

FIRE, THEN ICE

BY BEN FUNNELL

March 2017

THE FIRE AND ICE DEBATE

In the late 1990s two luminaries of the Morgan Stanley research department engaged in a debate that set the agenda for the macro conversation for years to come, and which is as relevant today as it was then. On one side of the debate, the great and sadly now much missed Barton Biggs posited that the world would freeze over as a glut of cheap Asian labour hit the world market; on the other, the brilliant Steve Roach, then the firm's chief economist, now a senior fellow at Yale, pointed to the Philips Curve and public deficits in the west, and predicted an inflationary bonfire. They called the debate Fire and Ice, inspired by the Robert Frost poem:

*Some say the world will end in fire;
Some say in ice.
From what I've tasted of desire
I hold with those who favor fire
But if it had to perish twice,
I think I know enough of hate
To know that for destruction ice
Is also great
And would suffice*

THE STOCK-BOND CORRELATION

Why does this matter now? Well, stocks and bonds are behaving very strangely these days and watching their interaction can potentially tell us a lot about the inflation regime. For nearly the last 20 years, since 1998, stock prices and bond prices have been negatively correlated – meaning, obviously, that when stock prices go up, bond prices go down and vice versa. With both stocks and bonds currently at or very near all-time price highs it may seem counter-intuitive to say that they are acting in opposition to each other, but broken into short periods that is what we have seen.

For example, from June 2015 to June 2016 stocks fell and bonds rallied. Then, after June 2016 the reflation trade was on, equities rallied and bonds fell. There was a negative stock-bond correlation throughout both periods.

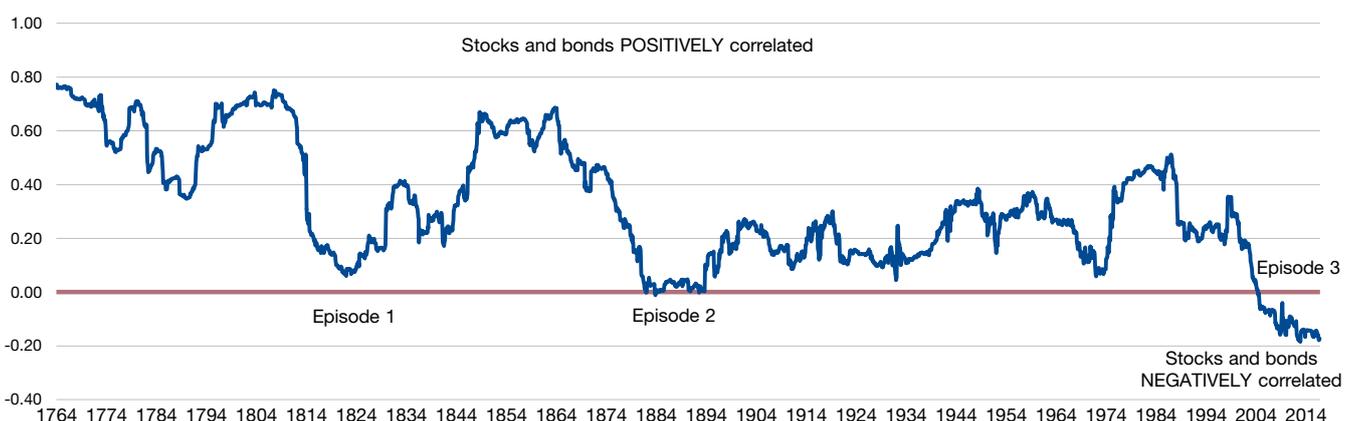
BREAKING A 250 YEAR RELATIONSHIP

To show how unusual this is we can call on data from Matt Roberts-Sklar at the Bank of England in the excellent Bank Underground blogsite. He has shown, using data-sets spliced together from various sources, that in the UK at least, stocks and bonds moved up and down together throughout the 250 years prior to the start of this century! Chart 1 below shows this via the ten year rolling correlation of UK consols (perpetual bonds first issued in 1752) and equities. What is immediately clear is that there has never previously been a period when equities and bonds acted inversely to each other in all of that time – until recently.

HISTORICAL PRECEDENT

There are interesting clues in these data too. Particularly of note are the only two extended periods when the stock-bond correlation fell close to zero, namely 1803-1821 and 1861-1895. (It also briefly approached zero for a few months in 1974 but this was a highly unusual period brought on by an extreme exogenous shock, namely the Yom Kippur war and first oil crisis of 1973 – the FTSE hit a trough valuation of 2.9x earnings and the pension funds were directly ordered by the Heath government to buy equities. Immediately post the shock the stock bond correlation quickly went back to new highs as inflation accelerated.)

Chart 1. Stocks and bonds correlation, GB/UK, 1764-2017. Breaking a 250-year relationship



Source: Man GLG, Thomas and Dimsdale (2016) and Bank of England. Line shows ten-year trailing correlation of monthly returns on UK equities and consols. See Matt Roberts-Sklar in Bank Underground: <https://bankunderground.co.uk/2016/10/20/bitesize-250-years-of-the-bond-equity-correlation/>

What are the similarities between those 19th century episodes and the last 15 years? Table 1 below shows summary statistics.

In all cases inflation decelerated and bond yields fell, and in all cases bond yields fell to below prevailing trend nominal GDP growth. Furthermore in all three cases the peak positive stock bond correlation roughly coincided with the peak of the yields, but importantly the trough in the stock bond correlation occurred almost exactly on the trough in the bond yield. In other words, as bond yield fell from high or relatively high levels, the stock bond correlation fell and as bond yields troughed out the stock bond correlation troughed. Now these are just three episodes but it does seem crystal clear from the trends that, historically, **higher bond yields equated to a positive stock bond correlation and lower bond yields to a lower or zero or even negative stock bond correlation.**

So it works in 250 years of practice, but does it work in theory?

Many serious people argue that there is or should be no relationship between bond yields and equity valuations – and therefore no structural correlation between stocks and bonds.

For our simplified take on the theory of this, see table 2.

Table 1. Three episodes of stock-bond de-coupling in the UK in 250 Years

Episode 1	Stock-bond correlation		10yr avg inflation rate		Bond yield	
	Start	End	Start	End	Start	End
Napoleonic wars						
Date	1803	1821	1801	1823	1797	1824
Level or rate	0.74	0.07	9.70%	6.80%	5.90%	3.30%
Episode 2	Stock-bond correlation		10yr avg inflation rate		Bond yield	
	Start	End	Start	End	Start	End
Victorian boom						
Date	1861	1895	1868	1895	1865	1896
Level or rate	0.66	0.06	2.20%	-0.50%	3.35%	2.06%
Episode 3	Stock-bond correlation		YoY inflation rate		Bond yield	
	Start	End	Start	End	Start	End
21st century						
Date	1986	2016	1980	2015	1981	2016
Level or rate	0.51	-0.17	22.10%	1.00%	13.01%	0.52%

Sources: Janssen, Nolan, Thomas (2002) "Money, Debt and Prices in the UK"; Mitchell (1988). "British Historical Statistics"; Office of National Statistics; Roberts-Sklar, M. Analysis by GLG Partners LP.

Table 2. 'Should' stocks and bonds be correlated?

The theoretical relationship between the two asset classes is determined by the interaction of bond yields, growth rates and the equity risk premium, as determined by Gordon's growth model:

$$p = d/(r-g)$$

Where p = stock price
d = dividend per share (yr 1)
r = discount rate for dividends
g = growth rate for dividends

Gordon's model can be re-arranged thus:

$$\rightarrow \text{dividend yield} = \text{bond yield} + \text{risk premium} - \text{growth rate}$$

and assuming that bond yield and growth rate are the same, simplified thus:

$$\text{dividend yield} = \text{risk premium}$$

Which makes a fundamental point about the valuation of equity: **that there is no theoretical relationship between the bond yield and the risk premium.**

And yet we have just observed using 250 years of data that this is not the case, and that there does appear to be a relationship between the risk premium and the bond yield. Keynes made a similar observation about the positive correlation of interest rates and the general level of prices. Defying the predictions of neo-classical theory, the correlation of interest rates to prices was "one of the most completely established empirical facts in the whole field of quantitative economics". The two observations are not unrelated.

VISUALISING THE STOCK-BOND CORRELATION

Our simple view is that regardless of whether there is theoretical support for a predictable stock-bond correlation, there is substantial empirical support, and we feel the empirics can quite easily be rationalised. We have attempted a visualisation of this in chart 2 "Fire and ice".

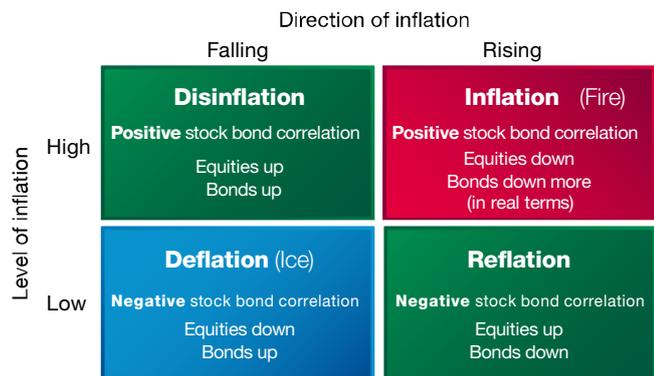
Start in the top left quadrant and work clockwise. We are in the **Disinflation** zone, with high but falling inflation – think 1980, Paul Volcker and 20% policy interest rates. Future inflation expectations fall with high current real interest rates. Less inflation means more real return to bond and equity holders: both asset classes rally. There is a strong positive correlation as markets price out inflation.

Then at a certain point, as inflation falls, markets switch from pricing out inflation to pricing in deflation. **Deflation** is terrible for equities (as we saw in 2008), and perfect for bonds. The stock-bond correlation switches from positive to negative.

Central banks and other policymakers then attempt to stimulate the real economy, rates are cut, QE is enacted, fiscal policy is eased. Eventually, inflation expectations stop falling and start rising. Bond prices fall and equity prices rise. We are in the **Reflation** zone. The stock-bond correlation is still negative, but the directions have been switched as the market prices out deflation by pricing in a little inflation.

Which is all very nice until the market starts to contemplate not a little but a lot of inflation. As we move from the Reflation zone to the **Inflation** zone, the stock-bond correlation flips back to positive, and everything goes down in real terms even if not in nominal terms – there's a lot of inflation. We are back in the 1970s, and Volcker needs to be re-appointed!

Chart 2. Fire and ice



IMPLICATIONS FOR EQUITY PORTFOLIOS

So much for the theory; what does this mean for equity portfolios? We would highlight the following:

1. In our view inflation may well accelerate around the world as the policy focus shifts from monetary to fiscal easing. Monetary easing is generally good for asset prices. Fiscal easing is good for nominal GDP in the short run (1-3 years).
2. As this happens, we believe that the stock-bond correlation will eventually flip from negative to positive.
3. We think that the level of bond yield at which this happens will be around the trend growth rate of nominal GDP. What that level is we cannot know – for the US somewhere between 3 and 4% seems fair to us – between 1 and 2% real GDP growth, 2% inflation is reasonable.
4. We believe that until the US ten year is in that 3-4% range, we should welcome rising bond yields and accelerating inflation.
5. We would therefore be inclined towards a Value driven portfolio which seeks to avoid higher valuation, DCF valued stocks.



Ben Funnell

Portfolio Manager

Ben is the lead Portfolio Manager of the GLG Euro Equity and Global Equity strategies (since August 2012) and of the GLG Balanced Managed and Stock Market Managed strategies (since March 2009). Previously he was Man GLG's ('GLG') chief equity strategist. Prior to joining GLG he spent 11 years at Morgan Stanley, the last nine of those years on the top II and Extel-rated European Equity Strategy team, which he co-headed in his final three years at the firm as a Managing Director. He was educated in modern languages at Durham University, UK. His approach to investing is both top-down and bottomup, with macro views influencing portfolio positioning.

DATA SOURCES AND OTHER REFERENCES

- Broadberry, S N and van Leeuwen, B (2010)**, 'British economic growth and the business cycle, 1700-1870: annual estimates', Department of Economics, University of Warwick, available at <http://www2.warwick.ac.uk/fac/soc/economics/staff/academic/broadberry/wp/annualgdp9.pdf>. (Please contact the authors directly for these data)
- Boyer G R and Hatton T J (2002)**, 'New estimates of British Unemployment, 1870-1913', *Journal of Economic History* (62), pages 643-75.
- Capie, F and Webber, A (1985)**, *A Monetary History of the United Kingdom, 1870-1982, Volume 1*, Routledge.
- Catão, L V and Solomou, S N (2005)**, 'Effective exchange rates and the classical gold standard adjustment', *American Economic Review*, 95(4), pages 1259-75.
- Collins, M (1986)**, 'Sterling Exchange Rates, 1847-1880', *The Journal of European Economic History* Vol. 15, No. 3, pages 511-33
- Crafts, N F R and Mills, T C (1994)**, 'Trends in real wages in Britain, 1750-1913', *Explorations in Economic History*, Elsevier, Vol. 31 (2), pages 176-94.
- Cuenca Esteban J (1997)**, 'The rising share of British industrial exports in industrial output, 1700-1851' *The Journal of Economic History*, Vol. 57, No. 4, pages 879-906.
- Deane, P (1968)**, 'New estimates of Gross National Product for the United Kingdom 1830-1870', *The Review of Income and Wealth*, Vol. 14 (2), pages 95-112.
- Dimsdale, N H (1981)**, 'British monetary policy and the exchange rate 1920-38', *Oxford Economic Papers, Supplement*.
- Domit, S and Shakir, T (2010)**, 'Interpreting the world trade collapse', *Bank of England Quarterly Bulletin*, Vol. 50, No. 3, pages 183-89.
- Feinstein, C H (1972)**, *National income, output and expenditure of the United Kingdom 1855-1965*, Cambridge: Cambridge University Press.
- Feinstein, C H and Pollard, S (1988)**, *Studies in capital formation in the United Kingdom 1750-1920*, Clarendon Press.
- Janssen, N, Nolan, C and Thomas, R (2002)**, 'Money, debt and prices in the United Kingdom', *Economica*, Vol. 69, No. 275, pages 461-79.
- Lewis, W A (1981)**, 'The rate of growth of world trade, 1830-1973', in Grassman, S and Lundberg, E (eds), *The World Economic Orders: Past and Prospects*. Palgrave Macmillan.
- Middleton, R (1996)**, *Government versus the Market*, Edward Elgar.
- Mitchell, B R (1988)**, *British Historical Statistics*, Cambridge University Press.
- Mitchell J, Solomou S N and Weale M (2009)**, 'Monthly and quarterly GDP estimates for interwar Britain', *NIESR Discussion Paper no. 348*, National Institute of Economic and Social Research.
- O'Donoghue J, Goulding L and Allen G (2004)**, "Consumer Price Inflation since 1750", *ONS Economic Trends 604, March 2004*.
- Officer, L H (1996)**, *Between the dollar-sterling gold points*, Cambridge University Press.
- Sefton, J and Weale, M (1995)**, *Reconciliation of National Income and Expenditure: balanced estimates of national income for the United Kingdom, 1920-1990*, Cambridge University Press.
- Solomou, S N and Vartis, D (2005)**, 'Effective exchange rates in Britain, 1920-1930', *The Journal of Economic History*, Vol. 65, No.3, pages 850-59.
- Solomou, S N and Weale, M (1991)**, 'Balanced estimates of UK GDP 1870-1913', *Explorations in Economic History*, Vol. 28, No. 1, pages 54-63.

IMPORTANT INFORMATION

This information is communicated and/or distributed by the relevant GLG or Man entity identified below (collectively the "Company") subject to the following conditions and restriction in their respective jurisdictions.

This material represents an assessment of market and political conditions at a particular time and is not a guarantee of future results. This material does not constitute an offer or invitation to make an investment in any financial instrument or in any product to which the Company and/or its affiliates provides investment advisory or any other financial services. Neither the Company nor the authors shall be liable to any person for any action taken on the basis of the information provided. The opinions expressed herein are subject to change without notice and neither the author nor Man Group is under any obligation to inform recipients when opinions or information in this report changes.

Some statements contained in this material concerning goals, strategies, outlook or other non-historical matters may be forward-looking statements and are based on current indicators and expectations. These forward-looking statements speak only as of the date on which they are made, and the Company undertakes no obligation to update or revise any forward-looking statements. These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those contained in the statements. This material is proprietary information of the Company and its affiliates and may not be reproduced or otherwise disseminated in whole or in part without prior written consent from the Company. The Company believes the content to be accurate. However accuracy is not warranted or guaranteed. The Company does not assume any liability in the case of incorrectly reported or incomplete information. Unless stated otherwise all information is provided by the Company. All investments involve risks including the potential for loss of principal. Past performance is not indicative of future results.

Unless stated otherwise this information is communicated by GLG Partners LP, One Curzon Street, London W1J 5HB. Authorised and regulated in the UK by the Financial Conduct Authority.

Australia: To the extent this material is distributed in Australia it is communicated by Man Investments Australia Limited ABN 47 002 747 480 AFSL 240581, which is regulated by the Australian Securities & Investments Commission (ASIC). This information has been prepared without taking into account anyone's objectives, financial situation or needs.

European Economic Area: Unless indicated otherwise this website is communicated in the European Economic Area by Man Solutions Limited which is an investment company as defined in section 833 of the Companies Act 2006 and is authorised and regulated by the UK Financial Conduct Authority (the "FCA"). Man Investments Limited is registered in England and Wales under number 3385362 and has its registered office at One Curzon Street, London W1J 5HB, England. As an entity which is regulated by the FCA, Man Solutions Limited is subject to regulatory requirements, which can be found at <http://register.fca.org.uk>.

Germany: To the extent this material is used in Germany, the communicating entity is Man (Europe) AG, which is authorised and regulated by the Liechtenstein Financial Market Authority (FMA). Man (Europe) AG is registered in the Principality of Liechtenstein no. FL-0002.420.371-2. Man (Europe) AG is an associated participant in the investor compensation scheme, which is operated by the Deposit Guarantee and Investor Compensation Foundation PCC (FL-0002.039.614-1) and corresponds with EU law. Further information is available on the Foundation's website under www.eas-liechtenstein.li. This material is of a promotional nature.

Hong Kong: To the extent this material is distributed in Hong Kong, this material is communicated by Man Investments (Hong Kong) Limited and has not been reviewed by the Securities and Futures Commission in Hong Kong. This material can only be communicated to intermediaries, and professional clients who are within one of the professional investor exemptions contained in the Securities and Futures Ordinance and must not be relied upon by any other person(s).

Liechtenstein: To the extent the material is used in Liechtenstein, the communicating entity is Man (Europe) AG, which is regulated by the Financial Market Authority Liechtenstein (FMA). Man (Europe) AG is registered in the Principality of Liechtenstein no. FL-0002.420.371-2. Man (Europe) AG is an associated participant in the investor compensation scheme, which is operated by the Deposit Guarantee and Investor Compensation Foundation PCC (FL-0002.039.614-1) and corresponds with EU law. Further information is available on the Foundation's website under www.eas-liechtenstein.li.

Switzerland: To the extent this material is distributed in Switzerland, this material is communicated by Man Investments AG, which is regulated by the Swiss Financial Market Authority FINMA.

United States: To the extent his material is distributed in the United States, it is communicated by GLG, Inc. and is distributed by Man Investments, Inc. ('Man Investments'). Man Investments is registered as a broker-dealer with the US Securities and Exchange Commission ('SEC') and also is a member of the Financial Industry Regulatory Authority ('FINRA'). Man Investments is also a member of the Securities Investor Protection Corporation ('SIPC'). GLG, Inc. is registered with the SEC as an investment advisor. GLG, Inc. and Man Investments are members of the Man Investments division of Man Group plc. The registration and memberships described above in no way imply that the SEC, FINRA or the SIPC have endorsed GLG, Inc., or Man Investments. Man Investments, 452 Fifth Avenue, 27th fl., New York, NY 10018

US/GLR/W