

# FIRST GLOBAL

[www.firstglobal.in](http://www.firstglobal.in)

## India Research



**Sector: Wireless Telecom Services**

**Food for Thought**

***How we are drawing water from a well***

*Or*

***How America Movil, Vimpelcom, Mobile Teleystems, Vodafone are getting beaten hands down in the valuation sweepstakes by the Indian wireless plays***

+

***Inside...***

***FG Penetration - Per capita Income (FG PPCI) Index***

***May 8, 2007***

***Research Contact: Associate Director, Research: Hitesh Kuvelkar      Mob. +91 9833 732633***

***Email: hiteshk@fglobal.com***

***Sales Offices: India Sales: Tel. No: +91-22-400 12 440***

***Email: indiasales@fglobal.com***

***fgindiasales@bloomberg.net***

***US Sales:                      Tel. No: +1-212-2276611***

***Email: us@fglobal.com***

***Asia & Europe Sales:      Tel.: +44-207-959 5300***

***Email: uk@fglobal.com***

Research Note issued by First Global Securities Ltd., India  
FG Markets, Inc. is a member of NASD/SIPC and is regulated by the  
Securities & Exchange Commission (SEC), US  
First Global (UK) Ltd. is a member of London Stock Exchange and is regulated by  
Financial Services Authority (FSA), UK

First Global Stockbroking is a member of Bombay Stock Exchange & National Stock Exchange, India

**IMPORTANT DISCLOSURES CAN BE FOUND AT THE END OF THIS REPORT.**



## *The Short Story*

We have to view the Indian wireless space (in fact, any wireless space) as a classical drawing-water-from-a-well business.

Simply put, it is like this: every market has a finite number of wireless subscribers. In India, let's say, it is 400-500 mn subs, in the next 10 years or so. Hence, to win a subscriber today, is akin to drawing a bucket of water from a well...there is a finite, limited, model-able amount of water in a well (sure, there is replenishment, but not like in a river), so a bucket drawn, reduces the amount of water available in the well.

India's wireless carriers have been adding subs in a frenzy. And this situation will continue for the next 2-3 years, till the 400-500 mn number is reached.

Well, it depends on how you want to look at it: the optimistic view is that there are still three years of great growth left. The not-so-optimistic view is that now there is clarity on when growth tapers off, and hence, it's time to start paying lower multiples for the stock.

Which way should this be viewed?

Our take is: the not-so-optimistic view is the more prudent view to take.

There is plenty of evidence across the world that mobile valuations do begin contracting a while ahead to final growth tapering off.

In this piece, we take a look at how other hot wireless plays across the world, in emerging economies have done, how they are valued, and what that might hold for the Indian wireless plays.

We had downgraded the Indian Wireless Sector in February due to its unrealistically high valuations (please refer to First Global's, "*Bharti Airtel Ltd. (BHARTI.IN/BRTI.BO) & Reliance Communications (RCOM.IN/RLCM.BO): Downgrading on FY10/FY15 Reality Check*", dated February 23, 2007).

In this piece, we have increased the scope of the Reality Check by looking at selected wireless companies across the world that could offer valuable insights in terms of valuations, particularly in the Indian context. While we have focused mainly on BHARTIARTL, as we believe it to be a good proxy for the Indian wireless sector, our conclusions apply to other listed companies, namely RCOM and Idea Cellular as well.



**India Wireless Sector Snapshot**

India's wireless subscriber base (mn)			166
Penetration			15%
	<b>BHARTIARTL</b>	<b>RCOM</b>	<b>IDEA</b>
Market Cap (\$ bn)	38	23	7
EV (\$ bn)	39	24	8
Subscriber base (mn)	37.1	28.0	14.2
Market Share	22.4%	16.9%	8.6%
ARPU per month (Latest Quarter) (\$)	10.0	9.3	8.2
EBITDA Margins (Latest Quarter)	42%	42%	35%
FY08 EV/EBITDA	14.0	12.5	14.5
FY08 P/E	24.0	22.5	34.7

**Comparative Valuation**

		P/E		P/S		P/BV		EV/EBITDA		EV/Sales		EBITDA Margin %	ROE %	EPS Growth %	Sales Growth %	EV/Sub (\$)	Market Cap/Sub (\$)	ARPU (\$)
	YE		FY		FY		FY		FY		FY	FY	FY					
Company		08E	09E	08E	09E	08E	09E	08E	09E	08E	09E	08E	08E	09/08	09/08			
<b>Bharti Airtel</b>	Mar	24.0	18.4	5.7	4.3	7.8	5.6	14.0	10.6	5.9	4.4	42%	39%	31%	33%	1,011	984	10.0
<b>Reliance Comm<sup>^</sup></b>	Mar	22.5	19.0	5.1	4.0	4.9	4.0	12.5	9.8	5.2	4.0	42%	27%	18%	29%	833	817	9.3
<b>Idea Cellular</b>	Mar	34.7	23.5	4.2	3.0	6.6	5.1	14.5	9.7	4.8	3.4	33%	21%	48%	42%	578	504	8.2
<b>Vodafone</b>	Mar	13.2	12.5	2.6	2.5	1.0	1.0	8.4	8.1	3.1	3.0	38%	8%	6%	4%	1,028	819	39.3
<b>America Movil</b>	Dec	18.7	14.5	3.3	2.9	7.7	7.3	11.2	8.4	4.0	3.5	35%	46%	23%	14%	827	778	13.5
<b>Mobile TeleSystem</b>	Dec	12.8	11.9	3.0	2.8	4.4	3.7	7.0	6.2	3.4	3.1	48%	34%	7%	8%	339	301	8.1
<b>VimpelCom</b>	Dec	19.5	16.4	3.7	3.3	2.5	2.1	7.4	6.6	3.7	3.3	50%	27%	19%	13%	391	392	8.1
<b>China Mobile</b>	Dec	18.2	14.8	4.1	3.7	4.1	3.5	7.0	6.4	3.8	3.4	54%	23%	23%	12%	538	586	10.8

Source: FG estimates for Bharti Airtel, Reliance Communications and Idea Cellular and Bloomberg estimates for the rest

<sup>^</sup> Return ratios and Book Value per share (used in the calculation of P/BV) is adjusted for revaluation of assets based on our estimates.

Note: FY08 implies YE Mar 08 for Bharti Airtel, Reliance Communication, Idea Cellular and Vodafone and YE December 07 for the rest and so on.

**What should the market cap of BHARTIARTL & RCOM be, upon reaching the 200 mn subscriber mark?**

Let us begin with Vodafone, which presently has a subscriber base of around 200 mn. The stock trades at a market cap of \$163 bn and an EV of \$204 bn. The ARPU stands at \$38, which is 4 times that of BHARTIARTL's current ARPU of \$10, and could well be 5 times when BHARTIARTL



reaches the 200 mn subscriber mark. On assuming BHARTIARTL's EV to be 1/5 that of Vodafone, the EV comes in at \$41 bn and assuming current debt levels, the market cap comes in at \$40 bn.

Assuming India's total population reaches 1.3 bn by 2020 and a penetration level of 80% (a very aggressive assumption!), the wireless subscriber base

*We believe that a subscriber base of 200 mn is around the theoretical maximum that BHARTIARTL can achieve. Thus, our estimated market cap of \$40 bn for BHARTIARTL is pretty much the ceiling. Further, the milestone is at least 10 years away from now. The company's market cap is \$38 bn today. The math is quite clear...*

will reach 1000 mn by then. Therefore, we believe that a subscriber base of 200 mn is around the theoretical maximum that BHARTIARTL can achieve. Thus, our estimated market cap of \$40 bn for BHARTIARTL is pretty much the ceiling. Further, the milestone is at least 10 years away from now. Bharti's market cap is \$38 bn today. The math is quite clear...

We don't believe the difference in return ratios entirely explains disconnect in the valuations.

**Vodafone – Snapshot**

Subscriber base (Dec 31, 2006) (mn)	199		
Market Cap (\$ bn)	163		
Enterprise Value (EV) (\$ bn)	204		
ARPU per month (\$)	39.1		
	<b>FY07E</b>	<b>FY08E</b>	<b>FY09E</b>
Revenues (\$ mn)	62,196	65,942	68,753
Revenue Growth		6%	4%
EBITDA Margin	39%	38%	38%
PAT Margin	19%	18%	18%
ROE	7.9%	8.2%	8.4%

Source: Company reports, Bloomberg

*We believe our assumptions are quite aggressive, as n times the differential in the ARPU means over n times the differential in the profit, given the high operating leverage nature of the telecom business, and thereby, over n times the differential in valuations.* But let us give due credit to the fact that BHARTIARTL is comparatively more profitable and could be more profitable even when the company reaches the 200 mn subscriber mark by leveraging upon the learning curve of the global telecom majors. Nevertheless, the intensifying competition could wipe out some of BHARTIARTL's future profitability. Vodafone will be under pressure to achieve rapid growth in India, thanks to the hefty acquisition price that it has paid for Hutchison Essar. And BSNL's 45-mn subscriber line tender too is free from legal wrangles. RCOM's GSM expansion and significant expansions by small operators could further spoil the party that BHARTIARTL and the wireless market have been enjoying over the last one-year or so.

*The intensifying competition could wipe out some of BHARTIARTL's future profitability. Vodafone will be under pressure to achieve rapid growth in India, thanks to the hefty acquisition price that it has paid for Hutchison Essar. And BSNL's 45-mn subscriber line tender too is free from legal wrangles. RCOM's GSM expansion and significant expansions by small operators could further spoil the party that BHARTIARTL and the wireless market have been enjoying over the last one-year or so*



A similar analysis of RCOM vis-à-vis Vodafone – i.e. a 1/6<sup>th</sup> differential in the ARPU and valuations when the former reaches the 200 mn subscriber mark – gives us a theoretical maximum market cap of \$32 bn for RCOM. The company’s current market cap is \$23. Again, this points to very capped upsides.

*A similar analysis of RCOM vis-à-vis Vodafone – i.e. a 1/6<sup>th</sup> differential in the ARPU and valuations when the former reaches the 200 mn subscriber mark – gives us a theoretical maximum market cap of \$32 bn for RCOM. The company’s current market cap is \$23. Again, this points to very capped upsides.*

*Also, there are some serious issues over RCOM’s pan India GSM rollout, which depends upon the timely and adequate availability of the requisite spectrum. The greater the delay in spectrum allotment, the greater the ground that RCOM could lose to its competitors, as the company appears to have gone slow on its CDMA expansion. Further, one cannot rule out the company’s GSM based services cannibalizing on its own CDMA business.*

***Does India’s lower penetration justify massive disconnect in valuations vis-à-vis China?***

Let us now look at China Mobile, which had 316 mn subscribers, as on December 31, 2006. The company’s ARPU at \$10 is comparable to that of BHARTIARTL. It has an EV and market cap of \$170 bn and \$185 bn. BHARTIARTL’S EV is about 1/4th that of China Mobile, although the former is just little over 1/10th the size (in terms of subscribers) of the latter. Is this massive disconnect in valuations justified simply because India is behind China in terms of penetration?

While comparing penetration levels, and thereby the potential for further growth, across the countries, one must also consider the differences in per capita income (*See FG PPCI Index on Page 8*). For instance, China’s per capita income is much lower than that of the developed countries with a penetration level in excess of 80%, which explains why Chinese wireless companies could grow at a rate of 12-18% despite wireless penetration in the country standing at merely 37%. India’s per capita income based on purchasing power parity is half that of China and a much earlier slowdown is on the cards for India.

*China’s per capita income is much lower than that of the developed countries with a penetration level in excess of 80%, which explains why Chinese wireless companies could grow at a rate of 12-18% despite wireless penetration in the country standing at merely 35%. India’s per capita income based on purchasing power parity is half that of China and a much earlier slow down is on the cards for India.*

***China Mobile - Snapshot***

Wireless Penetration in the country	37%		
Company's Market Share	65%		
Subscriber base (Mar 31, 2006) (mn)	316		
Market Cap (\$ bn)	185		
Enterprise Value (EV) (\$ bn)	170		
ARPU per month (\$)	10.8		
	<b>CY06</b>	<b>CY07E</b>	<b>CY08E</b>
Revenues (\$ mn)	38,264	45,115	50,596
Revenue Growth		18%	12%
EBITDA Margin	54%	54%	53%
PAT Margin	22%	22%	25%
ROE	22%	23%	24%

Source: Company reports, Bloomberg



**Comparison with America Movil implies CAGR in EV of slightly over 8% for BHARTIARTL**

In the case of America Movil (NYSE: AMX), the telecom giant of Latin America, with a subscriber base of 125 mn, as on December 31, 2006, the EV and market cap stands at \$99 bn and \$106 bn. We believe that when BHARTIARTL achieves a similar subscriber base as America Movil, its ARPU is likely to be in the range of \$8-8.25, which is slightly over 60% of America Movil's current ARPU of \$13. This suggests that BHARTIARTL's EV should then be around 60% of that of America Movil, around \$60 bn, which implies an upside of 50% from the current valuations. One has to take a call on when BHARTIARTL will achieve a subscriber base of 125 mn. We do not see that happening before FY12, or 5 years from now, which implies a CAGR in the EV of slightly over 8% for BHARTIARTL.

*We believe that when BHARTIARTL achieves a similar subscriber base as America Movil, its ARPU is likely to be in the range of \$ 8-8.25, which is slightly over 60% of America Movil's current ARPU of \$13. This suggests that BHARTIARTL's EV should then be around 60% of that of America Movil, around \$60 bn, which implies an upside of 50% from the current valuations. One has to take a call on when BHARTIARTL will achieve a subscriber base of 125 mn. We do not see that happening before FY12, or 5 years from now, which implies a CAGR in the EV of slightly over 9% for BHARTIARTL.*

**America Movil – Snapshot**

Wireless Penetration in the country	58%		
Company's Market Share	45%		
Subscriber base (Dec 31, 2006) (mn)	128		
Market Cap (\$ bn)	99		
Enterprise Value (EV) (\$ bn)	106		
ARPU per month (\$)	13.5		
	<b>CY06</b>	<b>CY07E</b>	<b>CY08E</b>
Revenues (\$ mn)	21,101	26,652	30,494
Revenue Growth		26%	14%
EBITDA Margin	37%	35%	41%
PAT Margin	19%	21%	22%
ROE	39%	46%	53%

Source: Company reports, Bloomberg

Note: Penetration and market shares based on population, penetration and the company's market share in top 5 countries that contribute 80% of the company's subscriber base



***India may never achieve Russia's penetration level, at least in the foreseeable future***

Let us now turn to Russia. Russian wireless companies, Mobile Telesystem and Vimplecom (both have been covered by First Global), have a subscriber base of 74 mn and 55 mn and an EV of \$25 bn and \$ 22 bn respectively. BHARTIARTL has a lower subscriber base in comparison to both these companies, although its EV is higher by 56% and 86% respectively. Let's not get too carried away by Russia's high penetration of 100%, as compared to 15% in India. Thanks to wide differences in the per capita income of the two countries, India may never achieve Russia's penetration level, at least in the foreseeable future.

*Let's not get too carried away by Russia's high penetration of 100%, as compared to 15% in India. Thanks to wide differences in the per capita income of the two countries, India may never achieve Russia's penetration level, at least in the foreseeable future*

***Mobile Telesystem – Snapshot***

Wireless Penetration in the country	89%		
Company's Market Share	36%		
Proportionate Subscriber base (Dec 31, 2006) (mn)	74		
Market Cap (\$ bn)	22		
Enterprise Value (EV) (\$ bn)	25		
ARPU per month (\$)	8.1		
	<b>CY06</b>	<b>CY07E</b>	<b>CY08E</b>
Revenues (\$ mn)	6,384	7,415	8,044
Revenue Growth		16%	8%
EBITDA Margin	51%	48%	50%
PAT Margin	20%	24%	24%
ROE	35%	34%	39%

*Source: Company reports, FG estimates, Bloomberg*

*Note: Penetration and market shares based on population, penetration and the company's market share in Russia, Ukraine, Uzbekistan, Turkmenistan and Belarus where the company operates.*



***Vimpelcom – Snapshot***

Wireless Penetration in the country		88%	
Company's Market Share		26%	
Subscriber base (Dec 31, 2006) (mn)		55	
Market Cap (\$ bn)		21	
Enterprise Value (EV) (\$ bn)		21	
ARPU per month (\$)		8.1	
	<b>CY06</b>	<b>CY07E</b>	<b>CY08E</b>
Revenues (\$ mn)	4,868	5,749	6,508
Revenue Growth		18%	13%
EBITDA Margin	50%	50%	50%
PAT Margin	17%	20%	21%
ROE	27%	27%	30%

*Source: Company reports, FG estimates, Bloomberg*

*Note: Penetration and market shares based on population, penetration and the company's market share in in Russia, Kazakhstan, Ukraine, Uzbekistan and Tajikistan where the company operates.*

***In a nutshell...***

***There is almost no way one can justify Indian wireless valuations, if one looks around. Of course, the stocks can still keep flying off the charts, but it is instructive to see the way the rest of the wireless world is trading.***





## **FG Penetration - Per capita Income (FG PPCI) Index**

Per capita income one of the very important factors that explain differences in penetration levels in any country. We have found a good 78% correlation between per capita income and wireless penetration in a country. So to give one an idea of how countries stack together on wireless penetration levels in light of wide differences in per capita income, we have devised FG PPCI index (FG Penetration-Per capita income), which is nothing but ratio of Wireless penetration index to Per capita income index. Penetration index is a ratio of wireless penetration in a country to the world average, while Per capita Income (PCI) index is ratio of PCI based on Purchasing Power Parity (PPP) in a country to the world average. Lower the index greater the room for expansion in wireless penetration. India has climbed up significantly on the list over last 2 years.

Country	Wireless Penetration	Penetration Index*	PCI \$ (PPP)	PCI Index#	Penetration/PCI Index
Pakistan	34%	0.80	2,722	0.25	<b>3.14</b>
Russia	104%	2.44	12,096	1.13	<b>2.16</b>
Philippines	38%	0.90	5,314	0.50	<b>1.81</b>
Poland	99%	2.32	14,880	1.39	<b>1.67</b>
Chile	82%	1.92	12,983	1.21	<b>1.59</b>
Brazil	54%	1.26	9,108	0.85	<b>1.48</b>
Argentina	85%	1.99	15,937	1.49	<b>1.34</b>
Portugal	115%	2.70	22,677	2.12	<b>1.28</b>
Greece	127%	2.98	25,975	2.42	<b>1.23</b>
Mexico	54%	1.28	11,249	1.05	<b>1.22</b>
Indonesia	20%	0.47	4,323	0.40	<b>1.16</b>
China	34%	0.79	7,598	0.71	<b>1.11</b>
Italy	134%	3.14	30,732	2.87	<b>1.09</b>
Thailand	36%	0.85	9,084	0.85	<b>1.01</b>
<b>India</b>	<b>15%</b>	<b>0.34</b>	<b>3,737</b>	<b>0.35</b>	<b>0.99</b>
Spain	102%	2.40	27,522	2.57	<b>0.93</b>
United Kingdom	120%	2.82	35,051	3.27	<b>0.86</b>
South Korea	82%	1.92	23,926	2.23	<b>0.86</b>
Taiwan	100%	2.34	30,084	2.81	<b>0.83</b>
Germany	102%	2.39	31,095	2.90	<b>0.82</b>
Hong Kong	120%	2.81	38,127	3.56	<b>0.79</b>
Netherlands	102%	2.38	35,078	3.27	<b>0.73</b>
Austria	104%	2.45	36,031	3.36	<b>0.73</b>
Australia	95%	2.23	32,938	3.07	<b>0.73</b>
Singapore	93%	2.17	32,867	3.07	<b>0.71</b>
Belgium	95%	2.22	34,478	3.22	<b>0.69</b>
France	77%	1.81	30,693	2.86	<b>0.63</b>
Japan	77%	1.81	32,647	3.05	<b>0.60</b>
Norway	101%	2.36	43,574	4.07	<b>0.58</b>
Luxembourg	161%	3.77	80,471	7.51	<b>0.50</b>
United States	79%	1.85	43,444	4.05	<b>0.46</b>
Canada	55%	1.30	35,494	3.31	<b>0.39</b>
<b>World Average@</b>	<b>43%</b>	<b>1.00</b>	<b>10,719</b>	<b>1.00</b>	<b>1.00</b>

Source: International Monetary Fund, Company Reports, FG Estimates, etc.

\* Penetration Index=Country penetration /Average world penetration (Penetration as on Dec 2006/March 2007)

# Per Capita Income Index=Country per capita income /Average world per capita income (PCI estimates for 2005/2006)

~ FG PPCI Index = Penetration Index/PCI Index

@ Based on data on 118 countries



## **IMPORTANT DISCLOSURES**

### ***Price Target***

Price targets (if any) are derived from a subjective and/or quantitative analysis of financial and non financial data of the concerned company using a combination of P/E, P/Sales, earnings growth, discounted cash flow (DCF) and its stock price history.



## ***First Global's Rating System***

Our rating system consists of three categories of ratings: Positive, Neutral and Negative. Within each of these categories, the rating may be absolute or relative. When assigning an absolute rating, the price target, if any, and the time period for the achievement of this price target, are given in the report. Similarly when assigning a relative rating, it will be with respect to certain market/sector index and for a certain period of time, both of which are specified in the report.

### **Rating in this report is relative to: S&P CNX Nifty Index**

#### ***Positive Ratings***

*(i) Buy (B) – This rating means that we expect the stock price to move up and achieve our specified price target, if any, over the specified time period.*

*(ii) Buy at Declines (BD) – This rating means that we expect the stock to provide a better (lower) entry price and then move up and achieve our specified price target, if any, over the specified time period.*

*(iii) Outperform (OP) – This is a relative rating, which means that we expect the stock price to outperform the specified market/sector index over the specified time period.*

#### ***Neutral Ratings***

*(i) Hold (H) – This rating means that we expect no substantial move in the stock price over the specified time period.*

*(ii) Marketperform (MP) – This is a relative rating, which means that we expect the stock price to perform in line with the performance of the specified market/sector index over the specified time period.*

#### ***Negative Ratings***

*(i) Sell (S) – This rating means that we expect the stock price to go down and achieve our specified price target, if any, over the specified time period.*

*(ii) Sell into Strength (SS) – This rating means that we expect the stock to provide a better (higher) exit price in the short term, by going up. Thereafter, we expect it to move down and achieve our specified price target, if any, over the specified time period.*

*(iii) Underperform (UP) – This is a relative rating, which means that we expect the stock price to underperform the specified market/sector index over the specified time period.*

*(iv) Avoid (A) – This rating means that the valuation concerns and/or the risks and uncertainties related to the stock are such that we do not recommend considering the stock for investment purposes.*



**FIRST GLOBAL**

Nirmal, 6th Floor, Backbay Reclamation,  
Nariman Point, Mumbai - 400 021, India.

**Dealing Desk (India):**

Tel.: +91-22-400 12 400

email: fgindiasales@bloomberg.net

**FG Markets, Inc.**

90 John Street, Suite 703,  
New York, NY 10038

**Dealing Desk (US):**

Tel. No: +1-212-227 6611

email: us@fglobal.com

**FIRST GLOBAL (UK) Ltd.**

The Cobalt Building, 19-20, Noel Street,  
London W1F 8GW, United Kingdom

**Dealing Desk (UK & Europe):**

Tel. No: +44-207-959 5300

email: uk@fglobal.com

The information and opinions in this report were prepared by First Global Securities Ltd. Information contained herein is based on data obtained from recognized statistical services, issuer reports or communications, or other sources, believed to be reliable. However, such information has not been verified by us, and we do not make any representations as to its accuracy or completeness. Any statements nonfactual in nature constitute only current opinions, which are subject to change. First Global does not undertake to advise you of changes in its opinion or information. First Global and others associated with it may make markets or specialize in, have positions in and effect transactions in securities of companies mentioned and may also perform or seek to perform investment banking services for those companies.

Whilst all reasonable care has been taken to ensure the facts stated and the opinions given are fair, neither First Global (UK) Limited nor FG Markets, Inc. nor any of their affiliates shall be in any way responsible for its contents, nor do they accept any liability for any loss or damage (including without limitation loss of profit) which may arise directly or indirectly from use of or reliance on such information.

First Global (or one of its affiliates or subsidiaries) or their officers, directors, analysts, employees, agents, independent contractors, or consultants may have positions in securities or commodities referred to herein and may, as principal or agent, buy and sell such securities or commodities. An employee, analyst, officer, agent, independent contractor, a director, or a consultant of First Global, its affiliates, or its subsidiaries may serve as a director for companies mentioned in this report.

First Global and its affiliates may, to the extent permitted under applicable law, have acted upon or used the information prior to or immediately following its publication, provided that we could not reasonably expect any such action to have a material effect on the price. This memorandum is based on information available to the public. No representation is made that it is accurate or complete. This memorandum is not an offer to buy or sell or a solicitation of an offer to buy or sell the securities mentioned.

The investments discussed or recommended in this report may not be suitable for all investors. Investors must make their own investment decisions based on their specific investment objectives and financial position and using such independent advisors as they believe necessary. Where an investment is denominated in a currency other than the investor's currency, changes in rates of exchange may have an adverse effect on the value, price of, or income derived from the investment. There may be instances when fundamental, technical, and quantitative opinions may not be in concert.

Past performance is not necessarily a guide to future performance. Income from investments may fluctuate. The price or value of the investments to which this report relates, either directly or indirectly, may fall or rise against the interest of investors. There are risks inherent in international investments, which may make such investments unsuitable for certain clients. These include, for example, economic, political, currency exchange rate fluctuations, and limited availability of information on international securities.

The value of investments and the income from them may vary and you may realize less than the sum invested. Part of the capital invested may be used to pay that income. In the case of higher volatility investments, these may be subject to sudden and large falls in value and you may realize a large loss equal to the amount invested. Some investments are not readily realizable and investors may have difficulty in selling or realizing the investment or obtaining reliable information on the value or risks associated with the investment. Where a security is denominated in a currency other than sterling (for UK investors) or dollar (for US investors), changes in exchange rates may have an adverse effect on the value of the security and the income thereon. The tax treatment of some of the investments mentioned above may change with future legislation. The investment or investment service may not be suitable for all recipients of this publication and any doubts regarding this should be addressed to your broker.

While First Global has prepared this report, First Global (UK) Ltd. and FG Markets, Inc. is distributing the report in the UK & US and accept responsibility for its contents. Any person receiving this report and wishing to effect transactions in any security discussed herein should do so only with a representative of First Global (UK) Ltd. or FG Markets, Inc.

First Global (UK) Limited is regulated by FSA and is a Member firm of the London Stock Exchange.

FG Markets, Inc. is regulated by SEC and is a member of National Association of Security Dealers (NASD) and Securities Investor Protection Corporation (SIPC). FG Markets, Inc., its affiliates, and its subsidiaries make no representation that the companies which issue securities which are the subject of their research reports are in compliance with certain informational reporting requirements imposed by the Securities Exchange Act of 1934. Sales of securities covered by this report may be made only in those jurisdictions where the security is qualified for sale. Additional information on recommended securities is available on request.

This report may not be resold or redistributed without the prior written consent of First Global.