

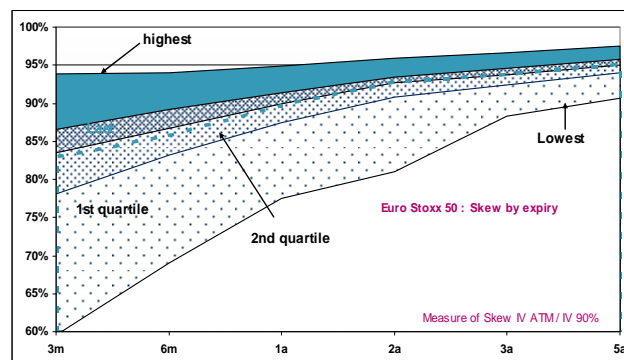
The forward curve of implied volatility: this curve simply shows at-the-money implied volatility levels (y axis) by maturity (x axis).

We use a simple tool here to show the volatility level in its historical context. The quartiles method makes it possible to show how the historical data is distributed. In the field of descriptive statistics, a quartile is each of the 3 values that divide the sorted data into 4 equal parts (25%- 50%- 75%) so that each part represents 1/4 of the population sample.



Skew: this chart shows the curve of near-the-money implied volatility (the ratio of 100% IV – at-the-money – to 90% IV – x axis) for each maturity (y axis).

Here again, we use the *quartiles method* to show the skew in its historical context.



Since we express skew using a curve, we make the implicit assumption that volatility is a decreasing linear function of the strike price. This simplified assumption is only used as a means of simplifying the visual representation. In fact, the curve has a degree of convexity that evolves over time.

## All prices and Volatilities are indicative

### DISCLAIMER NOTICE

This document is a marketing presentation for discussion and information purposes only. It is highly confidential and it is the property of Natixis. It should not be transmitted to any person other than its original addressee(s) without the prior written consent of Natixis.

Distribution, possession or delivery of this document in, to or from certain jurisdictions may be restricted or prohibited by law. Recipients of this document are required to inform themselves of and comply with all such restrictions or prohibitions. Neither Natixis, nor any of its affiliates, directors, employees, agents or advisers or any other person accepts any liability to any person in relation to the distribution, possession or delivery of this document in, to or from any jurisdiction.

This document is communicated to each recipient for information purposes only and does not constitute a personal recommendation. It is intended for general distribution to each recipient and the products or services described herein do not take into account any specific investment objective, financial situation or particular need of any particular recipient. Therefore, it shall not be considered as a solicitation, an offer, or an undertaking of Natixis to complete a transaction subject to the terms and conditions set out in this document or subject to other terms and conditions. Any guarantee, funding, interest or currency swap, underwriting and more generally any undertaking provided for in this document requires, inter alia, that a formal approval be given by Natixis according to its prevailing internal procedures.

Natixis has neither verified nor carried out independent analysis of the information set out in this document. Accordingly, no representation, warranty or undertaking, express or implied, is made to the recipients of this document as to or in relation to the accuracy or completeness or otherwise of this document or as to the reasonableness of any assumption contained in this document. Information does not take into account specific tax rules or accounting methods applicable to counterparties, clients or potential clients of Natixis. Therefore, Natixis shall not be liable for differences, if any, between its own valuations and those valuations provided by third parties; as such differences may arise as a result of the application and implementation of alternative accounting methods, tax rules or valuation models.

Prices and margins are deemed to be indicative only and are subject to changes at any time depending on, inter alia, market conditions. Past performances and simulations of past performances are not a reliable indicator and therefore do not anticipate future results. The information contained in this document may include results of analyses from a quantitative model, which represent potential future events that may or may not be realised, and is not a complete analysis of every material fact representing any product. Information may be changed or may be withdrawn by Natixis at any time without notice. More generally, no responsibility is accepted by Natixis, nor any of their holding companies, subsidiaries, associated undertakings or controlling persons, nor any of their respective directors, officers, partners, employees, agents, representatives or advisors as to or in relation to the characteristics of this information.

Statements, assumptions and opinions contained in this document may be forward-looking statements, assumptions or opinions and as such involve risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by such statements, assumptions or opinions, depending on a variety of factors and accordingly there can be no assurance that the projected results, projections or developments will be reached. No representation or warranty express or implied is given or made by Natixis as to the achievement or reasonableness of, and no reliance should be placed on any projections, targets, estimates or forecasts or the statements, assumptions and opinions expressed herein and nothing in this document is or should be relied on as a promise or representation as to the future.

The information contained in this document should not be assumed to have been updated at any time subsequent to date shown on the first page of this document and the delivery of this document does not constitute a representation by any person that such information will be updated at any time after the date of this document.

Natixis shall not be liable for any financial loss or any decision taken on the basis of the information disclosed in this document and Natixis does not provide any advice, including, inter alia, investment services. In any event, you should request any internal and/or external advice that you consider necessary or desirable to obtain, including from any financial, legal, tax or accounting advisor, or any other specialist, in order to verify in particular that the transaction described in this document complies with your objectives and constraints and to obtain an independent valuation of the transaction, its risks factors and rewards.

Natixis is authorised in France by the Autorité de contrôle prudentiel (ACP) as a Bank – Investment Services Provider and subject to its supervision. Natixis is regulated by the AMF in respect of its investment services activities. Natixis is authorised by the ACP in France and subject to limited regulation by the Financial Services Authority in the United Kingdom. Details on the extent of our regulation by the Financial Services Authority are available from us on request. Natixis is authorised by the ACP and regulated by the BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht) for the conduct of its business in Germany. Natixis is authorised by the ACP and regulated by Bank of Spain and the CNMV for the conduct of its business in Spain. Natixis is authorised by the ACP and regulated by Bank of Italy and the CONSOB (Commissione Nazionale per le Società e la Borsa) for the conduct of its business in Italy.

This document is not intended for distribution in the United States, or to any US person, or in Canada, Australia, the Republic of Ireland, the Republic of South Africa or Japan.