

## The equity risk premium: Cheap equities or expensive bonds?

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Financial markets have settled into an equilibrium that appears as abnormal from an historical perspective as the equity bubble of the late 1990s. However, in this case, it is not equity valuations that stand out. Our analysis suggests that current equity prices are consistent with future returns that are not far from historic norms. By contrast, rates of returns on risk-free assets stand out as abnormally low, as they are currently negative on an inflation-adjusted basis in nearly all cases. An important reason for these low yields is the structural decrease in the supply of risk-free assets that is not likely to be corrected in the next few years. The implication is that equity risk premia – the difference between the expected yields on equities and risk-free assets – are likely to remain historically high even if cyclical factors could lead them to reverse somewhat over the next few years. The bottom line is that despite unusually high equity risk premia, current valuations are not necessarily extremely cheap.

### Risk and return: Where do we stand?

When grappling with an unobservable concept, like the equity risk premium, that must be estimated on the basis of debatable assumptions, it is useful to begin with a related concept that can be measured, even if it does not correspond perfectly to the final object of our inquiry. In equities, this leads us to the price-earnings ratio, and in Figures 2-5 we remind ourselves of the market history of the UK, US, Germany and Japan<sup>1</sup>. There are no real surprises in the data, but we highlight a few points that we will discuss in more detail below.

*US equities are conservatively valued only relative to the 1990s' bull market*

First, although we will suggest that equity risk premia are high by historical standards, there is certainly no panic on. In the US, equities are conservatively valued only relative to the 1990s' bull market; PEs are comparable to the 'go-go' years of the 1960s, and well above the 1970s' era of economic and financial disorder. In Europe, equities are more conservatively valued by this metric, with valuations approaching the dark days of the 1970s. On the face of it, this looks like a buying opportunity if, and only if, the economic and financial disorder that threatens the continent does not reach 1970s levels.

What these valuations mean for future returns is far more interesting, but naturally requires some assumptions. In Figure 1 we present some back-of-the envelope calculations, using the standard dividend-discount approach.<sup>2</sup> The most important assumption in the computation is the future growth rate of earnings and dividends.

FIGURE 1

#### Forward-looking equity return and excess return projections

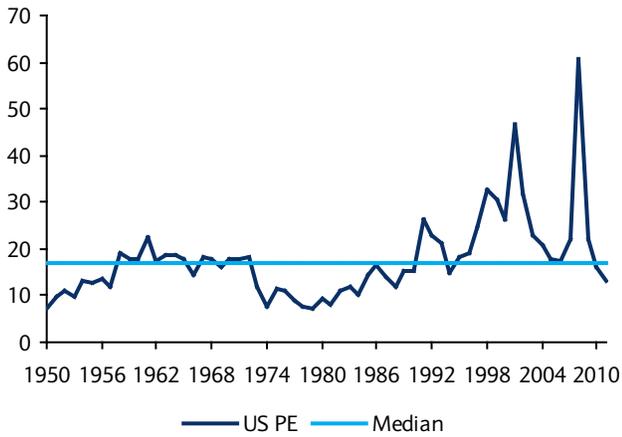
	P/E	G	E(TR)	Real Rate	ERP
UK	10.60	1.92%	5.81%	-0.44%	6.26%
US	13.23	2.61%	5.33%	-0.14%	5.48%
Germany	9.50	1.47%	6.20%	-0.16%	6.36%
Japan	13.70	1.21%	4.18%	0.65%	3.52%

Note: Returns and real interest rates are measured in local currency, and adjusted for forecast inflation in the domestic CPI. G stands for the expected growth rate of real earnings; E(TR) is the expected total return on equities; the real rate is the inflation-adjusted return on a 10-year government bond; and ERP refers to the equity risk premium. Source: Barclays Capital.

<sup>1</sup> The limitations of long-run data restrict us to national markets rather than a broader European aggregate.

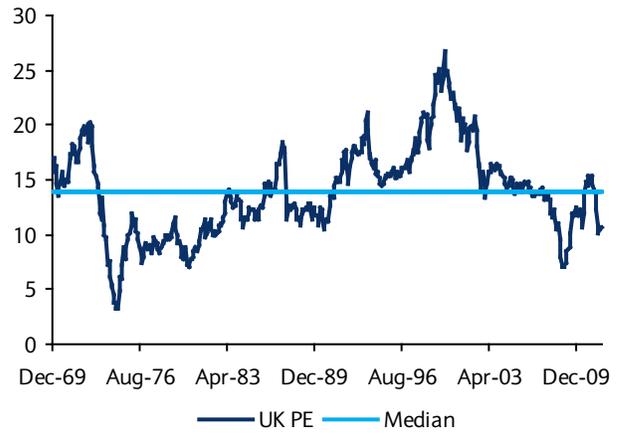
<sup>2</sup> The simplified valuation equation is  $(P/E) = \text{div}/(r+\rho-g)$ , where div is the share of earnings returned to shareholders in the form of dividends, r is the safe rate of interest, rho is the equity risk premium or, equivalently, the expected return in excess of the safe real interest rate, and g is the rate of growth of earnings generated by the investment of retained earnings.

FIGURE 2  
US equities – PE in line with the ‘go-go’ 1960s



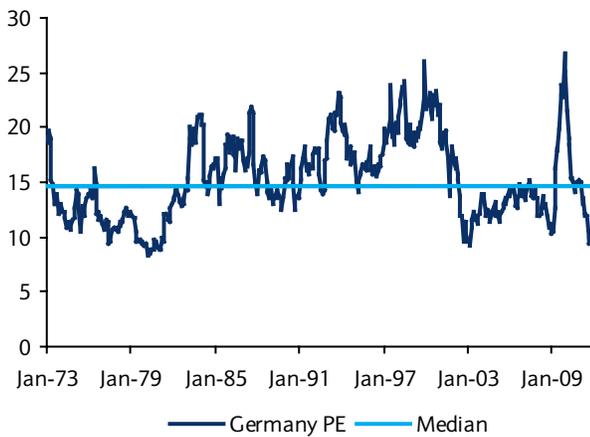
Source: Haver Analytics

FIGURE 3  
UK equities – Back to the 1970s?



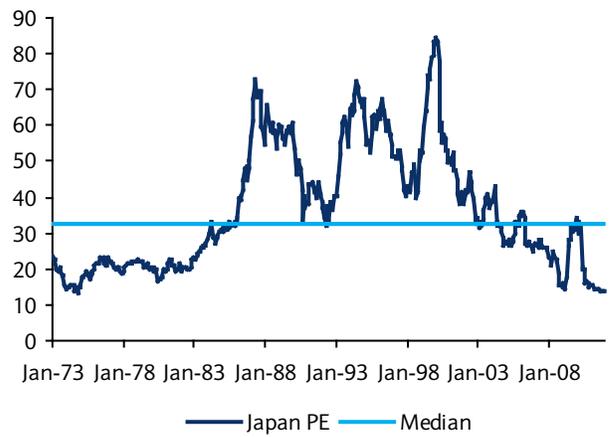
Source: Datastream Global Equity Indices

FIGURE 4  
Germany – Near an all-time low



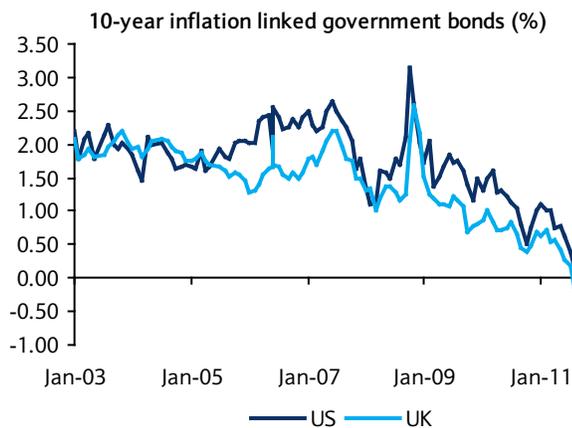
Source: Datastream Global Equity Indices

FIGURE 5  
Japan – Back to pre-bubble era valuations



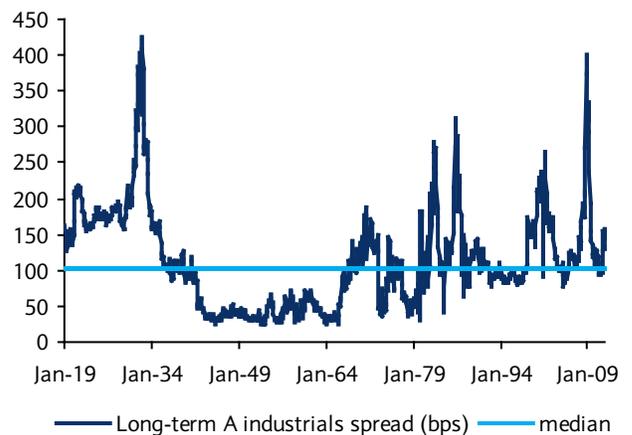
Source: Datastream Global Equity Indices

FIGURE 6  
Real bond yields have collapsed in the US and UK



Source: Haver Analytics

FIGURE 7  
US credit spreads



Source: Moodys, Barclays Capital

For the sake of rough realism and a measure of objectivity, we assume that earnings will grow at the trend rate of economic growth, for which we adopt the IMF's longer-term (five-year) economic forecasts. Note that this could be pessimistic; reported returns on equity point toward substantially higher returns on reinvested earnings. It is also true, and potentially important, that earnings on international investments are not necessarily constrained by domestic GDP growth; a case could be made for factoring the more rapid growth of the world economy into these estimates. That said, other considerations suggest more caution, including historically high margins in advanced markets and the likelihood that the profitability of operations in China will be eroded meaningfully in coming years as the economy rebalances via higher wage growth and more market-oriented pricing of other production inputs. In any event, the assumptions in Figure 1 are broadly consistent with historical experience; readers with different views can adjust our findings as they see fit.<sup>3</sup>

Our analysis suggests equities are priced to yield long-term inflation-adjusted returns ranging from roughly 4% (Japan) to 6% (UK and Europe), with the US in the middle, at just over 5%.<sup>4</sup> These returns are roughly consistent with longer-term historical experience, except in Japan, where our simple framework suggests that recent decades of very weak equity performance may give way to something more positive in the years to come, reflecting not so much a marked improvement in economic performance, but market valuations that more adequately reflect the subdued outlook for growth.

FIGURE 8  
Historical equity returns and excess returns (local currency, inflation adjusted)

Country	Period	Div	Cap Gain	TR	R	Excess return
UK	1950-2011	4.48%	1.66%	6.15%	1.94%	4.21%
US	1950-2010	3.69%	3.27%	6.96%	2.32%	4.65%
Germany	1973-2011	2.65%	2.63%	5.27%	3.77%	1.50%
Japan	1973-2011	1.30%	0.31%	1.61%	0.88%	0.73%
UK	1900-2011	4.51%	0.33%	4.84%	1.84%	3.00%
US	1926-2010	4.17%	2.40%	6.57%	2.03%	4.54%

Note: Div stands for the average dividend yield; Cap Gain is the total return attributable to real capital appreciation; TR stands for total return on equities, and R is the average (ex-post) real interest rate on government debt. Source: Haver Analytics, Datastream Global Equity Indices, CRSP

If forward-looking total returns seem roughly congruent with history, the same cannot be said for the implied equity risk premium, which is the difference between the expected return on equities and the return on safe assets, conventionally taken to mean government debt. We use the yield on 10-year inflation-linked debt as our measure of 'the' safe rate of interest; in every country but Japan this is now a negative number, and in Japan it is a barely positive 65bp. The result is an estimated equity risk premium of roughly 550bp in the US, and more than 600bp in Europe. Our estimate of forward-looking excess returns is well above the historical excess return in all four countries.

*Even a seemingly modest rise in the equity risk premium has big implications for equity valuation*

The gap between the historical and the forward-looking equity risk premium is smallest in the US, where the difference is marginally less than 100bp. But even this seemingly modest increase in the equity risk premium has big implications for equity valuation. For example, if all else were the same but the equity risk premium were now equal to the historical 465bp rather than our estimated 548bp, the market PE would be above 18, rather than close to 13, and equity prices would be around 40% higher.

<sup>3</sup> In the simplified dividend-discount approach that we adopt here, the expected total and excess return varies one-for-one with the assumed growth rate of earnings. If, for example, you think 12.6% earnings growth is more plausible than the 2.6% we assume for the US, adjust our estimates of the expected total and excess returns up by 10 percentage points.

<sup>4</sup> Throughout this note, 'inflation adjusted' returns refer to local-currency returns after adjustment for CPI inflation.

Thus, although estimated equity risk premia are not extremely elevated, they are meaningfully higher than historical experience. These conservative equity valuations are a quantitatively significant driver of the world financial context. How should we think about this? Is it a barometer of the market's 'fear factor' in the current environment, or a sign of more permanent 'structural' drivers? Or is it an artefact of the comparison with government bonds, whose role in the financial system (and investors' portfolios) has changed fundamentally?

*The collapse in government bond yields over the past decade marks a rupture with post-war financial history*

This last question is of independent interest because, in contrast to equity valuations, the striking collapse in government bond yields over the past decade, particularly since 2008, marks a rupture with post-war financial history. Ten-year inflation-linked bond yields are now negative in the US, UK, and Germany (Figure 6). This is not easy to understand in the context of conventional economic theory, where strange things often crop up when interest rates are below the rate of economic growth, never mind negative, for long periods. It is also difficult to rationalize this as a classic, anxiety-driven 'flight to quality'; the fear that would in the past have been required to push yields so low is just not evident in current markets.

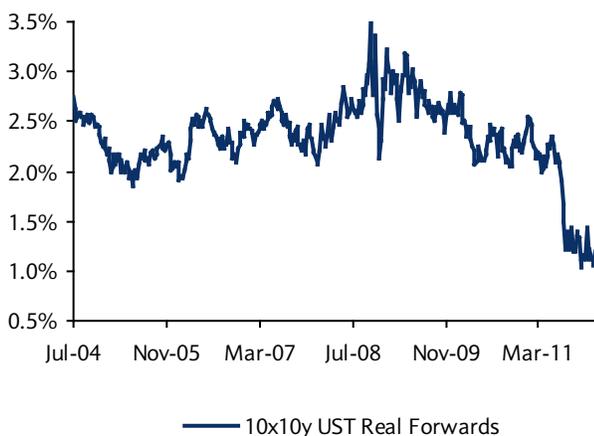
*The market is now pricing an extremely long period of very low real interest rates*

The collapse in government bond yields is also hard to justify fully on the basis of 'cyclical' drivers, such as monetary policy, or a credit and construction cycle. These are key elements of the present bond market equation, and will likely be an important influence going forward. The extremely high price of 'safe' assets undoubtedly reflects, in substantial part, still fresh memories of the 2008 financial crisis, anxiety generated by the very slow recovery from recession in many of the advanced economies, and tail risks associated with the European fiscal crisis. These may very well fade in the next couple of years, and indeed forward curves suggest some normalization of interest rates from current extremely low levels. But the market is now pricing an extremely long period of very low real rates. Indeed, 10y10y forward real interest rates are now abnormally low in the US (at around 1%) and the UK (below 0.5%) (Figures 9 and 10). The Fed has made it clear that it expects to keep interest rates low for a very long time, but we are talking about 2022-2032!

*Asset markets may be driven by very long-run fundamentals, in addition to shorter-run 'cyclical' factors*

This suggests to us that asset markets are being driven by very long-run, 'tectonic' fundamentals, in addition, of course, to shorter-run 'cyclical' drivers, including the deep recession and monetary policy response in most industrial economies, and the potentially drawn-out deleveraging process in the same economies. In the remainder of this chapter, we discuss two of the very long-run 'tectonic' drivers of asset markets that we consider potentially interesting: demographics and the so-called 'safe asset shortage'.

FIGURE 9  
Very low real rates in the very long run - US



Source: Haver Analytics

FIGURE 10  
Very low real rates in the very long run - UK



Source: Haver Analytics

## Demographics and asset markets

Demographic trends are a fundamental driver of the long-run economic scaffolding upon which market performance is built. And they almost certainly have powerful, direct impacts on asset supply, demand and (therefore) valuation. The difficulty is teasing out the sign and significance of these effects, which operate on a much more extended timeframe than 'market time'. We have written about some aspects of these issues before (most recently in the 2011 *Equity Gilt Study*). Without attempting a grand synthesis of the problem, we highlight some aspects of the demographic drama set to unfold in the coming decades, those that seem important enough to drive global asset markets and that might explain, at least in part, the 'new normal'. If there is any discipline in the discussion, it is in our insistence upon viewing developments in a global context; economies and financial markets are too integrated, in our view, to adopt a purely national approach to demographic developments.

### A coming labor shortage?

On the demographic front, we start with population growth, specifically, the working age population. If we think about the really epochal economic developments of the past century or two, the integration of the Chinese labor force into the world economy would surely rank among the most significant. It radically altered the international division of labor. Combined with technical advances that facilitated the globalization of production processes, the abrupt increase in the global labor force was very probably instrumental in raising corporate profitability from the historically low levels of the 1980s, at least in countries like the US, where businesses have been able to take advantage of the opportunities created by China's integration into the world economy (Figure 11).

It is widely recognized that the working age population is growing more slowly in China, and will begin to decline in 4-5 years. Moreover, according to UN estimates, the working-age population is now falling in the industrial countries. In both regions, the declines will be quite gradual for some years to come, but even a gradual fall is an important change from the rising post-war trend, and eventually the decline will speed up (particularly in China). In China, we think that the approaching 'Lewis moment' (when surplus labor becomes exhausted and the economy starts crawling along an upward-sloping labor supply curve) will play an important role in shifting the distribution of income away from firms (capital) toward households (labor). In our view, this is an important development that ought to be factored into thinking about equity valuations and asset markets more generally.

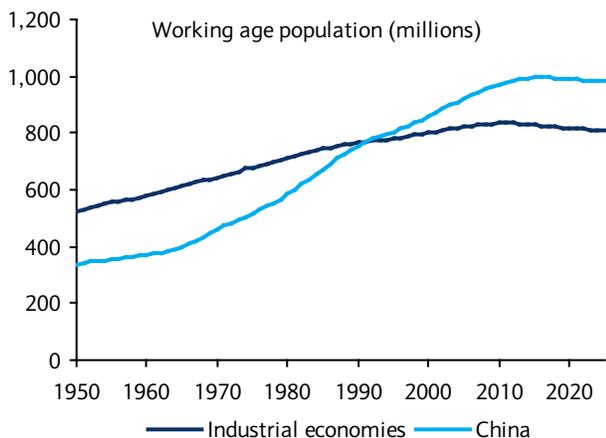
*The integration of the Chinese labor force into the world economy was probably instrumental in raising corporate profitability from the historically low levels of the 1980s*

FIGURE 11  
US corporate profits



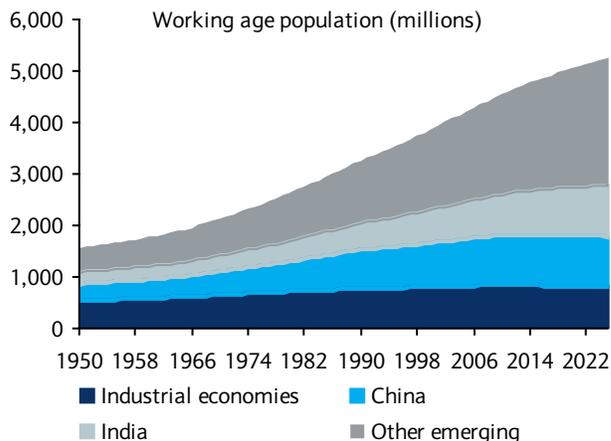
Source: Haver Analytics, Barclays Capital

FIGURE 12  
Shrinking populations loom...



Source: Haver Analytics, U.N. Population Statistics

FIGURE 13  
... but not in the world at large



Source: Haver Analytics, U.N. Population Statistics

We recognize the importance of this development for the moment, when the advanced economies and China play such a dominant role in economic and financial developments, but we would like to add a caveat and introduce a question that investors may like to bear in mind. The caveat is that the industrial economies and China are very special cases in this respect; the growth of the working age population in the rest of world is (in aggregate) expected to remain robust in coming decades, and indeed the size of the world’s potential workforce is expected to grow robustly (Figures 12 and 13).

The question is: will other regions of the world, where population growth remains robust, be able to integrate themselves into the global workforce as effectively as China has done? A few numbers from the UN’s population projections for 2025 highlight the potential obstacles. By 2025, the UN expects India’s working age population to (barely) exceed China’s, and Africa’s will be only 15% smaller. The working age population of emerging market economies other than China will be 3.5 times China’s working age population (from about twice as large at present). In emerging economies other than China, the working age population will expand by nearly three quarters of a billion people, or about 75% of the Chinese workforce.

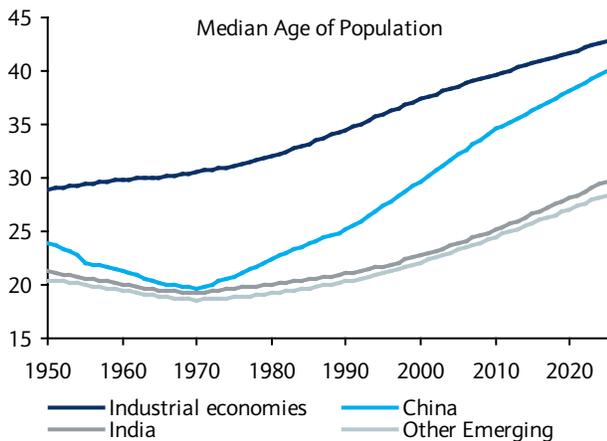
It is, of course, far from a foregone conclusion that these workers will be integrated into the global workforce as effectively as China’s have been. And even if they are, the nature of their development is likely to differ sharply from that of China. But even if China’s success is replicated only in part, a shrinking pool of workers looks set to be the least of the world’s problems in the decade or so to come.

### An aging world

A second demographic development of potential significance for asset markets is aging. This has been a concern for decades (Figure 14), but the imminent acceleration of growth in the elderly (65 and older) population in China is a notable development. Aging populations have, in theory at least, been linked to lower rates of saving and thus to higher interest rates, lower equity prices<sup>5</sup>, and lower shares of equities in household portfolio allocations.

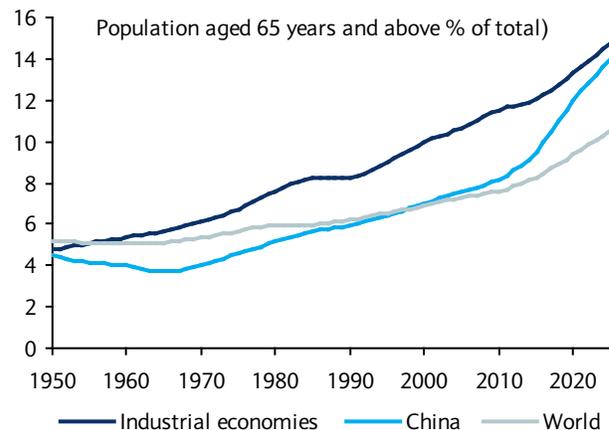
<sup>5</sup> Michael Dicks “Dismal demographics and asset returns revisited”, chapter 5, *Equity Gilt Study, 2011* presents some evidence for the US that an ongoing decline in the share of ‘high-saving’ (essentially, mid- and later-career workers relative to young and older cohorts) is associated with higher interest rates and lower equity prices. A recent study by the McKinsey Global Institute “The emerging equity gap: Growth and stability in the new investor landscape”, December 2011, suggests that because of aging populations and an increase in the share of world wealth held by Asians, a \$12trn gap will emerge between global demand for equities and the issuance that will be required to fund business investment.

FIGURE 14  
Populations are getting older everywhere



Source: Haver Analytics, U.N. Population Statistics

FIGURE 15  
And the elderly are getting more numerous



Source: Haver Analytics, U.N. Population Statistics

On the face of it, it seems plausible that an older population may be conducive to weaker demand for equities and, thus, more conservative equity valuations. But it seems to us that the jury is still out on whether this impact will be large enough to be of any consequence to investors. In the industrial economies, populations were substantially older (and aging more rapidly) in the late 1980s and 1990s than in the 1960s, but it was the late 1980s (Japan) and the 1990s (elsewhere) that brought the most aggressive equity valuations of the post-war era.

Questions also arise with regard to interest rates. As Japan has shown, an abrupt demographic downshift can be associated with a decline in savings, but it is also associated with a fall in investment demand; the net effect, and thus the pressure on interest rates, is unclear. In fact, the question that requires explanation is why interest rates are so low, rather than high.

At the very least, this suggests that the impact of demographics is subtle enough to leave plenty of scope for other drivers of asset prices to dominate it. In the section that follows, we explore one of the structural drivers that seem to us capable of helping to explain the existing financial context, the so-called 'safe-asset shortage'.

### The 'safe asset shortage' and asset prices

Arguably the most convincing 'structural' explanation for low interest rates on safe assets like bonds issued by solvent governments is based on the view that, in the past decade, they have simply become extremely scarce relative to the demand for them. The putative scarcity predates the 2008 financial crisis and, indeed, may have helped set the stage for it. But the rise in perceived economic and financial insecurity has surely compounded the problem (Figure 16). Some sources of demand for safe assets may be relatively unaffected by the increase in perceived economic and financial uncertainty that has been associated with the global financial crisis and its aftermath, but portfolio demand for low-beta assets to protect against adverse shocks will rise when the magnitude of those shocks increases.

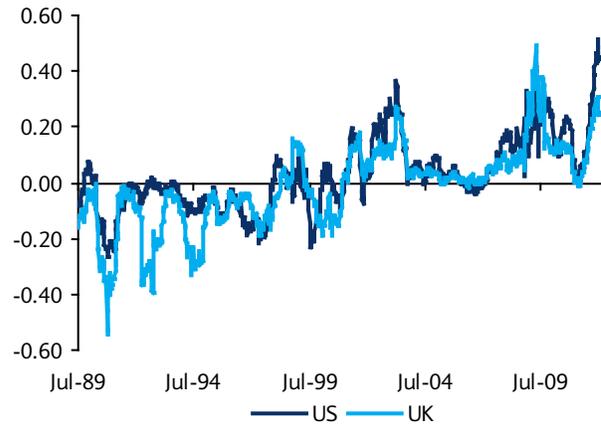
*As 'safe haven' assets have become scarcer, they have become even more valuable as mark-to-market risk mitigators*

FIGURE 16  
A riskier world: So long ‘Great Moderation’



Note: This is a 12-quarter moving standard deviation of real GDP growth. Source: Barclays Capital

FIGURE 17  
‘Safe haven’ assets becoming even ‘safer’



Note: This chart shows the covariance between 10-year government bond yields and national equity markets. A positive covariance means that bond prices and equity prices are negatively correlated, which implies that bonds provide insurance against market risk. Source: Barclays Capital

For historical perspective, it is important to be aware that as ‘safe haven’ assets have become scarcer, those remaining have become intensely (negatively) correlated with risky assets, and have thus become even more valuable as mark-to-market risk mitigators (Figure 17). Bonds issued by solvent governments are no longer just low-beta, they offer mark-to-market portfolio insurance that they did not offer in the 1990s or before. It is not completely clear why this has happened, and it may or may not relate to the scarcity of safe assets that we discuss below. One view is that the correlation is related to the decline of inflation in the advanced economies; now ‘bad times’ are generally associated with low inflation (and therefore high bond prices), which may not have been the case in the past, when inflationary shocks were a significant source of economic and financial risk. There may also be an element of ‘sunspot’ equilibrium in the negative correlation between returns on safe bonds and risky assets. (That is, investors expect the correlation and so buy the ‘safe’ debt when they get nervous, which leads to an increase in its price, reinforcing the initial belief.)

Whatever the reason, the change in the risk characteristics of UK and US debt raises questions of interpretation of the ‘equity risk premium’ as conventionally defined. We address this in the next section.

### The ‘safe asset’ squeeze

It has become increasingly clear that ‘safe’ assets perform a role in the financial system that is more critical than had been previously understood. They are important, of course, for risk-averse public and private investors. They also facilitate transactions by forming the collateral that is required to support many contracts.<sup>6</sup> Precisely what ‘safe’ means depends upon the role the asset is expected to play in a specific context. Very low credit (default) risk would seem to be the *sine qua non* for virtually any such role and, for some (eg, very conservative investors with a long investment horizon), this may be the only really critical attribute. In many (though not all) contexts, trading liquidity is critical, thus privileging large asset classes supported by deep and liquid asset markets. Currency risk is presumably negative in most

<sup>6</sup> Ricardo Caballero (2006) “On the Macroeconomics of Asset Shortages” explores the economic implications of an unsatisfied demand for safe assets, focusing upon implications of the theory that safe assets are mainly produced in advanced economies while demand exists in both emerging and advanced economies. Gary Gorton et al (2012) “The safe-asset share” and references therein discuss the role that safe assets play in promoting financial-market activity.

contexts, pointing toward home-currency assets in domestic transactions) and reserve currencies for international trade (in the international context).

We will probably never have a watertight definition or a comprehensive list of 'safe' assets, both of which would in any event be context-dependent. But we think most would agree that the list in Figure 18 covers the most significant such assets in the international context. These include US government debt (excluding debt held by the Fed), direct debt and asset-backed securities issued by US government-sponsored agencies, privately issued mortgage-backed securities, and public debt of the large European governments.<sup>7</sup>

FIGURE 18  
A list of safe assets – pre- and post-crisis

	USD bn		% of world GDP	
	2007	2011	2007	2011
US Federal government debt held by the public	5,136	10,692	9.2%	15.8%
Held by the Federal Reserve	736	1,700	1.3%	2.5%
Held by private Investors	4,401	8,992	7.9%	13.3%
GSE obligations	2,910	<del>2,023</del>	5.2%	<del>3.0%</del>
Agency-and GSE-backed mortgage pools	4,464	<del>6,283</del>	8.0%	<del>9.3%</del>
Private-issue ABS	3,901	<del>1,277</del>	7.0%	<del>1.9%</del>
German and French government debt	2,492	3,270	4.5%	4.8%
Italian and Spanish government debt	2,380	<del>3,143</del>	4.3%	<del>4.7%</del>
Safe assets	20,548	12,262	36.9%	18.1%

Note: Numbers are struck through if they are believed to have lost their 'safe haven' status after 2007. Source: Federal Reserve Flow of Funds, Haver Analytics, Barclays Capital

But even before 2008, a safe-asset squeeze driven at least as much by developments in demand as in supply was affecting global asset markets (Figure 19). In Figure 19, we work with the safe assets listed in Figure 18, with the US GSE and ABS assets dropping off the list in 2008, Spanish government debt dropping off in 2010, and Italian public debt in 2011. The line represents international reserve holdings expressed (like the assets) as a percentage of world GDP. International reserves are relevant because such assets are predominantly held in safe assets of the sort listed above. Thus, they represent a relatively price-insensitive claim on the safe assets, subtracting from the amount available to satisfy private-sector demand. (Figures for 2016 and 2021 are, of course, projections, which we discuss below.)

In 2000-10, international reserves grew strongly, reflecting lessons about the value of self-insurance learned by emerging market policymakers in the 1998 financial crisis, trend growth in advanced-economy reserves (which remained roughly constant as a share of their own GDP), and explosive growth in Chinese reserve assets.<sup>8</sup> From 2002 through 2007, international reserve assets rose by about 5 percentage points of GDP.

Over the same period, the supply of safe assets declined by about 5% of world GDP because advanced economy fiscal positions were reasonably sound and world GDP was growing considerably more rapidly than advanced-economy public debt. The only form of safe asset in our list that increased as a share of world GDP during this period was US mortgage-related assets, whose growth partly offset what would otherwise have been an even sharper decline in safe assets.

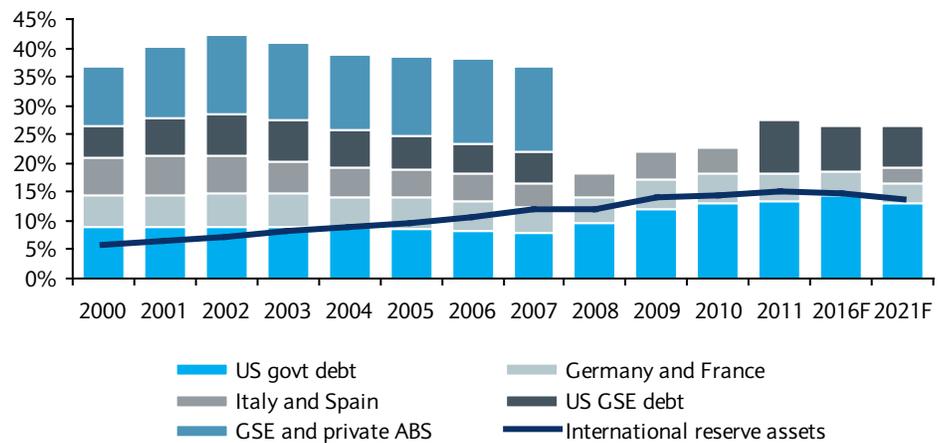
<sup>7</sup> In Figure 18 we do not include UK public debt, which still trades as a 'safe haven' asset, mainly on the grounds that sterling, like the yen, is a reserve currency of only modest significance. Including UK public debt in the analysis would not change the results in any significant way.

<sup>8</sup> Caballero (2006) suggests that unsatisfied demand for safe assets from emerging-market wealth-holders was the fundamental driver of global payments imbalances in these periods. Whether this is the whole story, or 'accidental' external surpluses created by the policy framework were also part of the story is relatively unimportant to this discussion.

Figure 19 thus presents another perspective on former Fed Chairman Alan Greenspan’s famous interest-rate ‘conundrum’ and the related ‘savings glut’ hypothesis, which highlights the idea that ‘safe’ interest rates like US Treasury yields were particularly affected by the financial context because so much of the surplus was managed by highly risk-averse, public-sector reserve managers. It also reinforces the point that the explosion of seemingly safe, mortgage-related ABS was not an accident, but an endogenous response to a genuine scarcity of (perceived) high-quality, liquid assets.

In 2008, the squeeze turned into a crunch, as perceptions of US housing-related assets were transformed from triple-A to toxic. The resulting crunch was only partially alleviated by the explosive growth of still-‘safe’ government debt in the US and elsewhere. The downgrading of Spanish debt in 2010 and Italian debt in 2011 compounded the problem.

FIGURE 19  
The safe asset shortage



Note: Asset supplies are shown as a percent of world GDP. Source: Federal Reserve Flow of Funds, Haver Analytics, IMF COFER, Barclays Capital

### The safe-asset shortage and the equity risk premium

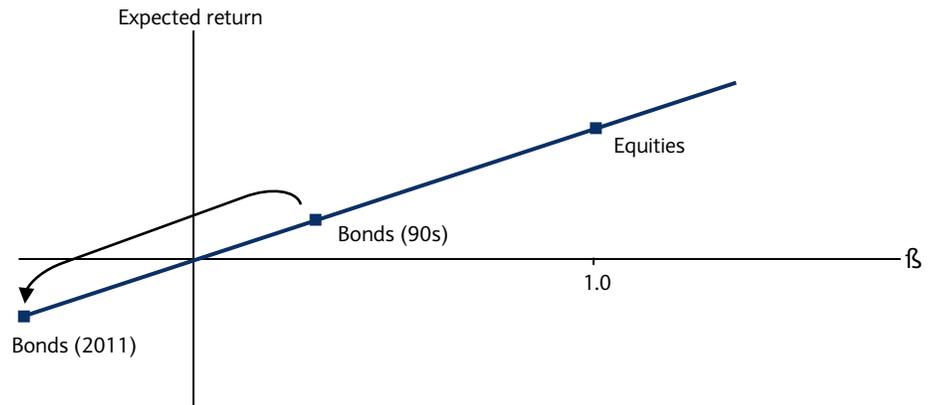
Applied to the existing market context, these considerations suggest that conventional measures of the equity risk premium are high now, not mainly because equity owners have become more intolerant of equity risk, but because the valuation drivers of the asset that forms the basis of comparison (‘safe’ government debt) have changed so radically. One way to illustrate this is provided in Figure 20, which is purely heuristic, not derived from a carefully-specified financial model.

The figure is meant to illustrate the proposition that, to the extent that the reduction in Treasury yields reflects a persistent squeeze in the market for safe assets, and the increased value of such assets associated with the strongly negative correlation with market risk, the rise in the measured ‘risk premium’ is driven by bond-market fundamentals that may have a limited relationship to equity valuations. In the 1990s, bonds were a low but positive beta asset; they came with at least some systemic risk, and the risk premium (relative to a zero-beta asset) should have reflected that.

In the past decade, however, returns on bonds issued by solvent countries have varied negatively with risky assets. Moreover, since 2008, the demand to mitigate risk has been intensified by the sharp increase in perceived economic and financial insecurity, and the intensified shortage of ‘safe’ instruments available to protect wealth from this insecurity. Investors may now be willing to pay for the mark-to-market insurance that bonds offer, driving bond yields down and the measured equity risk premium up, even if equity valuations themselves are not importantly changed. To the extent that bond yields are being

*Conventional measures of the equity risk premium are high because the valuation drivers of ‘safe’ government debt have changed radically*

FIGURE 20  
Equity risk premium: Riskier equities or safer bonds?



Source: Barclays Capital

driven down by a safe-asset scarcity, there may be a degree of de-linkage between bond yields and equity valuations.

*Equity markets should not be seriously destabilized if the safe-asset squeeze subsides*

Of course, this does not mean that interest rates and equity markets are entirely de-linked. Changes in interest rates that are associated, for example, with the outlook for monetary policy, are likely to remain powerful drivers of both bond and equity markets. But the perspective does help explain why the past half-decade's collapse in bond yields has been accompanied by a rise in the measured equity risk premium, rather than a substantial rise in equity valuations. It also offers some grounds to expect that equity markets will not be seriously destabilized if the safe-asset squeeze subsides in the future.

### What next?

More interesting, in our view, is what this situation might mean for financial markets looking forward. We do not pretend to have a complete answer, of course. For one thing, the tension that has been created by the safe asset shortage creates enormous incentives for institutional adaptations, many of which are unpredictable in their scope and timing. Moreover, other drivers of interest rates, including inflation, monetary policy, and the business cycle will, as always, play an important role in bond markets. Finally, a big question mark hangs over the market: will US, UK and Japanese debt continue to be perceived as 'safe havens' in the years to come, even as their supply expands? (See Chapter 2 of this publication). That said, the following thoughts occur to us.

The most obvious is whether the acute scarcity of 'safe assets' will soon be alleviated. One might ask, for example, whether the rapid growth in US public debt created by its unsustainable fiscal position might address the scarcity of safe assets. How significant would it be if the public debt of Spain and Italy were, eventually, to regain safe-haven status, either because they overcame their public financial challenges or because the debt was replaced by a Eurobond of higher credit-worthiness in the eyes of investors.

To work through some of these questions, we set out in Figure 19 a projection that assumes: (1) a gradual consolidation of the US public finances, with the public debt rising to about 80% of US GDP by 2016 and remaining at more or less that level through the end of our forecast horizon; (2) a return to 'safe haven' status of US agency debt (but not mortgage- or other asset-backed bonds), adding about 8% of world GDP to our estimate of

'safe assets'<sup>9</sup>; (3) German and French debt remains on the list of 'safe haven' assets, while Italian and Spanish debt remains off it until 2021; and (4) international reserve demand grows in line with GDP, except in China, where we project that reserves will gradually fall from nearly 50% of GDP at present to 30% of GDP in 2021, in line with the average for other emerging market economies.<sup>10</sup>

Under these assumptions, safe-asset scarcity is somewhat alleviated, but it is not easy to imagine a return to the conditions that prevailed in the early 2000s. Moreover, the projection highlights two features of the problem that suggest it will not quickly be unwound.

The first is the sheer magnitude of the prospective gap between the net supply of 'safe assets' and the gap that existed at the beginning of the millennium. In 2002, for example, the difference between the supply of the safe assets that we consider and world international reserves amounted to roughly 35% of world GDP, which is an estimate of how much was available to be held by the private sector. In our projection for 2016, this gap is about 12% of world GDP; to return to the early 2000s would thus require an increase in safe assets of roughly 20% of world GDP, which would be about 100% of US GDP. Even if the 'safe asset shortage' is half this size, it does not seem conceivable to us that it could be addressed by the US, or even the advanced economies as a whole. (For example, if US public debt were 100% of US GDP rather than the 80% that we project, it would increase the supply of safe assets by only 4% of world GDP. If the Fed were to unwind its holdings of US Treasuries, bringing them to a more normal \$700bn by 2016, this would augment the supply of safe assets available for private holders by only about 1% of world GDP.)

*The safe-asset shortage will likely be with us for some years to come*

If advanced economies cannot address the imbalance themselves, the solution could lie in institutional adaptations permitting emerging market economies to be smaller claimants on the existing stock of 'safe assets', and/or making them more prominent suppliers of these assets than they have been so far. On a five- to 10-year time horizon, it seems to us that this really means China; no other emerging economy has the economic and financial weight. Given that this will not happen soon, it seems likely that the safe-asset shortage will be with us for some years to come. It also suggests that the eventual opening of the Chinese asset markets and the development of an international role for the renminbi may be very powerfully linked to the historically anomalous international financial equilibrium.

*Near-term relief from the acute scarcity of safe assets is likely to be transitory until EM economies become part of the solution*

Second, even if the industrial economies were able to address the problem in the near term, almost as a matter of arithmetic the problem would eventually grow beyond their capacity to address. If the demand for safe assets in emerging-markets grows along with their economies, and advanced economies' capacity to generate the assets grows in line with their economies, then consistently more rapid growth in EM will eventually outstrip advanced economies' capacity to meet the demand. This 21<sup>st</sup> century Triffin dilemma suggests that any near-term relief from the acute scarcity of safe assets is likely to prove transitory until emerging market economies become part of the solution.

## Risk and return

In absolute terms, our estimates suggest that US and UK equities are priced to yield inflation-adjusted returns comparable to historical returns; in the US, in fact, our estimate of the expected equity return is meaningfully lower than the historical return (over the 1950-2010 period). But in both countries, the estimated 'equity risk premium' is meaningfully higher than the historical excess return. This higher equity risk premium that we estimate probably does reflect somewhat more cautious equity valuations, associated with the more

<sup>9</sup> A case can be made that GSE obligations belonged in the 'safe asset' category in 2011. The de facto guarantee has been tested and found solid, and the debt now trades quite tight to direct Treasury obligations.

<sup>10</sup> This projection is consistent with reserve growth averaging about \$200bn per year, and is thus a smaller departure from the existing macroeconomic landscape than may at first seem likely. Note that a Chinese decision to invest a larger share of their existing reserves in riskier assets with higher expected returns would be equivalent, for our purposes here, to a decline in reserves. What interests us is the reserve managers' claim on safe assets.

intense economic and financial insecurity that investors confront in the post-collapse era, and perhaps other factors. But we think it is to a large extent an artefact of the comparison with bond yields that have been driven lower by an acute scarcity of safe assets and a major change in the risk properties.

Conceptually, one would like to measure the equity risk premium against an asset whose market-risk properties have not changed so markedly from the historical base of comparison, say, a default-free zero-beta instrument. In the absence of such an instrument, we can conclude little other than that the increase in the equity risk premium (so defined) is likely meaningfully less than the risk premium conventionally computed, versus safe government bond yields.

*The response of equity valuations to a reversal of the extraordinarily low real bond yields may not be severe*

Measurement issues aside, the good news is that this line of thinking provides some reason to believe that the response of equity valuations to a reversal of the current extraordinarily low real bond yields may not be substantial, if those yields change in response to the bond-market fundamentals of the sort that we highlight. Of course, we should expect no such de-linkage if bond yields are driven by changes in the cyclical economic context, or in monetary policy or liquidity conditions. Our enthusiasm on this score is tempered by the probability that the scarcity of safe assets will be with us for some time. Reversing it will require very slow institutional adaptations, or endogenous market developments (such as the growth of asset-backed 'safe' assets in the early 2000s) that do not seem imminent.

A less positive implication of our conclusion that a more consistently measured equity risk premium has likely increased less than the conventionally measured one is that there may be less 'fear' priced into world equity markets than conventional measures might suggest. The downside market risks in, for example, a descent into a prolonged period of economic and financial instability of the sort that characterized the 1970s would thus be correspondingly increased.

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