May 29, 2014

Europe

Strategy Matters

Portfolio Strategy Research

Where have all the earnings gone?

2014 is proving so far to be the fourth year of consistent downward earnings revisions for Europe. Earnings growth was expected to be 13% at the beginning of the year and is now 7% and these downward revisions have been broad-based; few sectors have escaped. Does this damage our thesis for a continued grind higher in equities? We don't think so; earnings revisions are usually negative and negative revisions have not precluded rallies in the past. Moreover, actual earnings are starting to grow albeit at a rather pedestrian 1.5% qoq in 1Q 2014.

Negative revisions are the norm rather than the exception

Since 1989 over 60% of the months have seen negative earnings revisions. It tends to be later in the cycle that revisions move to positive territory.

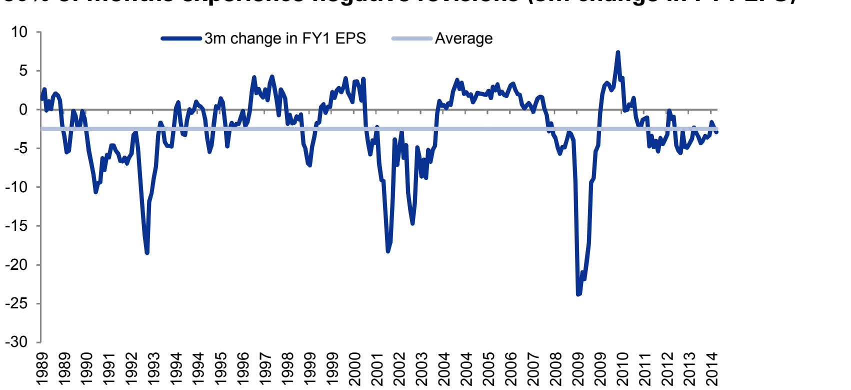
Earnings revisions firmly anchored in macro...

Earnings estimates are not the only forecast to be revised down; GDP also tends to be revised down. So far this year GDP in the US, Euro area and EM has been a little weaker than both we and consensus forecast at the outset. We find the sensitivity of EPS revisions to GDP revisions is around 10 times. Using this historical relationship earnings revisions over the past three years have slightly undershot but the disconnect seems limited.

...given macro weakness in 1H we revise down 2014

Trailing earnings are starting to grow (+1.5% qoq) driven by margin improvement, and we expect FY 2014 to see positive growth. But given the downgrades to Global GDP in 1H, we are revising our top-down 2014 EPS growth estimate to +6% from +11%; 2015 growth is unchanged at +12%.

60% of months experience negative revisions (3m change in FY1 EPS)



Source: I/B/E/S, FactSet, Goldman Sachs Global Investment Research

Matthieu Walterspiler, CFA
+44(20)7552-3403 matthieu.walterspiler@gs.com
Goldman Sachs International

Peter Oppenheimer
+44(20)7552-5782 peter.oppenheimer@gs.com
Goldman Sachs International

Sharon Bell, CFA
+44(20)7552-1341 sharon.bell@gs.com
Goldman Sachs International

Christian Mueller-Glissmann, CFA
+44(20)7774-1714 christian.mueller-glissmann@gs.com
Goldman Sachs International

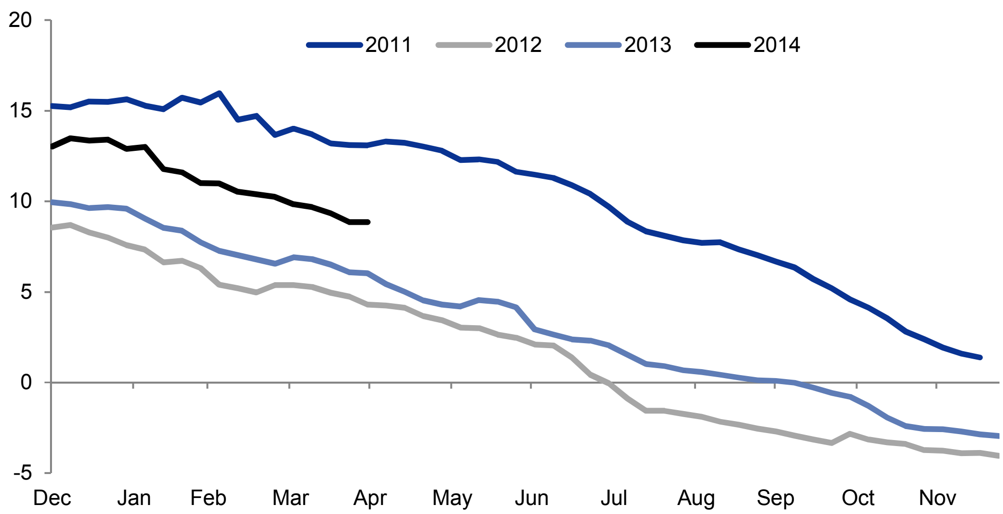
Anders Nielsen
+44(20)7552-3000 anders.e.nielsen@gs.com
Goldman Sachs International

Anna Huang
+44(20)7774-1107 anna.huang@gs.com
Goldman Sachs International

Earnings revisions have been negative for the past three years

Since the beginning of the year, I/B/E/S consensus earnings expectations have continued to be revised down. Earnings growth was expected to be 13% at the beginning of the year and is now only 7%; we now forecast 6%, down from 11%. So far, this downgrade looks similar to that in the past three years and is raising concerns among investors that earnings are the missing piece of the recovery which could ultimately jeopardize the rally started in June 2012.

Exhibit 1: Over the last three years, earnings have been continuously revised down
Expected earnings growth (%) through the years



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research.

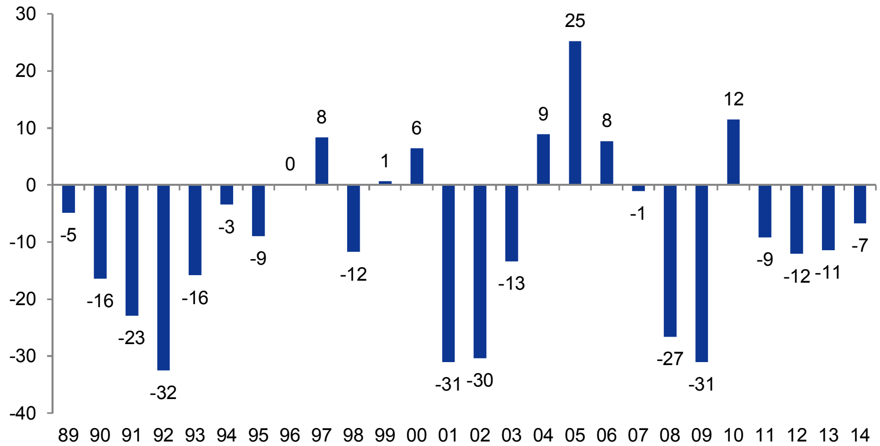
We try to address this concern by looking at historical earnings revisions and their relationship with revisions to economic growth, the phase of the equity cycle and market performance. We highlight five points which we think are important for the current debate on earnings:

1. **Negative earnings revisions are the norm rather than the exception**. Since 1989, over 60% of the months have seen negative earnings revisions. It is only late in the equity cycle that revisions move to positive territory.
2. **Earnings revisions are firmly related to consensus GDP revisions with an estimated sensitivity of around 10 times**. This is comparable to the sensitivity of earnings growth to GDP growth that we estimated. The recent episode of negative earnings revisions can also be related to negative GDP revisions, and to the extent there is any micro/macro disconnect it is small and within the normal historical experience.
3. **Historically negative revisions have limited impact on overall market performance** as, at turning points, the market can rally while earnings expectations are still being revised down.
4. **The last three years have seen revisions more negative than the median historical experience. However, when taking into account the phase of the equity cycle revisions have been comparable (or even slightly better) than what the historical experience would suggest**.
5. **In spite of negative revisions to the forward estimate, actual earnings have recently improved (albeit modestly) as have trailing margins**. This points to an earnings recovery but at a slower pace than expected by consensus.

Negative revisions are the norm rather than the exception

In Exhibit 2, we compare the first earnings estimate of the year (at the beginning of January) with the estimate a year later. We find it is not unusual for consensus to be revised significantly in either direction significantly through the year: the average of the absolute difference between the first estimate for FYI earnings and the last is around 14%.

Exhibit 2: Consensus earnings tend to be revised down
Difference in percent between first and final estimate of FY1 earnings level in a given year

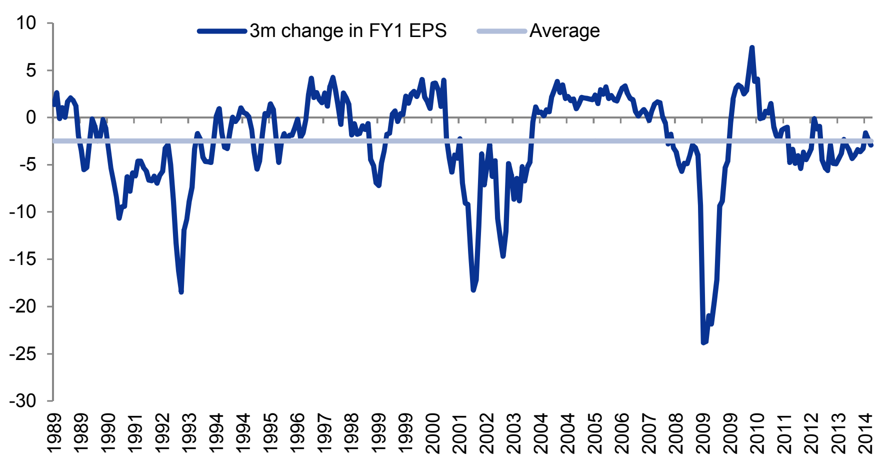


Source: I/B/E/S, FactSet, Goldman Sachs Global Investment Research.

This difference is not equally distributed between positive and negative revisions. Years with negative revisions outnumber those with positive revisions by a factor of 2:1. We find there is a link between earnings revisions and earnings growth. Years with stronger growth tend to have better earnings revisions. Additionally, it is worth highlighting that the recent part of the series has been less negative than the earlier part.

On a higher frequency, it also appears that negative earnings revisions are more the norm than the exception. Exhibit 3 shows the evolution of the 3-month change in FY1 EPS on a monthly basis since 1989. About 63% of the months have seen negative revisions and the average 3-month change in FY1 earnings revision is -2.5%. This average number is partially driven by large negative revisions during the crisis; however the median of monthly revisions remains negative at -1.7%.

Exhibit 3: Over 60% of months have experienced negative earnings revisions
3-month change in FY1 EPS

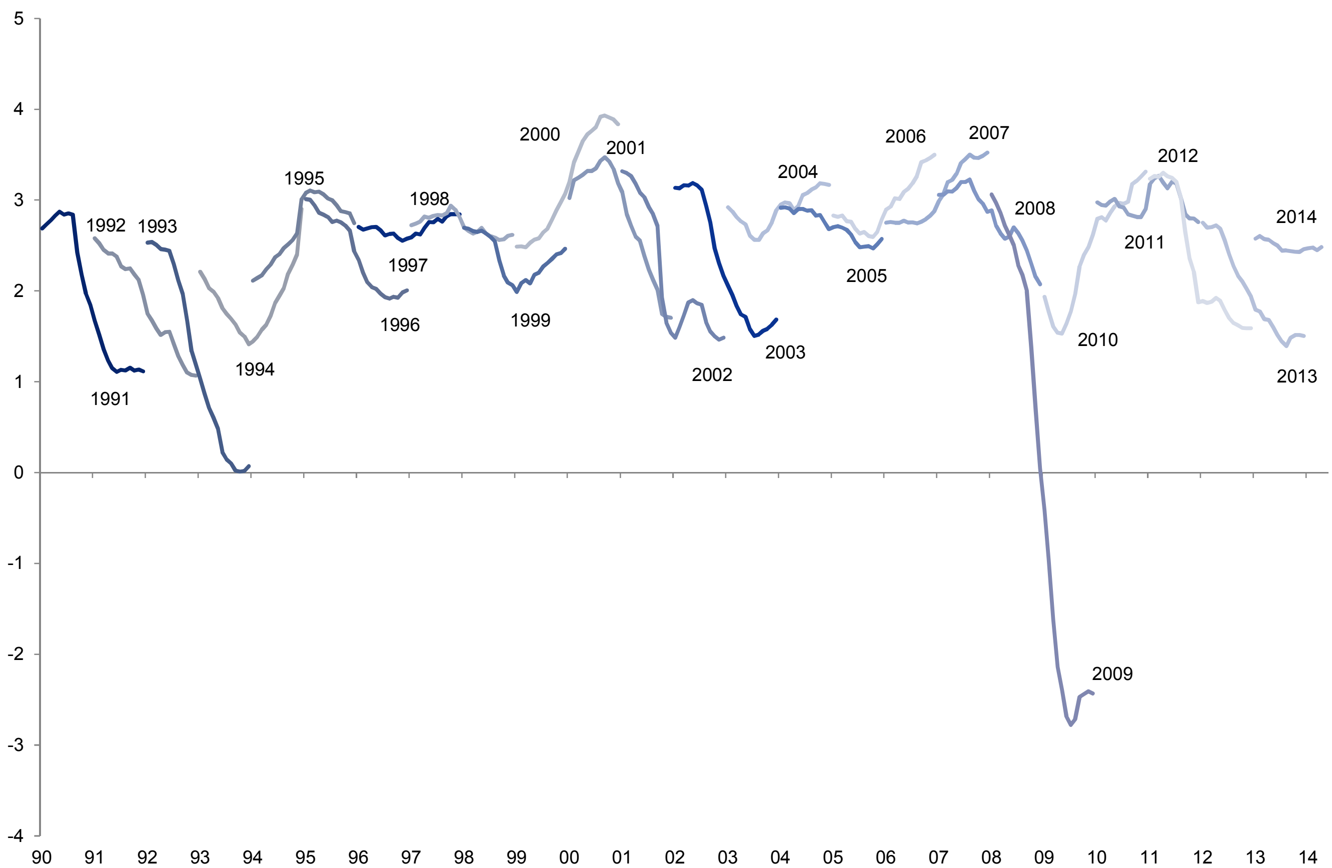


Source: I/B/E/S, Factset, Goldman Sachs Global Investment Research

Earnings revisions firmly anchored in macro

Earnings estimates are not the only forecast to be revised down, as consensus GDP also tends to be revised down. Exhibit 4 shows the evolution of sales weighted GDP growth from the first estimate (two years before the growth vintage) to the last one (in the final month of the year). Sales weighted GDP growth is our preferred measure of the effective growth rate to which European companies are exposed in their end market. We compute it by weighting individual regions' GDP growth by European companies' sales exposure.

Exhibit 4: Macro consensus also tends to be revised down
Evolution of sales weighted consensus GDP growth



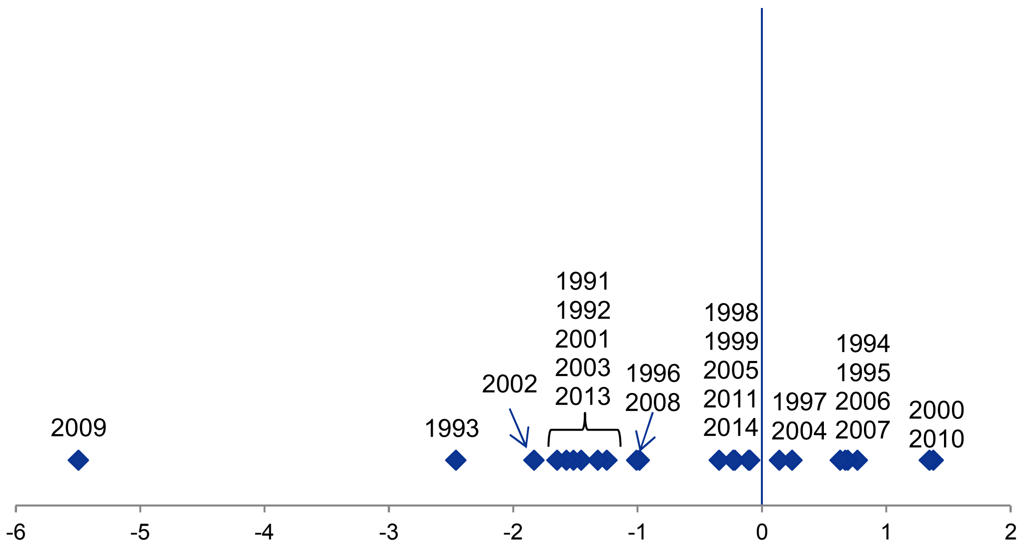
Source: Consensus Economics, Goldman Sachs Global Investment Research.

Over the last 24 years we include in this analysis, sales weighted GDP growth has been revised down in two thirds of the years with median revisions close to -0.30 bp. 2011 to 2014 growth vintages have all been revised down and it is therefore unsurprising that earnings growth has also been revised down. Exhibit 5 highlights the distribution of GDP growth revision over two years for each vintage. There are three clusters of observation that stand out:

- The years with limited revisions centered on 0 including almost a third of the observations (7 out of 24).
- The moderately negative years with revisions between -1 and -2 percentage points which include over a third of the observations (9 out of 24)
- The moderately positive revisions of less than 1 percentage point comprising just a sixth of the observation (4 out of 24).

Finally the more extreme years represent another sixth of the observations (4 observations). Two of them are positive: the 2010 recovery from the crisis and the 2000 year of strong global growth. The most negative revision (2009) is almost four times as large as the most positive while 1993 is more negative than the moderately negative cluster we identify without being as extreme as 2009.

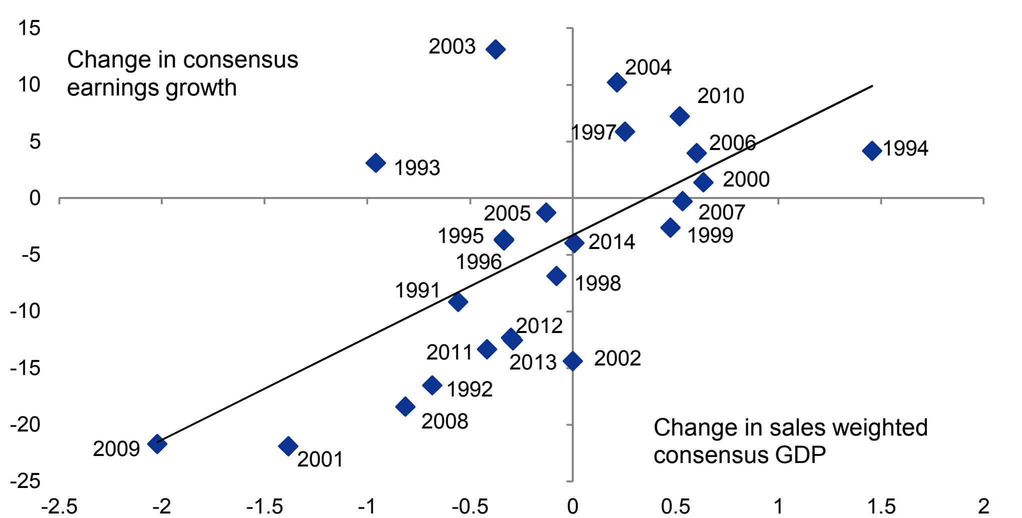
Exhibit 5: Distribution of change in consensus sales weighted GDP growth forecasts
Change is the difference between first and last estimate of GDP growth two years later



Source: Consensus Economics, Goldman Sachs Global Investment Research

We try to quantify the relationship between revisions to consensus earnings and GDP. Exhibit 6 shows change in consensus GDP growth and consensus earnings growth for each year. We find the sensitivity of earnings revisions to GDP revisions to be around 10 times. Interestingly, this is very close to the sensitivity of earnings growth to GDP growth of 10.5 which we have estimated in our work on earnings (see *Profit Pathology: A macro investor's guide to the European profit cycle*, April 4, 2014). Using this historical relationship we find that consensus earnings revisions over the past three years have slightly undershot GDP revisions but the disconnect seems limited in our view.

Exhibit 6: Change in consensus earnings is related to macro environment

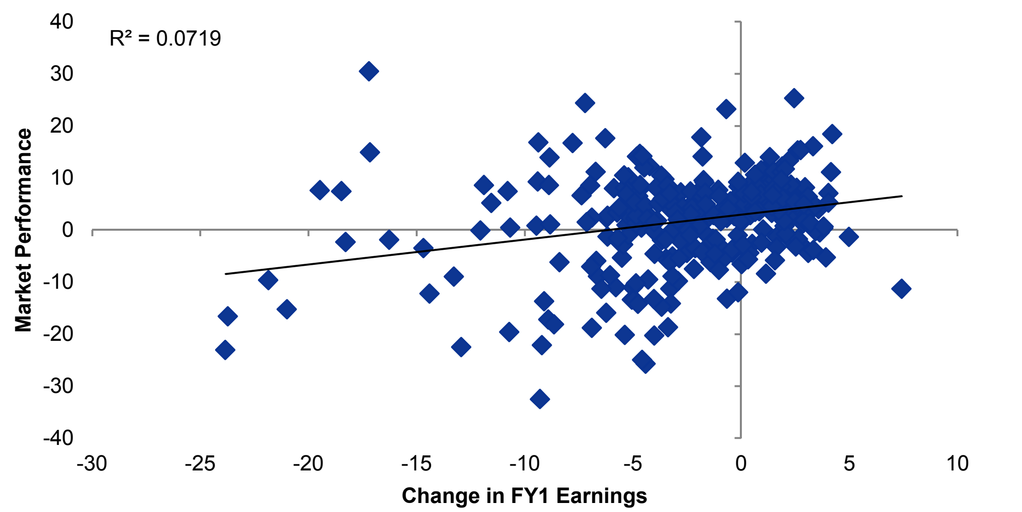


Source: Consensus Economics, I/B/E/S, Factset, Goldman Sachs Global Investment Research.

Link between earnings revisions and market performance is weak

Generally, the contemporaneous link between performance and earnings revisions has been weak. This is related to the fact that investors anticipate earnings recovery and shares rally initially at least while earnings are still being downgraded. Exhibit 7 illustrates this on a monthly basis.

Exhibit 7: Weak link between earnings revisions and overall market performance

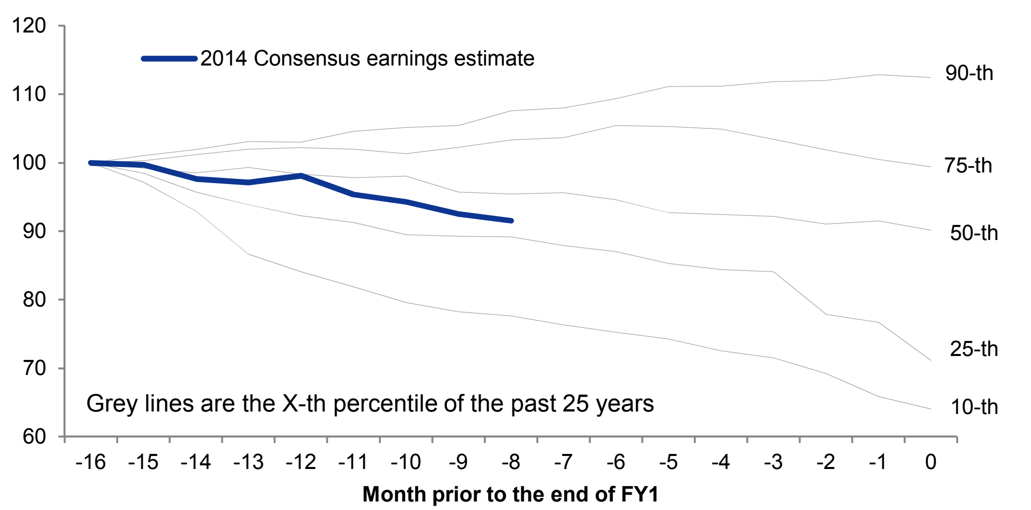


Source: I/B/E/S, Factset, Goldman Sachs Global Investment Research.

Past years' earnings revisions weaker than historical experience...

Exhibit 8 shows the evolution of 2014 earnings estimates compared to the historical experience. So far revisions are tracking below the median experience which is highlighted by the 50th percentile grey line.

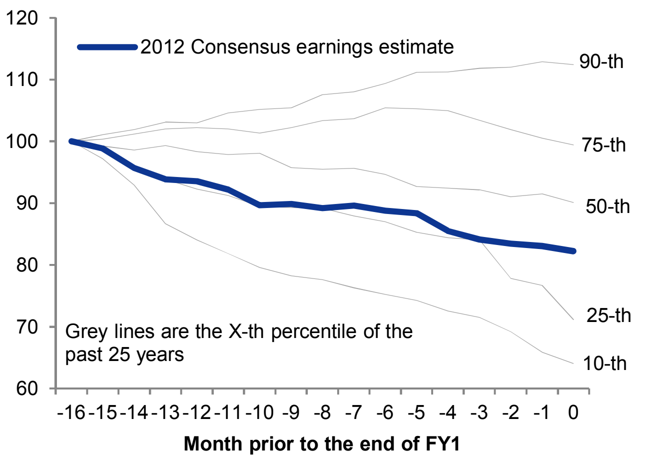
Exhibit 8: So far earnings estimates are tracking below median year



Source: I/B/E/S, Factset, Goldman Sachs Global Investment Research.

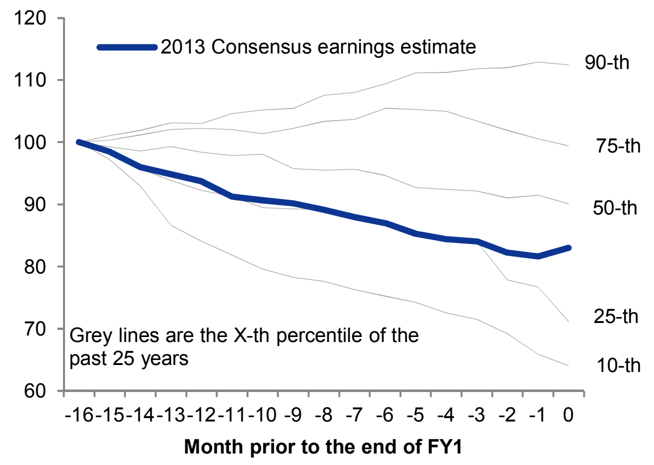
Similarly, 2012 and 2013 have all tracked below the median historical experience. This would suggest that the recent period of revisions has been worse than the median year which is already negative 10%.

Exhibit 9: 2012 was weaker than median experience...



Source: I/B/E/S, FactSet, Goldman Sachs Global Investment Research.

Exhibit 10: ...and so was 2013



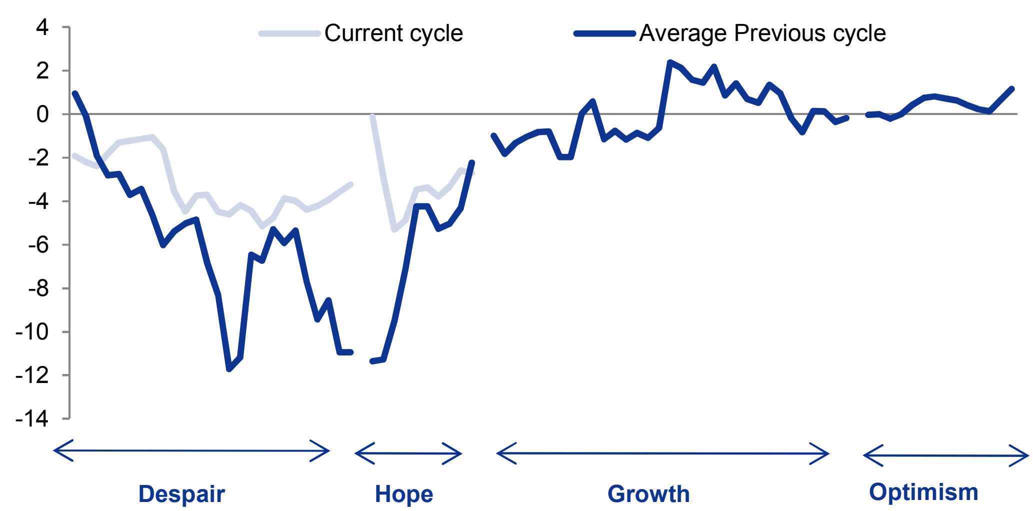
Source: I/B/E/S, Factset, Goldman Sachs Global Investment Research.

.... But comparable when accounting for the phase of the cycle

However, comparing the past three years with the median historical experience is somewhat inappropriate given the state of the equity cycle. Using our phases framework which decomposes the equity market cycle in four different phase (*The Equity Cycle part 1: Identifying the phases*, October 2009) we compare the current cycle with the average.

Exhibit 11 shows the evolution of earnings revisions through the different phases. Negative but improving revisions have been comparable with the historical experience of the 'hope' phase (the sharp rally driven by multiple expansion). If anything, the departure from historical experience has been that revisions were less negative during the 'despair' phase than they are typically – something we would explain by the fact that earnings and margins had not fully recovered to their previous peak when the Euro area crisis hit and therefore had less scope to fall.

Exhibit 11: Earnings revisions have not been particularly negative considering the phase of the cycle



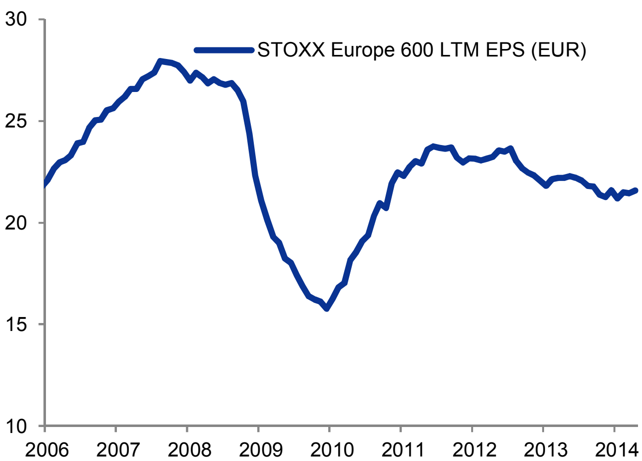
Source: I/B/E/S, Factset, Goldman Sachs Global Investment Research.

Actual earnings have stabilized

With consensus earnings continuing to fall, it is tempting to question the transition to the growth phase we have discussed. However, while forward consensus earnings continue to be revised down, actual earnings have turned and have sequentially grown since the fourth quarter of last year. This has been consistent with an improvement in trailing margins (Exhibits 12 and 13).

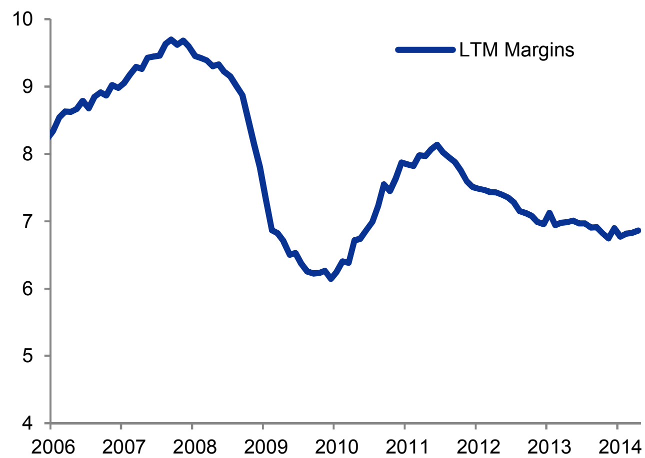
However, realized sequential growth in LTM earnings has so far been slow at a mere 1.5% qoq. This is something we would relate to the low level of economic activity in the first quarter from both the US and China. In order to reach our growth forecasts, we would need to see the improvement in economic indicators be sustained and earnings growth accelerate in the second half of the year.

Exhibit 12: Trailing EPS have grown sequentially...



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research.

Exhibit 13: ...as margins improved slightly.



Source: Datastream, I/B/E/S, Goldman Sachs Global Investment Research.

Downgrading 2014 earnings growth to 6%

Reflecting the poorer data in the first quarter, our Economists have revised down their US, China and Euro area 2014 GDP growth forecasts for 2014 to 2.5%, 7.3% and 1.0% respectively. Additionally the strength of the EUR since the beginning of the year has been a headwind to European revenue with negative sales surprise in the past two earnings seasons.

Taking into account the weaker sales weighted GDP growth we now expect for 2014, we revise down our forecasts for European earnings from 11% to 6%. Beyond 2014, we leave our earnings growth forecasts unchanged at 12%, 9% and 8% for 2015, 2016 and 2017 respectively as we expect the first quarter weakness to be temporary – notably as weather-related effects in the US unwind. In that sense, the recent improvement in US growth momentum is encouraging with our current activity indicator pointing to growth of 2.8% in April. We leave unchanged our 3, 6 and 12 month price targets for the STOXX Europe 600 at 350, 360 and 375 and therefore expect slightly more multiple expansion over the next 12 months from 14.4x currently to 14.7x.

While our revised forecasts might seem optimistic in the light of the negative revisions we have seen in the last three years, they continue to point to a slow earnings recovery with the European EPS level reaching the previous 2007 peak of €27.9 only in 2016.

Exhibit 14: We expect 6% earnings growth for the European market in 2014

STOXX EUROPE 600 EARNINGS FORECAST	2012	2013P	2014E	2015E	2016E	2017E	Peak
Sales growth (%)	**5.8**	**-1.5**	**0.8**	**4.9**	**6.0**	**5.5**	
Net income margin (level, %)	**6.7**	**6.4**	**6.7**	**7.0**	**7.2**	**7.5**	**8.4**
Change in net income margin (%)		*-4*	*3*	*6*	*3*	*3*	
Change in net income margin (bp)		*-35*	*21*	*37*	*23*	*21*	
Net income ex financials growth (%)		-5	4	11	9	9	
Net income financials pre-exceptionals		12	13	16	8	6	
Weight of financials pre-exceptionals (eop)	*22*	*26*	*27*	*28*	*28*	*28*	
Re-occurring net income growth (%)	**-3**	**-2**	**6**	**12**	**9**	**8**	
EPS Level (EUR)	**21.8**	**21.5**	**22.9**	**25.6**	**27.9**	**30.2**	**27.9**

Source: Worldscope, I/B/E/S, Goldman Sachs Global Investment Research.

In terms of composition, we continue to expect growth to be driven mostly by margin expansion this year, with sales growth of only 0.8%. Beyond this year, we expect bottom-line earnings growth to be more balanced between top-line and margins. Sector-wise, it is worth highlighting the large and increasing weight of financials in the overall 2014 growth of the European market: financials now account for 53% of 2014 earnings growth. Oil & gas, industrial goods & services and autos are next three largest contributors. Together, these four sectors contribute just below 90% of European earnings growth.

Exhibit 15: Financials are contributing 53% of 2014 earnings growth

	2013-2014				2014-2015			
Sector	Base weight (%)	Growth (%)	Contribution (pp)	% of Total Growth	Base weight (%)	Growth (%)	Contribution (pp)	% of Total Growth
Financials	26	**13**	3.4	53	27	**16**	4.4	35
Oil & Gas	10	**8**	0.8	12	10	**7**	0.7	6
Industrial Goods & Services	9	**8**	0.8	12	9	**12**	1.1	9
Automobiles & Parts	4	**16**	0.7	10	4	**22**	1.0	8
Technology	2	**23**	0.4	7	2	**13**	0.3	2
Health Care	11	**4**	0.4	6	10	**9**	0.9	7
Chemicals	5	**7**	0.3	5	5	**14**	0.6	5
Travel & Leisure	1	**29**	0.3	5	1	**23**	0.3	2
Personal & Household Goods	5	**5**	0.3	4	5	**12**	0.6	5
Construction & Materials	2	**11**	0.2	3	2	**17**	0.4	3
Basic Resources	4	**5**	0.2	3	4	**16**	0.6	5
Food & Beverage	6	**2**	0.1	2	6	**11**	0.7	5
Retail	3	**3**	0.1	2	3	**6**	0.2	1
Media	2	**0**	0.0	0	2	**13**	0.3	2
Utilities	5	**-10**	-0.5	-8	4	**7**	0.3	2
Telecommunications	5	**-21**	-1.0	-16	4	**4**	0.1	1
STOXX Europe 600		**6**				**12**		

The telecoms figure is distorted by the Vodafone/Verizon deal, excluding VOD I/B/E/S consensus aggregated Telecoms growth is -7%.

Source: Worldscope, I/B/E/S, Goldman Sachs Global Investment Research.

Disclosure Appendix

Reg AC

We, Matthieu Walterspiler, CFA, Peter Oppenheimer, Sharon Bell, CFA, Christian Mueller-Glissmann, CFA, Anders Nielsen and Anna Huang, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Disclosures

Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global coverage universe

	Rating Distribution			Investment Banking Relationships		
	Buy	Hold	Sell	Buy	Hold	Sell
Global	32%	53%	15%	53%	47%	40%

As of April 1, 2014, Goldman Sachs Global Investment Research had investment ratings on 3,662 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.

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; for equity securities, market making and/or specialist role. Goldman Sachs usually makes a market in fixed income securities of issuers discussed in this report and usually deals as a principal in these securities.

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.

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:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the issuers the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. **Brazil:** Disclosure information in relation to CVM Instruction 483 is available at http://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 16 of CVM Instruction 483, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** Goldman Sachs Canada Inc. is an affiliate of The Goldman Sachs Group Inc. and therefore is included in the company specific disclosures relating to Goldman Sachs (as defined above). Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research report in Canada if and to the extent that Goldman Sachs Canada Inc. disseminates this research report to its clients. **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. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. **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 Conduct 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/disclosures/europeanpolicy.html which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. 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 deemed 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.

Not Rated (NR). The investment rating and target price 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 for this stock, because there is not a sufficient fundamental basis for determining, or there are legal, regulatory or policy constraints around publishing, 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.

Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs 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 Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; in Canada by either Goldman Sachs Canada Inc. or Goldman, Sachs & Co.; 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 New Zealand Limited; in Russia by OOO 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 by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman Sachs AG and Goldman Sachs International Zweigniederlassung Frankfurt, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also distribute research in Germany.

General disclosures

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. Goldman, Sachs & Co., the United States broker dealer, is a member of SIPC (http://www.sipc.org).

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.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst's published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst's fundamental equity rating for such stocks, which rating reflects a stock's return potential relative to its coverage group as described herein.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, 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 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/about/publications/character-risks.jsp. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data available on a particular security, please contact your sales representative or go to http://360.gs.com.

Disclosure information is also available at http://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.