# India: Telecom Services



# GSM net adds >10 mn in Jan-09? RCOM's net adds keenly awaited

### Ex-RCOM reported GSM net adds at record high 9.3 mn in Jan-09

Assuming 386k net adds for RCOM in its existing 8 service areas (i.e. excluding net adds in its newly launched areas), India added at least 9.7 mn GSM net adds in Jan-09; overall GSM subs as of Jan-09 subs stood at 268 mn (up 3.8% sequentially). Growth in net adds was significantly high for BSNL/IDEA (50%/32% sequential rise in net adds). In our view, drop in upfront payment for lifetime talk plans is likely to have aided higher subs addition. With RCOM yet to report Jan-09 net adds, our Mar-09 GSM subs forecast (282.6 mn) for the country appears easily achievable.

## BRTI's net adds flat at 2.7 mn, share of net adds slips below 30%

Half of BRTI's Jan-09 net adds came from category B&C service areas (down from 55% in Dec-08); share of net adds in Category C areas, dipped from 21% in Dec-08 to 16% in Jan-09. At 93.8 mn, our Mar-09 wireless subs forecast for BRTI implies about 5.4 mn net adds in Feb/Mar-09.

### IDEA-Spice captured about 20% of GSM net adds in Jan-09

Trebling of net adds in Mumbai (IDEA captured about 60% of ex-RCOM net adds), and a 100%-plus rise in net adds in Madhya Pradesh & Bihar saw IDEA-Spice adding 2 mn net adds in Jan-09. At 38.1 mn, our Mar-09 wireless subs forecast for IDEA (ex-Spice) implies about 2.1 mn net adds in Feb/Mar-09, which appears easily achievable.

## VOD-Essar posts record high net adds; strong showing by MTNL

VOD-Essar added 2.4 mn subs, but its share of net adds slipped below the 25% mark. MTNL added 104k subs in Jan-09, highest since Mar-08.

## Maintain BRTI on C. Buy list; RCOM/IDEA/MTNL rated Neutral

Key risks: BRTI – (1) Intensifying competition leads to sub-par KPIs, (2) Adverse regulatory developments. IDEA – (1) Margins are subdued for a long period on the back of new rollouts, (2) Non-compelling valuation multiples. RCOM – (1) sub-par wireless KPIs, (2) poor external tenancy on towerco. MTNL – (1) Potential 'cash burn', loss at EBITDA level.

Note: RCOM's GSM subs data typically lags the COAl data release by 7-10 days. For a more representative picture of GSM net adds during the month, our analysis includes RCOM's estimated Dec-08 GSM net adds at 386k (its previous two months' average net adds in 8 existing circles i.e. excluding 14 newly launched operations). Jan-09 data released by COAl pegs all-India

GSM subs at 267.5 mn implying 9.3 mn net adds during the month.

Anirudh Gangahar +91(22)6616-9040 | anirudh.gangahar@gs.com Goldman Sachs India SPL Rishi Jhunjhunwala

+91(80)6637-8667 | rishi.jhunjhunwala@gs.com Goldman Sachs India SPL

The Goldman Sachs Group, Inc. 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. For Reg AC certification, see the end of the text. Other important disclosures follow the Reg AC certification, or go to www.gs.com/research/hedge.html. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

#### WIRELESS TELCOS - VALUATION SNAPSHOT

Company	BRTI	RCOM	IDEA	MTNL
Ticker	BRTI.BO F	RLCM.BO	IDEA.BO	MTNL.BO
Rating	Buy*	Neutral	Neutral	Neutral
Current Price (Rs)	662.8	171.7	45.1	70.6
12-mth Target Price (Rs)	800.0	170.0	51.0	75.0
Upside/Downside	20.7%	-1.0%	13.1%	6.2%
FY10E				
Revenue Growth	19.7%	20.4%	31.3%	-0.7%
EBITDA Growth	15.0%	18.1%	28.4%	-3.7%
EBITDA Margin	39.8%	38.0%	26.9%	8.5%
Earnings Growth	10.0%	-34.7%	10.5%	5.0%
EPS (Rs) (Basic)	49.48	17.23	2.98	3.45
P/E	13.4	10.0	15.2	20.5
EV/EBITDA	7.6	6.3	7.5	NM

\* Denotes stock is on our Conviction list.

NOTE: Our 12-mth target prices are based on DCF valuation; closing prices as of 10-Feb-09. Source: Datastream, Goldman Sachs Research estimates. Key risks: BRTI – (1) Intensifying competition leads to subpar KPIs, (2) Adverse regulatory developments. IDEA – (1) Margins are subdued for a long period on the back of new rollouts, (2) Non-compelling valuation multiples. RCOM – (1) sub-par wireless KPIs, (2) poor external tenancy on towerco. MTNL – (1) Potential 'cash burn', loss at EBITDA level.

In '000s	Subscr	ibers	Net Adds	Implied RR*		
	Jan-09	FY09E	Jan-09	FY09E		
BRTI	88,383	93,752	2,732	2,685		
IDEA	36,064	38,120	1,853	1,028		
RCOM	10,739	12,159	386	710		
VOD-Essar	63,340	67,232	2,407	1,946		
BSNL	42,673	42,794	1,312	60		
MTNL	4,004	4,097	104	46		
Others	22,721	24,458	895	854		
Total GSM	267,924	282,612	9,689	7,344		

\*Implied monthly net adds to reach our FY09E subs target. Source: COAI, TRAI, Goldman Sachs Research estimates

#### RELATED RESEARCH

#### January 29, 2009

India Telecom Services – GSM 3G/WiMAX – Big outlay, uncertain returns; BRTI best positioned

Exhibit 1: Reported GSM net adds (excl. RCOM) at a record high 9.3 mn in Jan-09; GSM subs base at 267.5 mn subs
Category B&C service areas accounted for ~57% of Jan-09 GSM net adds

(Subs in '000)	BRTI \	VOD-Essar	BSNL	IDEA	Aircel	RCOM	Spice	MTNL	BPL	Total	Penetration
GSM Subs - Jan 09	88,383	63,340	42,673	36,064	16,761	10,739	3,952	4,004	2,007	267,924	(%
GSM Market share (%)	33.0%	23.6%	15.9%	13.5%	6.3%	4.0%	1.5%	1.5%	0.7%	100%	23.2%
Metro	11,825	12,271	2,250	2,911	2,830	654	-	4,004	2,007	38,752	58.8%
Chennai	2,088	1,508	1,014		2,385	-				6,996	93.3%
Delhi	4,573	3,920		2,307		-		1,868		12,669	59.4%
Kolkata	2,401	2,609	1,236		445	654				7,345	43.1%
Mumbai	2,762	4,234		604		-		2,135	2,007	11,742	58.5%
Circle A	33,466	23,811	13,353	15,543	7,445	-	1,573	-	-	95,191	27.4%
Andhra Pradesh	8,593	3,666	2,873	4,802		-				19,934	24.4%
Gujarat	3,931	7,603	2,375	3,701		-				17,611	30.6%
Karnataka	9,601	3,482	2,089			-	1,573			16,745	28.9%
Maharashtra	5,545	4,226	3,332	7,040		-				20,143	22.2%
Famil Nadu	5,796	4,834	2,684		7,445	-				20,758	34.7%
Circle B	28,878	26,515	20,560	16,950	1,046	3,561	2,379	-	-	99,890	19.5%
Haryana	1,238	2,082	1,408	1,485		-				6,212	27.8%
Kerala	2,114	2,901	2,383	4,079		-				11,477	34.1%
Madhya Pradesh	4,331	175	2,356	4,630		2,372				13,864	15.1%
Punjab	3,714	2,081	2,584			-	2,379			10,758	38.2%
Rajasthan	6,410	4,739	2,702	1,201		-				15,052	23.0%
Uttar Pradesh (East)	5,552	6,091	5,212	1,804		-				18,659	14.2%
Jttar Pradesh (West)	2,198	4,091	2,244	3,752		-				12,286	18.3%
West Bengal and A&N Isl.	3,321	4,354	1,671		1,046	1,189				11,582	16.0%
Circle C	14,214	743	6,509	660	5,440	6,524	-	-	-	34,091	14.9%
Assam	1,353	91	803		1,597	1,398				5,242	17.8%
Bihar	6,852	328	2,340	530	1,306	2,718				14,074	11.1%
Himachal Pradesh	938	17	693	131	123	689				2,590	38.7%
North East	843	73	589		937	466			-	2,907	21.0%
Orissa	2,711	233	1,252		809	1,253				6,259	15.6%
J&K	1,518		833		668	-				3,019	25.7%

Source: COAI, TRAI, Goldman Sachs Research estimates.

# Exhibit 2: Jan-09: BSNL, IDEA and VOD-Essar post smart rise in net adds; BRTI's net adds stagnant at 2.7 mn

IDEA (together with Spice) captured over 20% share of net adds, BRTI's share of net adds dips below 30% (last in Mar-07)

										-			
	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09
GSM subs ('000s)													
Bharti	57,418	59,670	61,985	64,370	66,826	69,384	72,078	74,778	77,479	80,200	82,921	85,651	88,383
VOD-Essar	41,145	42,557	44,126	45,780	47,467	49,195	50,950	52,759	54,625	56,704	58,764	60,933	63,340
BSNL	33,749	34,573	36,210	36,683	36,997	37,363	37,916	38,490	39,167	39,836	40,488	41,362	42,673
Idea	21,955	22,874	24,002	25,040	26,141	27,194	28,248	29,278	30,380	31,583	32,810	34,211	36,064
RCOM	6,338	6,676	7,016	7,359	7,711	8,080	8,455	8,831	9,206	9,583	9,964	10,354	10,739
MTNL	3,013	3,122	3,242	3,284	3,350	3,438	3,537	3,639	3,678	3,744	3,821	3,900	4,004
Others	15,133	15,546	16,116	16,666	17,321	17,851	18,113	18,207	19,142	20,104	20,963	21,825	22,721
Total GSM subs	178,751	185,017	192,696	199,182	205,812	212,505	219,298	225,983	233,677	241,754	249,730	258,236	267,924
Market share of GSM subs													
Bharti	32.1%	32.3%	32.2%	32.3%	32.5%	32.7%	32.9%	33.1%	33.2%	33.2%	33.2%	33.2%	33.0%
VOD-Essar	23.0%	23.0%	22.9%	23.0%	23.1%	23.2%	23.2%	23.3%	23.4%	23.5%	23.5%	23.6%	23.6%
BSNL	18.9%	18.7%	18.8%	18.4%	18.0%	17.6%	17.3%	17.0%	16.8%	16.5%	16.2%	16.0%	15.9%
Idea	12.3%	12.4%	12.5%	12.6%	12.7%	12.8%	12.9%	13.0%	13.0%	13.1%	13.1%	13.2%	13.5%
RCOM	3.5%	3.6%	3.6%	3.7%	3.7%	3.8%	3.9%	3.9%	3.9%	4.0%	4.0%	4.0%	4.0%
MTNL	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%	1.5%
Others	8.5%	8.4%	8.4%	8.4%	8.4%	8.4%	8.3%	8.1%	8.2%	8.3%	8.4%	8.5%	8.5%
Monthly GSM net adds ('000s)													
Bharti	2,255	2,253	2,315	2,386	2,456	2,558	2,694	2,700	2,701	2,721	2,721	2,730	2,732
VOD-Essar	1,281	1,412	1,569	1,654	1,686	1,728	1,755	1,808	1,866	2,079	2,061	2,169	2,407
BSNL	1,036	824	1,637	473	314	365	553	574	677	670	651	874	1,312
Idea	901	919	1,128	1,038	1,101	1,054	1,054	1,030	1,102	1,203	1,227	1,401	1,853
RCOM	336	338	340	342	352	370	375	376	376	377	381	390	386
MTNL	58	109	120	42	66	88	100	102	38	66	77	79	104
Others	665	412	570	550	655	530	262	95	935	962	859	862	895
Total additions	6,531	6,266	7,680	6,486	6,630	6,693	6,793	6,685	7,694	8,077	7,977	8,505	9,689
Share of monthly GSM net adds													
Bharti	34.5%	35.9%	30.1%	36.8%	37.0%	38.2%	39.7%	40.4%	35.1%	33.7%	34.1%	32.1%	28.2%
VOD-Essar	19.6%	22.5%	20.4%	25.5%	25.4%	25.8%	25.8%	27.1%	24.3%	25.7%	25.8%	25.5%	24.8%
BSNL	15.9%	13.2%	21.3%	7.3%	4.7%	5.5%	8.1%	8.6%	8.8%	8.3%	8.2%	10.3%	13.5%
Idea	13.8%	14.7%	14.7%	16.0%	16.6%	15.7%	15.5%	15.4%	14.3%	14.9%	15.4%	16.5%	19.1%
RCOM	5.1%	5.4%	4.4%	5.3%	5.3%	5.5%	5.5%	5.6%	4.9%	4.7%	4.8%	4.6%	4.0%
MTNL	0.9%	1.7%	1.6%	0.6%	1.0%	1.3%	1.5%	1.5%	0.5%	0.8%	1.0%	0.9%	1.1%
Others	10.2%	6.6%	7.4%	8.5%	9.9%	7.9%	3.9%	1.4%	12.1%	11.9%	10.8%	10.1%	9.2%
					_								

Note: RCOM's GSM subs data typically lags the COAI data release by 7-10 days. For a more representative picture of GSM net adds during the month, our analysis includes RCOM's estimated Dec-08 GSM net adds at 386k (its previous two months' average net adds in 8 existing circles i.e. excluding 14 newly launched operations). Jan-09 data released by COAI pegs all-India GSM subs at 267.5 mn implying 9.3 mn net adds during the month.

Source: COAI, TRAI, Goldman Sachs Research Estimates.

# **Reg AC**

I, Anirudh Gangahar, hereby certify that all of the views expressed in this report accurately reflect my personal views about the subject company or companies and its or their securities. I also certify that no part of my compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

# **Investment profile**

The Goldman Sachs Investment Profile provides investment context for a security by comparing key attributes of that security to its peer group and market. The four key attributes depicted are: growth, returns, multiple and volatility. Growth, returns and multiple are indexed based on composites of several methodologies to determine the stocks percentile ranking within the region's coverage universe.

The precise calculation of each metric may vary depending on the fiscal year, industry and region but the standard approach is as follows:

**Growth** is a composite of next year's estimate over current year's estimate, e.g. EPS, EBITDA, Revenue. **Return** is a year one prospective aggregate of various return on capital measures, e.g. CROCI, ROACE, and ROE. **Multiple** is a composite of one-year forward valuation ratios, e.g. P/E, dividend yield, EV/FCF, EV/EBITDA, EV/DACF, Price/Book. **Volatility** is measured as trailing twelve-month volatility adjusted for dividends.

## Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

# Disclosures

### Coverage group(s) of stocks by primary analyst(s)

Compendium report: please see disclosures at http://www.gs.com/research/hedge.html. Disclosures applicable to the companies included in this compendium can be found in the latest relevant published research.

#### **Company-specific regulatory disclosures**

Compendium report: please see disclosures at http://www.gs.com/research/hedge.html. Disclosures applicable to the companies included in this compendium can be found in the latest relevant published research.

### Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global coverage universe

	Ra	ating Distribution	on	-	Investment Banking Relationshi				
	Buy	Hold	Sell		Buy	Hold	Sell		
Global	23%	56%	21%		54%	48%	40%		

As of January 1, 2009, Goldman Sachs Global Investment Research had investment ratings on 2,863 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by NASD/NYSE rules. See 'Ratings, Coverage groups and views and related definitions' below.

### Price target and rating history chart(s)

Compendium report: please see disclosures at http://www.gs.com/research/hedge.html. Disclosures applicable to the companies included in this compendium can be found in the latest relevant published research.

### **Regulatory disclosures**

#### **Disclosures required by United States laws and regulations**

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; market making and/or specialist role.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage.

Analyst compensation: Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. Analyst as officer or director: Goldman Sachs policy prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director, advisory board member or employee of any company in the analyst's area of coverage. Non-U.S. Analysts: Non-U.S. analysts may not be associated persons of Goldman, Sachs & Co. and therefore may not be subject to NASD Rule 2711/NYSE Rules 472 restrictions on communications with subject company, public appearances and trading securities held by the analysts. Distribution of ratings: See the distribution of ratings disclosure above. Price chart: See the price chart, with changes of ratings and price targets in prior periods, above, or, if electronic format or if with respect to multiple companies which are the subject of this report, on the Goldman Sachs website at http://www.gs.com/research/hedge.html. Goldman, Sachs & Co. is a member of SIPC(http://www.sipc.org).

### Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. Australia: This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act. Canada: Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research in Canada if and to the extent it relates to equity securities of Canadian issuers. Analysts may conduct site visits but are prohibited from accepting payment or reimbursement by the company of travel expenses for such visits. Hong Kong: Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. India: Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited; Japan: See below. Korea: Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. Russia: Research reports distributed in the Russian Federation are not advertising as defined in Russian law, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian Law on Appraisal. Singapore: Further information on the covered companies referred to in this research may be obtained from Goldman Sachs (Singapore) Pte. (Company Number: 198602165W). Taiwan: This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. United Kingdom: Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Services Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union: Disclosure information in relation to Article 4 (1) (d) and Article 6 (2) of the European Commission Directive 2003/126/EC is available at http://www.gs.com/client\_services/global\_investment\_research/europeanpolicy.html

Japan: Goldman Sachs Japan Co., Ltd. Is a Financial Instrument Dealer under the Financial Instrument and Exchange Law, registered with the Kanto Financial Bureau (Registration No. 69), and is a member of Japan Securities Dealers Association (JSDA) and Financial Futures Association of Japan (FFJAJ). Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

### Ratings, coverage groups and views and related definitions

**Buy (B), Neutral (N), Sell (S)** -Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's return potential relative to its coverage group as described below. Any stock not assigned as a Buy or a Sell on an Investment List is determed Neutral. Each regional Investment Review Committee manages various regional Investment Lists to a global guideline of 25%-35% of stocks as Buy and 10%-15% of stocks as Sell; however, the distribution of Buys and Sells in any particular coverage group may vary as determined by the regional Investment Review Committee. Regional Conviction Buy and Sell lists represent investment recommendations focused on either the size of the potential return or the likelihood of the realization of the return.

**Return potential** represents the price differential between the current share price and the price target expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

**Coverage groups and views:** A list of all stocks in each coverage group is available by primary analyst, stock and coverage group at http://www.gs.com/research/hedge.html. The analyst assigns one of the following coverage views which represents the analyst's investment outlook on the coverage group relative to the group's historical fundamentals and/or valuation. **Attractive (A).** The investment outlook over the following 12 months is favorable relative to the coverage group's historical fundamentals and/or valuation. **Neutral (N).** The investment outlook over the following 12 months is neutral relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 12 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 12 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation.

Not Rated (NR). The investment rating and target price, if any, have been removed pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or strategic transaction involving this company and in certain other circumstances. Rating Suspended (RS). Goldman Sachs Research has suspended the investment rating and price target, if any, for this stock, because there is not a sufficient fundamental basis for determining an investment rating or target. The previous investment rating and price target, if any, are no longer in effect for this stock and should not be relied upon. Coverage Suspended (CS). Goldman Sachs has suspended coverage of this company. Not Covered (NC). Goldman Sachs does not cover this company. Not Available or Not Applicable (NA). The information is not available for display or is not applicable. Not Meaningful (NM). The information is not meaningful and is therefore excluded.

### Ratings, coverage views and related definitions prior to June 26, 2006

Our rating system requires that analysts rank order the stocks in their coverage groups and assign one of three investment ratings (see definitions below) within a ratings distribution guideline of no more than 25% of the stocks should be rated Outperform and no fewer than 10% rated Underperform. The analyst assigns one of three coverage views (see definitions below), which represents the analyst's investment outlook on the coverage group relative to the group's historical fundamentals and valuation. Each coverage group, listing all stocks covered in that group, is available by primary analyst, stock and coverage group at http://www.gs.com/research/hedge.html.

Definitions

**Outperform (OP).** We expect this stock to outperform the median total return for the analyst's coverage universe over the next 12 months. **In-Line** (**IL).** We expect this stock to perform in line with the median total return for the analyst's coverage universe over the next 12 months. **Underperform** (**U).** We expect this stock to underperform the median total return for the analyst's coverage universe over the next 12 months.

**Coverage views: Attractive (A).** The investment outlook over the following 12 months is favorable relative to the coverage group's historical fundamentals and/or valuation. **Neutral (N).** The investment outlook over the following 12 months is neutral relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 12 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation.

**Current Investment List (CIL).** We expect stocks on this list to provide an absolute total return of approximately 15%-20% over the next 12 months. We only assign this designation to stocks rated Outperform. We require a 12-month price target for stocks with this designation. Each stock on the CIL will **automatically** come off the list after 90 days unless renewed by the covering analyst and the relevant Regional Investment Review Committee.

### **Global product; distributing entities**

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs, and pursuant to certain contractual arrangements, on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy.

This research is disseminated in Australia by Goldman Sachs JBWere Pty Ltd (ABN 21 006 797 897) on behalf of Goldman Sachs; in Canada by Goldman Sachs Canada Inc. regarding Canadian equities and by Goldman Sachs & Co. (all other research); in Germany by Goldman Sachs & Co. oHG; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs JBWere (NZ) Limited on behalf of Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman, Sachs & Co. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

**European Union:** Goldman Sachs International, authorised and regulated by the Financial Services Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman, Sachs & Co. oHG, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also be distributing research in Germany.

#### General disclosures in addition to specific disclosures required by certain jurisdictions

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division.

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and our proprietary trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, our proprietary trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees, excluding equity analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives (including options and warrants) thereof of covered companies referred to in this research.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of the investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options disclosure documents which are available from Goldman Sachs sales representatives or at http://www.theocc.com/publications/risks/riskchap1.jsp. Transactions cost may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Our research is disseminated primarily electronically, and, in some cases, in printed form. Electronic research is simultaneously available to all clients.

Disclosure information is also available at http://www.gs.com/research/hedge.html or from Research Compliance, One New York Plaza, New York, NY 10004.

#### Copyright 2009 The Goldman Sachs Group, Inc.

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of The Goldman Sachs Group, Inc.