06 May 2011

Equity Strategy
Global

HSBC Global Research

Equities in the long run

Value matters more than growth

- **Strong GDP growth doesn't automatically mean higher equity returns…**
- **… as value is more important in the long run**
- **We therefore see emerging market equity returns broadly in line with developed over the next few decades**

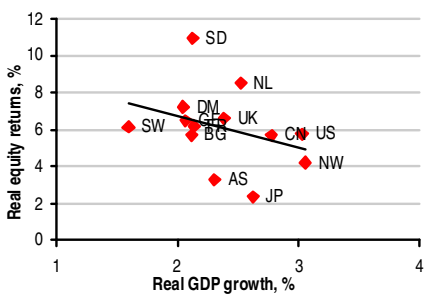
Emerging market economies have experienced spectacular growth over the past 10 years and it is likely that they will continue to drive global growth over the next few decades. In this report we consider the implications of this growth for long-term equity returns.

Interestingly, our analysis suggests that the faster emerging market growth will not necessarily lead to equity market outperformance – we find a negative correlation between GDP growth and total equity returns over the long term (chart 1). Returns do not depend on growth in GDP, but instead on growth in earnings per share, and on how that growth compares to prior expectations.

In contrast, we find a strong relationship between future returns and the current normalised earnings yield (chart 2) – over long periods value matters most.

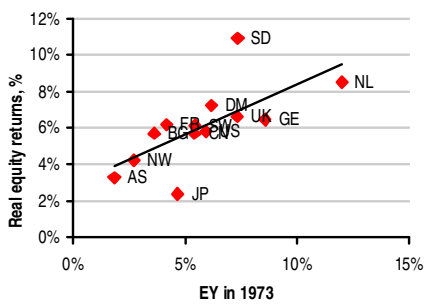
Based on current earnings yields we expect emerging market equities to perform only in line with those in the developed world over the very long term. Obviously, some emerging markets look better than others – Russia and Brazil are likely to produce the strongest returns, and India the weakest. In the developed world, Europe looks most attractive given its current depressed valuations. These suggest 9% long-term real returns for MSCI Europe compared to around 6% for the US.

1. GDP growth vs. equity returns, 1973-2010



Source: HSBC, MSCI, Thomson Reuters Datastream, World Bank

2. 1973 earnings yield vs. equity returns, 1973-2010



Source: HSBC, MSCI, Thomson Reuters Datastream

Daniel Grosvenor*
Strategist
The Hongkong and Shanghai Banking Corporation Limited (HK)
+852 2996 6592
daniel.grosvenor@hsbc.com.hk

Garry Evans*
Strategist
The Hongkong and Shanghai Banking Corporation Limited (HK)
+852 2996 6916
garryevans@hsbc.com.hk

View HSBC Global Research at:
http://www.research.hsbc.com

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Long-term equity returns

- We find little correlation between long-term real equity returns and GDP growth…
- …but a good relationship with the current earnings yield
- Based on current earnings yields we expect emerging markets to perform in line with developed over the long term

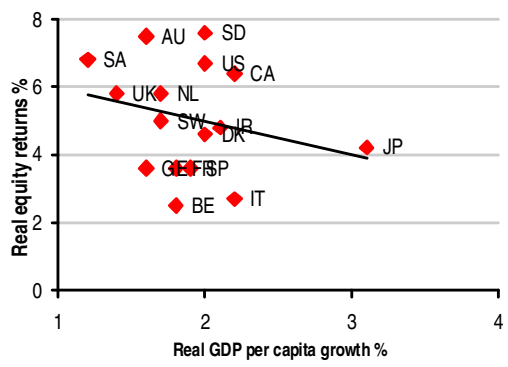
Growth and returns

Many people would assume there to be a strong positive relationship between economic growth and equity returns in the long run. However, empirical evidence does not support this view. In fact, most academic studies[1] show the relationship to be negative – faster growing economies produce weaker equity returns than those that grow more slowly.

In perhaps the most comprehensive study, Dimson, Marsh and Staunton analyse 101 years of data across 16 markets. They find that the correlation between real GDP per capita growth and real equity returns is -0.27 (chart 3).

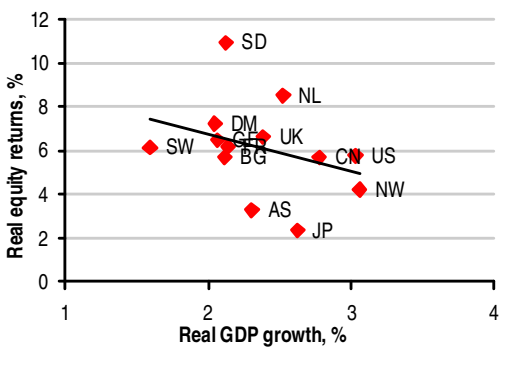
We tested whether this relationship holds over a shorter, more recent time period. Chart 4 shows the relationship between real GDP growth and real equity returns in local currencies (see page 9 for the effect of currency movements) for 13 countries over the past 37 years. As can be seen, even over this shorter time period the negative relationship still holds with a correlation coefficient of -0.33%.

3. GDP growth vs. equity returns, 1900-2000



Source: Dimson, Marsh & Staunton, Bernstein & Arnott

4. GDP growth vs. equity returns, 1973-2010



Source: HSBC, MSCI, Thomson Reuters Datastream, World Bank

[1] *See page 24 for literature review*

While this result may be surprising there are a number of fairly intuitive explanations why it is the case.

1. Faster growth is priced in

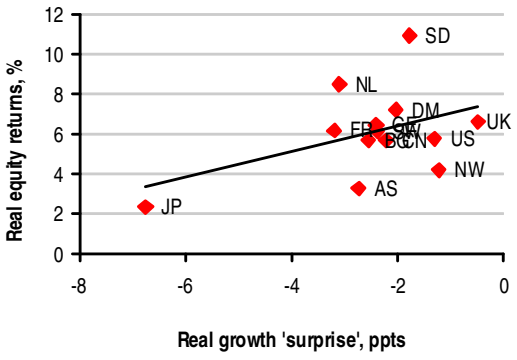
First, and perhaps most importantly, it is likely that future growth is already reflected in the price at the beginning of the period.

What is important for equity markets is not what does happen, but what happens relative to what is expected. If future growth is already priced in, then it is not likely to lead to higher returns.

Strictly speaking, it would therefore be more appropriate to compare surprises in GDP growth to future equity returns, not the growth actually experienced. If this were possible we could expect to see a positive relationship between the two. However, in practice it is almost impossible to gauge historical long term growth expectations.

For chart 5, we make a simplistic assumption that expectations for growth are simply the previous 10 years' growth extrapolated into the future. For the markets we previously considered, surprises based on these 'expectations' do a better job at explaining future returns than the actual GDP growth on it's own, but the relationship, whilst positive, it not particularly strong. In fact it only exists due to the inclusion of Japan, where the 'surprise' was by far the largest.

5. GDP 'surprises' vs equity returns, 1973-2010



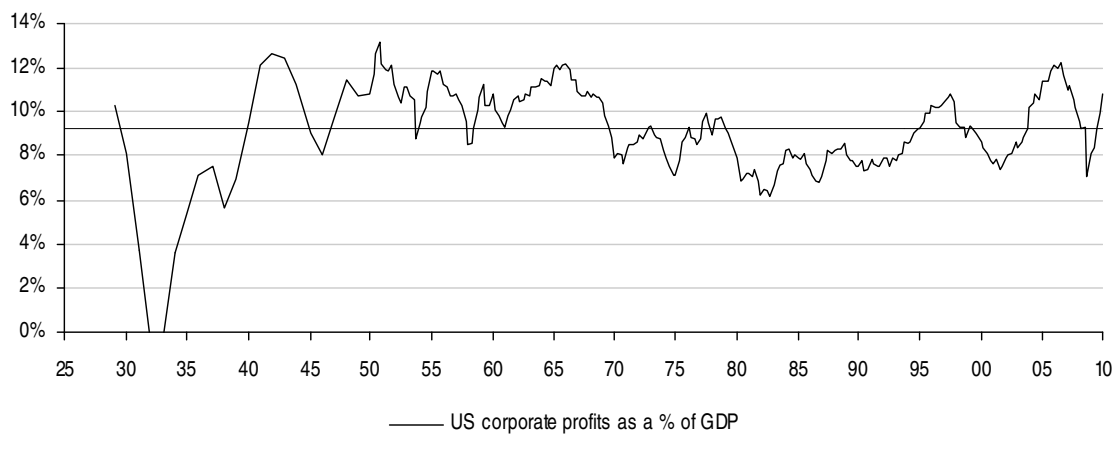
Source: HSBC, Thomson Reuters Datastream, World Bank

2. GDP growth doesn't necessarily benefit existing shareholders

At the aggregate level there is a strong correlation between GDP and corporate earnings over the long term. For the US we have total corporate profit data going back to the 1920s. Over this period aggregate profits have remained fairly constant as proportion of GDP – the profit share has moved in clear cycles but has seldom drifted far from its long-term average of 9% (chart 6).

However, investors' returns do not depend on aggregate earnings, but instead on the growth in earnings per share of listed companies. Chart 7 plots real EPS growth against real GDP growth for our 13 equity markets. This, like the returns

6. US total corporate profits before tax as a % of GDP

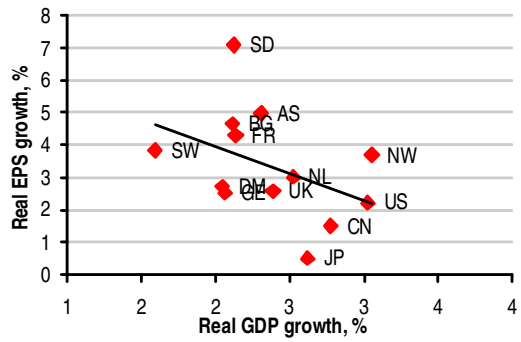


Source: HSBC, Thomson Reuters Datastream, BEA

data, shows a weak negative relationship between the two – higher GDP growth doesn't automatically mean faster growth in EPS.

As the data shows, the gap between EPS and GDP growth varies considerably between countries and can be either positive or negative. This gap likely arises due to a combination of the following reasons.

7. GDP growth vs. EPS growth, 1973-2010



Source: HSBC, MSCI, Thomson Reuters Datastream

Dilution due to new companies

A large proportion of an economy's growth comes from entrepreneurship and the creation of companies. Current shareholders do not participate in this growth unless they dilute their current shareholdings to buy shares in the new companies when they list. Furthermore, the growth of many start-up companies is likely to have slowed by the time they come to list.

Dilution due to increases in capital

Similarly to the above, existing listed companies require capital to grow. This capital usually comes from their existing shareholders or from outside investors. In either case the current shareholders' claim on future earnings is again diluted by the creation of new shares [2]

2 See Bernstein & Arnott (2003) for a detailed discussion of this dilution.

Unrepresentative stock markets

Countries' stock markets are not necessarily representative of the domestic economy. For example, the MSCI Brazil index is heavily weighted towards the energy and materials sectors which together make up around 50% of the total market cap. In contrast, the whole industrial sector accounts for less than 30% of the total Brazilian economy with the consumer sector making up the largest proportion of GDP.

3. Overseas sales

Finally, domestic GDP growth is not an accurate guide to the future prospects of listed companies due to sales made overseas. Although GDP does include exports, the proportion of exports in the whole economy is likely to be less than that of the large listed multinationals. In addition, GDP does not include profits made by domestic companies in overseas operations.

Indeed, companies faced with slow domestic growth can grow EPS faster by pursuing higher ROE opportunities abroad. This can lead to a positive gap between listed sector EPS growth and the growth rate of the domestic economy.

This seems to be reflected in the very strong relationship between the current level of overseas sales and the gap between trend EPS and GDP growth. In Europe, where overseas sales are currently very high, EPS has grown faster than GDP over the long term, whereas in US and Japan where overseas sales are considerably lower EPS has lagged (chart 8).

As globalisation progresses, and companies produce increasingly more outside their country of domicile, this factor is likely to become even more important. Indeed, in the US, the share of companies' sales made overseas has increased by over 10% during the last decade.

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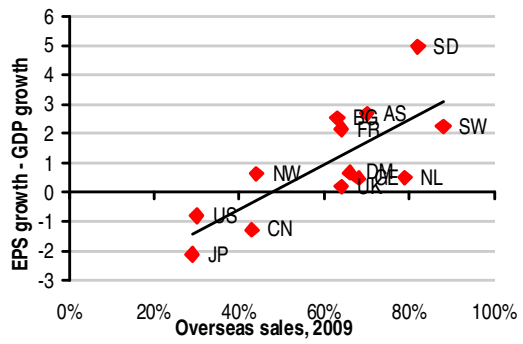
8. Overseas sales can lead to faster earnings growth



Source: HSBC, MSCI, Thomson Reuters Datastream, Worldscope

Earnings yield and returns

So, if investors cannot rely on expected economic growth as a guide to future equity returns, is there anything that can be used?

A number of academics [3] have argued that the key (only) piece of information required in forecasting real equity returns is the current earnings yield.

Computationally, this stems from the fact that companies can only do two things with their earnings: pay them out, or retain them for future growth. If all earnings are paid out, then by definition the return to investors will simply equal the earnings yield. If, on the other hand, some earnings are retained, the expected real return will still equal the earnings yield so long as the retained earnings can be reinvested at the rate of return expected by the market. In other words the relationship will hold exactly if the long-term growth of earnings is correctly reflected in the price.[4]

Obviously, this is a particularly restrictive assumption which cannot be expected to hold perfectly. In reality there are likely to be a number of factors that drive a wedge between the expected return and the return on equity. In addition, accounting earnings may not necessarily reflect the true economic earnings of companies – they can be distorted by factors such as the treatment of tax or depreciation. However, despite these issues evidence would suggest that the relationship holds reasonably well over the long run and that current earnings yields are indeed good forecasters of future returns.

A key qualification to this is that the earnings used must be adjusted for where we are in the current business cycle. There are a number of possible methods for making this adjustment. The most commonly used is to take an average of the last 10 years of earnings. However, with this method the numbers can be distorted by periods where earnings have collapsed (deep recessions) or periods where earnings growth has been exceptionally strong.

We favour a different approach – we conduct a weighted least squares regression to produce a trend earnings series across the whole period. This takes into account large temporary movements in earnings by assigning a lower weight to them in the regression.

Time series analysis

In chart 9 below we plot the relationship between our normalised earnings yields and 40-year future annualized real returns for the US over the period 1910-1970. As can be seen the relationship appears to be very strong with an R-squared value of 0.67 – when earnings yields are high (valuations low) we can expect better real returns over the next 40 years.

In chart 10 we show the same relationship but using 10-year average earnings to produce the normalised earnings yield. This also shows a very strong correlation but the R-squared value is slightly lower than for our trend-adjusted series.

3 See Campbell & Shiller (2003), Ritter (2002).
4 for those that are interested in the algebraic derivation for this see Brad Delong - http://delong.typepad.com/sdj/2007/05/a_teaching_note.html

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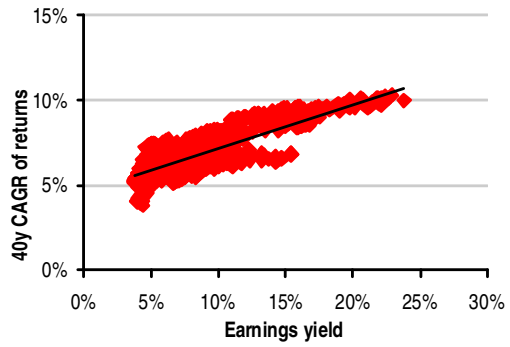
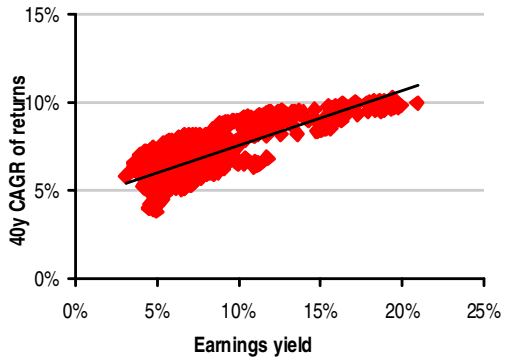
9. S&P 500: Earnings yield based on trend earnings vs. future returns



Source: HSBC, Robert Shiller

10. S&P 500: Earnings yield based on 10y avg earnings vs. future returns

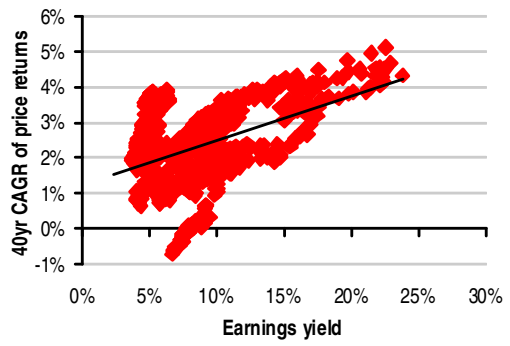


Source: HSBC, Robert Shiller

It should be noted that, as the returns data we are using here is overlapping, it means that the data points are not statistically independent of one another. This leads to autocorrelation which can produce exaggerated R-squared values. However, visually the relationship is very good, and reassuringly the same relationship holds for cross-country data which shouldn't encounter the same autocorrelation problem (see next section).

A second caveat to this relationship is that it mainly stems from a strong correlation with the dividend yield. If we instead just focus on price returns the relationship is still positive, but clearly not as strong (chart 11). However, given the importance of dividend payments in total returns over time this is to be expected.

11. S&P 500: Earnings yield based on trend earnings vs. price returns



Source: HSBC, Robert Shiller

Cross-country analysis

The analysis above shows that the earnings yield is a good predictor of future returns across time. A key question is whether same relationship applies across countries – will markets with high current earnings yield offer better returns in the long run?

There are obviously reasons why this relationship would not hold perfectly. One important factor that could weaken the relationship is cross-country variations in accounting standards. For example, it is often argued that countries such as Germany have a naturally lower earnings yield simply due to more restrictive accounting practices.

However, despite issues such as this our evidence suggests that the earnings yield can provide good guide to future, long term relative returns, even without making complex adjustments to harmonise the earnings data.

Here we consider the same countries we looked at earlier when analysing the relationship with GDP growth.

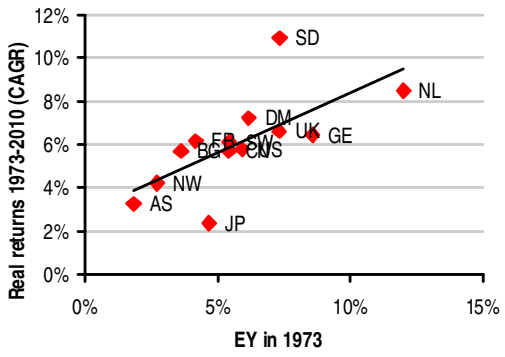
Chart 12 shows that the adjusted earnings yield in 1973 against local currency real returns over the next 37 years. As with the time series analysis, this shows a strong relationship between the two. Significantly, we find that the adjusted earnings

yield is far better at explaining future returns than the economic growth over the period. The relationship is clearly positive with an R-squared value of 0.45, compared to a negative relationship with real GDP growth with an r-squared of just 0.1.

To check that this is a consistent relationship we also looked at whether it holds over various different time periods. Chart 13 shows the same data, but for the years 1980-2010 (charts for other periods are included in appendix 1). Again this clearly shows that higher earnings yields result in higher future real returns.

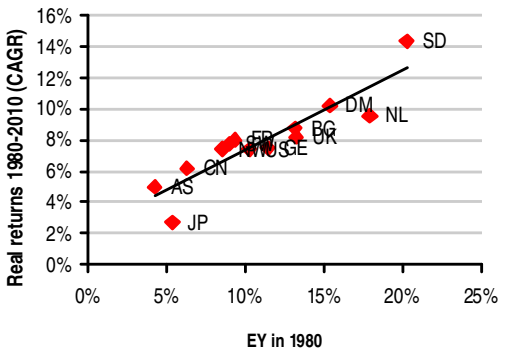
Finally, we ran the data for each country separately over time, and found a good relationship in all cases. These charts can be found in appendix 2.

12. Cross-country: 1973 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

13. Cross-country: 1980 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

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Long-term forecasts

Given the evident relationship between the adjusted earnings yield and future equity returns we are able to produce some tentative predictions for real equity returns over the next few decades.

We use the same method as above, calculating the current earnings yield based on trend earnings. To enable direct comparison between markets, we focus on the trend over the period for which we have data for all markets: 1995 to present.

Table 14 shows these earnings yields for the markets that we considered. For completeness, we also present yields based on trends calculated over the longest available history (1973 for most developed, 1995 for most emerging), as well as yields based on trailing 10-year average earnings. Charts showing the various EPS trends for each market are shown in appendix 3.

Results

The key conclusion from this analysis is that emerging markets are likely to perform only in-line with developed markets over the long term. Given that valuations are now very similar, we cannot expect emerging market equities to produce higher real returns simply because they are expected to continue to deliver faster economic growth in the future.

Looking at specific markets, from the emerging universe Russia and Brazil are likely to offer the highest real returns and India the lowest. However, it should be noted that part of the reason that Russia and Brazil look cheap currently is simply due to their sector composition under MSCI. Both markets have a heavy weighting towards the energy sector which naturally tends to trade on a low multiple.

Unsurprisingly, in the developed world, European markets currently look the cheapest, which suggests they will produce the best long-term real returns. The adjusted earnings yield for MSCI Europe is currently 9% compared to a yield in the US of around 6%.

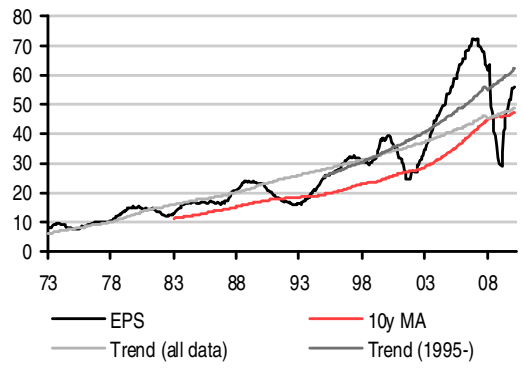
14. Current adjusted earnings yields: long-term real return forecasts

Market	Earnings yield		
	Trend adjusted		10yr avg
	1995 to date	Available history	
Americas			
USA	**5.9%**	5.2%	4.5%
Canada	**6.2%**	3.6%	4.0%
Brazil	**9.2%**	9.1%	5.0%
Mexico	**5.5%**	4.8%	3.3%
Europe			
United Kingdom	**8.1%**	8.3%	6.6%
France	**9.6%**	7.2%	6.1%
Germany	**7.5%**	5.7%	5.2%
Switzerland	**7.0%**	5.8%	5.2%
Spain	**11.9%**	9.8%	7.5%
Italy	**12.8%**	10.5%	9.0%
Netherlands	**9.0%**	9.0%	7.1%
Sweden	**6.5%**	6.4%	4.4%
Russia	**10.5%**	10.5%	6.9%
Dev Europe	**8.8%**	7.5%	6.5%
Asia pacific			
Japan	**7.1%**	4.1%	4.8%
Australia	**6.6%**	5.5%	5.1%
China*	**7.5%**	7.5%	3.5%
Korea	**8.5%**	8.4%	4.6%
Taiwan	**5.9%**	5.9%	4.5%
Hong Kong	**5.2%**	5.8%	3.8%
India	**5.0%**	5.0%	2.8%
Singapore	**6.9%**	6.6%	5.0%
AC Asia Pacific	**6.5%**	6.5%	4.5%
AC Asia Pacific ex Japan	**5.9%**	5.9%	4.3%
Other			
South Africa	**6.6%**	6.6%	4.2%
All Country World	**6.9%**	6.9%	5.0%
Developed World	**6.9%**	5.4%	5.1%
Emerging World	**6.9%**	6.9%	4.4%

Source: HSBC, MSCI, Thomson Reuters Datastream. Data as of 31 March 2011.
*China: trend taken from June 2000 due to change in MSCI methodology at that date

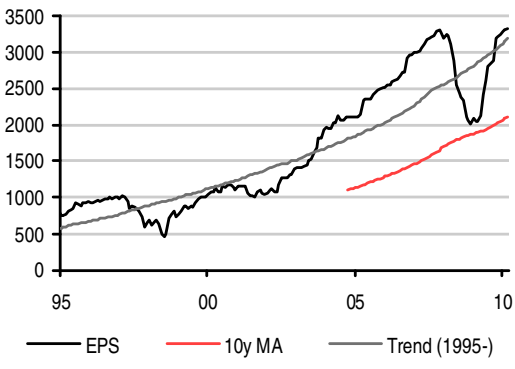
If we instead consider the earnings yield based on the trend over the available history, developed markets do not look as strong. The reason for this can be seen in chart 15 which shows the developed world's EPS along with the different trends. Earnings growth was relatively subdued during the 1970s and so the trend over the whole period is pulled downwards.

15. Developed world: EPS and trend



Source: HSBC, MSCI, Thomson Reuters Datastream

16. Emerging world: EPS and trend



Source: HSBC, MSCI, Thomson Reuters Datastream

In absolute terms the yield based on a longer history may provide a better forecast for the future; however, when considering the relative performance across markets we would focus on the yield based on a consistent history.

The yield based on 10-year average earnings produces broadly similar predictions to our trend adjusted yields on a relative basis. However, most markets look more expensive on this measure due to the very fast earnings growth experienced over 2003-2007. This is most obvious in the emerging world (chart 16).

Changes in ROE

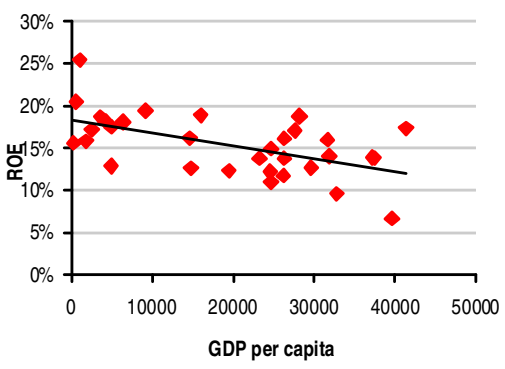
As we discussed above, the relationship between the earnings yield and expected returns hinges on the assumption that earnings can be reinvested at the rate required by the market. Obviously, this is a very strict assumption and not likely to hold exactly in practice.

As economies develop, their ROE tends to decline. This is highlighted in chart 17 which plots ROE against GDP per capita for a number of developed and emerging economies. More developed economies with higher GDP per capita have a lower ROE than those in the emerging world.

If the market's expected return does not fully adjust to take this decline into account then the current earnings yield will overstate future real returns. If this is the case then the return implied in emerging market earnings yields may actually be too high.

Indeed, the opposite of this may be true in the developed world. New opportunities overseas can lead to a rise in ROE which, if not priced in now, could lead to earnings yields understating long term future real returns.

17. ROE vs GDP per capita, 2005 – 2009 average



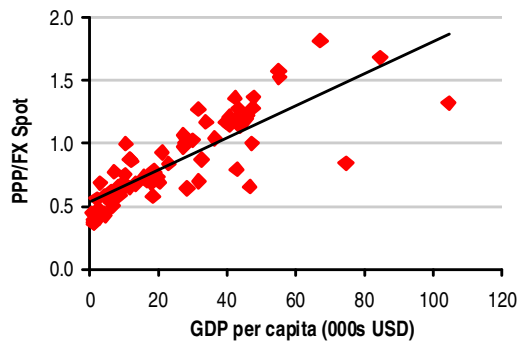
Source: HSBC, MSCI, Thomson Reuters Datastream, World Bank

International investors

Our analysis so far has been conducted from the perspective of a domestic investor, looking at returns in local currency. However, the return non-domestic investors can expect to achieve will also depend on any movement in real exchange rates over time.

A widely accepted framework for analysing long term exchange rate movements is the 'Balassa-Samuelson-adjusted PPP'[5]. This framework suggests that as countries develop, changes in relative productivity lead to real appreciation of their currency. This is evident from the fact that countries with higher GDP per capita have higher PPP-valuation ratios (see chart 18).

PPP-valuation ratio vs GDP per capita, 2010



Source: HSBC, IMF estimates

With emerging markets likely to outpace their developed counterparts in terms of growth, their real exchange rates are likely to appreciate over the longer term. This change in real exchange rate can either come through nominal appreciation of the spot rate or through inflation differentials. However, given that equities are effectively a claim on real assets, developed investors in emerging markets should benefit regardless – should the real appreciation occur via relatively higher inflation in the emerging world the investors will still see higher real returns based on their own lower inflation rate.

This would suggest that emerging market equities will perform better in common US dollar terms in the long run than they would in local currencies.

5 see https://www.imf.org/External/Pubs/FT/staffp/2005/04/pdf/choudhri.pdf

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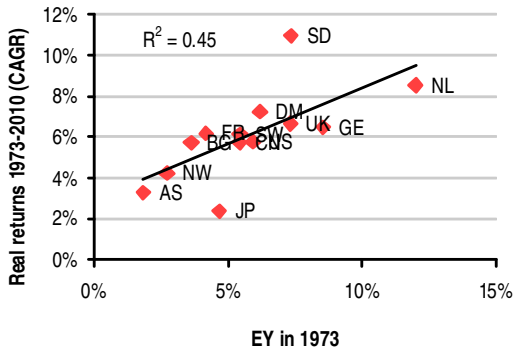
Appendix 1

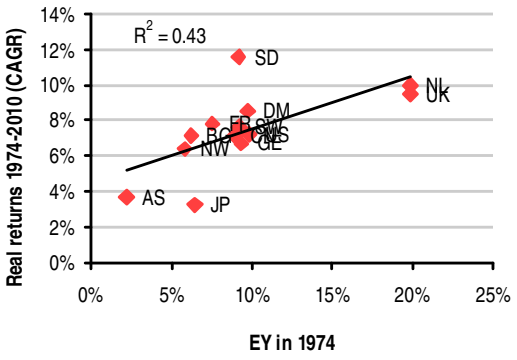
Cross country: Earnings yields versus returns

1973 earnings yield vs. future real returns



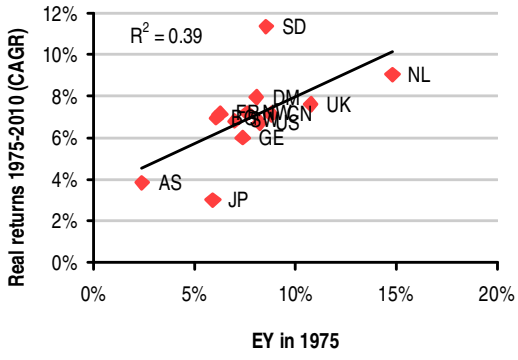
Source: HSBC, MSCI, Thomson Reuters Datastream

1974 earnings yield vs. future real returns



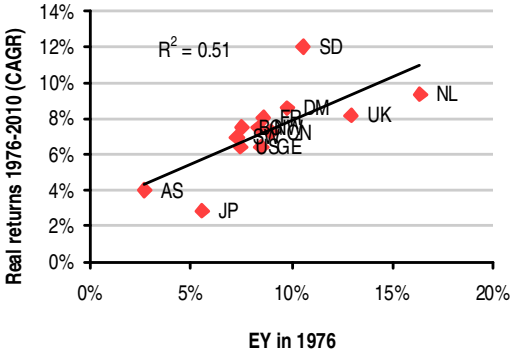
Source: HSBC, MSCI, Thomson Reuters Datastream

1975 earnings yield vs. future real returns



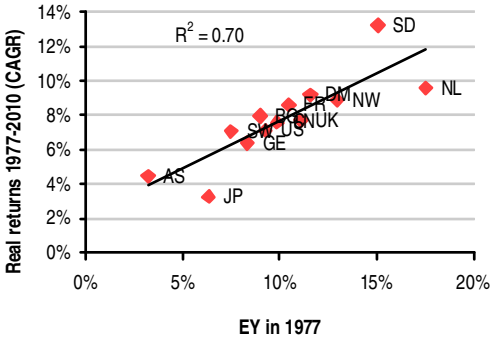
Source: HSBC, MSCI, Thomson Reuters Datastream

1976 earnings yield vs. future real returns



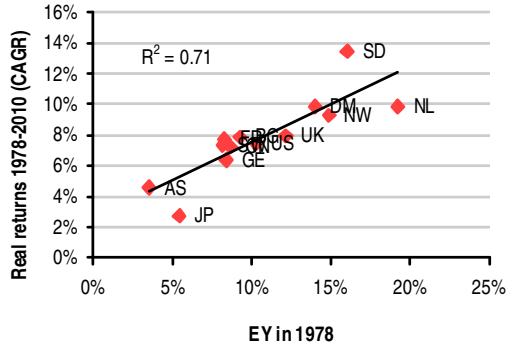
Source: HSBC, MSCI, Thomson Reuters Datastream

1977 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

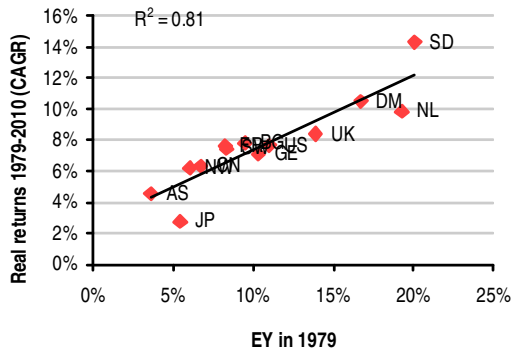
1978 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

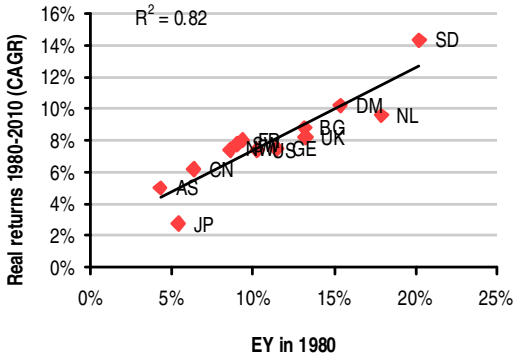
Cross country: Earnings yields versus returns

1979 earnings yield vs. future real returns



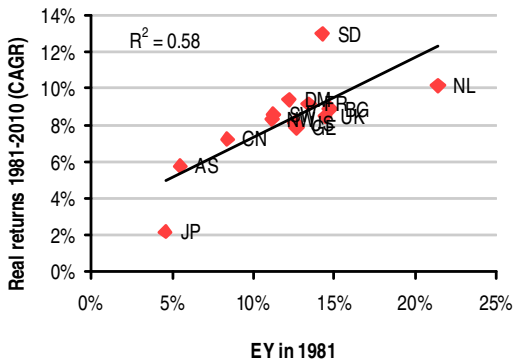
Source: HSBC, MSCI, Thomson Reuters Datastream

1980 earnings yield vs. future real returns



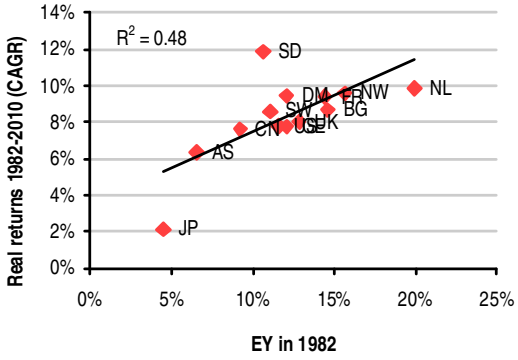
Source: HSBC, MSCI, Thomson Reuters Datastream

1981 earnings yield vs. future real returns



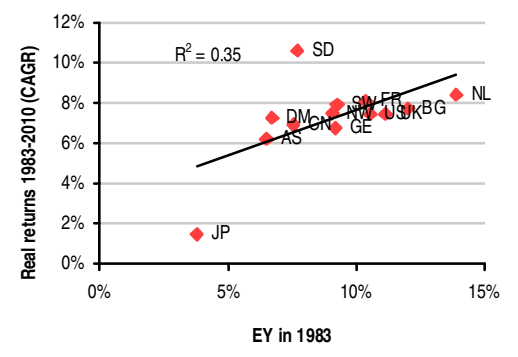
Source: HSBC, MSCI, Thomson Reuters Datastream

1982 earnings yield vs. future real returns



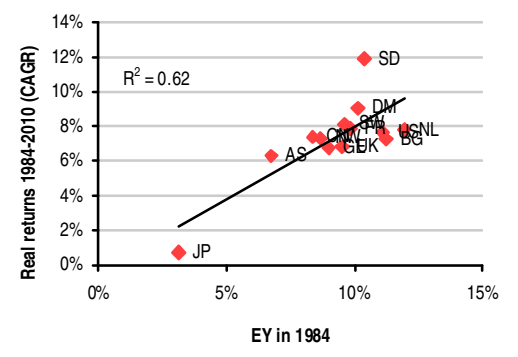
Source: HSBC, MSCI, Thomson Reuters Datastream

1983 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

1984 earnings yield vs. future real returns



Source: HSBC, MSCI, Thomson Reuters Datastream

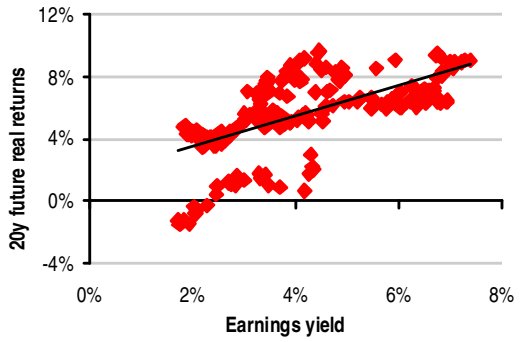
HSBC

Appendix 2

HSBC

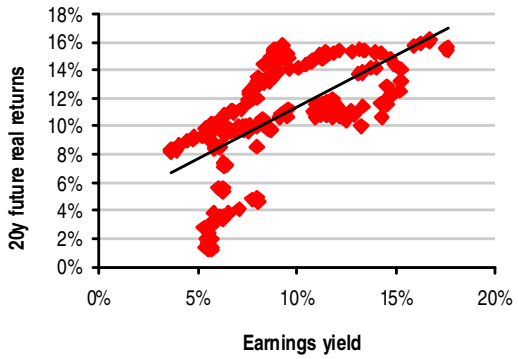
Time series charts – EY versus 20-year future returns

Austria, AS



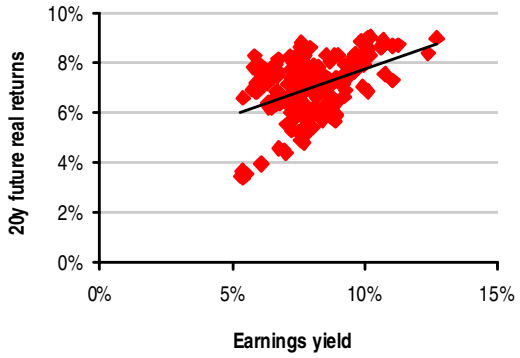
Source: HSBC, MSCI, Thomson Reuters Datastream

Belgium, BG



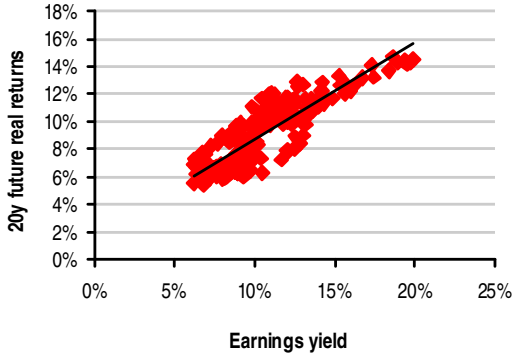
Source: HSBC, MSCI, Thomson Reuters Datastream

Canada, CN



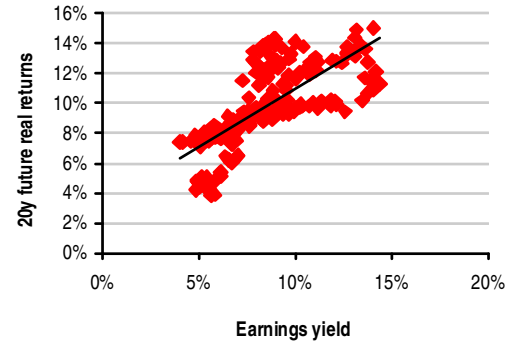
Source: HSBC, MSCI, Thomson Reuters Datastream

Denmark, DK



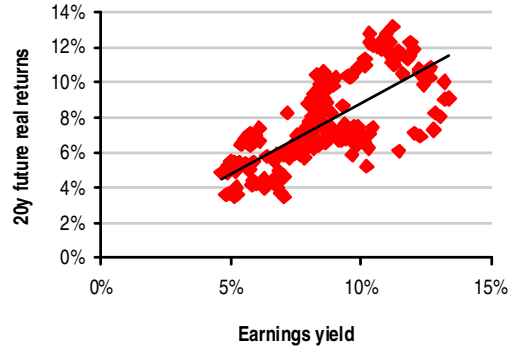
Source: HSBC, MSCI, Thomson Reuters Datastream

France, FR



Source: HSBC, MSCI, Thomson Reuters Datastream

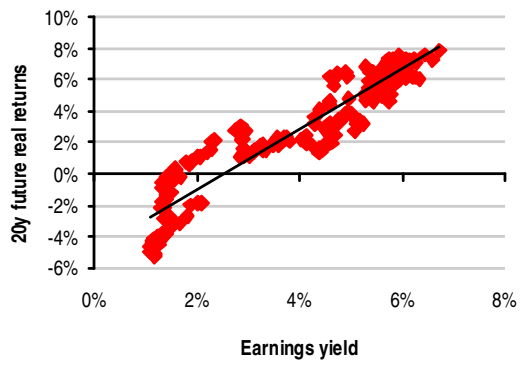
Germany, GE



Source: HSBC, MSCI, Thomson Reuters Datastream

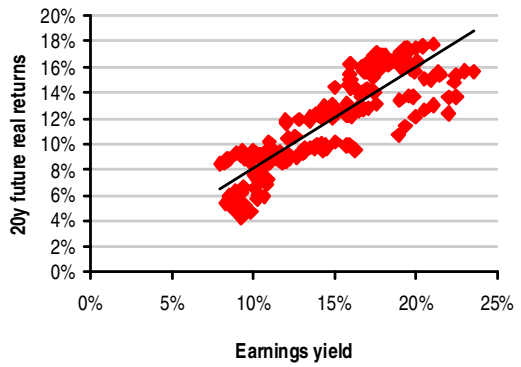
Time series charts – EY versus 20-year future returns

Japan, JP



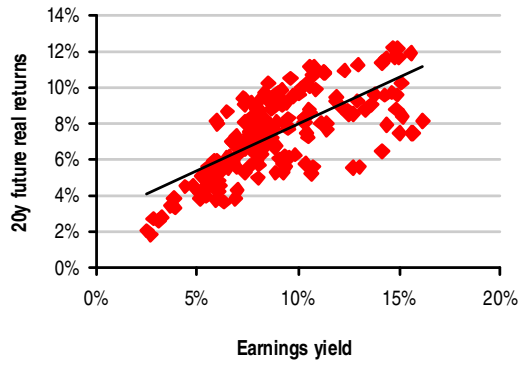
Source: HSBC, MSCI, Thomson Reuters Datastream

Netherlands, NL



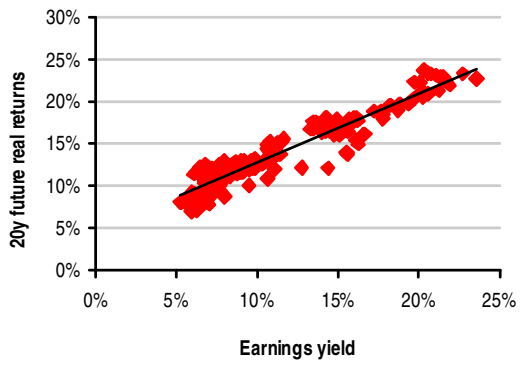
Source: HSBC, MSCI, Thomson Reuters Datastream

Norway, NW



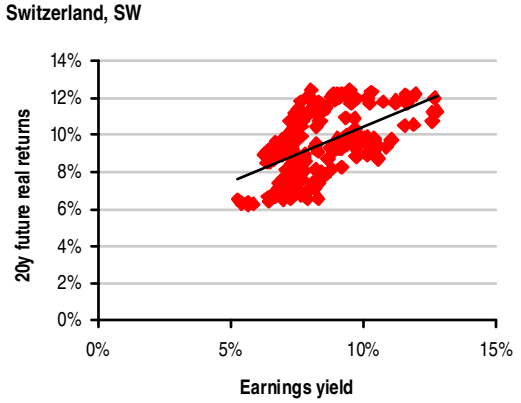
Source: HSBC, MSCI, Thomson Reuters Datastream

Sweden, SD



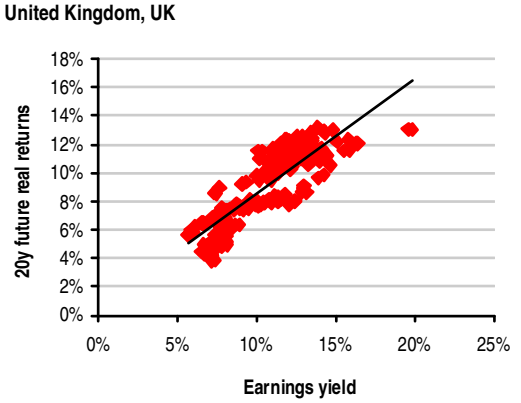
Source: HSBC, MSCI, Thomson Reuters Datastream

Switzerland, SW



Source: HSBC, MSCI, Thomson Reuters Datastream

United Kingdom, UK



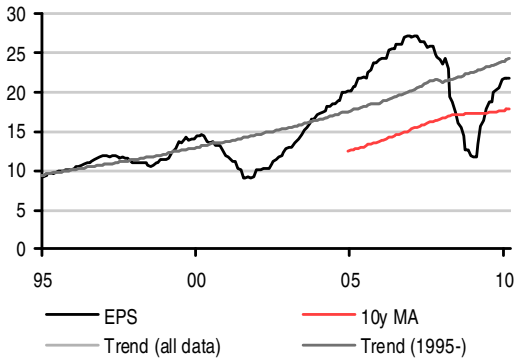
Source: HSBC, MSCI, Thomson Reuters Datastream

HSBC

Appendix 3

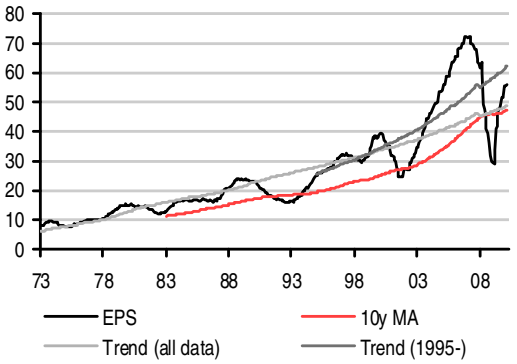
EPS versus trends: Regional aggregates

All country world



Source: HSBC, MSCI, Thomson Reuters Datastream

Developed World



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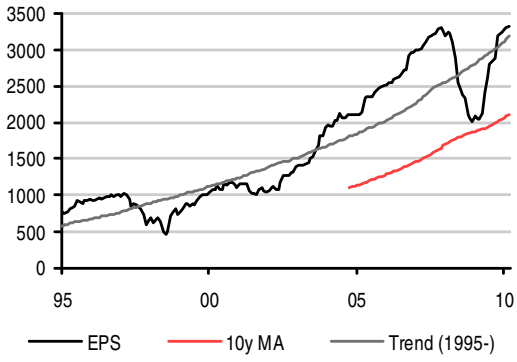
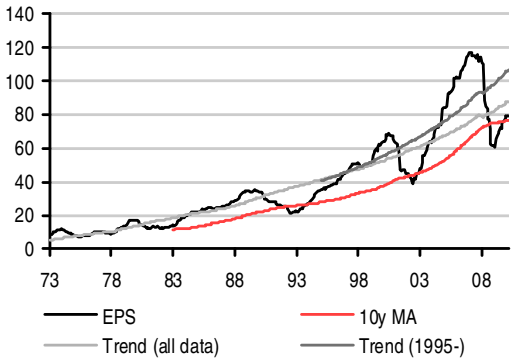
Emerging World



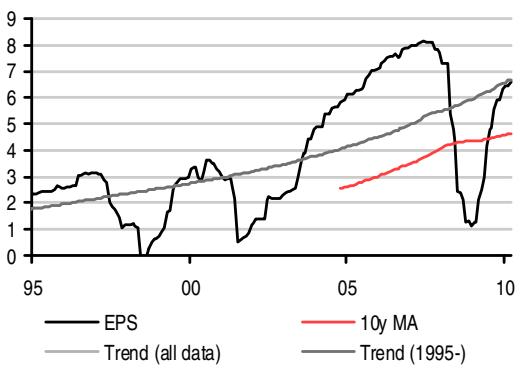
Source: HSBC, MSCI, Thomson Reuters Datastream

Europe



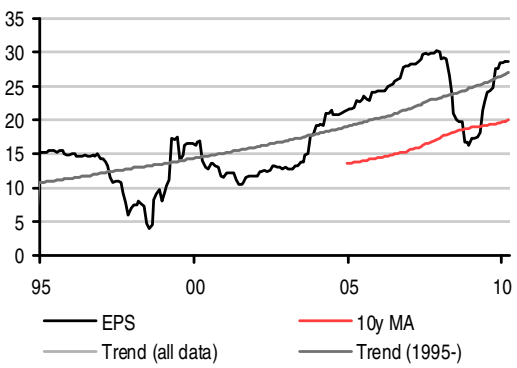
Source: HSBC, MSCI, Thomson Reuters Datastream

Asia Pacific



Source: HSBC, MSCI, Thomson Reuters Datastream

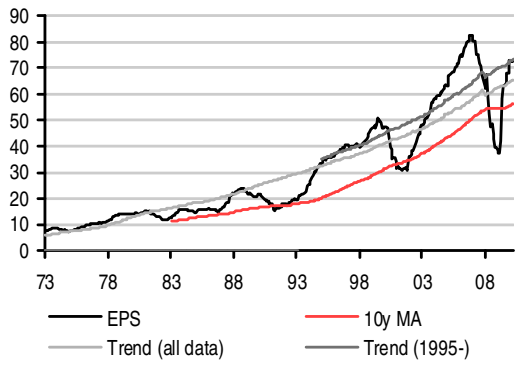
Asia Pacific ex Japan



Source: HSBC, MSCI, Thomson Reuters Datastream

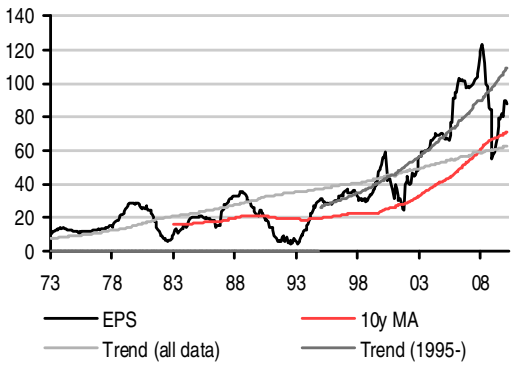
EPS versus trends: Americas

US



Source: HSBC, MSCI, Thomson Reuters Datastream

Canada



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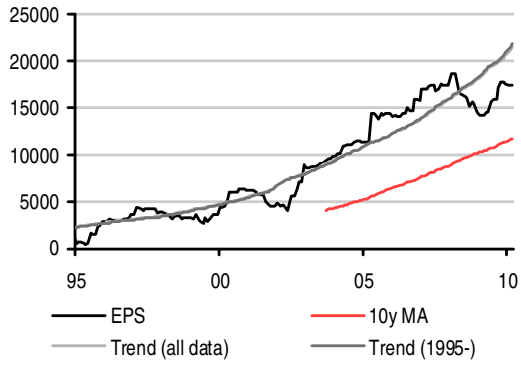
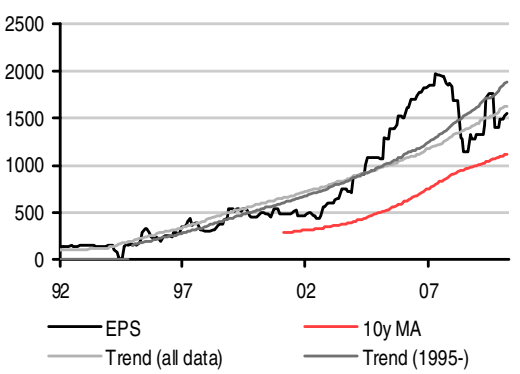
Brazil



Source: HSBC, MSCI, Thomson Reuters Datastream

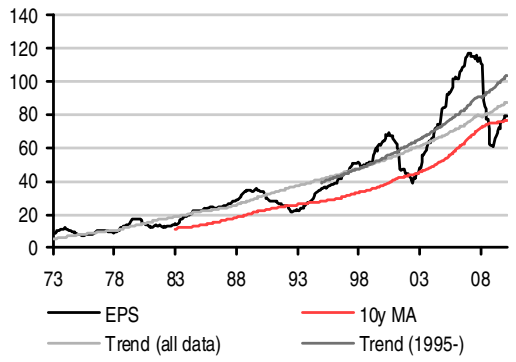
Mexico



Source: HSBC, MSCI, Thomson Reuters Datastream

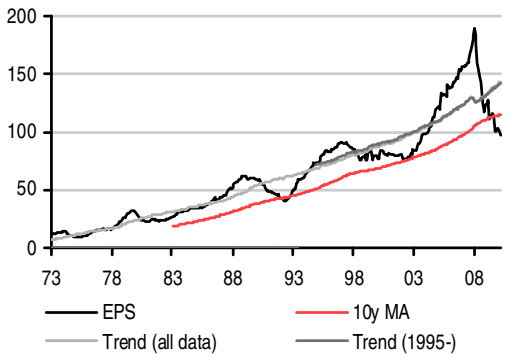
EPS versus trends: Europe

Developed Europe



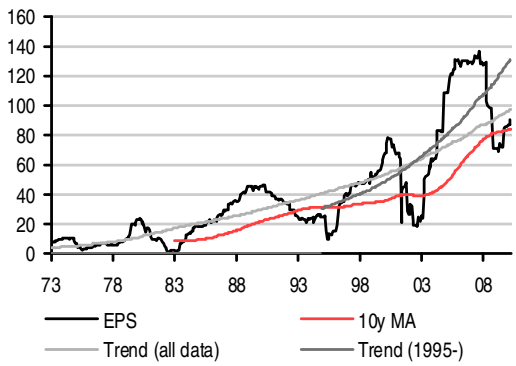
Source: HSBC, MSCI, Thomson Reuters Datastream

United Kingdom



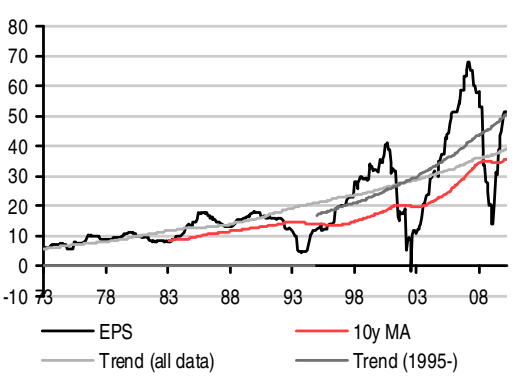
Source: HSBC, MSCI, Thomson Reuters Datastream

France



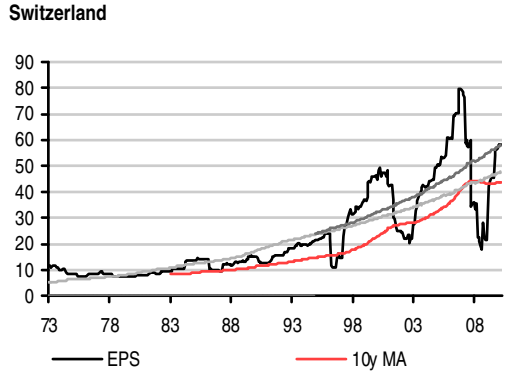
Source: HSBC, MSCI, Thomson Reuters Datastream

Germany



Source: HSBC, MSCI, Thomson Reuters Datastream

Switzerland



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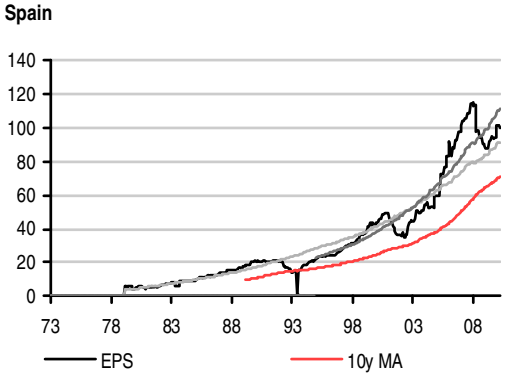
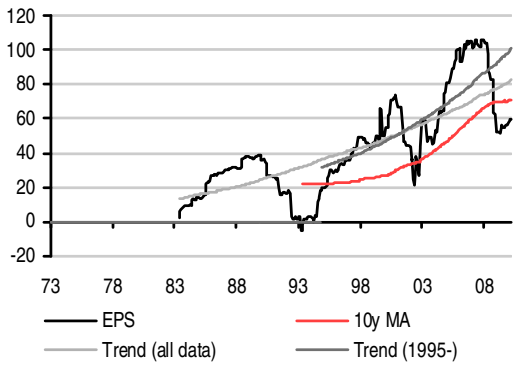
Spain



Source: HSBC, MSCI, Thomson Reuters Datastream

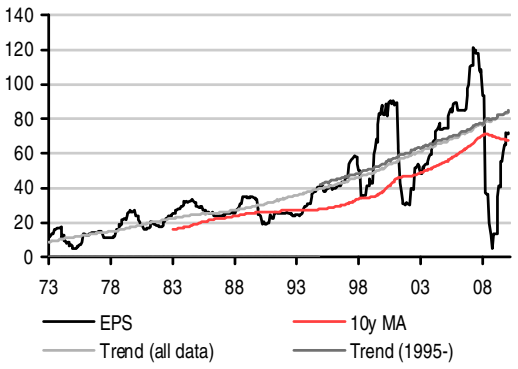
EPS versus trends: Europe

Italy



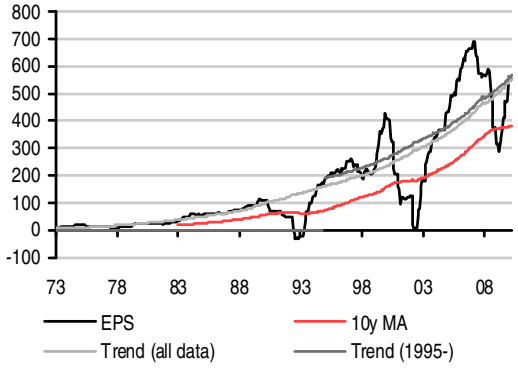
Source: HSBC, MSCI, Thomson Reuters Datastream

Netherlands



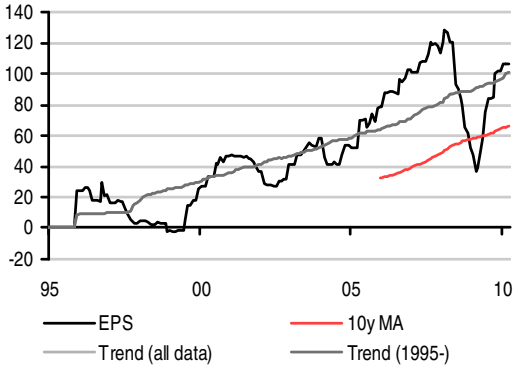
Source: HSBC, MSCI, Thomson Reuters Datastream

Sweden



Source: HSBC, MSCI, Thomson Reuters Datastream

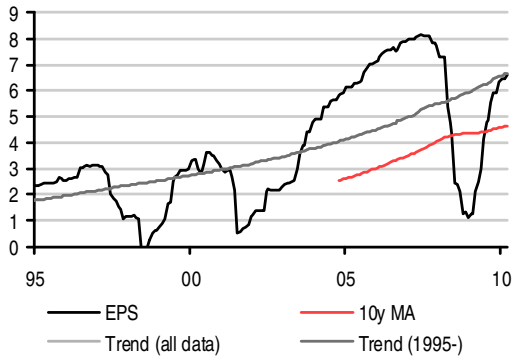
Russia



Source: HSBC, MSCI, Thomson Reuters Datastream

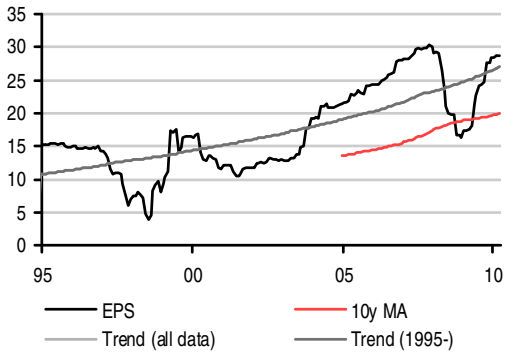
EPS versus trends: Asia Pacific

Asia Pacific



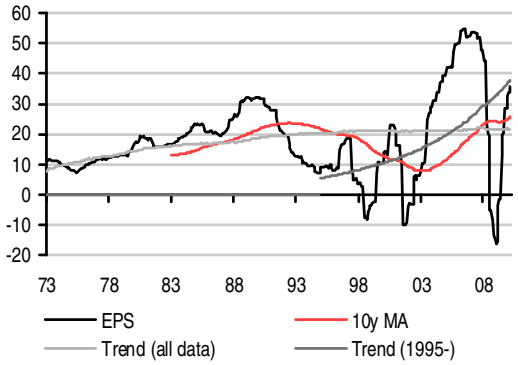
Source: HSBC, MSCI, Thomson Reuters Datastream

Asia Pacific ex Japan



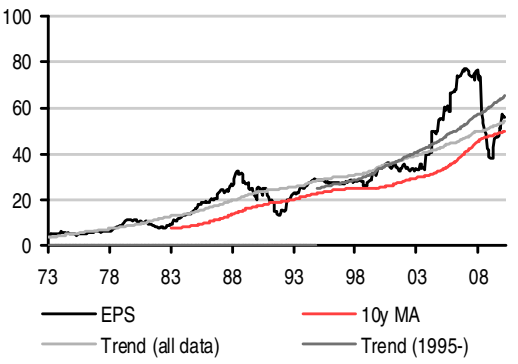
Source: HSBC, MSCI, Thomson Reuters Datastream

Japan



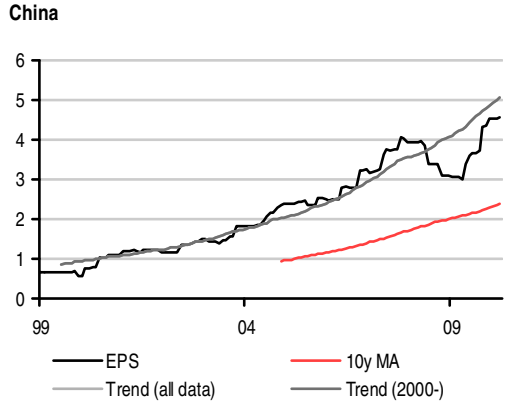
Source: HSBC, MSCI, Thomson Reuters Datastream

Australia



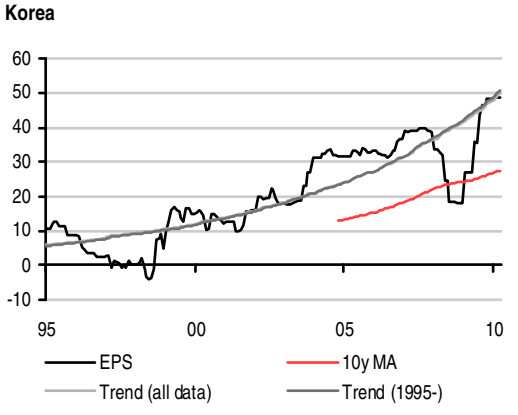
Source: HSBC, MSCI, Thomson Reuters Datastream

China



Source: HSBC, MSCI, Thomson Reuters Datastream

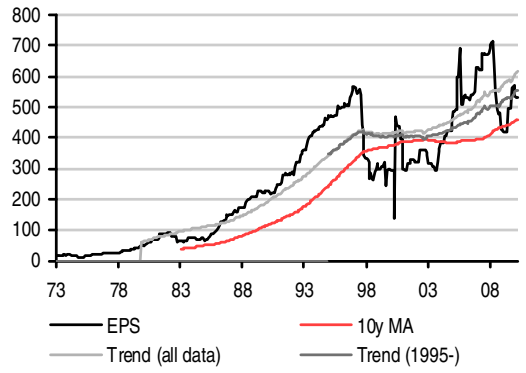
Korea



Source: HSBC, MSCI, Thomson Reuters Datastream

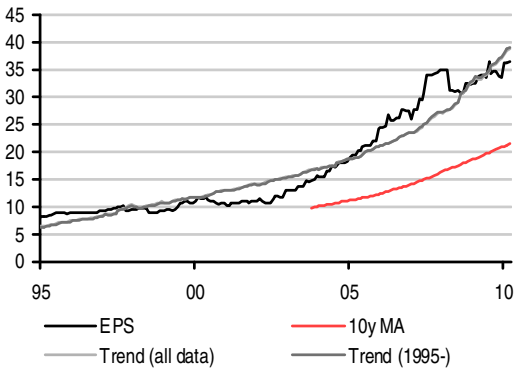
EPS versus trends: Asia Pacific

Hong Kong



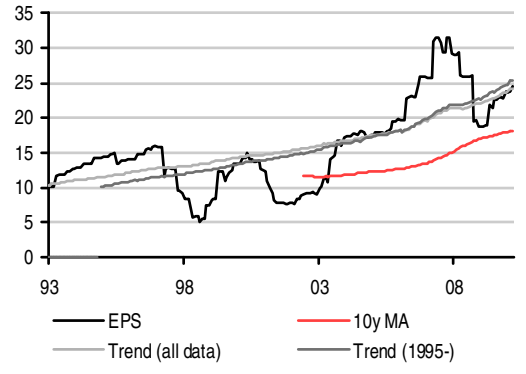
Source: HSBC, MSCI, Thomson Reuters Datastream

India



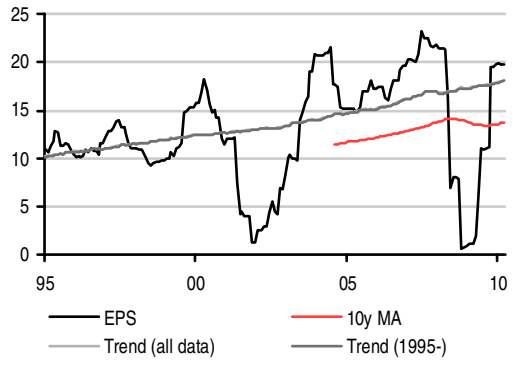
Source: HSBC, MSCI, Thomson Reuters Datastream

Singapore



Source: HSBC, MSCI, Thomson Reuters Datastream

Taiwan



Source: HSBC, MSCI, Thomson Reuters Datastream

HSBC

References/literature review

- **Dimson, E., Marsh, P.R., & Staunton, M., 2002**. *Triumph of the Optimists: 101 Years of Global Investment Returns.* Princeton University Press.

  Dimson, Marsh & Stauton analyse 101 years of data across 16 different markets and find that real GDP per capita growth is negatively related to both real dividend growth and real equity returns, with correlation coefficients of -0.53 and -0.27 respectively. They offer a number of possible explanations for these relationships: the impact of overseas sales, the fact that higher growth may be priced in at the beginning of the period, problems with measuring GDP, and the fact that not all growth accrues to existing shareholders.

- **Bernstein, W.J., & Arnott R.D. 2003**. Earnings growth: The Two Percent Dilution. *Financial Analysts Journal*, 59, pp. 47-55

  Bernstein and Arnott show that over the 20th century in the US stock prices and dividends grew by 2% less than economic growth. They attribute this to the fact that economic growth is mainly driven by new companies and through increases in capital at existing companies. This creates a 'dilution effect' which means existing shareholders do not benefit fully from the growth in aggregate earnings.

- **Ritter, J.R., 2005**. Economic growth and equity returns. *Pacific-Basin Finance Journal*, 13, pp.489-503

  In this article Ritter builds on the evidence of Dimson, Marsh and Staunton. Similarly to Bernstein and Arnott he argues that the observed negative relationship is due to the fact that most economic growth does not benefit the existing owners of capital. Ritter also suggests that there are only pieces of information needed to predict future returns: the adjusted P/E ratio, the degree of expropriation by insiders and the probability of a catastrophic loss. Based on his adjusted P/E ratio Ritter estimated that US equities would return 4.5% annually in the future.

- **Campbell, J.Y., & Shiller R.J., 2001.** Valuation Ratios and the Long-Run Stock Market Outlook: An Update. *NBER Working Paper Series.*

  Campbell and Shiller test whether the PE ratios and dividend yields are good forecasters of stock market variables. They find little relationship between valuation ratios and future earnings or dividend growth (the numerators), but a good relationship between the ratios and future price returns. Specifically they find that the ratio of price to 10-year average earnings explains 30% of future stock price movements for the S&P 500.

- **Domian, D.L., & Richenstien, W.R., 2009.** Long-Horizon Stock Predictability: Evidence and Applications. *The Journal of Investing*, Vol 18 no. 3 pp12-20.

  This article looks at the ability of earnings yields to forecast future 1-10 year returns. The authors use two variants of the earnings yield: Shiller's method based on 10-year average earnings, and a yield based on the highest level of earnings in the last 10 years. They find that the earnings yield does have some ability to predict future returns, and that the predictive content of stock returns increases as the forecast horizon increases. However they note that 70% of the variance of 10-year real returns is unpredictable and so a level of risk remains.

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Disclosure appendix

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Issuer of report
The Hongkong and Shanghai Banking Corporation Limited
Level 19, 1 Queen's Road Central
Hong Kong SAR
Telephone: +852 2843 9111
Telex: 75100 CAPEL HX
Fax: +852 2596 0200
Website: www.research.hsbc.com

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HSBC

Global Equity Strategy Research Team

Global

Garry Evans
Global Head of Equity Strategy
+852 2996 6916 garryevans@hsbc.com.hk

EU and US

Peter Sullivan
Head of Equity Strategy, EU and US
+44 20 7991 6702 peter.sullivan@hsbcib.com

Europe

Robert Parkes
+44 20 7991 6716 robert.parkes@hsbcib.com

CEEMEA

John Lomax
+44 20 7992 3712 john.lomax@hsbcib.com

Wietse Nijenhuis
+44 20 7992 3680 wietse.nijenhuis@hsbcib.com

Asia

Garry Evans
+852 2996 6916 garryevans@hsbc.com.hk

Steven Sun
+852 2822 4298 stevensun@hsbc.com.hk

Vivek Misra
+91 80 3001 3699 vivekmisra@hsbc.co.in