

## Equities

5 June 2012 | 20 pages

# Stock Market Country Selection

## Tactical Market Allocation

- **Benchmark performance** — The MSCI AC World index was down 8.9% in May, the worst month since last September. The EMU country index fell 12.78% as did the Asia Pacific ex-Japan, by 10.4%. The US was down 6.2% while the Japan benchmark shed 8.9%.
- **Model performance** — The model underperformed the benchmark by 3.8% and the bottom quintile by -0.7%. The performance with respect to benchmark can be mainly attributed to the relative outperformance of the United States in May.
- **Top ranks** — Canada moves to the top of the rankings this month. Korea (#2) replaces Brazil in this group. Medium-Term Momentum works against Brazil while Valuations work in Korea's favor. South Africa (#3), Australia (#4) and Germany (#5) maintain their membership of this group.
- **Bottom ranks** — Malaysia, Japan and Italy replace Hong Kong, Taiwan and Austria in the list at the bottom of the ranks this month, while Mexico and Spain continue their membership. Unfavorable Dividend Yield hurts Japan's ranking, while Interest Rates Trend works against both Malaysia and Italy.

- Quantitative Analysis
- Monthly

### Paul Chanin

+65-6432-1153  
paul.chanin@citigroup.com

### Head, Pan Asia Quantitative Research

### Nachiket R Garde, CFA

+81-3-6270-4888  
nachiket.garde@citi.com

### Masayoshi Yoshihara

masayoshi.yoshihara@citi.com

### Puneet Singh

puneet.singh@citi.com

### Nick Morton

nick.morton@citi.com

### Si An Tan

si.an.tan@citi.com

### Anmol Sethy

anmol.sethy@citi.com

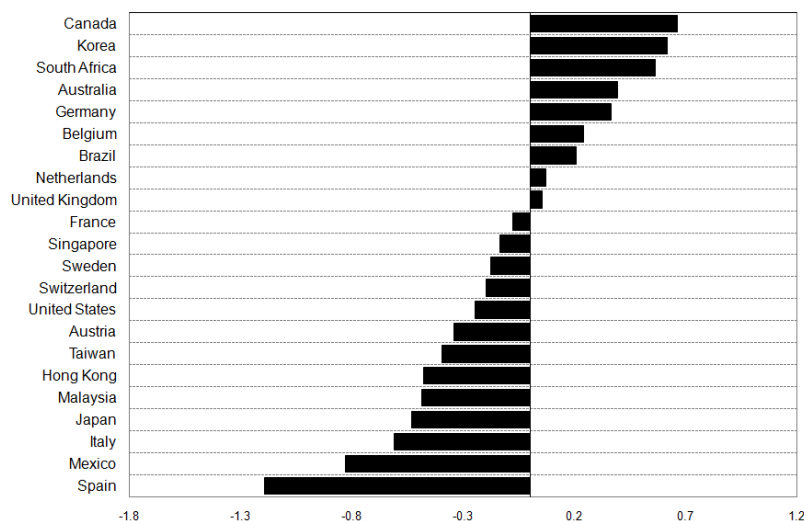
### Tushar Subhra Mandal

tushar.mandal@citi.com

### Zee Yusuf

zee.yusuf@citi.com

Figure 1. Markets Ranked by Attractiveness Score



Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

Citi Investment Research & Analysis is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

## Contents

<b>Global Quantitative Research Team</b>	<b>3</b>
<b>Country Ranking</b>	<b>4</b>
<b>Long-Short Performance Analysis</b>	<b>6</b>
<b>Long-Only Performance</b>	<b>8</b>
<b>Long – MSCI AC World Performance</b>	<b>9</b>
<b>Factors and Weights</b>	<b>10</b>
<b>Factor Values</b>	<b>10</b>
<b>Normalized Factor Values</b>	<b>11</b>
<b>Attractiveness Scores</b>	<b>12</b>
<b>Factor Definitions</b>	<b>14</b>
<b>Factors</b>	<b>14</b>
Earnings Yield based on FY0 IBES Earnings	14
Earnings Yield based on FY1 IBES Earnings	14
Cash Earnings Yield	14
FY0 IBES Earnings Yield less Interest Rates	14
FY1 IBES Earnings Yield less Interest Rates	14
Dividend Yield	14
Price to Sales Ratio	14
Price to Book Ratio	14
RoE	14
Interest Rate Trend	14
Long-Term (260d) Price Momentum	14
Medium-Term (65d) Price Momentum	14
Short-Term (20d) Price Momentum	15
Earnings Stability	15
Earnings Revision Ratio	15
Change in Number of Analyst Estimates	15
Change in Real Effective Exchange Rate	15
<b>Raw Data Sources</b>	<b>15</b>
<b>Appendix A-1</b>	<b>16</b>

## Global Quantitative Research Team

### Global Quantitative Research Director

Keith L. Miller	New York	+1-212-816-2285	<a href="mailto:keith.l.miller@citi.com">keith.l.miller@citi.com</a>
-----------------	----------	-----------------	--

### Asia-Pacific

Paul Chanin	Singapore	+65-6432-1153	<a href="mailto:paul.chanin@citi.com">paul.chanin@citi.com</a>
Puneet Singh	Singapore	+65-6432-1172	<a href="mailto:puneet.singh@citi.com">puneet.singh@citi.com</a>
Anmol Sethy	Singapore	+65-6432-1175	<a href="mailto:anmol.sethy@citi.com">anmol.sethy@citi.com</a>
Tan Si An	Singapore	+65-6432-1163	<a href="mailto:si.an.tan@citi.com">si.an.tan@citi.com</a>
Tushar Mandal	Singapore	+65-6432-1154	<a href="mailto:tushar.mandal@citi.com">tushar.mandal@citi.com</a>

### Australia/New Zealand

Nicholas Morton	Sydney	+61-2-8225-4810	<a href="mailto:nick.morton@citi.com">nick.morton@citi.com</a>
-----------------	--------	-----------------	--

### Japan

Nachiket Garde	Tokyo	+81 (3) 6270-4888	<a href="mailto:nachiket.garde@citi.com">nachiket.garde@citi.com</a>
Masayoshi Yoshihara	Tokyo	+81 (3) 6270-4883	<a href="mailto:masayoshi.yoshihara@citi.com">masayoshi.yoshihara@citi.com</a>

### Europe

Chris Montagu	London	+44-20-7986-3958	<a href="mailto:chris.montagu@citi.com">chris.montagu@citi.com</a>
Helen Krause	London	+44-20-7986-8653	<a href="mailto:helen.krause@citi.com">helen.krause@citi.com</a>
Matt Burgess	London	+44-20-7986-8325	<a href="mailto:matt.burgess@citi.com">matt.burgess@citi.com</a>
David Chew	London	+44-20-7986-7698	<a href="mailto:david.chew@citi.com">david.chew@citi.com</a>
Rahul Jalan	London	+44-20-7986-4075	<a href="mailto:rahul.jalan@citi.com">rahul.jalan@citi.com</a>
Lingjuan Ma	London	+44-20-7986-4404	<a href="mailto:lingjuan.ma@citi.com">lingjuan.ma@citi.com</a>

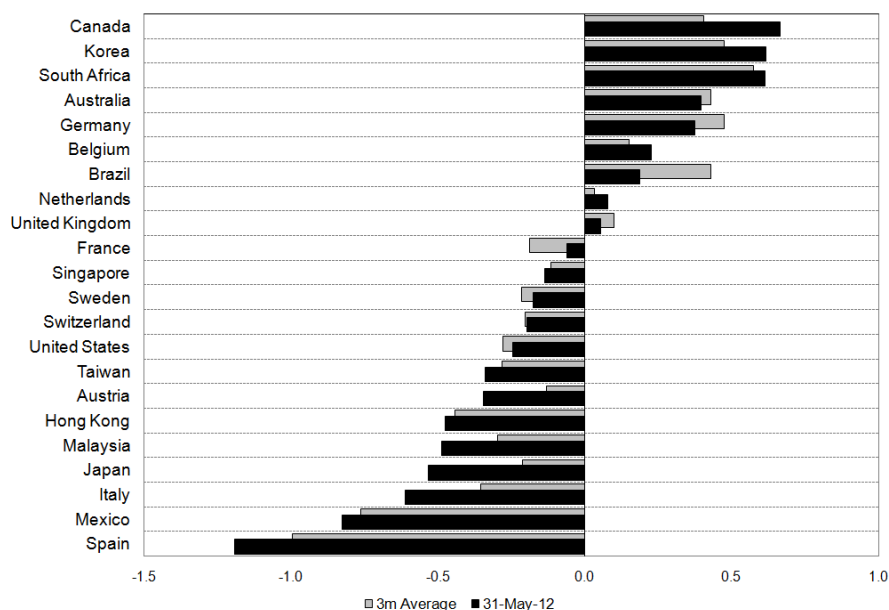
### North America

Keith L. Miller	New York	+1-212-816-2285	<a href="mailto:keith.l.miller@citi.com">keith.l.miller@citi.com</a>
Dading Li	New York	+1-212-816-1824	<a href="mailto:dading.li@citi.com">dading.li@citi.com</a>
Hong Li	New York	+1-212-816-1844	<a href="mailto:hong.li@citi.com">hong.li@citi.com</a>
Peter Lo	New York	+1-212-816-0379	<a href="mailto:peter.lo@citi.com">peter.lo@citi.com</a>
John Rowe	New York	+1-212-816-6054	<a href="mailto:john.rowe@citi.com">john.rowe@citi.com</a>
Richard Schlatter	New York	+1-212-816 6279	<a href="mailto:richard.w.schlatter@citi.com">richard.w.schlatter@citi.com</a>
Aline Sun	New York	+1-212-816-7083	<a href="mailto:aline.sun@citi.com">aline.sun@citi.com</a>
Tiffany Zhou	New York	+1-212-816-4659	<a href="mailto:tiffany.zhou@citi.com">tiffany.zhou@citi.com</a>

## Country Ranking

In June 2004, we introduced a market-ranking model that ranked 22 global markets for which exchange-traded funds were available. The model uses style and macroeconomic indicators as inputs. Data for 1990-98 were used to develop the model, which was tested for the out-of-sample, or holdout, period of 1999-2004. The figure below shows the current ranking of markets by attractiveness scores calculated by the model.

Figure 2. Global – Markets Ranked by Attractiveness Score



Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

Figure 3. Back-Test Perf.\* (50bps Each-Way Txn Costs) to 31 May 2012

	In-Sample Jan 90-Dec 98	Out-of-Sample Jan 99 – May 12
<b>After 50bps Costs</b>		
<b>Return</b>		
Top Quintile	26.2	9.0
Bottom Quintile	-5.7	8.1
<b>Top-Bottom</b>	<b>31.2</b>	<b>0.9</b>
<b>Information Ratio</b>		
Top Quintile	1.3	0.4
Bottom Quintile	-0.3	0.5
<b>Top-Bottom</b>	<b>1.6</b>	<b>0.1</b>

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

\*Past performance is no guarantee of future returns

Figure 4. Market Ranking — MSCI Index Universe

Market	Country Score			For	Against
	31-May	1m Ago	3m Average		
Canada	0.66	0.46	0.41	Analyst Coverage, ROE, Earnings Stability	
Korea	0.62	0.38	0.47	Yield Gap, Price to Sales, Valuation	
South Africa	0.61	0.57	0.57	Analyst Coverage, FX Rate	
Australia	0.39	0.47	0.43	Dividend Yield, Earnings Stability	
Germany	0.38	0.56	0.47	Yield Gap, Interest Rates Trend and Earnings Revision Ratio	
Belgium	0.23	-0.31	0.15	Medium Term Momentum	
Brazil	0.19	0.57	0.43		
Netherlands	0.08	-0.01	0.03	Earnings Stability	Real Effective FX Rate
United Kingdom	0.06	0.13	0.10	Dividend Yield	Price to Book, Medium Term Momentum
France	-0.06	-0.29	-0.19		FX Rate
Singapore	-0.14	-0.30	-0.11		Dividend Yield, Valuation
Sweden	-0.18	-0.26	-0.22		Price to Book, Medium Term Momentum
Switzerland	-0.20	-0.27	-0.20		ST Momentum , Cash Flow Yield
United States	-0.25	-0.29	-0.28	Yield Gap, Short Term Momentum	
Taiwan	-0.34	-0.38	-0.28	Yield Gap, Real Effective FX Rate	
Austria	-0.35	-0.45	-0.13	Medium Term Momentum	
Hong Kong	-0.48	-0.41	-0.44		Cash Flow Yield, Dividend Yield, Return on Equity
Malaysia	-0.49	-0.31	-0.30		Interest Rates Trend, Yield Gap
Japan	-0.53	-0.09	-0.21		Medium Term Momentum, Dividend Yield, P/E
Italy	-0.61	-0.16	-0.36		ROE, Interest Rates Trend, ERR
Mexico	-0.83	-0.86	-0.76	ST Price Momentum	Price to Book, Dividend Yield, Price to Sales, ERR
Spain	-1.19	-1.03	-0.99	Price to Sales	Short Term Momentum, Earnings Revision Ratio

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

Figure 5. Global Markets – Top and Bottom Quintiles

	2006												2007												2008												2009												2010												2011												2012											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																				
Australia																																																																																				
Austria																																																																																				
Belgium																																																																																				
Brazil																																																																																				
Canada																																																																																				
France																																																																																				
Germany																																																																																				
Hong Kong																																																																																				
Italy																																																																																				
Japan																																																																																				
Korea																																																																																				
Malaysia																																																																																				
Mexico																																																																																				
Netherlands																																																																																				
Singapore																																																																																				
South Africa																																																																																				
Spain																																																																																				
Sweden																																																																																				
Switzerland																																																																																				
Taiwan																																																																																				
United Kingdom																																																																																				
United States																																																																																				

Note: ■ = Top markets; □ = Bottom markets

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis estimates

## Long-Short Performance Analysis

Figure 6. Back-Test Perf.\* (50bps Each-Way Txn Costs) to 31 May 2012

	In-sample Dec 89-Dec 98	Out-of-Sample Jan 99 – May 12
<b>Annualized Return</b>	<b>31.2</b>	<b>0.9</b>
Standard Deviation	19.5	10.6
<b>Information Ratio</b>	<b>1.6</b>	<b>0.1</b>
Average Return in Up Market	2.7	0.7
Average Return in Down Market	2.0	-0.6
Percent of months +ve Return	68	52
Best Monthly Return	21.5	7.9
Worst Monthly Return	-24.0	-9.4
Max Drawdown	-36.0	-28.4
Date	Oct-90	Sep-08
Date of High Water	Feb-90	Feb-05
Date High Water Breached	Jan-92	-
Months to recovery	23	-
Return/Max Drawdown	0.87	0.04

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

\*Past performance is no guarantee of future returns

Figure 7. Monthly Performance History\* (Top-Bottom Spread, 50bps Each-Way Transaction Costs)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Return
1999	-0.9	5.1	6.7	3.4	0.7	4.1	-5.7	2.8	-1.1	0.1	3.8	3.0	23.7
2000	4.2	1.5	-1.0	-1.5	-0.5	2.1	-2.0	3.4	0.0	-6.2	2.0	7.9	9.4
2001	-1.4	6.9	1.3	1.4	-1.9	-0.2	0.3	3.8	-2.8	1.6	3.1	2.9	15.7
2002	5.4	0.3	-1.2	5.0	-3.0	-3.7	0.2	5.2	3.2	3.3	-0.7	6.3	21.5
2003	-2.9	1.7	1.2	7.0	-1.6	-2.3	-0.7	-1.6	-0.4	2.7	1.8	-1.9	2.7
2004	2.3	1.3	-2.4	0.1	1.3	-0.5	4.3	4.4	1.9	0.1	2.1	0.8	16.6
2005	2.7	0.1	-1.4	-1.9	-2.2	0.9	2.0	-1.5	1.5	-3.9	-2.4	2.9	-3.5
2006	0.0	0.4	0.4	0.7	-0.7	-2.4	-1.8	0.7	1.8	-0.2	0.9	2.0	1.7
2007	-2.1	0.5	-0.5	-1.0	-3.2	0.3	-0.9	-2.1	0.1	4.9	-1.3	-1.1	-6.4
2008	-4.0	0.7	0.8	-1.9	-2.6	-0.2	-3.9	-4.4	-6.0	2.4	2.1	2.2	-14.3
2009	-3.2	5.6	-6.1	4.1	-1.6	1.1	1.0	-2.8	-1.7	-4.5	-3.3	-0.3	-11.6
2010	-3.3	-5.9	-1.4	0.3	-6.5	0.0	3.1	-5.5	1.7	-0.3	-9.4	0.7	-24.1
2011	6.3	0.9	-1.2	1.8	-2.3	0.0	-3.5	-8.6	2.0	1.7	-0.5	-2.3	-6.2
2012	3.2	-1.0	-3.2	2.0	-0.7								0.2

\*Past performance is no guarantee of future returns

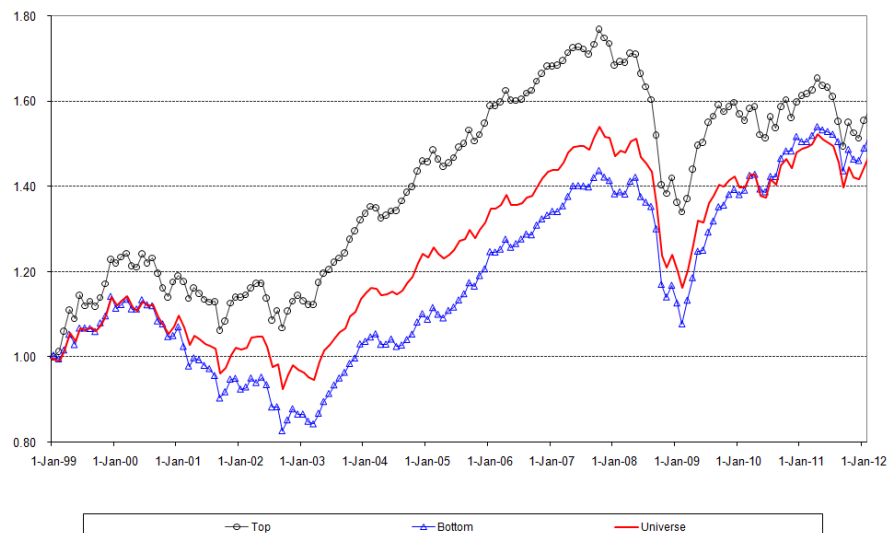
Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

Figure 8. Analysis of All Major Draw-Down Periods — Draw-Down Events Exceeding 300bps (Top-Bottom Spread)

Ranks	Start Date	Trough Date	End Date	Length of Drawdown (Months)	Size (%)	High-water level	Length of Recovery (Months)	Total Period (Months)
1	200502	201005	NA	64	-43.2	2997.2	NA	64
2	200204	200206	200209	2	-6.7	2197.2	3	5
3	200304	200309	200407	5	-6.4	2601.3	10	15
4	200008	200010	200012	2	-6.3	1676.7	2	4
5	199906	199907	199912	1	-5.7	1539.7	5	6
6	200002	200005	200008	3	-3.0	1671.2	3	6

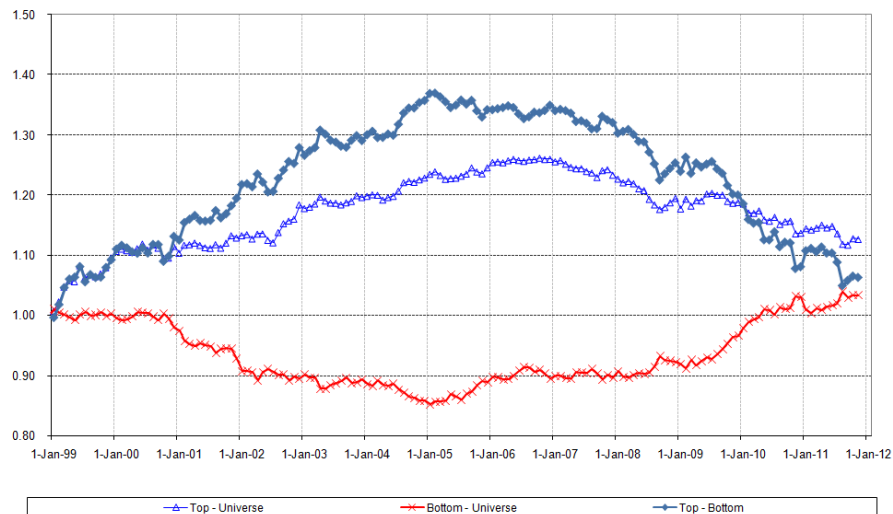
Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

Figure 9. Equally-Weighted Performance of Top and Bottom Quintiles



Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

Figure 10. Quintile Wealth Curves (Top–Universe; Bottom–Universe and Top–Bottom)



Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

## Long-Only Performance

The following tables show detailed performance of an equally weighted basket of top-ranked markets in isolation.

**Figure 11. Back-Test Perf.\* (50bps Each-way Txn Costs) to 31 May 2012**

	In-sample Dec 89-Dec 98	Out-of-Sample Jan 99 – May 12
<b>Annualized return</b>	<b>26.2</b>	<b>9.0</b>
Standard deviation	20.5	23.3
<b>Information ratio</b>	<b>1.3</b>	<b>0.4</b>
Average return in up market	4.4	4.8
Average return in down market	0.1	-3.9
Percent of months positive return	71	60
Best monthly return	17.2	17.0
Worst monthly return	-21.3	-23.5
Max drawdown	-26.4	-62.7
Date	Oct-90	Feb-09
Date of high water	Feb-90	Oct-07
Date high water breached	June-91	-
Months to recovery	15	-
Return / max drawdown	0.99	0.14

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

\*Past performance is no guarantee of future returns

**Figure 12. Monthly Performance History\* (Top-Quintile Only, 50bps Each-way Transaction Costs)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Return
<b>1999</b>	0.2	3.1	11.6	12.2	-4.6	13.4	-5.6	2.5	-2.7	4.9	7.6	14.1	<b>69.7</b>
<b>2000</b>	-2.1	3.5	1.9	-6.5	-0.6	7.2	-4.6	2.8	-7.9	-7.8	-4.6	8.5	<b>-11.4</b>
<b>2001</b>	3.4	-3.1	-8.8	6.0	-3.0	-3.2	-1.5	0.2	-14.2	5.0	10.2	3.3	<b>-7.8</b>
<b>2002</b>	-0.2	1.4	3.9	2.6	-0.1	-7.7	-11.1	5.2	-8.9	9.4	5.5	3.5	<b>1.1</b>
<b>2003</b>	-2.9	-2.1	-0.2	12.9	4.9	2.1	4.1	2.3	2.7	7.6	4.7	6.1	<b>50.1</b>
<b>2004</b>	3.6	3.7	-0.7	-5.5	1.4	2.3	0.4	5.2	4.9	3.0	8.9	5.3	<b>37.1</b>
<b>2005</b>	-0.2	6.6	-5.0	-3.8	1.9	2.7	5.9	1.8	7.6	-5.8	3.5	6.5	<b>22.9</b>
<b>2006</b>	9.7	0.1	2.1	6.3	-5.0	-0.4	0.7	3.4	1.4	5.1	4.3	4.0	<b>35.9</b>
<b>2007</b>	0.1	0.4	2.6	4.3	2.7	0.4	-1.2	-2.6	5.3	8.7	-4.8	-2.9	<b>12.8</b>
<b>2008</b>	-10.9	1.8	-0.5	5.3	-0.5	-10.1	-6.8	-6.7	-17.4	-23.5	-4.5	8.7	<b>-51.5</b>
<b>2009</b>	-12.3	-5.1	7.6	17.6	13.8	1.7	11.3	3.3	6.3	-3.7	2.7	2.4	<b>50.2</b>
<b>2010</b>	-6.0	-3.4	6.7	0.8	-14.0	-1.6	11.8	-5.7	12.1	3.8	-9.4	8.8	<b>0.2</b>
<b>2011</b>	3.6	0.9	2.1	6.6	-4.0	-0.8	-5.0	-12.5	-12.6	13.9	-5.6	-3.0	<b>-17.8</b>
<b>2012</b>	10.1	5.6	-2.0	-1.8	-12.6								<b>-2.2</b>

\*Past performance is no guarantee of future returns

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

**Figure 13. Analysis of All Major Draw-Down Periods – Draw-Down Events Exceeding 300bps (Top Quintile Only)**

Ranks	Start Date	Trough Date	End Date	Length of Drawdown (Months)	Size (%)	High-water level	Length of Recovery (Months)	Total Period (Months)
1	200710	200902	NA	16	-62.7	5568.0	NA	32
2	200003	200109	200309	18	-33.9	1661.5	24	42
3	200502	200504	200507	2	-8.6	2907.6	3	5
4	200402	200404	200408	2	-6.1	2141.6	4	6
5	199906	199909	199911	3	-5.8	1325.5	2	5
6	200509	200510	200512	1	-5.8	3230.5	2	3
7	200604	200606	200610	2	-5.4	3999.9	4	6
8	199904	199905	199906	1	-4.6	1225.8	1	2

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis



## Long – MSCI AC World Performance

The following tables show the detailed performance of the equally weighted basket of top-ranked markets relative to the MSCI A/C World Index.

**Figure 14. Back-Test Performance (50bps Each-way Txn Costs) to 31 May 2012**

	In-sample Dec 89-Dec 98	Out-of-Sample Jan 99 – May 12
<b>Annualized return</b>	<b>14.9</b>	<b>6.7</b>
Standard deviation	13.7	10.4
<b>Information ratio</b>	<b>1.6</b>	<b>0.1</b>
Average return in up market	1.3	1.7
Average return in down market	1.2	-0.7
Percent of months positive return	62	57
Best monthly return	12.0	8.4
Worst monthly return	-10.2	-7.2
Max drawdown	-20.1	-22.1
Date	Dec-90	Oct-08
Date of high water	Feb-90	Oct-07
Date high water breached	Jun-91	-
Months to recovery	16	-
Return / max drawdown	0.74	0.30

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

\*Past performance is no guarantee of future returns

**Figure 15. Monthly Performance History\* (Top-Quintile less MSCI A/C World, 50bps Each-way Transaction Costs)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Return
<b>1999</b>	-1.8	5.6	7.1	7.9	-1.1	8.4	-5.2	2.6	-1.6	-0.1	4.5	5.8	<b>35.7</b>
<b>2000</b>	3.3	3.1	-4.6	-2.1	2.0	3.8	-1.7	-0.3	-2.4	-5.8	1.5	6.8	<b>2.9</b>
<b>2001</b>	0.9	5.3	-2.0	-1.3	-1.9	-0.2	0.1	4.8	-5.1	2.9	4.0	2.4	<b>9.9</b>
<b>2002</b>	2.5	2.1	-0.6	5.7	-0.2	-1.6	-2.7	5.0	2.0	2.0	0.0	8.2	<b>24.3</b>
<b>2003</b>	0.0	-0.3	0.2	4.0	-0.9	0.2	1.8	-0.1	2.1	1.5	3.2	-0.2	<b>12.0</b>
<b>2004</b>	1.9	1.9	-0.1	-3.2	0.5	0.3	3.5	4.6	2.8	0.5	3.4	1.4	<b>18.9</b>
<b>2005</b>	1.9	3.1	-2.8	-1.7	0.0	1.7	2.2	1.0	4.6	-3.1	-0.2	4.1	<b>11.0</b>
<b>2006</b>	4.8	0.2	-0.1	2.9	-1.1	-0.4	0.0	0.8	0.2	1.4	1.4	1.8	<b>12.4</b>
<b>2007</b>	-1.0	0.8	0.5	-0.2	-0.4	0.7	0.4	-2.4	-0.1	4.8	-0.4	-1.9	<b>0.8</b>
<b>2008</b>	-2.8	1.5	0.9	-0.4	-2.1	-1.9	-4.2	-4.6	-5.0	-3.7	2.0	5.0	<b>-14.7</b>
<b>2009</b>	-3.8	4.6	-0.7	5.1	3.7	2.2	2.5	-0.3	1.7	-2.1	-1.5	0.3	<b>12.0</b>
<b>2010</b>	-1.7	-4.7	0.3	0.6	-4.7	1.5	3.6	-2.2	2.5	0.2	-7.2	1.4	<b>-10.3</b>
<b>2011</b>	2.0	-2.0	2.2	2.5	-1.9	0.7	-3.4	-5.2	-3.2	3.1	-2.6	-2.8	<b>-10.5</b>
<b>2012</b>	4.2	0.6	-2.7	-0.7	-3.8								<b>-2.5</b>

\*Past performance is no guarantee of future returns

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

**Figure 16. Analysis of All Major Draw-Down Periods – Draw-down Events Exceeding 300bps (Top Quintile less MSCI A/C World)**

Ranks	Start Date	Trough Date	End Date	Length of Drawdown (Months)	Size (%)	High-water Level	Length of Recovery (Months)	Total Period (Months)
1	200710	200809	200907	11	-19.10	1267.49	10	21
2	200002	200010	200102	8	-10.94	561.55	4	12
3	200909	201002	NA	5	-9.47	1302.63	NA	5
4	200102	200109	200111	7	-5.63	576.39	2	9
5	199906	199907	199912	1	-5.15	498.60	5	6
6	200204	200207	200208	3	-4.51	655.90	1	4
7	200502	200505	200508	3	-4.46	1036.50	3	6
8	200402	200404	200407	2	-3.31	861.39	3	5

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis

# Factors and Weights

In the ranking model, factors and weights vary across markets. Factor definitions are covered in detail later in this document. Using cluster analysis as a guide, 17 factors are classified into 11 groups. Five factors are chosen for each market, with no more than one factor from each of these groups.

The weights assigned to these factors are determined by the size and strength of the relationship between a market's rank on a given factor and the subsequent performance rank of the country across the region. *(In technical terms, the factor weights depend on the t-stat of the correlation between the cross-sectional normalized factor values and the cross-sectional normalized one-month forward returns.)*

Unless data availability dictates use of a shorter time period, the correlations are measured for the period since the beginning of 1990.

## Factor Values

The figure below shows the current values of the indicators used in the model.

Figure 17. Factor Values

	Australia	Austria	Belgium	Brazil	Canada	France	Germany	Hong Kong	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Singapore	South Africa	Spain	Sweden	Switzerland	Taiwan	United Kingdom	United States
Change in Analyst Estimates (%)	3	3	2	2	10	-1	-2	6	-1	-1	-12	8	-2	1	7	9	4	0	-2	-2	-3	2
Dividend Yield	5.2	3.7	3.2	4.9	3.1	4.7	3.9	3.3	5.8	2.8	1.3	3.0	1.3	3.7	3.6	3.3	10.6	4.1	3.7	4.6	4.1	2.3
EY less IR for P/E FY0	5.9	11.0	2.8	1.0	7.0	7.6	8.3	6.2	6.4	5.4	3.9	3.0	0.8	6.2	7.2	0.1	11.0	6.9	6.9	4.8	8.1	4.2
EY - IR for FY1 (IBES)	5.9	10.2	3.6	2.0	7.2	7.9	8.6	7.0	8.5	8.0	8.6	4.1	0.9	7.0	8.0	1.0	8.8	7.1	8.4	5.9	7.9	5.1
Return on Equity	13.4	5.9	7.2	12.3	12.0	9.7	10.9	10.6	6.5	4.0	11.5	13.3	14.5	8.9	11.5	16.1	10.4	14.0	13.0	9.5	15.9	15.1
Interest Rates Trend (%)	-49	-23	-19	-99	-20	-13	-33	23	32	12	-1	14	9	-29	22	3	38	-26	-12	23	-34	-28
260d Price Momentum (%)	-5	-28	13	8	-9	-9	2	-4	-20	-4	3	3	15	2	-3	14	-31	2	7	-9	2	12
65d Price Momentum (%)	-2	-21	-4	-18	-10	-17	-14	-13	-29	-19	-9	-3	2	-12	-8	-2	-33	-12	-7	-12	-11	-5
20d Price Momentum (%)	-9	-15	-4	-10	-3	-6	-7	-12	-10	-10	-10	-3	-5	-4	-8	-2	-13	-6	-3	-6	-7	-5
Price to Sales	1.7	0.6	3.1	0.0	2.3	0.8	0.8	4.0	0.6	0.7	0.9	2.7	2.1	0.8	3.3	2.1	0.7	1.7	2.1	1.4	1.6	2.1
Earnings Stability	26.3	42.0	61.3	77.1	33.8	33.4	68.8	42.5	37.8	216.3	44.8	31.0	58.6	38.5	19.0	241.8	19.8	41.3	36.1	69.3	36.9	31.0
P/E FY0 (IBES)	11.3	7.7	16.9	10.1	11.6	10.0	10.6	14.7	8.1	16.2	13.6	15.9	18.0	12.7	12.9	12.9	5.7	12.3	13.5	16.3	10.4	14.7
P/E FY1 (IBES)	11.3	8.1	14.8	9.2	11.3	9.7	10.2	13.2	6.9	11.3	8.3	13.5	17.7	11.5	11.8	11.6	6.5	12.0	11.2	13.8	10.6	12.9
Price to Book	1.6	0.7	1.4	1.3	1.7	1.0	1.2	1.2	0.6	0.9	1.2	2.1	2.9	1.2	1.4	2.3	0.8	1.7	2.0	1.7	1.5	2.1
Price to Cash Flow	9.2	2.6	11.0	4.7	9.2	7.6	7.1	17.3	3.6	6.1	6.7	13.2	7.4	9.1	9.9	7.5	3.2	10.1	13.8	8.9	7.4	10.3
Earning Revision Ratio (%)	-24	-3	33	-14	-8	3	3	-2	-6	2	24	1	-13	3	10	-1	-26	13	-7	5	-10	8
Chg in Real Effective FX Rate (%)	-3	1	1	-11	-2	-1	-1	1	0	-2	-4	-2	-7	0	1	-10	-1	-8	-8	-3	-1	-3

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis, IBES

## Normalized Factor Values

Figure 18 shows the factors in Figure 17 normalized across the markets. Thus, Italy's Dividend Yield of 5.8 is 1 standard deviations above the universe average and translates into a factor score of 1.0

Figure 18. Factor Values (Normalized)

	Australia	Austria	Belgium	Brazil	Canada	France	Germany	Hong Kong	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Singapore	South Africa	Spain	Sweden	Switzerland	Taiwan	United Kingdom	United States
Change in # of Analyst Estimates	0.3	0.3	0.2	0.1	1.8	-0.5	-0.6	1.0	-0.4	-0.5	-2.5	1.3	-0.6	-0.2	1.1	1.6	0.5	-0.4	-0.8	-0.7	-0.9	0.2
Dividend Yield	0.7	-0.1	-0.4	0.5	-0.4	0.4	0.0	-0.3	1.0	-0.6	-1.4	-0.5	-1.4	-0.1	-0.1	-0.3	2.5	0.1	-0.1	0.4	0.1	-0.9
EY less IR for P/E FY0	0.1	1.8	-1.0	-1.6	0.4	0.7	0.9	0.2	0.2	-0.1	-0.6	-0.9	-1.7	0.2	0.5	-1.9	1.8	0.4	0.4	-0.3	0.8	-0.5
EY - IR for FY1 (IBES)	-0.2	1.4	-1.1	-1.7	0.3	0.6	0.8	0.2	0.8	0.6	0.8	-0.9	-2.1	0.2	0.6	-2.1	0.9	0.2	0.8	-0.2	0.6	-0.5
Return on Equity	0.7	-1.6	-1.2	0.4	0.2	-0.5	-0.1	-0.2	-1.4	-2.2	0.1	0.6	1.0	-0.7	0.1	1.5	-0.2	0.9	0.6	-0.5	1.4	1.2
Interest Rates Trend	1.3	0.4	0.3	2.5	0.3	0.1	0.7	-1.0	-1.3	-0.7	-0.3	-0.7	-0.6	0.6	-1.0	-0.4	-1.5	0.5	0.1	-1.0	0.8	0.6
260d Price Momentum	-0.3	-2.1	1.1	0.8	-0.6	-0.6	0.3	-0.2	-1.4	-0.1	0.4	0.4	1.4	0.3	-0.1	1.2	-2.4	0.3	0.7	-0.6	0.3	1.1
65d Price Momentum	1.1	-1.0	0.9	-0.7	0.2	-0.6	-0.3	-0.1	-2.0	-0.8	0.4	1.0	1.6	0.0	0.4	1.2	-2.5	-0.1	0.5	0.0	0.1	0.7
20d Price Momentum	-0.5	-2.1	0.8	-0.9	1.1	0.4	0.1	-1.2	-0.9	-0.7	-0.7	1.3	0.7	0.8	-0.3	1.6	-1.7	0.3	1.1	0.2	0.1	0.6
Price to Sales	-0.1	1.0	-1.4	1.6	-0.6	0.8	0.8	-2.3	1.0	0.9	0.7	-1.0	-0.4	0.8	-1.6	-0.4	0.9	-0.1	-0.5	0.2	0.0	-0.5
Earnings Stability	0.6	0.3	0.0	-0.3	0.4	0.5	-0.2	0.3	0.4	-2.5	0.3	0.5	0.0	0.4	0.7	-2.5	0.7	0.3	0.4	-0.2	0.4	0.5
EY FY0 (IBES)	0.1	1.6	-1.0	0.5	0.0	0.5	0.3	-0.7	1.3	-0.9	-0.4	-0.8	-1.1	-0.3	-0.3	-0.3	2.5	-0.2	-0.4	-0.9	0.4	-0.6
EY FY1 (IBES)	-0.2	1.2	-1.1	0.6	-0.2	0.4	0.2	-0.8	2.1	-0.2	1.1	-0.8	-1.6	-0.3	-0.4	-0.3	2.5	-0.4	-0.2	-0.9	0.0	-0.7
Price to Book	-0.5	2.1	-0.2	0.0	-0.6	0.7	0.1	0.2	2.4	1.0	0.1	-1.0	-1.3	0.2	-0.2	-1.1	1.5	-0.6	-0.9	-0.6	-0.4	-0.9
Price to Cash Flow	-0.5	2.5	-0.7	0.8	-0.5	-0.2	-0.1	-1.1	1.6	0.2	0.0	-0.9	-0.1	-0.4	-0.6	-0.2	2.0	-0.6	-0.9	-0.4	-0.1	-0.6
Earning Revision Ratio	-1.7	-0.2	2.5	-1.0	-0.6	0.3	0.2	-0.1	-0.4	0.2	1.8	0.1	-0.9	0.2	0.8	-0.1	-1.9	1.0	-0.5	0.4	-0.7	0.6
Chg in Real Effective FX Rate	0.1	-0.9	-1.0	2.3	-0.2	-0.6	-0.6	-1.1	-0.9	-0.1	0.4	-0.2	1.1	-0.6	-1.1	1.9	-0.5	1.4	1.3	0.1	-0.6	0.0

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis, IBES

## Attractiveness Scores

Each factor's contribution to a market's outlook is measured by multiplying the factor value in Figure 17 with the factor weight in Figure 19. Adding up the contributions across factors provides the attractiveness score for each market. Figure 20 provides a detailed breakdown.

Figure 19. Factor Weights (Percent)

	Australia	Austria	Belgium	Brazil	Canada	France	Germany	Hong Kong	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Singapore	South Africa	Spain	Sweden	Switzerland	Taiwan	United Kingdom	United States
Change in # of Analyst Estimates	29				28	14										20			17			
Dividend Yield	19							14		21		12	21		34	17			30		19	
EY less IR for P/E FY0							33			13								20	9	20		
EY - IR for FY1 (IBES)				3		17		26	7		17	19									20	20
Return on Equity	10		18	19	18			10	12						6		8					
Interest Rates Trend							15		31			22								12		
260d Price Momentum	17										21			25								23
65d Price Momentum		35		48	23					17					12			14			12	
20d Price Momentum			43			16							4				33		16			
Price to Sales		11									14		40				6	26		24		18
Earnings Stability	24	9			18				15		27			17			13					
EY FY0 (IBES)					13		16			32										26		18
EY FY1 (IBES)			8	11				24			20				29			14			22	
Price to Book													20	17	19			27			27	21
Price to Cash Flow								26		17		14				27			27			
Earning Revision Ratio		39	14			18	17		34			33	16	20		16	40					
Chg in Real Effective FX Rate		6	17	20		35	20							22		22				19		

Source: Factset, MSCI, Datastream, Citi Investment Research and Analysis, IBES

Figure 20. Contribution to Final Scores

	Australia	Austria	Belgium	Brazil	Canada	France	Germany	Hong Kong	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Singapore	South Africa	Spain	Sweden	Switzerland	Taiwan	United Kingdom	United States
Change in # of Analyst Estimates	0.10				0.50	-0.06										0.31			-0.13			
Dividend Yield	0.13							-0.05		-0.13		-0.06	-0.29		-0.05	-0.05			-0.03		0.02	
EY less IR for P/E FY0							0.30			-0.01								0.08	0.04	-0.06		
EY - IR for FY1 (IBES)				-0.05		0.10		0.05	0.06		0.14	-0.17									0.11	-0.10
Return on Equity	0.07		-0.22	0.07	0.04			-0.02	-0.18						0.01		-0.02					
Interest Rates Trend							0.11		-0.42			-0.16								-0.13		
260d Price Momentum	-0.04										0.07			0.08								0.25
65d Price Momentum		-0.37		-0.35	0.04					-0.14					0.05			-0.01			0.01	
20d Price Momentum			0.35			0.07							0.03				-0.58		0.17			
Price to Sales		0.12									0.10	-0.16					0.06	-0.02		0.05		-0.08
Earnings Stability	0.14	0.03			0.08				0.06		0.07			0.06			0.09					
EY FY0 (IBES)					0.00		0.05			-0.28										-0.23		-0.12
EY FY1 (IBES)			-0.09	0.07				-0.18			0.23				-0.11			-0.06			0.00	
Price to Book													-0.26	0.03	-0.03			-0.17			-0.10	-0.20
Price to Cash Flow								-0.28	0.04			-0.12				-0.04			-0.25			
Earning Revision Ratio		-0.06	0.35			0.05	0.04		-0.13			0.03	-0.15	0.05		-0.01	-0.74					
Chg in Real Effective FX Rate		-0.06	-0.17	0.44		-0.21	-0.11							-0.14		0.41				0.03		
<b>Score</b>	0.39	-0.35	0.23	0.19	0.66	-0.06	0.38	-0.48	-0.61	-0.53	0.62	-0.49	-0.83	0.08	-0.14	0.61	-1.19	-0.18	-0.20	-0.34	0.06	-0.25
<b>Rank</b>	4	16	6	7	1	10	5	17	20	19	2	18	21	8	11	3	22	12	13	15	9	14

Source: IBES, Factset, MSCI, Datastream, Citi Investment Research and Analysis, IBES

## Factor Definitions

### Factors

#### Earnings Yield based on FY0 IBES Earnings

One over the aggregate Weighted Medium IBES FY0 P/E for the Market calculated using Factset.

#### Earnings Yield based on FY1 IBES Earnings

One over the aggregate Weighted Medium IBES FY1 P/E for the Market calculated using Factset.

#### Cash Earnings Yield

One over the Weighted Medium Price to Cash Earnings for the market calculated using the Worldscope trailing 12m Cash Earnings (earnings excluding extraordinary items, plus depreciation).

#### FY0 IBES Earnings Yield less Interest Rates

Earnings Yield based on FY0 IBES Earnings less current domestic interest rate.

#### FY1 IBES Earnings Yield less Interest Rates

Earnings Yield based on FY1 estimates less current domestic interest rate.

#### Dividend Yield

MSCI calculated dividend yield based on trailing 12m Gross Dividends per share.

#### Price to Sales Ratio

Weighted medium market P/S calculated using Worldscope trailing 12m sales per share.

#### Price to Book Ratio

Weighted medium market P/B calculated using Worldscope trailing 12m book value per share.

#### RoE

An implied market RoE based on aggregate FY0 EPS and the most recent MSCI calculated market aggregate book values per share.

#### Interest Rate Trend

Ratio of the current (actual) domestic interest rate to the 12m (linear) trend interest rate forecast.

#### Long-Term (260d) Price Momentum

Slope of the 260d linear trend in country (MSCI) index prices.

#### Medium-Term (65d) Price Momentum

Slope of the 65d linear trend in country (MSCI) index prices.

## Short-Term (20d) Price Momentum

Slope of the 20d linear trend in country (MSCI) index prices.

## Earnings Stability

The market-cap weighted aggregate of stock-level IBES five-year Earnings Stability measure. This is the mean absolute percentage difference between actual reported EPS and a five-year historical EPS growth trend line, expressed as a percentage of trend line EPS.

## Earnings Revision Ratio

A market-cap weighted aggregate of the ERRs – where the ERR is the number of upgrades less downgrades for FY1 and FY2 as a percentage of total number of forecasts.

## Change in Number of Analyst Estimates

The ratio of the 3m average to the 12m average of the market-cap weighted aggregate number of IBES Analyst Estimates per company.

## Change in Real Effective Exchange Rate

12m percentage change in the Real Effective Exchange Rates, which are in turn based on the Citibank Competitive Trade-weighted Exchange Rate Indices (CTERI)<sup>1</sup>. For countries not included in the CTERI indices, we are using changes in Real Effective Exchange rates as calculated by the IMF. As this data is generally late, a six-month lag is introduced for back-testing purposes.

## Raw Data Sources

P&L-related valuation data is the Factset-aggregated Weighted Medium value using the MSCI index weights and IBES (profit) and Worldscope (revenue) data. Balance Sheet-related data (i.e., P/BV/ROE) is taken from the MSCI index level valuations.

Real effective Exchange Rates are taken primarily from the Citigroup Economists (EMA). Where this isn't available, we use the IMF data series sourced via DataStream.

Local market Interest Rates are sourced from DataStream. Price momentum measures are calculated using Factset based on the MSCI country index data index data.

Aggregate IBES earnings revision ratios and aggregate Earnings stability are calculated using the IBES historical data on Factset.

<sup>1</sup>For a full description of this measures of exchange rate values, please see the report, "Introducing CTERI: A New Guide to Currency Valuation" by Greg Berman and Adam LaVier – January 2001

## Appendix A-1

### Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

### IMPORTANT DISCLOSURES

Analysts' compensation is determined based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates ("the Firm"). Like all Firm employees, analysts receive compensation that is impacted by overall firm profitability which includes investment banking revenues.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Investment Research & Analysis product ("the Product"), please contact Citi Investment Research & Analysis, 388 Greenwich Street, 28th Floor, New York, NY, 10013, Attention: Legal/Compliance [E6WYB6412478]. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures). Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Historical disclosures (for up to the past three years) will be provided upon request.

#### Citi Investment Research & Analysis Ratings Distribution

<b>Data current as of 31 Mar 2012</b>	<b>12 Month Rating</b>			<b>Relative Rating</b>		
	<b>Buy</b>	<b>Hold</b>	<b>Sell</b>	<b>Buy</b>	<b>Hold</b>	<b>Sell</b>
Citi Investment Research & Analysis Quantitative World Radar Screen Model Coverage	30%	40%	30%			
% of companies in each rating category that are investment banking clients	23%	23%	19%			
Citi Investment Research & Analysis Quantitative Decision Tree Model Coverage	47%	0%	53%			
% of companies in each rating category that are investment banking clients	48%	0%	47%			
Citi Investment Research & Analysis Asia Quantitative Radar Screen Model Coverage	20%	60%	20%			
% of companies in each rating category that are investment banking clients	24%	22%	21%			
Citi Investment Research & Analysis Australia Radar Model Coverage	51%	0%	49%			
% of companies in each rating category that are investment banking clients	37%	0%	13%			

#### Guide to Citi Investment Research & Analysis (CIRA) Quantitative Research Investment Ratings:

CIRA Quantitative Research World Radar Screen recommendations are based on a globally consistent framework to measure relative value and momentum for a large number of stocks across global developed and emerging markets. Relative value and momentum rankings are equally weighted to produce a global attractiveness score for each stock. The scores are then ranked and put into deciles. A stock with a decile rating of 1 denotes an attractiveness score in the top 10% of the universe (most attractive). A stock with a decile rating of 10 denotes an attractiveness score in the bottom 10% of the universe (least attractive).

CIRA Asia Quantitative Radar Screen model recommendations are based on a regionally consistent framework to measure relative value and momentum for a large number of stocks across regional developed and emerging markets. Relative value and momentum rankings are equally weighted to produce a global attractiveness score for each stock. The scores are then ranked and put into quintiles. A stock with a quintile rating of 1 denotes an attractiveness score in the top 20% of the universe (most attractive). A stock with a quintile rating of 5 denotes an attractiveness score in the bottom 20% of the universe (least attractive).

CIRA Australia Quantitative Radar Screen model recommendations are based on a robust framework to measure relative value and momentum for a large number of stocks across the Australian market. Stocks with a ranking of 1 denotes a stock that is above average in terms of both value and momentum relative to the stocks in the Australian market. A ranking of 10 denotes a stock that is below average in terms of both value and momentum relative to the stocks in the Australian market.

CIRA Quantitative Decision Tree model recommendations are based on a predetermined set of factors to rate the relative attractiveness of stocks. These factors are detailed in the text of the report. The Decision Tree model forecasts whether stocks are attractive or unattractive relative to other stocks in the same sector (based on the Russell 1000 sector classifications).

For purposes of NASD/NYSE ratings-distribution-disclosure rules, a Citi Investment Research & Analysis (CIRA) Quantitative World Radar Screen recommendation of (1), (2) or (3) most closely corresponds to a buy recommendation; a recommendation from this product group of (4), (5), (6) or (7) most closely corresponds to a hold recommendation; and a recommendation of (8), (9) or (10) most closely corresponds to a sell recommendation. An (NR) recommendation indicates that the stock is no longer in the screen.

For purposes of NASD/NYSE ratings distribution disclosure rules, a CIRA Asia Quantitative Radar Screen recommendation of (1) most closely corresponds to a buy recommendation; a CIRA Asia Quantitative Radar Screen recommendation of (2), (3), (4) most closely corresponds to a hold recommendation; and a recommendation of (5) most closely corresponds to a sell recommendation. An (NR) recommendation indicates that the stock is no longer in the screen.

For purposes of NASD/NYSE ratings-distribution-disclosure rules, a CIRA Quantitative Research Decision Tree model or Quantitative Research Australia Radar Screen recommendation of "attractive" (1) most closely corresponds to a buy recommendation. All other stocks in the sector are considered to be "unattractive" (10) which most closely corresponds to a sell recommendation. An (NR)/(0) recommendation indicates that the stock is no longer in the screen.

Recommendations are based on the relative attractiveness of a stock, thus can not be directly equated to buy, hold and sell categories. Accordingly, your



decision to buy or sell a security should be based on your personal investment objectives and only after evaluating the stock's expected relative performance.

---

#### **NON-US RESEARCH ANALYST DISCLOSURES**

Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization and therefore may not be subject to the NYSE Rule 472 and NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The legal entities employing the authors of this report are listed below:

Citigroup Global Markets Singapore PTE LIMITED	Paul R Chanin; Puneet Singh; Si An Tan; Anmol Sethy; Tushar Subhra Mandal
Citigroup Global Markets Japan Inc.	Nachiket R Garde, CFA; Masayoshi Yoshihara
Citicorp Pty Ltd	Nick Morton; Zee Yusuf
Citigroup Global Markets Ltd	Helen H Krause, CFA; Lingjuan Ma; David T Chew; Chris Montagu; Matthew J Burgess; Rahul Jalan
Citigroup Global Markets Inc	Richard W Schlatter; Dading Li; Aline Sun; Tiffany Zhou; Peter Lo; Hong Li; John G Rowe; Keith L Miller

---

#### **OTHER DISCLOSURES**

For securities recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in the issuers' financial instruments and may act as principal in connection with such transactions. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Investment Research & Analysis (CIRA) does not set a predetermined frequency for publication, if the Product is a fundamental research report, it is the intention of CIRA to provide research coverage of the/those issuer(s) mentioned therein, including in response to news affecting this issuer, subject to applicable quiet periods and capacity constraints. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

**Important Disclosures for Morgan Stanley Smith Barney LLC Customers:** Morgan Stanley & Co. LLC (Morgan Stanley) research reports may be available about the companies that are the subject of this Citi Investment Research & Analysis (CIRA) research report. Ask your Financial Advisor or use [smithbarney.com](http://smithbarney.com) to view any available Morgan Stanley research reports in addition to CIRA research reports.

Important disclosure regarding the relationship between the companies that are the subject of this CIRA research report and Morgan Stanley Smith Barney LLC and its affiliates are available at the Morgan Stanley Smith Barney disclosure website at [www.morganstanleysmithbarney.com/researchdisclosures](http://www.morganstanleysmithbarney.com/researchdisclosures). For Morgan Stanley and Citigroup Global Markets, Inc. specific disclosures, you may refer to [www.morganstanley.com/researchdisclosures](http://www.morganstanley.com/researchdisclosures) and [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures).

This CIRA research report has been reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval was conducted by the same person who reviewed this research report on behalf of CIRA. This could create a conflict of interest.

**The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by.** The Product is made available in **Australia** through Citigroup Global Markets Australia Pty Ltd. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in Australia to Private Banking wholesale clients through Citigroup Pty Limited (ABN 88 004 325 080 and AFSL 238098). Citigroup Pty Limited provides all financial product advice to Australian Private Banking wholesale clients through bankers and relationship managers. If there is any doubt about the suitability of investments held in Citigroup Private Bank accounts, investors should contact the Citigroup Private Bank in Australia. Citigroup

companies may compensate affiliates and their representatives for providing products and services to clients. The Product is made available in **Brazil** by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários, BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBID - Associação Nacional dos Bancos de Investimento. Av. Paulista, 1111 - 11º andar - CEP. 01311920 - São Paulo - SP. If the Product is being made available in certain provinces of **Canada** by Citigroup Global Markets (Canada) Inc. ("CGM Canada"), CGM Canada has approved the Product. Citigroup Place, 123 Front Street West, Suite 1100, Toronto, Ontario M5J 2M3. This product is available in **Chile** through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Superintendencia de Valores y Seguros. Agustinas 975, piso 2, Santiago, Chile. The Product is made available in **France** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 1-5 Rue Paul Cézanne, 8ème, Paris, France. The Product is distributed in **Germany** by Citigroup Global Markets Deutschland AG ("CGMD"), which is regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin). CGMD, Reuterweg 16, 60323 Frankfurt am Main. Research which relates to "securities" (as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong)) is issued in **Hong Kong** by, or on behalf of, Citigroup Global Markets Asia Limited which takes full responsibility for its content. Citigroup Global Markets Asia Ltd. is regulated by Hong Kong Securities and Futures Commission. If the Research is made available through Citibank, N.A., Hong Kong Branch, for its clients in Citi Private Bank, it is made available by Citibank N.A., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. Citibank N.A. is regulated by the Hong Kong Monetary Authority. Please contact your Private Banker in Citibank N.A., Hong Kong, Branch if you have any queries on or any matters arising from or in connection with this document. The Product is made available in **India** by Citigroup Global Markets India Private Limited, which is regulated by Securities and Exchange Board of India. Bakhtawar, Nariman Point, Mumbai 400-021. The Product is made available in **Indonesia** through PT Citigroup Securities Indonesia. 5/F, Citibank Tower, Bapindo Plaza, Jl. Jend. Sudirman Kav. 54-55, Jakarta 12190. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations. The Product is made available in **Israel** through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A. Platinum Building, 21 Ha'arba'ah St, Tel Aviv, Israel. The Product is made available in **Italy** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. Via dei Mercanti, 12, Milan, 20121, Italy. The Product is made available in **Japan** by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Shin-Marunouchi Building, 1-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-6520 Japan. If the Product was distributed by SMBC Nikko Securities Inc. it is being so distributed under license. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Citi Velocity website. If you have questions regarding Citi Velocity, please call (81 3) 6270-3019 for help. The Product is made available in **Korea** by Citigroup Global Markets Korea Securities Ltd., which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). Citibank Building, 39 Da-dong, Jung-gu, Seoul 110-180, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of Citigroup Global Markets Korea Securities Ltd. <http://dis.kofia.or.kr/fs/dis2/fundMgr/DISFundMgrAnalystPop.jsp?companyCd2=A03030&pageDiv=02>. The Product is made available in **Malaysia** by Citigroup Global Markets Malaysia Sdn Bhd (Company No. 460819-D) ("CGMM") to its clients and CGMM takes responsibility for its contents. CGMM is regulated by the Securities Commission of Malaysia. Please contact CGMM at Level 43 Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur, Malaysia in respect of any matters arising from, or in connection with, the Product. The Product is made available in **Mexico** by Acciones y Valores Banamex, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Banamex ("Accival") which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comision Nacional Bancaria y de Valores. Reforma 398, Col. Juarez, 06600 Mexico, D.F. In **New Zealand** the Product is made available to 'wholesale clients' only as defined by s5C(1) of the Financial Advisers Act 2008 ('FAA') through Citigroup Global Markets Australia Pty Ltd (ABN 64 003 114 832 and AFSL No. 240992), an overseas financial adviser as defined by the FAA, participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in **Pakistan** by Citibank N.A. Pakistan branch, which is regulated by the State Bank of Pakistan and Securities Exchange Commission, Pakistan. AWT Plaza, 1.1. Chundrigar Road, P.O. Box 4889, Karachi-74200. The Product is made available in the **Philippines** through Citicorp Financial Services and Insurance Brokerage Philippines, Inc., which is regulated by the Philippines Securities and Exchange Commission. 20th Floor Citibank Square Bldg. The Product is made available in the Philippines through Citibank NA Philippines branch, Citibank Tower, 8741 Paseo De Roxas, Makati City, Manila. Citibank NA Philippines NA is regulated by The Bangko Sentral ng Pilipinas. The Product is made available in **Poland** by Dom Maklerski Banku Handlowego SA an indirect subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Dom Maklerski Banku Handlowego S.A. ul.Senatorska 16, 00-923 Warszawa. The Product is made available in the **Russian Federation** through ZAO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license issued by the Central Bank of the Russian Federation and brokerage activities in accordance with the license issued by the Federal Service for Financial Markets. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore Branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this report. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. This report is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289). Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty)

Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in **Spain** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 29 Jose Ortega Y Gasset, 4th Floor, Madrid, 28006, Spain. The Product is made available in the **Republic of China** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan and/or through Citibank Securities (Taiwan) Company Limited ("CSTL"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the respective license scope of each entity and the applicable laws and regulations in the Republic of China. CGMTS and CSTL are both regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China. No portion of the Product may be reproduced or quoted in the Republic of China by the press or any third parties [without the written authorization of CGMTS and CSTL]. If the Product covers securities which are not allowed to be offered or traded in the Republic of China, neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus. The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 18/F, 22/F and 29/F, 82 North Sathorn Road, Silom, Bangkok 10500, Thailand. The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the **U.A.E**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different CIRA ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. This material may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in **United States** by Citigroup Global Markets Inc, which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is regulated by Financial Services Authority. Pursuant to Comissão de Valores Mobiliários Rule 483, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

Many European regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of investment research. The policy applicable to CIRA's Products can be found at [https://www.citivelocity.com/cvr/eppublic/citi\\_research\\_disclosures](https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures).

Compensation of equity research analysts is determined by equity research management and Citigroup's senior management and is not linked to specific transactions or recommendations.

The Product may have been distributed simultaneously, in multiple formats, to the Firm's worldwide institutional and retail customers. The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product. With the exception of our product that is made available only to Qualified Institutional Buyers (QIBs), CIRA concurrently disseminates its research via proprietary and non-proprietary electronic distribution platforms. Periodically, individual CIRA analysts may also opt to circulate research posted on such platforms to one or more clients by email. Such email distribution is discretionary and is done only after the research has been disseminated via the aforementioned distribution channels. CIRA simultaneously distributes product that is limited to QIBs only through email distribution.

The level and types of services provided by CIRA analysts to clients may vary depending on various factors such as the client's individual preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with Citi and legal and regulatory constraints.

CIRA product may source data from dataCentral. dataCentral is a CIRA proprietary database, which includes Citi estimates, data from company reports and feeds from Reuters and Datastream.

© 2012 Citigroup Global Markets Inc. Citi Investment Research & Analysis is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party. Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. The Firm accepts no liability whatsoever for the actions of

third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in anyway form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

---

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST

---