Return Predictability and Asset Allocation Strategy

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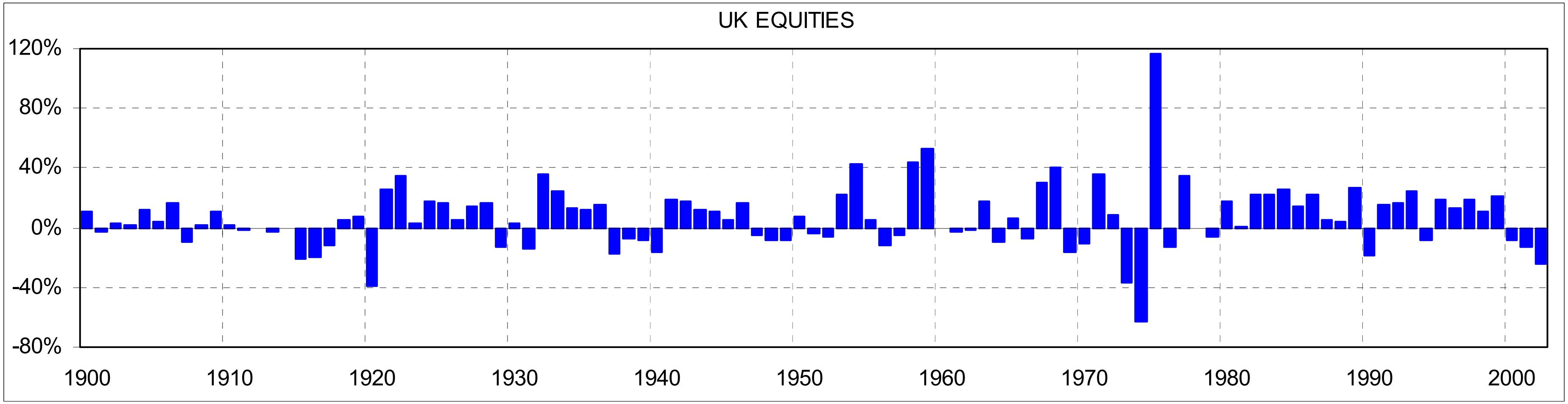
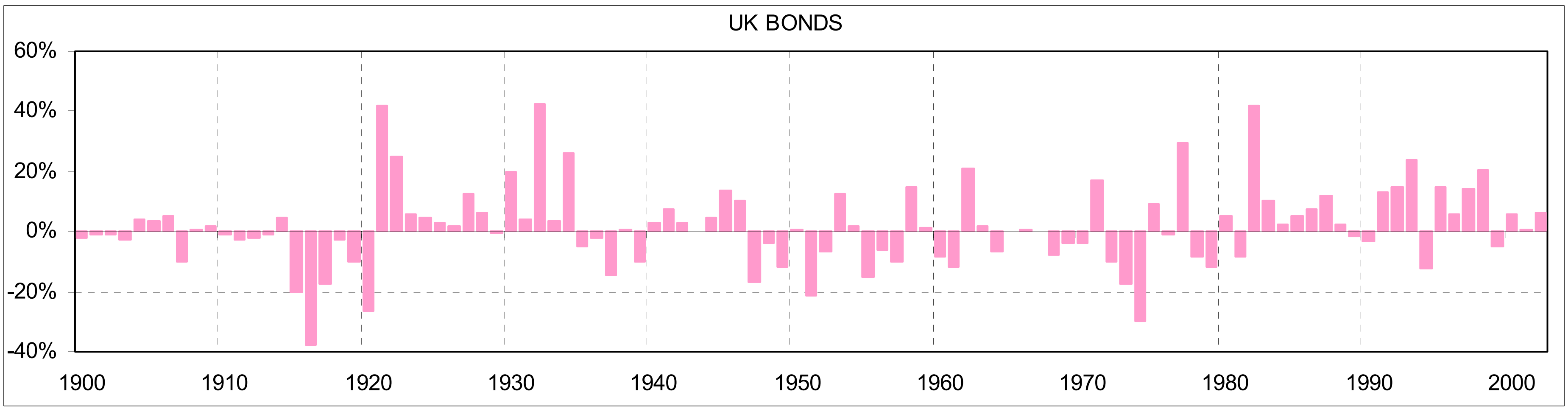
Agenda for discussion

- Actuarial assumptions can be wrong for long periods
- Long term asset class returns are predictable
- Outlook and forecasts for the major asset classes
- Asset allocation strategy in the new environment

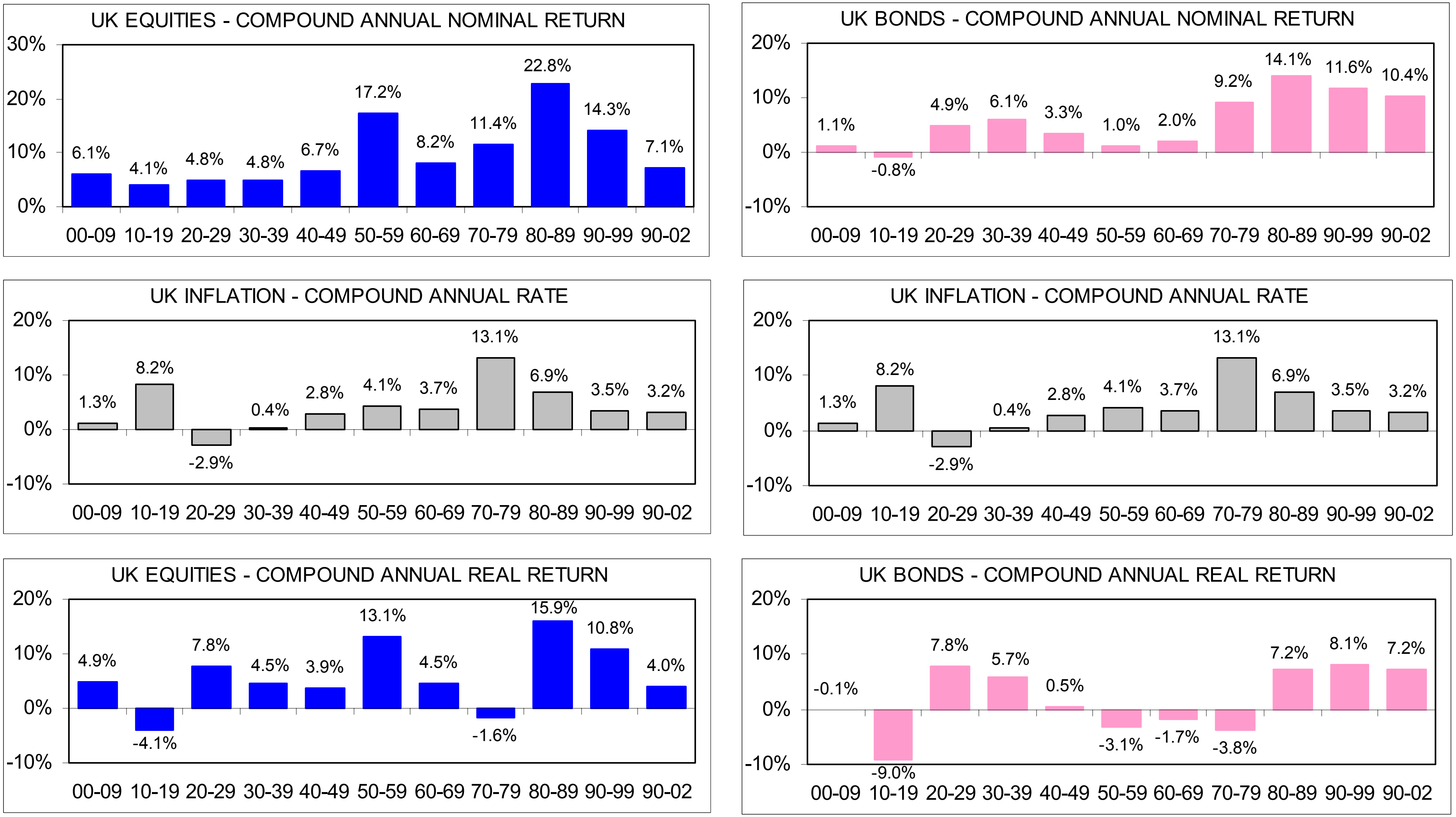
Annual real returns of UK equities and bonds in the last 100 years





Data source: Barclays Gilt Equity Study

Annual compound returns of UK equities and bonds in the last 10 decades



Data source: Barclays Gilt Equity Study

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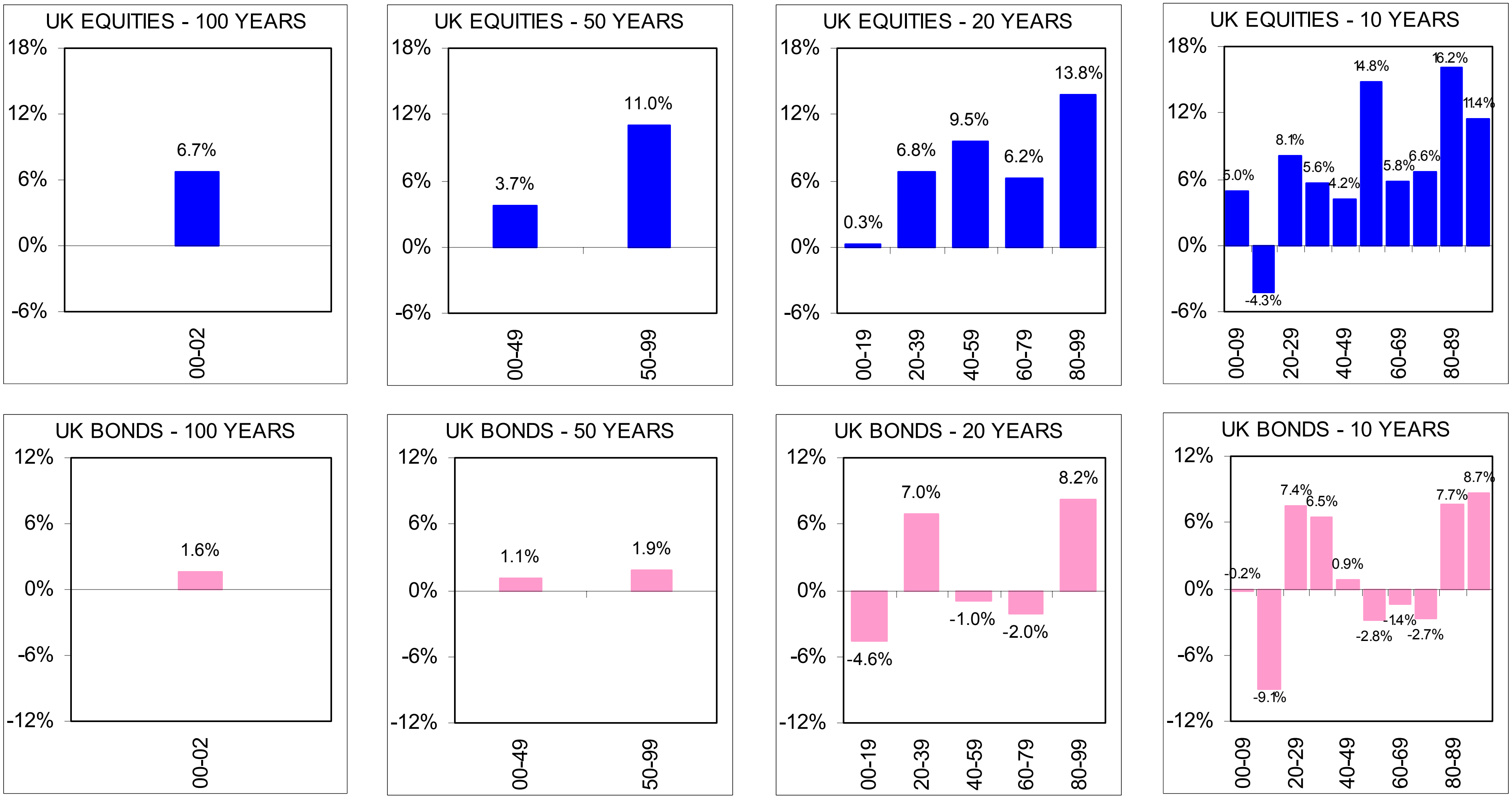
Long term returns are not stationary - the mean varies over time



Data source: Barclays Gilt Equity Study

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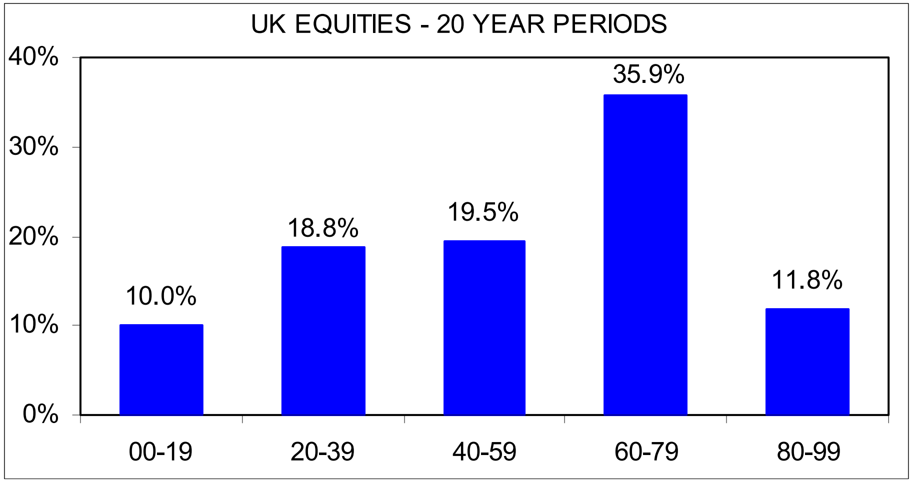
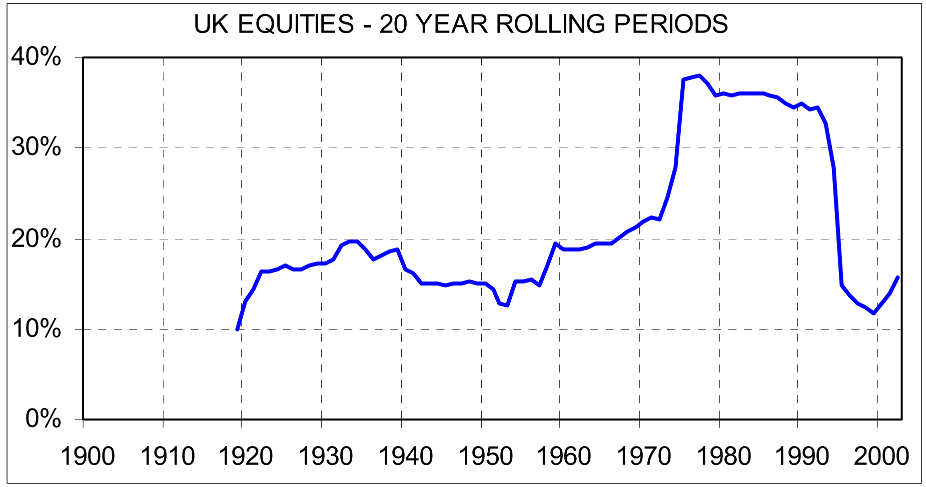
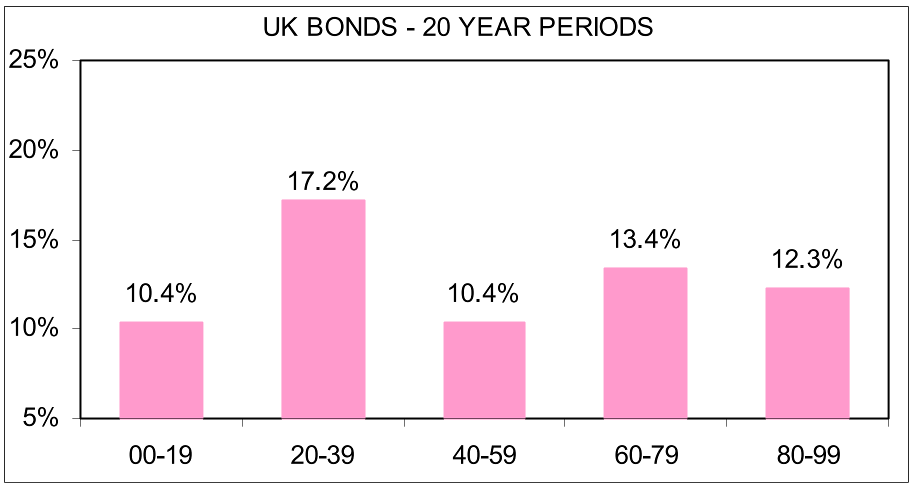
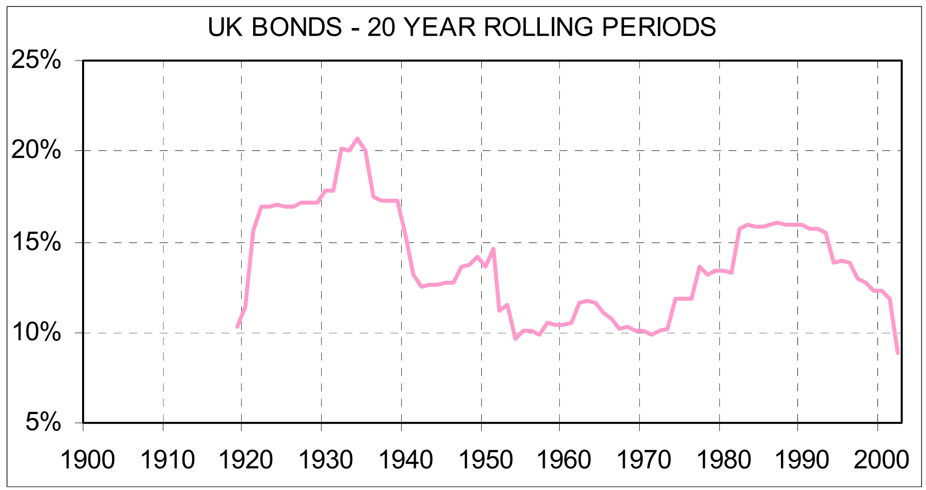
The return distribution is not stationary - the standard deviation varies over time









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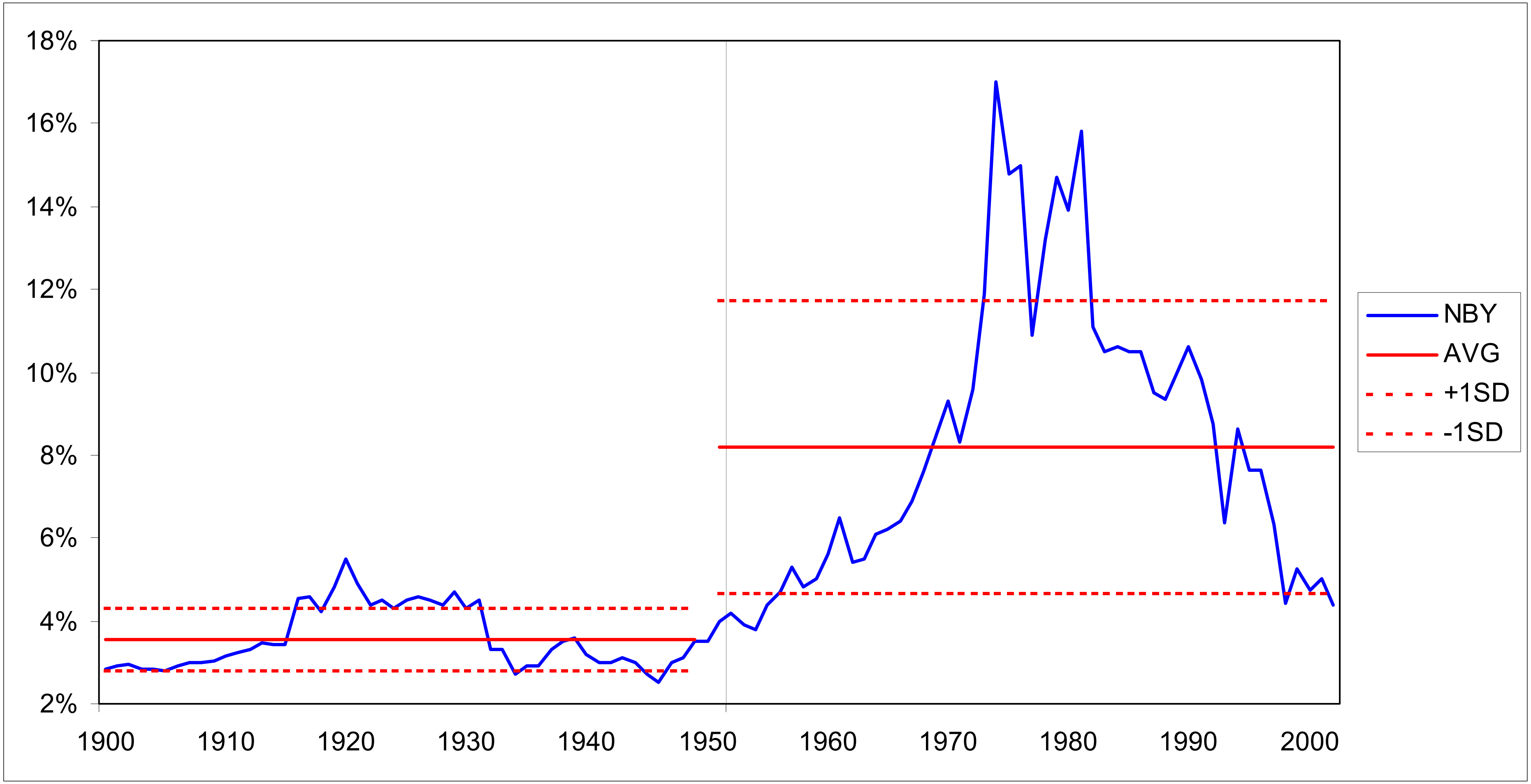
Predicting returns

- Two factors affect long term returns:
  - Starting valuations
  - Economic environment
- The current bond yield is a measure of the future expected return of bonds
- The current dividend yield is a measure of the future expected return of equities
- These measures have significant predictive power over long investment horizons

UK nominal bond yield

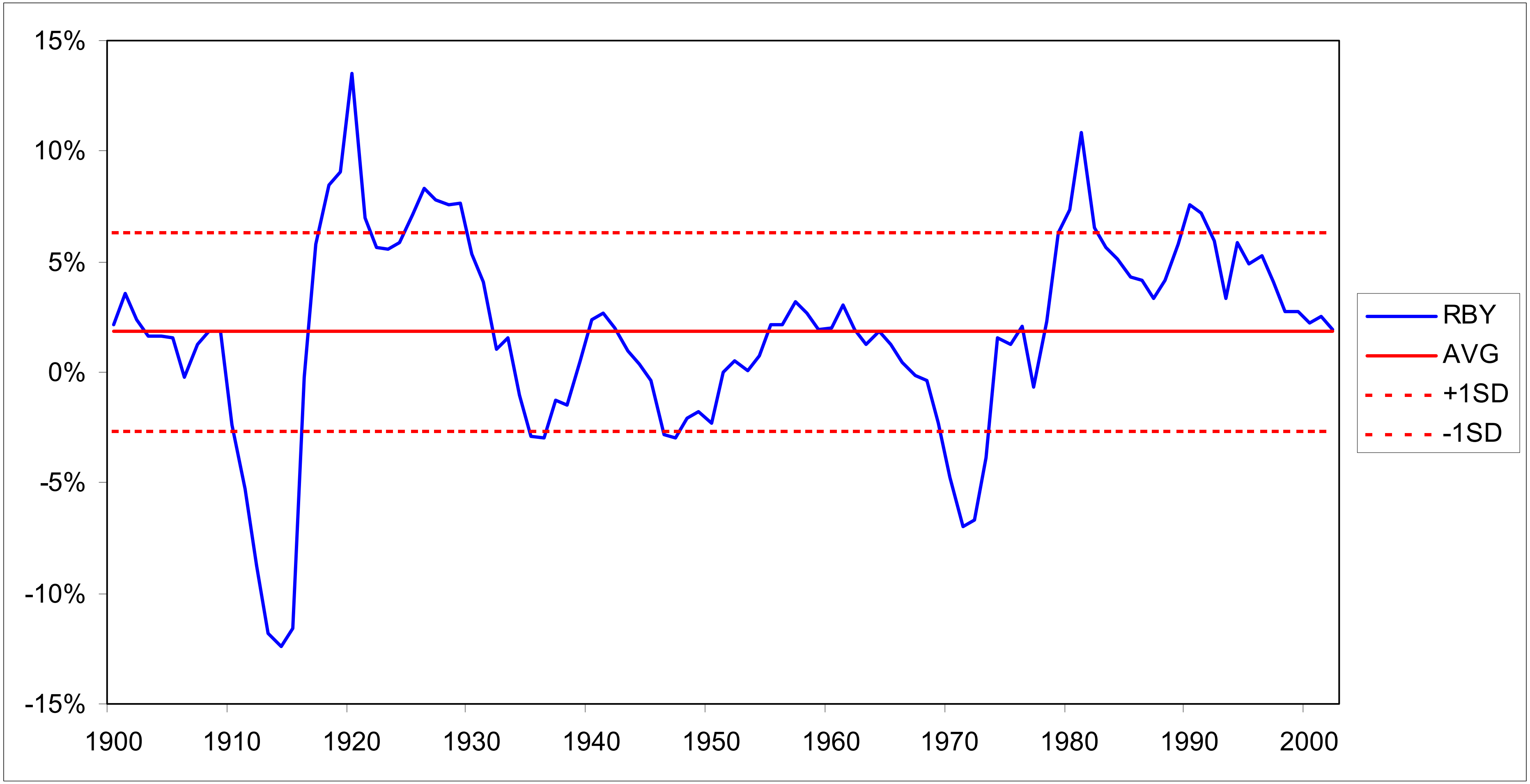


Data source: Barclays Gilt Equity Study

UK nominal bond yield - key points

- We observe 2 distinct periods in the last 100 years
- First period: 1900 - 1950. Key characteristics:
  - Relatively **low** average nominal bond yield (3.6%)
  - Relatively **low** nominal bond yield volatility (0.8%)
  - Relatively **low** annual compound inflation (1.9%)
  - No persistent long term trends in inflation
- Second period: 1950 - 2002. Key characteristics:
  - Relatively **high** average nominal bond yield (8.2%)
  - Relatively **high** nominal bond yield volatility (3.5%)
  - Relatively **high** annual compound inflation (6.0%)
  - Persistent long term trends in inflation: rising in 1950-80, falling in 1980-02

UK real bond yield (nominal bond yield - next 5Y annual compound inflation)



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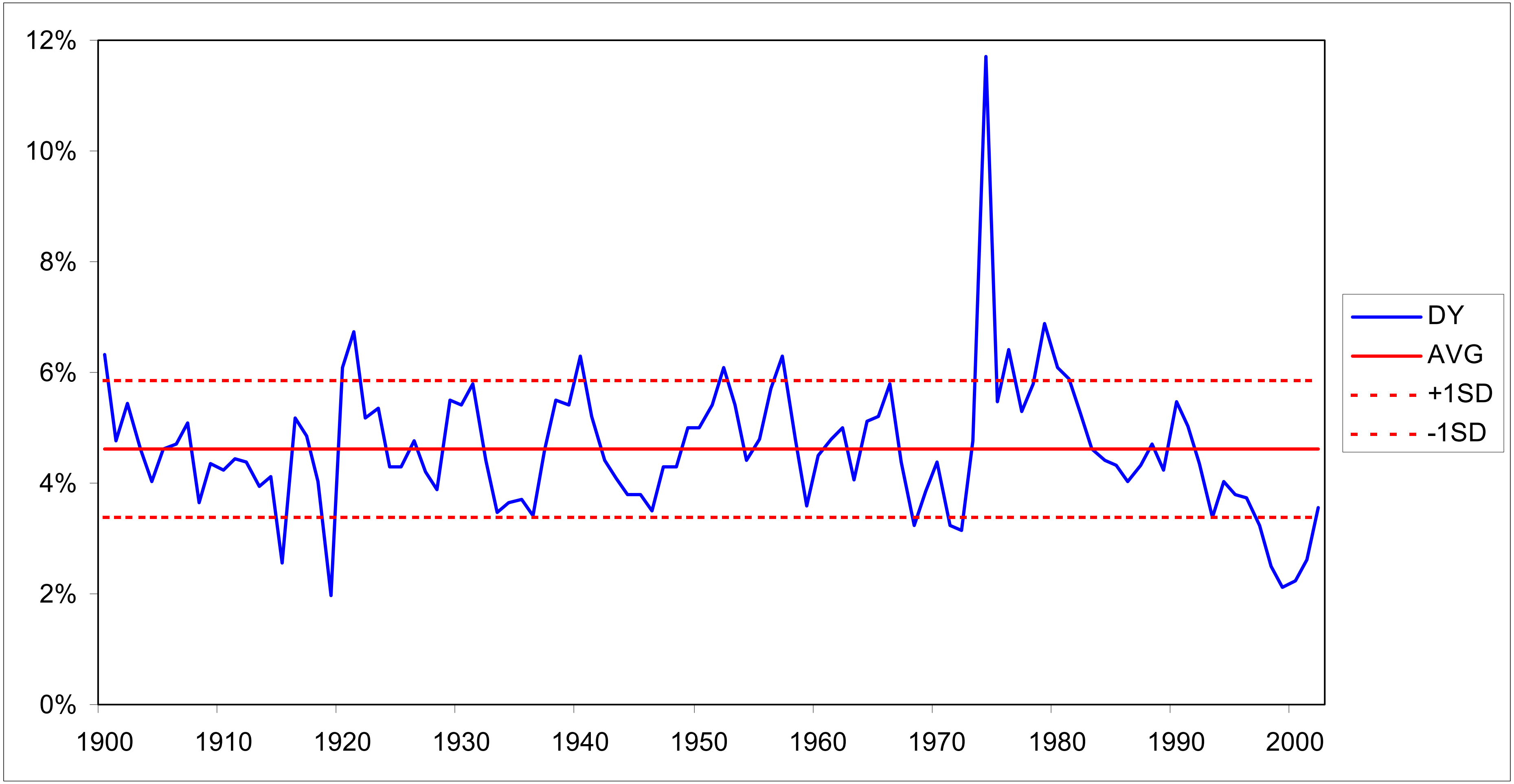
UK real bond yield - key points

- Now, we focus on real yields and their relationship with subsequent real returns
  - Nominal yields are readily available in the market (from bond prices) - real yields are not
  - We estimate real yields by subtracting the 5-year forward inflation rate from nominal yields
  - In the last 5 years (1997 onwards) we subtract the explicit inflation policy target (2.5%)
- Using this methodology, we do not observe distinctly different periods in the last 100 years
  - Average real bond yield of 1.9%
  - Volatility of real bond yield of 4.5%

UK dividend yield

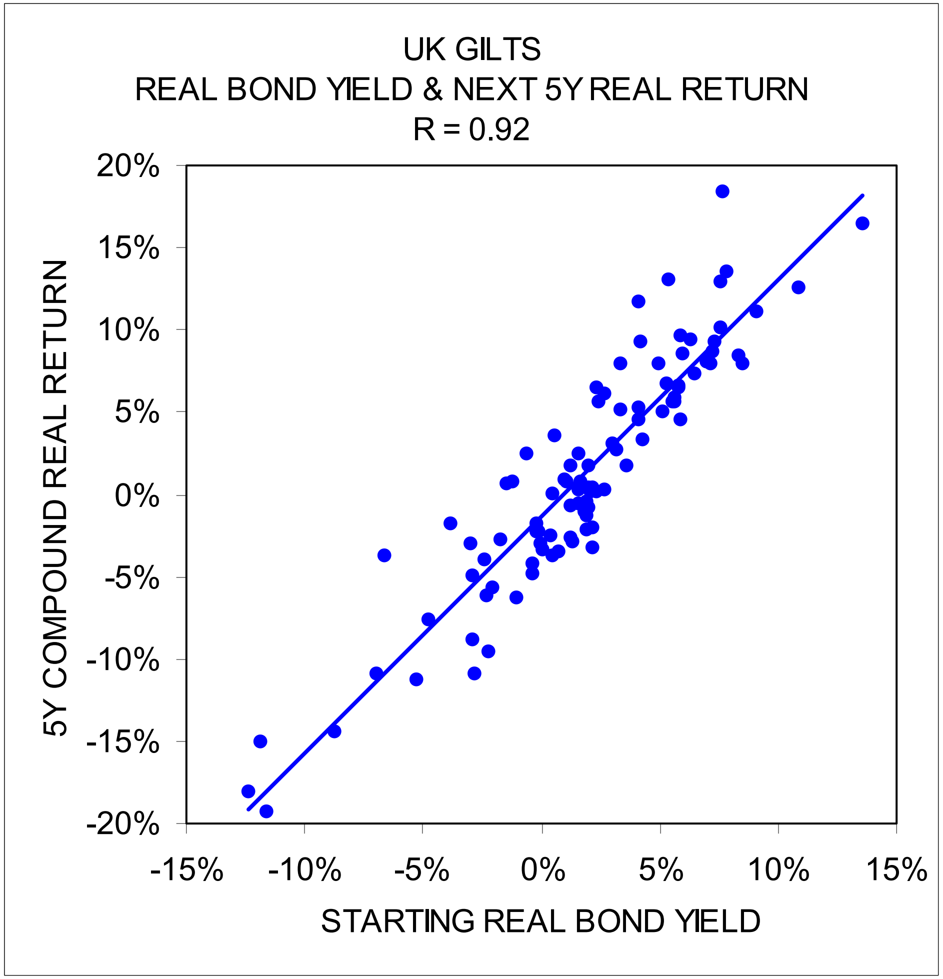


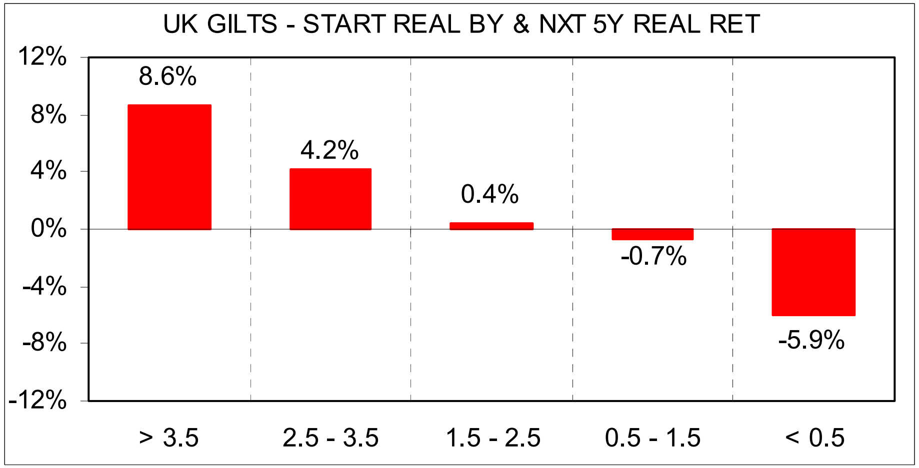
Data source: Barclays Gilt Equity Study

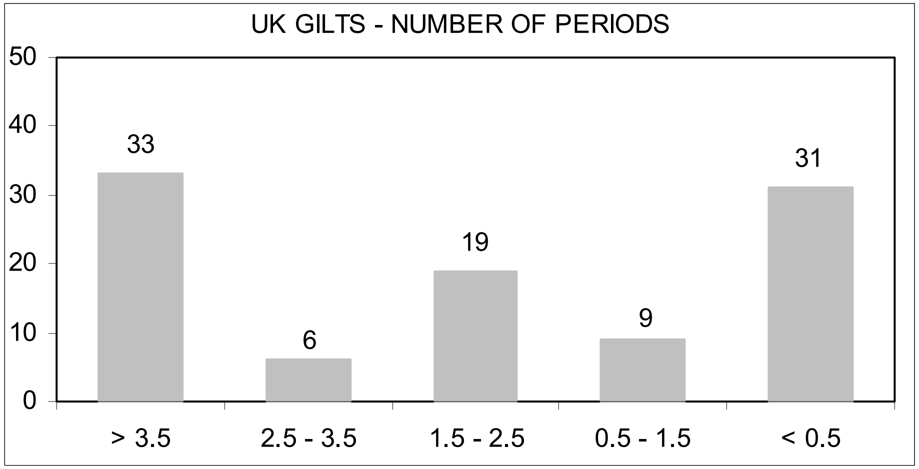
UK dividend yield - key points

- The dividend yield displays remarkably strong long-term mean-reverting properties
- Average of 4.6% with standard deviation of 1.2%, during the period 1900 - 2002
- The dividend yield fell to an all time low of 2.0% in 1919
- More recently, it troughed at 2.1% in 1999 - 2nd lowest level reached in the last 100 years
- The current level of 3.65% is inside the one standard deviation range - but only just...

Starting real bond yield and next five year real bond return (1900-2002)







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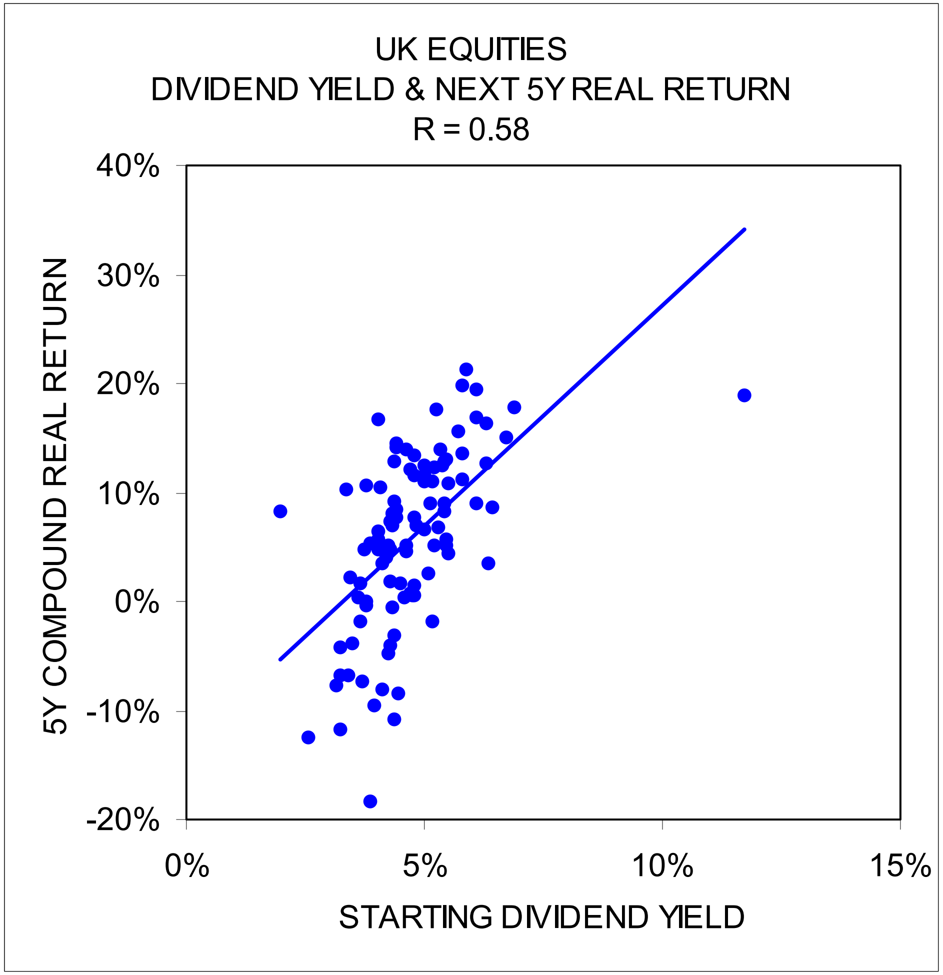
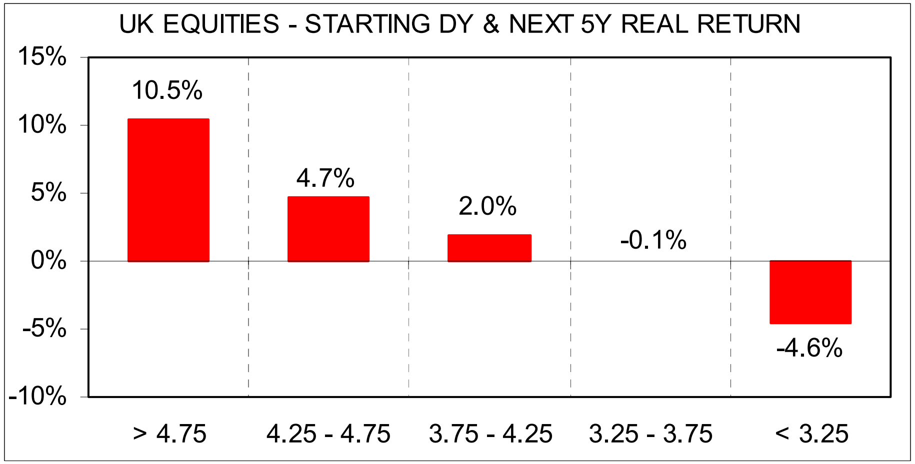
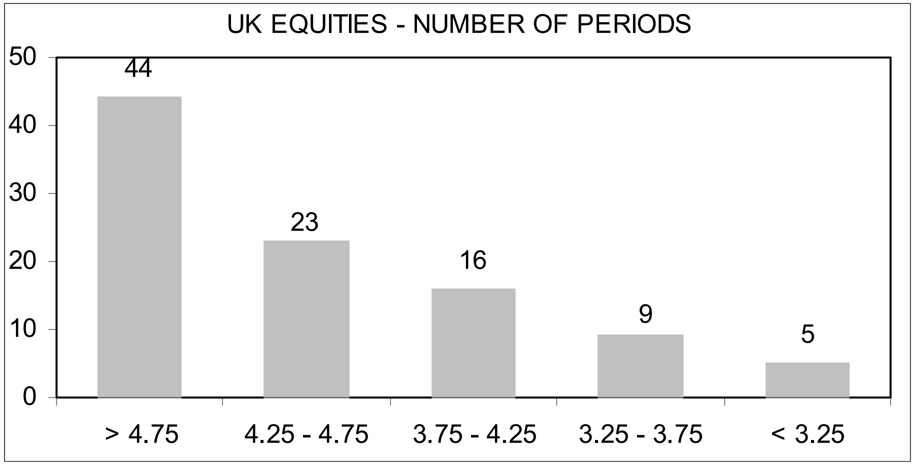
Starting dividend yield and next five year real equity return (1900-2002)







Non-stationarity and long term predictability - key points

- Long term returns are not stationary:
  - The mean of the distribution changes over time
  - Higher moments of the distribution change over time
  - The joint distribution (correlations) changes over time
- Two factors affect the return distribution:
  - Starting valuations
  - Economic environment
- The distribution of asset class returns is predictable, for example:
  - Low starting valuations + disinflation => high return, low volatility, high correlation
  - High starting valuations + low inflation => low return, high volatility, low correlation

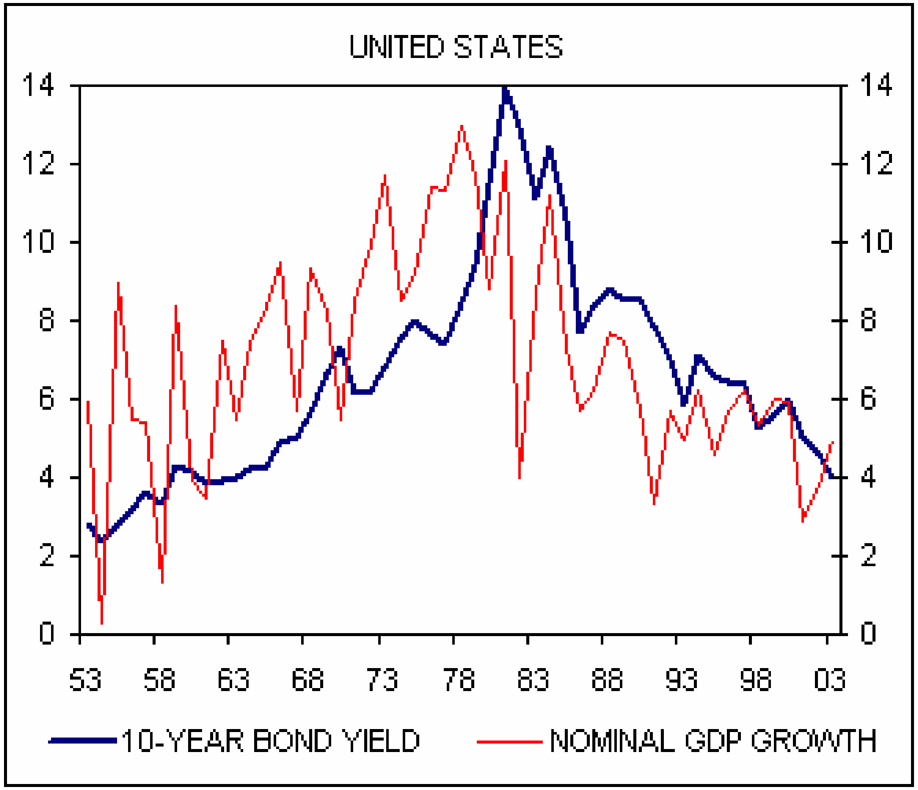
Overview of our long term return forecasting framework

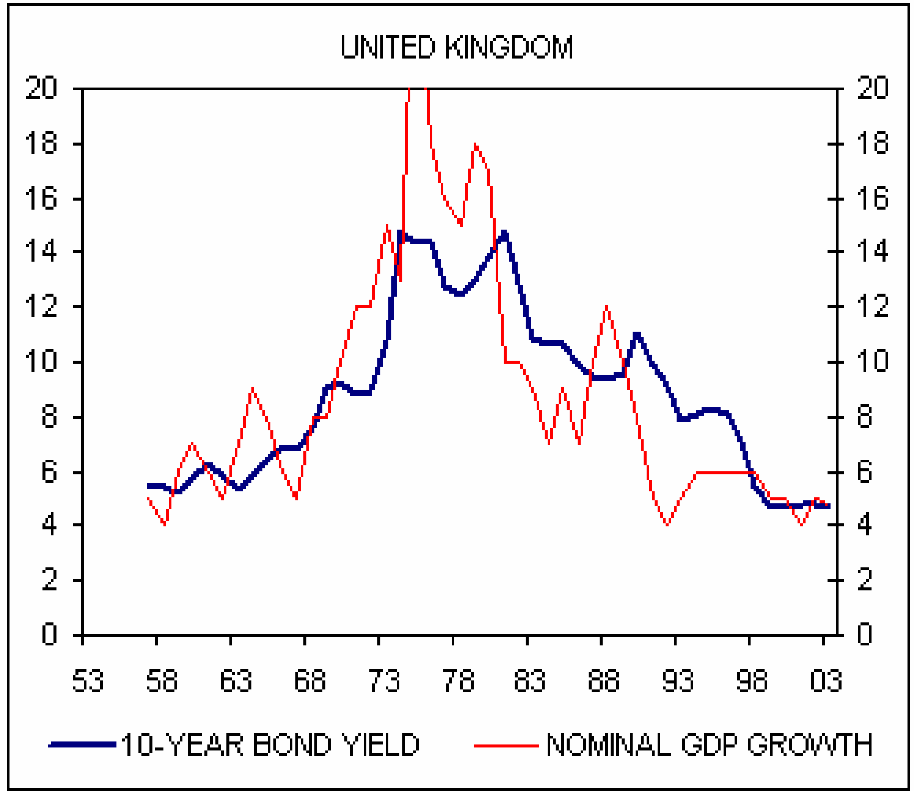
- Long term returns consist of three basic components:
  - Income level at the start of the investment horizon
  - Growth in income during the investment horizon
  - Capital gains/losses due to valuation adjustments over the investment horizon
- Forecasting returns for fixed income assets:
  - The current bond yield quantifies current income
  - As coupons are fixed, income remains constant during the investment horizon
  - Changes in the bond yield during the investment horizon result in capital gains / losses
- Forecasting returns for equity assets:
  - The current dividend yield quantifies current income
  - Dividend growth during the investment horizon depends on the economic environment
  - Changes in the dividend yield during the investment horizon result in capital gains / losses

Outlook for global government bonds

- Current bond yields are at historically low levels in most markets reflecting:
  - strong supply / demand dynamics (purchases by Asian central banks)
  - significant probability of global deflation
- We estimate that equilibrium yields are somewhat higher than current market levels:
  - widening budget deficits imply deteriorating supply / demand dynamics
  - we do not view global deflation as a serious threat
- If yields remain unchanged, returns will be in the range 4% - 6% in most markets
- If yields revert to equilibrium levels, returns will be lower by 0.4% - 1.2% due to capital losses
- US and Japanese government bonds are more exposed to mean reversion in yields

Long term relationship between bond yields and nominal economic growth

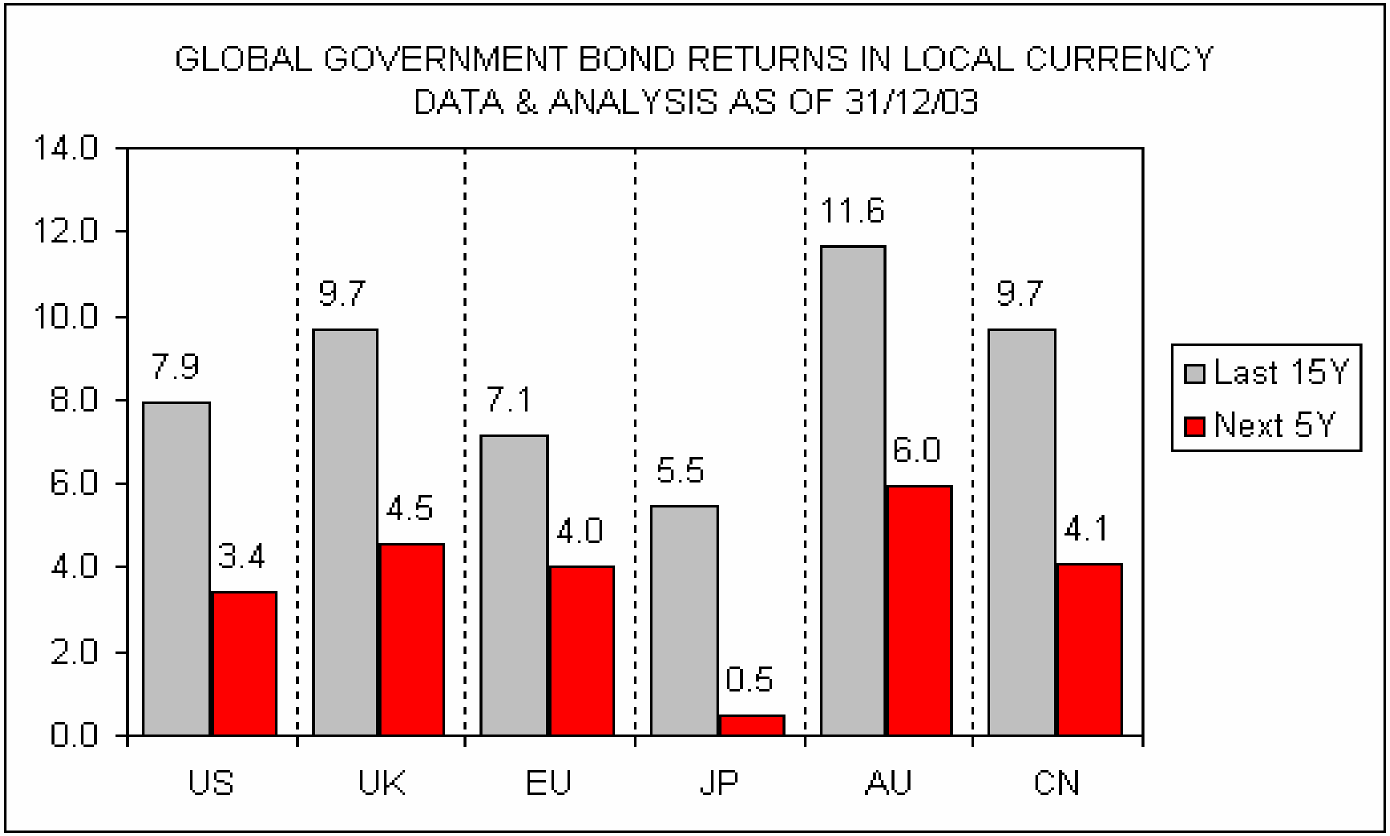




Return forecasts for global government bonds

10Y GOVERNMENT BOND RETURN FORECASTS FOR THE NEXT 5 YEARS ANALYSIS AS OF 31/12/03						
MARKET	US	UK	EU	JP	AU	CN
Current Yield to Maturity	4.26	4.79	4.26	1.34	5.59	4.66
Modified Duration	8.12	8.30	7.99	9.02	7.18	7.56
Equilibrium Real YTM	3.00	3.00	3.00	2.00	3.20	3.20
Inflation Forecast	2.00	2.00	1.50	0.00	2.00	2.00
Equilibrium Nominal YTM	5.00	5.00	4.50	2.00	5.20	5.20
Expected Annual YTM Change	0.15	0.04	0.05	0.13	-0.08	0.11
Expected Annual Price Change	-1.20	-0.35	-0.38	-1.19	0.56	-0.82
Expected Annual Return (03-08)	3.43	4.55	4.00	0.48	5.95	4.11

Government bond return forecasts and recent historical returns



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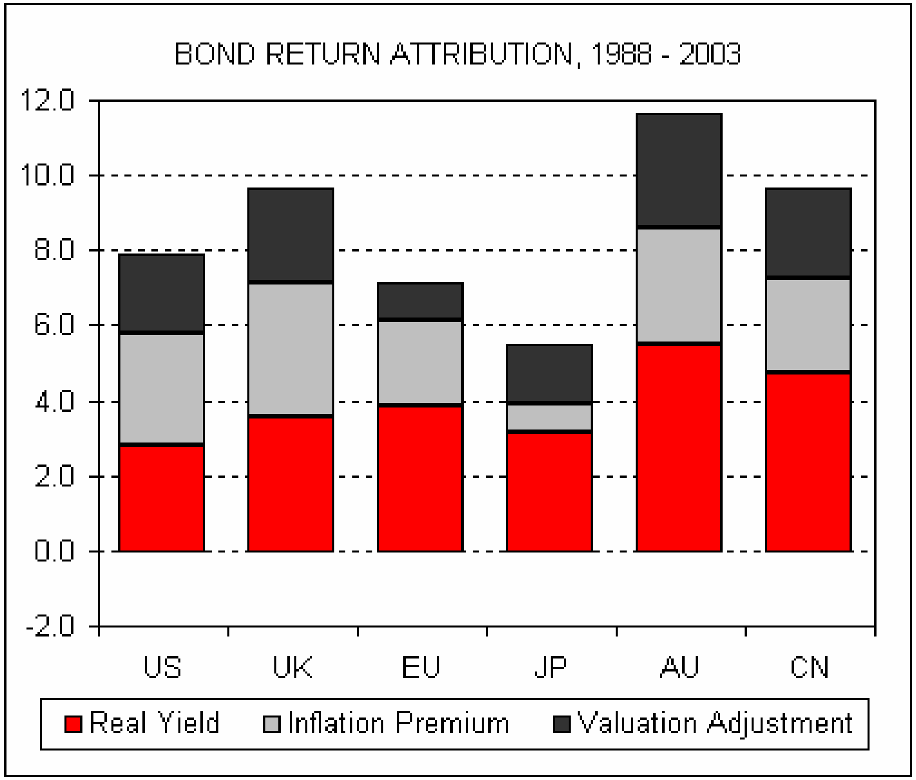
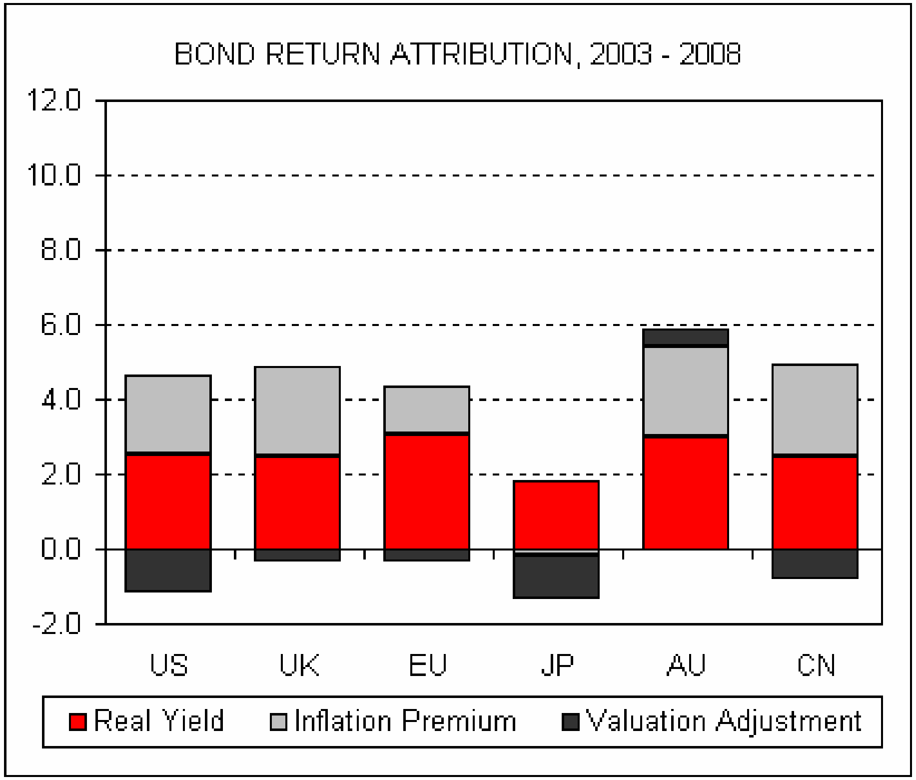
Impact of valuation adjustment on long term bond returns

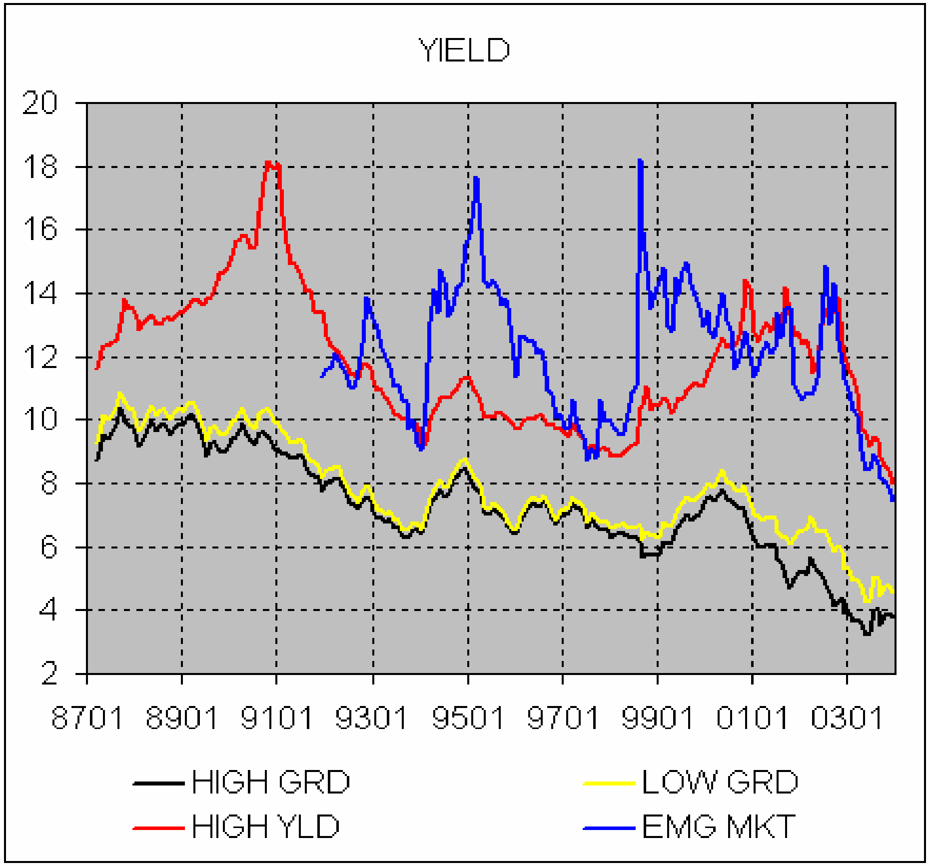


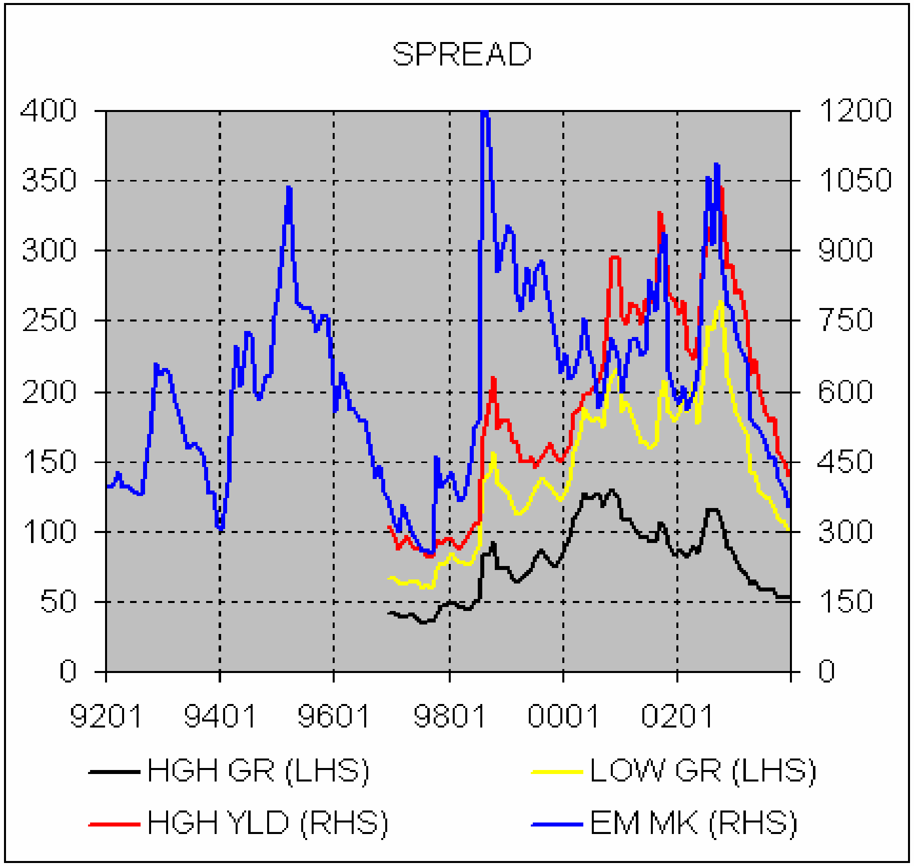


Outlook for corporate and emerging market bonds

- Credit spreads fell sharply in the last 18 months
- Spreads are currently at historically low levels across most credit assets
- These high valuations may reflect recent improvements in fundamentals:
  - improved corporate free cash flow
  - lower balance sheet leverage
  - lower contagion risk
- If spreads remain unchanged, returns will be in the range 4.5% - 6.5% for most credit assets
- If spreads revert to more normal levels, returns will be lower by 1% - 3% due to capital losses
- High yield and emerging market bonds are more exposed to mean reversion in spreads

Corporate and emerging market bond yields and spreads in the last 15 years





Data source: Merill Lynch Indices

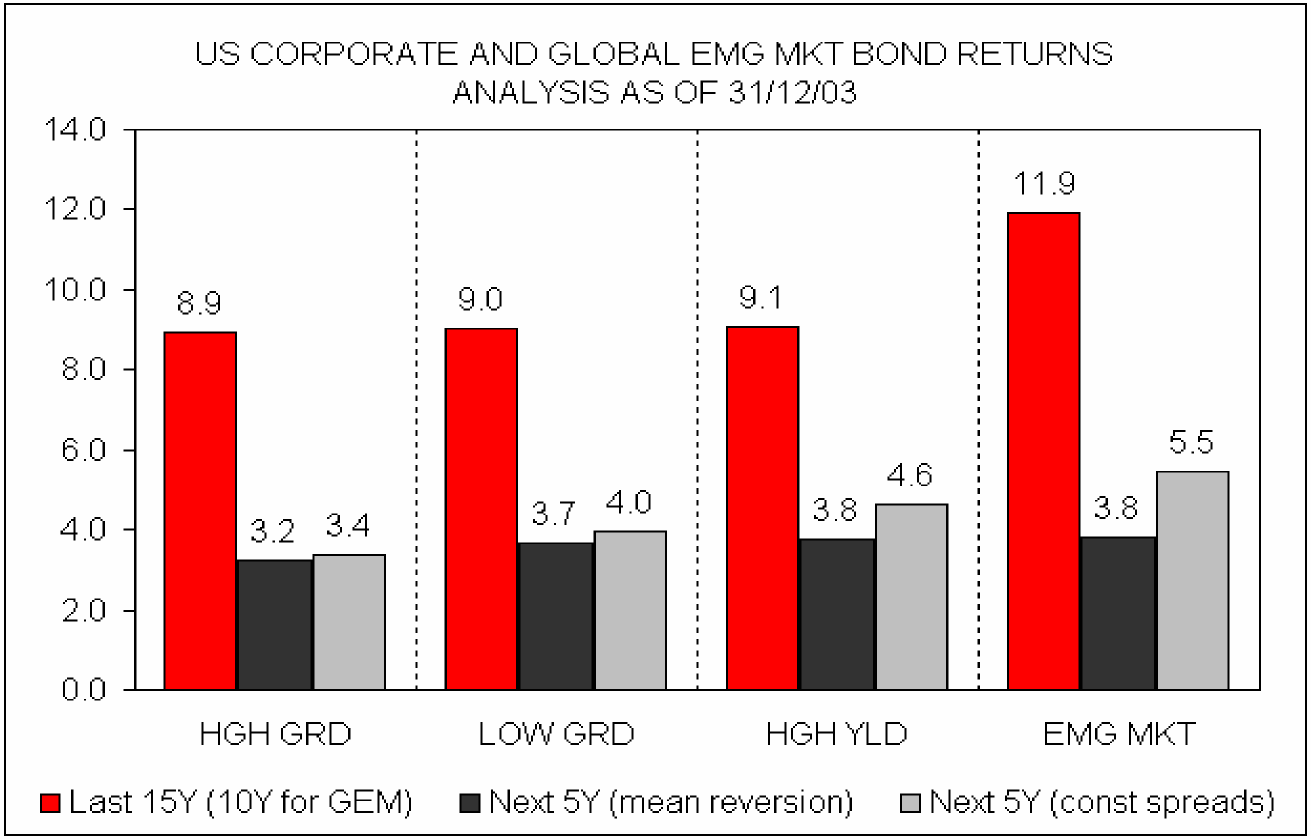
Return forecasts for corporate and emerging market bonds

US CORPORATE & EMG MKT BOND RETURN FORECASTS FOR THE NEXT 5 YEARS

ANALYSIS AS OF 31/12/03

Component	HGH GRD	LOW GRD	HGH YLD	EMG MKT
Current Yield to Maturity	3.77	4.58	8.02	7.44
Current Option Adjusted Spread	0.52	0.99	4.18	3.55
Current Modified Duration	5.13	6.00	5.18	5.68
Equilibrium Underlying Gov Bond Yield	3.99	4.33	4.58	4.63
Equilibrium Option Adjusted Spread	0.78	1.42	5.74	6.14
Equilibrium Yield to Maturity	4.77	5.75	10.32	10.77
Expected Annual YTM Change	0.20	0.23	0.46	0.67
Expected Annual Price Change	-1.03	-1.40	-2.38	-3.78
Expected Annual Credit Loss Rate	0.00	-0.10	-3.00	-1.50
Expected Annual Return	3.25	3.66	3.79	3.83

Credit asset class return forecasts under alternative valuation scenarios



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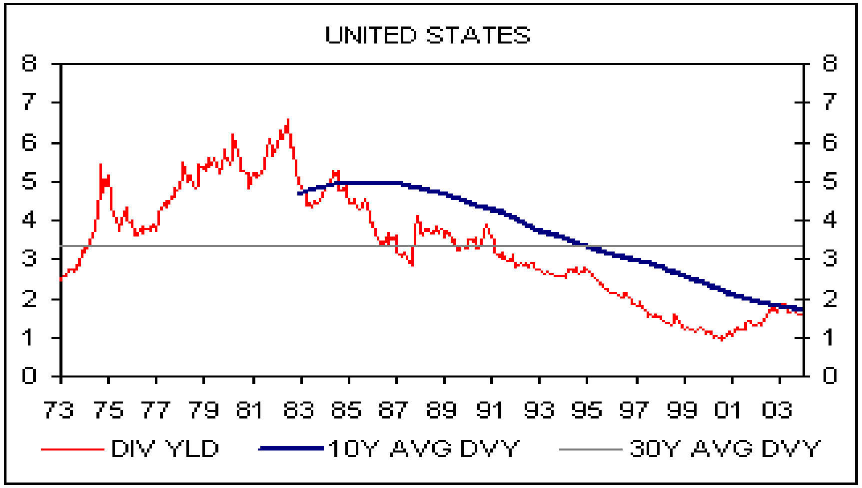
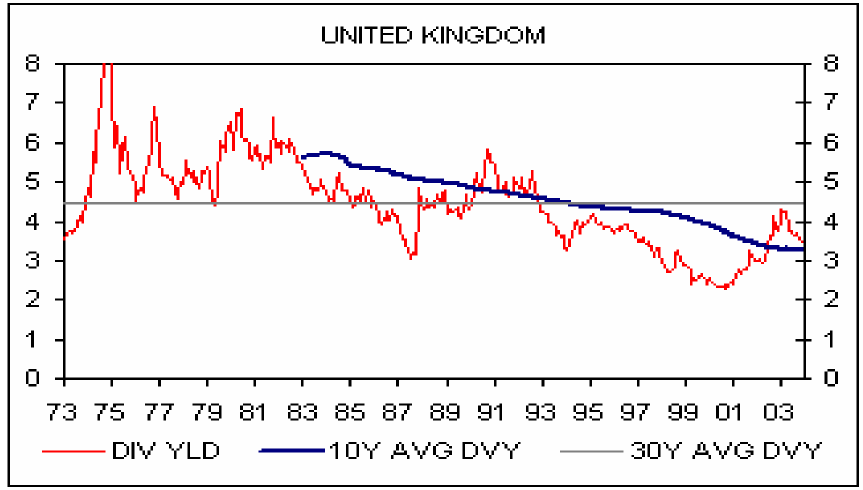
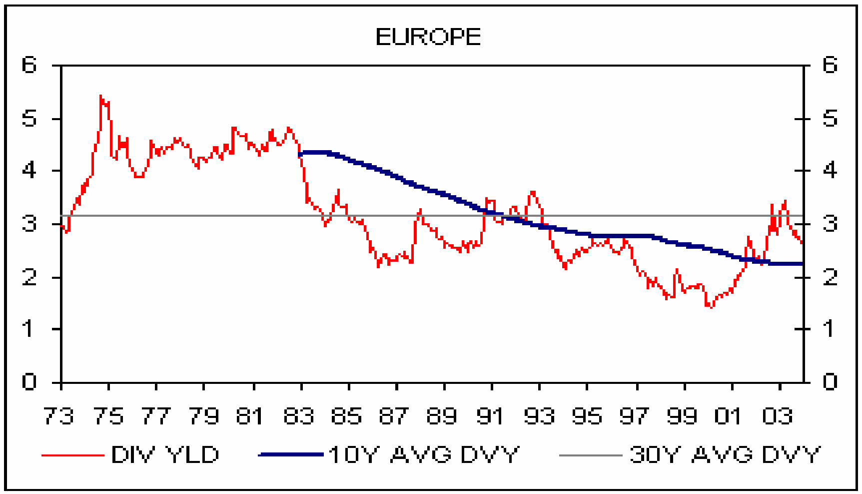
Outlook for equity markets

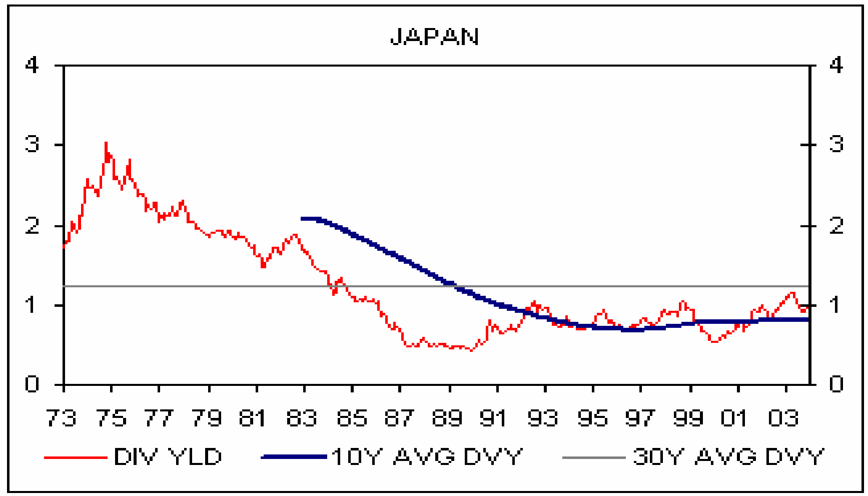
- Despite the bear market valuations are still at historically high levels in most markets
- These high valuations may reflect recent improvement in fundamentals:
  - Strong demand due to synchronised global expansion
  - Continuing fiscal and monetary policy stimulus
  - Robust employment and consumer spending
- However, much of the recent improvement in fundamentals may be short lived:
  - Persistent excess capacity and intense competition in the global economy
  - Deteriorating public finances across many developed markets
  - Demographics and need to reduce debt and increase savings
- If valuations remain unchanged, equity returns will be in the range 6% - 9% in most markets
- If valuations revert to historical average levels, returns will be significantly lower in most markets
- The US equity market is particularly exposed to mean reversion in valuations

Dividend yield in the major equity markets during the last 30 years









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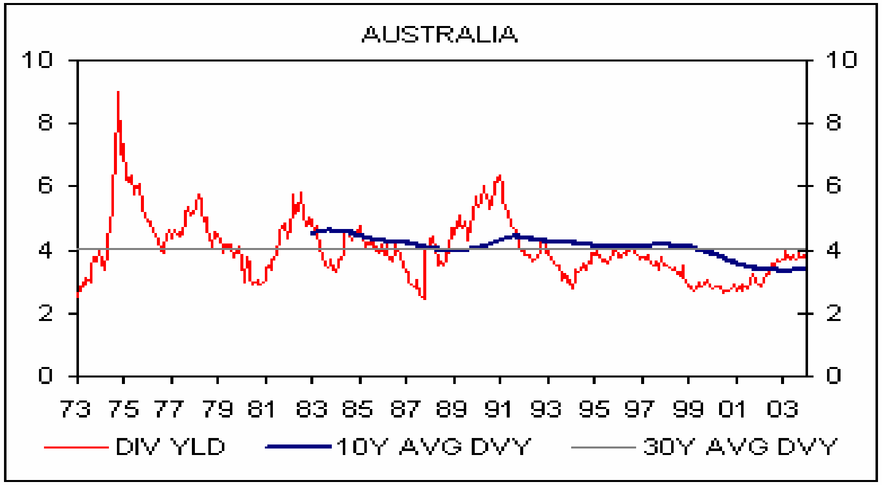
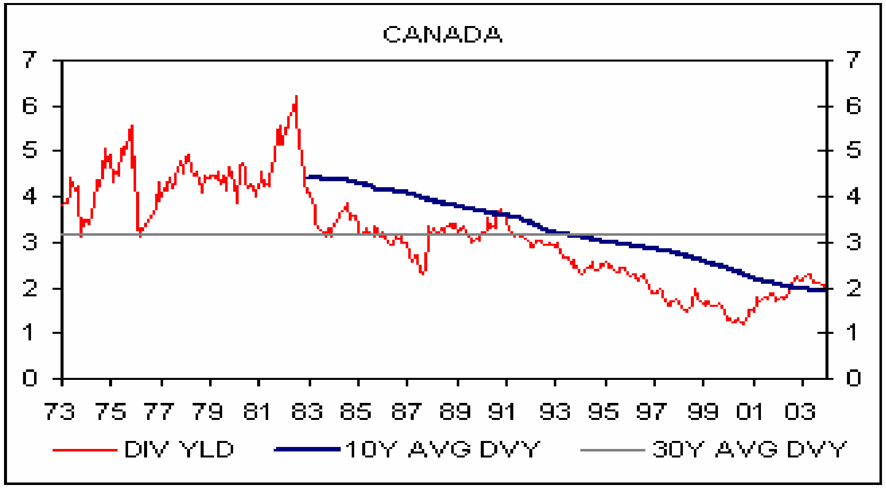
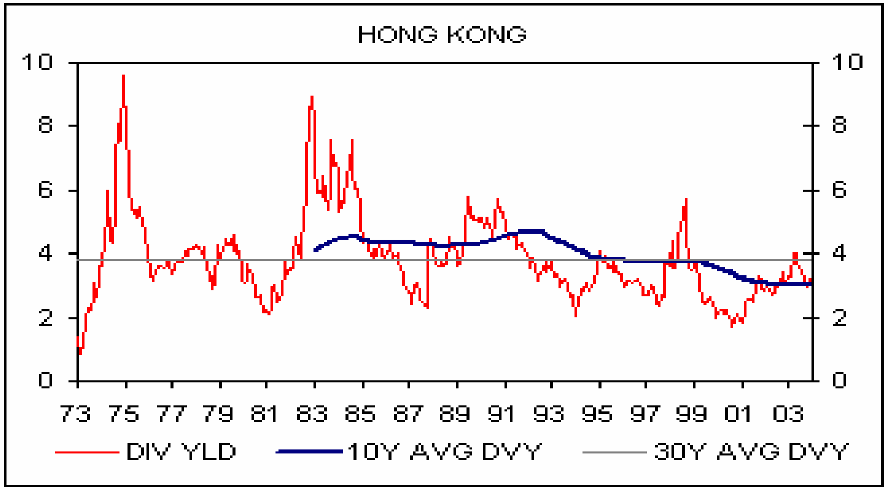
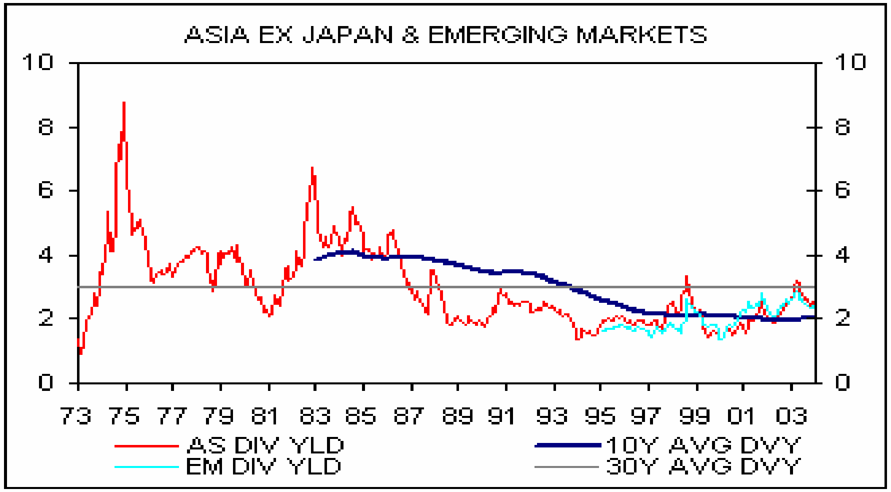
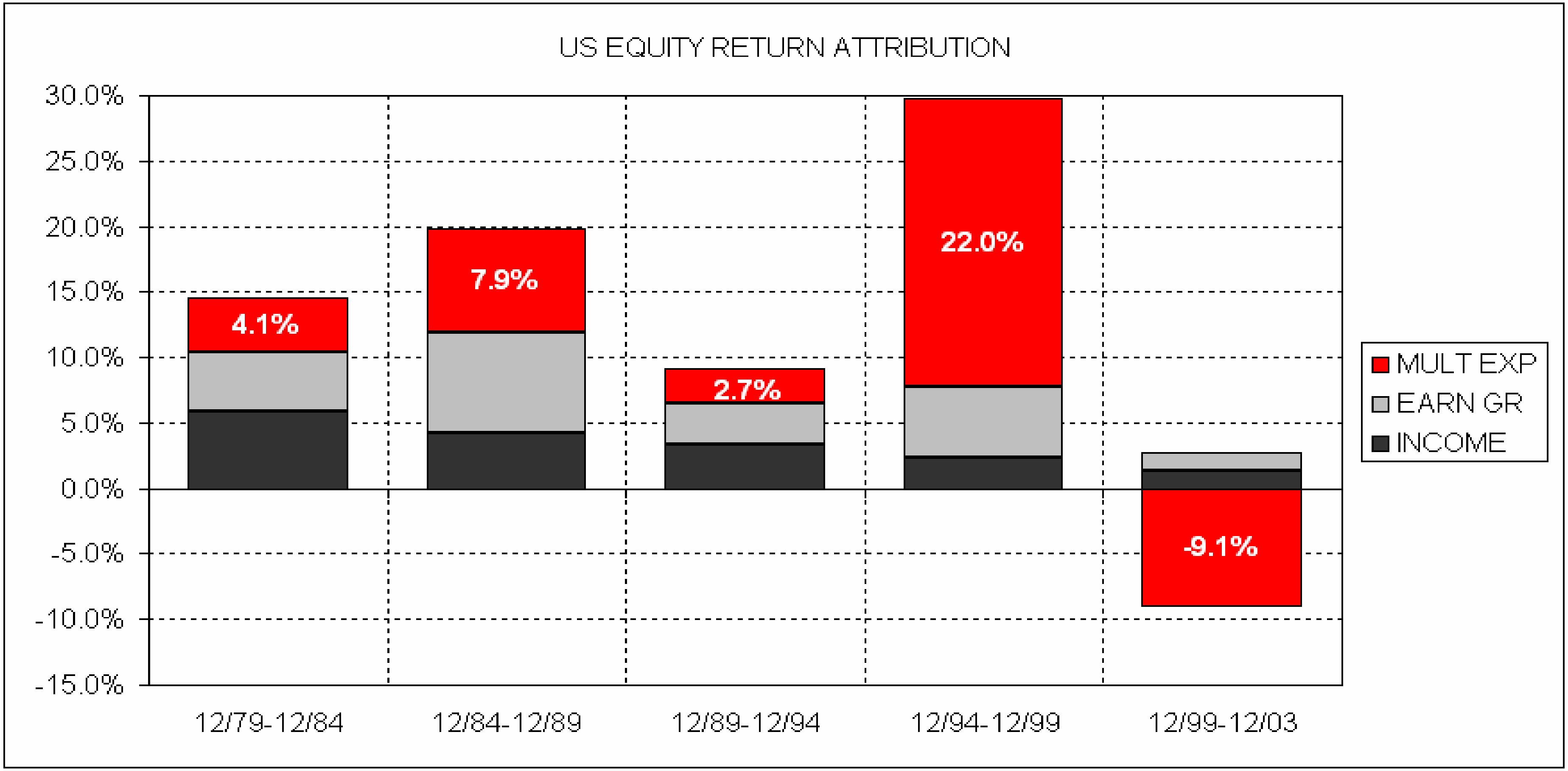








US return attribution based on dividend growth and D/P multiple expansion
Multiple expansion was key 'tailwind' of the bull market



Return forecasts for equity markets under alternative valuation scenarios

EQUITY MARKET RETURN FORECASTS FOR THE NEXT 5 YEARS

ANALYSIS AS OF 31/12/03

MARKET	US	UK	EU	JP	AU	CN	HK	AS	EM
Current Dividend Yield	1.5	3.4	2.6	0.9	3.7	2.0	3.2	2.4	2.3
Exp Real Dividend Growth	3.0	2.5	2.5	1.5	2.0	2.5	3.0	3.5	3.5
Exp Avg Inflation Rate	2.0	2.0	1.5	0.0	2.0	2.0	2.0	3.5	3.5
Unchanged Dividend Yield	1.5	3.4	2.6	0.9	3.7	2.0	3.2	2.4	2.3
Exp Annual Price Change	5.0	4.5	4.0	1.5	4.0	4.5	5.0	7.0	7.0
Exp Annual Total Return	6.5	7.9	6.6	2.4	7.7	6.5	8.2	9.4	9.3
Div Yield Reverts to 10y Avg	1.7	3.3	2.3	0.8	3.4	1.9	3.1	2.0	2.0
Exp Annual Price Change	3.1	5.4	7.1	4.1	6.1	5.4	5.5	10.4	9.3
Exp Annual Total Return	4.7	8.7	9.6	5.0	9.6	7.3	8.7	12.7	11.5
Div Yield Reverts to 30y Avg	3.4	4.5	3.2	1.2	4.1	3.1	3.9	3.0	3.0
Exp Annual Price Change	-10.1	-1.0	0.2	-3.5	2.3	-4.5	0.6	2.2	1.2
Exp Annual Total Return	-7.7	3.0	3.0	-2.5	6.2	-1.9	4.2	4.9	3.8

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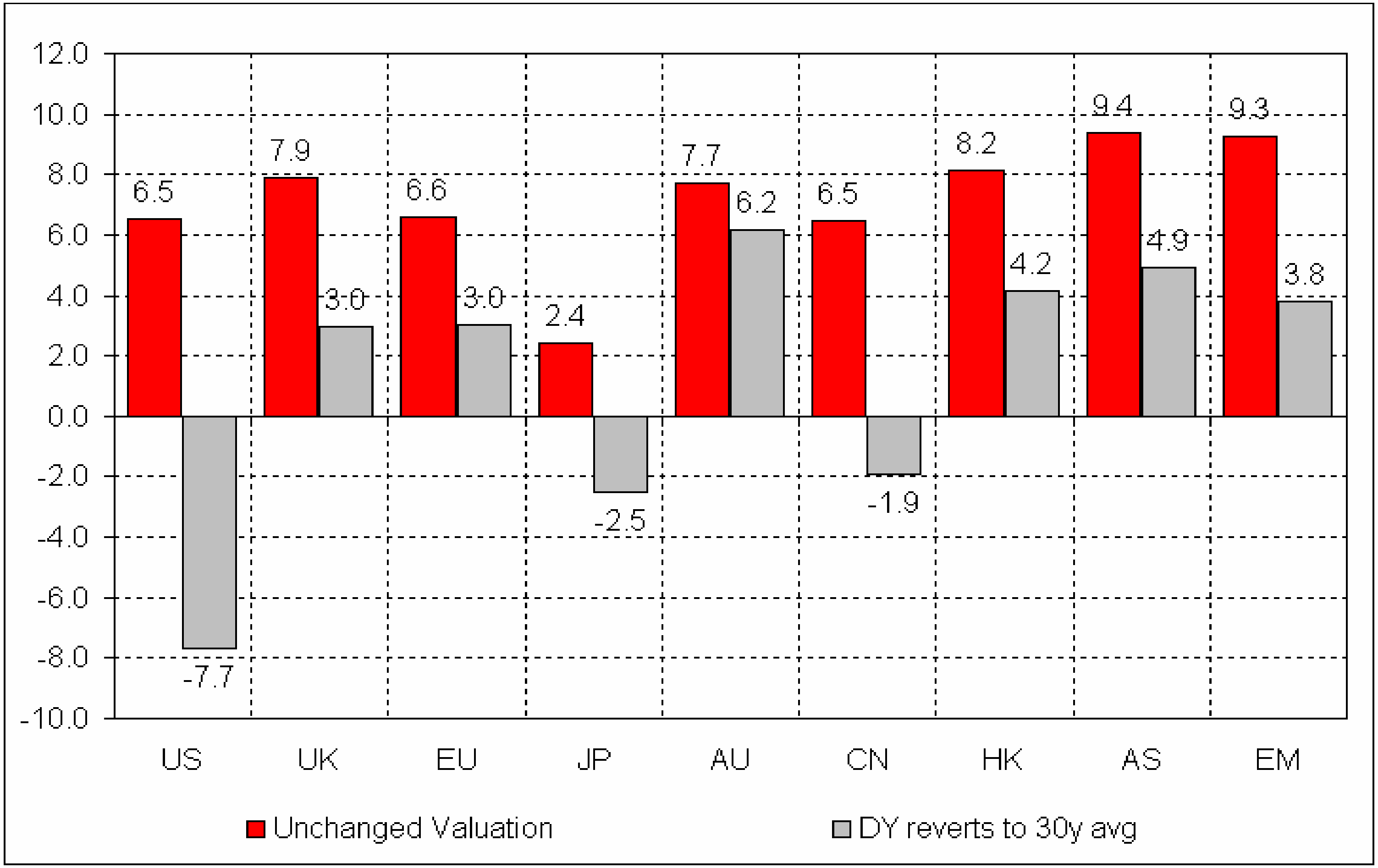
Return forecasts for equity markets under alternative valuation scenarios



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Long term outlook for the major asset classes - key points

- Valuations are historically high across most major asset classes and markets and will:
  - either remain at current high levels over the medium term
  - or revert to more normal levels, leading to capital losses
- Under the first scenario (unchanged valuations), most assets will perform reasonably well:
  - global government bonds 4% - 6%, corporate and emerging market bonds 5% - 7%,
  - developed market equities 7% - 8%, emerging market equities 8% - 9%
- Under the second scenario (falling valuations), asset class returns will be significantly lower and:
  - Emerging market equities will outperform developed market equities
  - Within developed equity markets, European equities will outperform US equities
  - Corporate and emerging debt will NOT offer a premium relative to government bonds

Summary and conclusions - where are we now?

- The return distribution is not stationary
- Actuarial assumptions based on historical returns can be wrong for long periods
- Starting valuations and the economic environment determine long term returns
- Where are we now ?
  - High valuations across most assets - nowhere to hide
  - Low prospective returns compared to historical average levels
  - Some assets are more exposed to mean reversion - be selective

Implications for asset allocation strategy

- Prospective return is the key factor for asset allocation strategy in the current environment, e.g.
  - Decision to invest in credit based on current yield and prospective return, not diversification
  - Strategic reduction of equity exposure as a fund matures made contingent on relative value
- One possible solution is to increase exposure to alternative strategies
  - Cash + portable alpha is not a good substitute for risky asset exposure
  - Cost, liquidity, transparency, capacity constraints
- Another possible solution is to hedge pension liabilities with ‘synthetic’ assets
  - Buying protection against non-traded risks (wage growth, longevity, inflation) is expensive
  - Cost, liquidity, transparency, capacity constraints
- Benchmark based long-only strategies are likely to continue to dominate but with…
  - More active risk, longer timeframes, greater transparency
- A more likely solution: active strategies that invest in risky assets but manage risk in absolute space
  - These strategies will seek to capture the risk premium without being committed to the market