



# Possible Futures

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From Credit Suisse Global Investment Returns Yearbook 2009

Looking at very long-run data on economic and investment performance puts the present in perspective and helps us form views on possible futures. At Credit Suisse, the Global Strategy department in London started to gather information stretching back to the 19th century and beyond – principally for the USA and the UK – in the early 1990s. Since then, public interest in longer-term trends has progressively escalated and no one has done more than Drs. Dimson, Marsh and Staunton to extend and publicize our knowledge of financial history. In the current crisis that is more valuable than ever.

**The value and fascination** is not of course that history repeats itself exactly. It is far too complex and non-linear a process for that. But human nature is another matter: it is seemingly inevitable that we oscillate – on a smaller or larger scale – from excessive optimism to excessive pessimism in response to periods of unusually good or bad economic performance. And back again. Which is what imparts a shared DNA to otherwise different economic cycles and financial crises: they are like siblings or cousins, where a largely common pool of genes is mixed differently, sometimes producing an easily recognizable family resemblance, sometimes not.

We have argued for many years that deregulation, technology and globalization have made the world economy more structurally like the late 19th century and early 20th century than the more familiar period between World War II and 1982. It's as if some long dormant genes had suddenly found the conditions to become active again. In our view, between the revolutions of 1848 and World War II – and indeed even before that – the basic process was one of investment-led growth responding to some fundamental new opportunity, in many cases related to the spread of railroads and the opening up of new markets or sources of supply.

Each boom was accompanied, sooner or later, by a bubble of some sort (land, equities, emerging bonds) and a speculative phase of excess leverage and credit availability. Huge international capital flows – most obviously from lower interest rate countries with excess savings – would flow towards these new investment opportunities and contribute to the easy credit conditions and asset price overshooting.

Inevitably, some seemingly minor event would prick the bubble, leading to a financial crisis that saw demand contract abruptly, usually leaving an excess of new capacity and a shortage of business and financial confidence in its wake. During these episodes, internationally mobile savings would flow back to the safety of the home market, putting strain on the gold standard system of fixed exchange rates, and adding to the deflationary pressure on asset prices. In nearly every single case, the crisis was or became global, rather than largely confined to one country.

In fact, major crises of international capitalism occurred in 1825, 1837, 1847, 1857, 1866, 1873, 1878, 1890, 1893, 1907, and, of course, 1929. Yet despite the periodic upheavals, the late 19th century saw the greatest leap forward in global prosperity the world had experienced up until then: the underlying deflationary bias and propensity to financial crisis was not incompatible with sustained growth and development. On the contrary, these upheavals were the means of “correcting market imperfections” and “eliminating speculative and inefficient projects,” eventually clearing the way for new savings and capital to be directed towards the next fundamental opportunity. Periodic instability was the price of dynamic progress. That was even true for what was known for a long time as the Great Depression of 1892–96. But, especially in the United States, the “Roaring 20s” and the subsequent crash and depression of the 1930s represented a break with the past in terms of the scale, depth and length of wealth destruction, underemployment, economic volatility and human misery. This is one of the things that stands out most clearly from the historic record: there has never been anything like it before or since. And it changed the whole political and social landscape too, arguably contributing to the rise in both communism and fascism, and the instability in Europe that led to World War II. In time, it also led to a new system of regulated corporatism, government intervention, limited capital flows and Keynesian demand management.



And so that Great Depression is now the one we remember, and that we are now desperate to avoid. Indeed, we can be almost certain that a 21st century version of the 1930s would lead to a revolt against the current system of global capitalism and relatively free markets, spark social unrest on a wide scale, and frustrate the ambitions of billions of citizens in the emerging world. Ultimately, peace as well as prosperity would be at risk.

Despite the periodic upheavals, the late 19th century saw the greatest leap forward in global prosperity the world had experienced up until then.

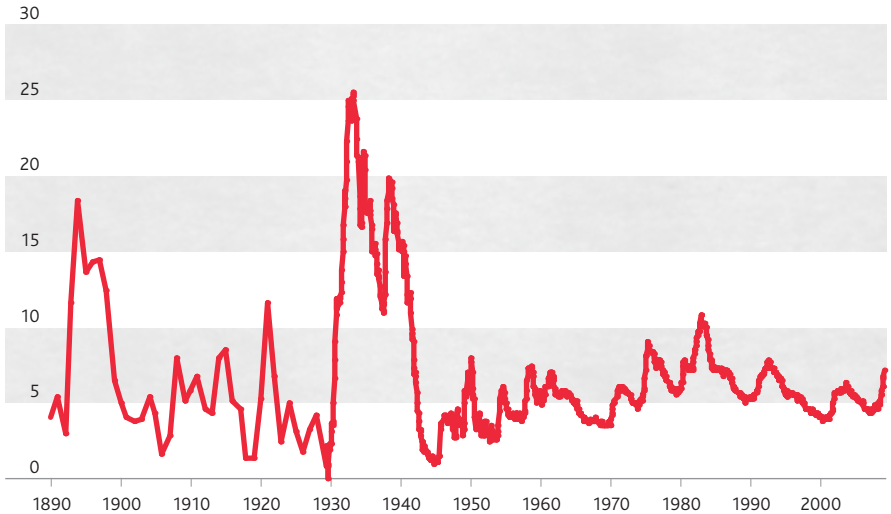
### A tale of two depressions

According to the Columbia Electronic Encyclopedia, 6th ed., a depression in economic terms is a “period of economic crisis in commerce, finance, and industry, characterized by falling prices, restriction of credit, low output and investment, numerous bankruptcies, and a high level of unemployment. ...Recovery is generally slow, the return of business confidence being dependent on the development of new markets, exhaustion of the existing stock of goods, or, in some cases, remedial action by governments.”

After the failure of Lehman Brothers in September 2008, global equity markets and economic activity dropped almost vertically, an experience without real precedent since World War II, but typical of 19th century panics. At their November 2008 low, all major equity markets, developed and emerging, had fallen 45%–75% from their peaks, with roughly two thirds of the damage done in just two months – from mid-September to mid-November. This was a crash added on top of a standard bear market.

The real economy crashed too. In the last quarter of 2008, developed market GDP fell at a 6% annualized rate, the worst performance since the first oil shock. And, after a five-year boom unmatched since the 1960s, global industrial production fell by nearly 10% in the six months to January 2009, again with most of the damage done in October and November. Spare production capacity soared in this period to a level nearly twice as high as in 1982 and 2001. Behaviorally and psychologically, therefore, the current crisis already felt like a depression by early 2009, with “falling prices,

**FIG 1 US unemployment rate from 1890 to 2008 (%)**



Source: Credit Suisse

restriction of credit, low output and investment, numerous bankruptcies” and sharply rising unemployment.

Figure 1 suggests a less emotional interpretation, however. In the early 1890s, unemployment reached 17%, and took roughly eight years to return to a “normal” level. In the 1930s, it peaked at 25% and did not return to “normal” until World War II. Unemployment in some of the biggest US cities was also said to have reached 25%–30% during the long slump of the 1870s. By contrast, in the “great recessions” just after World War I and the second oil shock, unemployment peaked at around 10%–12%. Persistent unemployment above 10%–12% might therefore count as the real mark of a depression.

So talk of another “Great Depression” looks premature to say the least, even if most economists expect unemployment to rise well above 8% in the USA and 10% in the Eurozone in this downturn. More accurate to say, perhaps that the panic of 2008 marks the end of the so-called “Great Moderation,” the term that had come to be used for the last 20 years or so, when shallow recessions and smoother growth became the expected norm. And that the unprecedented policy measures taken after the Lehman



‘Talk of another ‘Great Depression’ looks premature to say the least, even if most economists expect unemployment to rise well above 8% in the USA...’

crash reflect a common perception that this is first time in 80 years that a genuine threat of pernicious debt deflation has been present.

Time will tell whether the policy response has been too much, too little or about right, but it is driven in large part by the desire to avoid a repeat of Japan’s “lost decade” and informed by the US experience of the 1930s.

Just how destructive – and how exceptional – that experience was is clear from several other metrics. Industrial output fell by 54% from peak to trough between August 1929 and January 1933 compared to “just” 16% in around 18 months in the early 1890s. One point easily forgotten is that there were three distinct phases of declining output in the 1930s. The first phase lasted about 6 months, during which industrial production fell about 12%, only slightly worse than in the current episode. After a brief stabilization, output dropped a further 20% between mid-1930 and the spring of 1931. This was the period when banks started to fail in large numbers, the money supply started shrinking and protectionism spread like wildfire around the globe after the passage of the Smoot/Hawley Tariff Act. Even at this point – when output was around 30% below its peak – the 1930s was not unique. For example, industrial output fell as much after both World War I and World War II, and in 1937–38.

There was a small rebound in output in the summer of 1931, but, in the autumn, the UK left the gold standard and raised interest rates, attracting large gold inflows from other countries. The Federal Reserve responded by raising interest rates themselves, and the final dreadful decline in output and stock prices began. In the following 12–15 months, US production plunged over 35%, and stock prices fell by 72% as still more severe bank runs occurred and confidence evaporated almost completely. It is this third and final phase of the depression that truly marks it as different from any episode before or since.

It is of some interest to note which components of real GDP fell the most. The estimates are only annual averages, but point to an 18% decline in personal consumption between the peak in 1929 and the trough in 1933, with a recovery to some 4½% above the 1929 level by 1937. Both gross business investment and total construction spending

were at peak levels for the cycle in 1926, declining slightly thereafter, but by 1933 they had fallen to negligible levels, down 98% and 82%, respectively, from their peaks. Even in 1937, business investment was still 15% lower than in 1926, with construction expenditure over 50% below peak. Overall real GDP is estimated to have fallen by just under 30% between 1929 and 1933, and was just over 4% above peak by 1937.

Deflation in the 1930s was also severe. The consumer price level dropped by just over 25% in 3½ years, compared to around 5% over five years in the 1890s. Wholesale prices plunged by around a third between 1929 and 1932. Nominal GDP fell by 47% over the course of the depression and, even by the time war broke out in Europe, was still 10% below its 1929 level.

### **On sudden changes in the channels of trade**

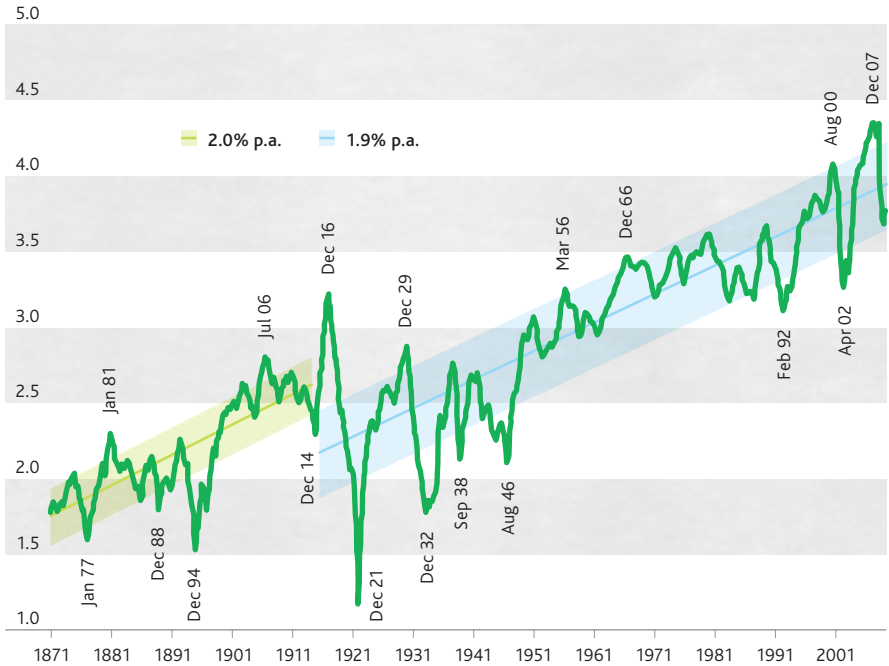
“The commencement of war after a long peace, or of peace after a long war, generally produces considerable distress in trade. It changes in a great degree the nature of the employments to which the respective capitals of countries were before devoted; and during the interval while they are settling in the situations which new circumstances have made the most beneficial, much fixed capital is unemployed, perhaps wholly lost, and labourers are without full employment.” Ricardo – *On the Principles of Political Economy and Taxation* – Chapter 19 (1821).

Looking at real earnings per share (using the Shiller data) provides a different and perhaps surprising perspective. Here it is not the 1930s that are the standout exception, but rather World War I, so much so that earnings never recovered to their late 19th century trend, but simply resumed an almost identical growth rate (of about 2% per year) from a lower level.

On our interpretation of the data, therefore, World War I is remarkable in two entirely opposite respects: it recorded the largest overshoot of real earnings per share relative to trend (in 1916), a level not subsequently exceeded until the 1960s! Meanwhile, in the deflationary aftermath, the largest undershoot occurred (1920–21), when real EPS fell below the level of 50 years earlier and the original trend was never restored. And it seems as though the trend growth rate in real EPS has been roughly in line with the very long-run growth rate of productivity, which has been around 2% per year.

As to oscillations around the trend, it seems that the biggest declines in both real output and profits come after major wars or in depressions “during the interval while (capital is) settling in the situations which new circumstances have made the most beneficial” and the excessive enthusiasms of the last boom are being worked off.



**FIG 2 US real EPS: log levels (%)**


Source: Credit Suisse

The other striking feature of Figure 2 is that the “Great Moderation” in nominal and real GDP growth of the past 25 years or so is not at all visible in the data. In fact, even in the early 1990s and early 2000s, real EPS troughed about 40% below trend, and exhibited cyclical volatility rather similar to the 19th century and the inter-war period. In the 1930s, real EPS fell 65% and troughed about 50% below trend, while real EPS declined by 51% in the 1890s episode, (and also troughed about 50% below trend). We estimate that real earnings were nearly 48% below peak, and 38% below trend by the end of 2008, with by far the biggest decline coming in financial sector profits. Thus, in terms of aggregate earnings volatility, it is actually the 1950s and 1960s that qualify as the “Great Moderation” and which stand out as the exception to the rule.

There would seem to be only two possible explanations. Either firms today have far more operational gearing to the real economy, so that smaller changes in capacity

utilization have a larger impact on profits. Or the corporate sector – financial and non-financial – uses less share capital per unit of earnings, i.e. firms have taken advantage of a more stable economy to increase leverage, substituting debt for equity in the capital structure, and preserving, as it were, the level of risk in the system as a whole.

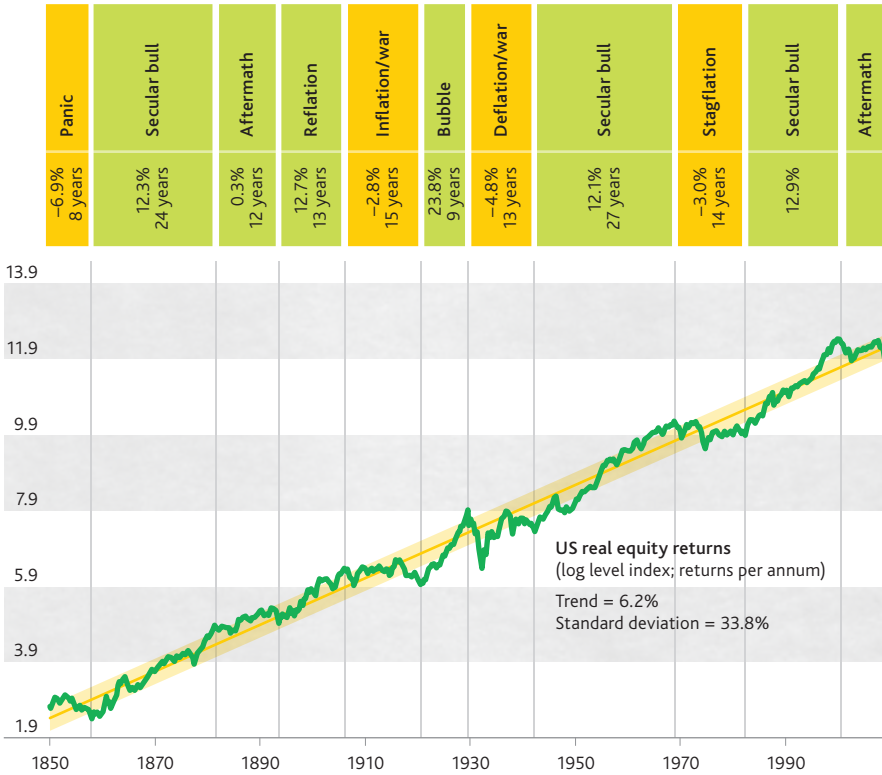
**Large firms with strong balance sheets, resilient cash flows, the ability to finance growth internally and/or continued access to credit markets are the potential winners in this process.**

That increased leverage is a likely and perhaps inevitable response to lower volatility – that stability breeds instability – is amply demonstrated by the behavior of financial firms in the build-up to the current crisis. Equally, the scale of this crisis and the sudden shift in the perceived stability of the economy it has already brought about will almost certainly change household, corporate and financial sector attitudes to leverage even without regulatory intervention. In the short to medium run, this cannot be achieved without a corresponding increase in public sector debt, and greatly increased risks to economic stability. But it would not be surprising if the most enduring legacy of the current crisis was a change in the balance between debt and equity on private sector balance sheets, a long-term trend towards lower leverage and perhaps eventually rather lower volatility of earnings around trend.

In the meantime, we can expect two already emerging trends to go a lot further. First, in both the financial and non-financial sectors, increased issuance of new equity capital when market conditions permit is likely, while stock buybacks are likely to diminish and debt buybacks are likely to become more common. At the same time, increased consolidation and industry concentration has in the past always been a feature of depressions or periods with a substantial overhang of excess capacity. Large firms with strong balance sheets, resilient cash flows, the ability to finance growth internally and/or continued access to credit markets are the potential winners in this process. As long ago as the 1870s, the depressed state of the economy and credit markets allowed people like Carnegie and Rockefeller to buy many smaller firms and competitors at fire sale prices, and build vast new business empires.



FIG 3 US real equity returns (%)



Source: Credit Suisse

### Credit and capital

Depressions – and especially their cost in terms of unemployment and human misery – are probably the single most objectionable aspect of capitalism, as Keynes and many others recognized even before the 1930s disaster. Our social and political fabric will not easily withstand the wrenching adjustments that so often punctuated the dynamic progress of laissez-faire capitalism in the 19th century. (Financial) regulation, the lender of last resort function of modern central banks, unemployment insurance, income redistribution and activist fiscal policy are some of the ways in which we have tried to limit the human cost of the best system for sustained wealth creation yet devised.

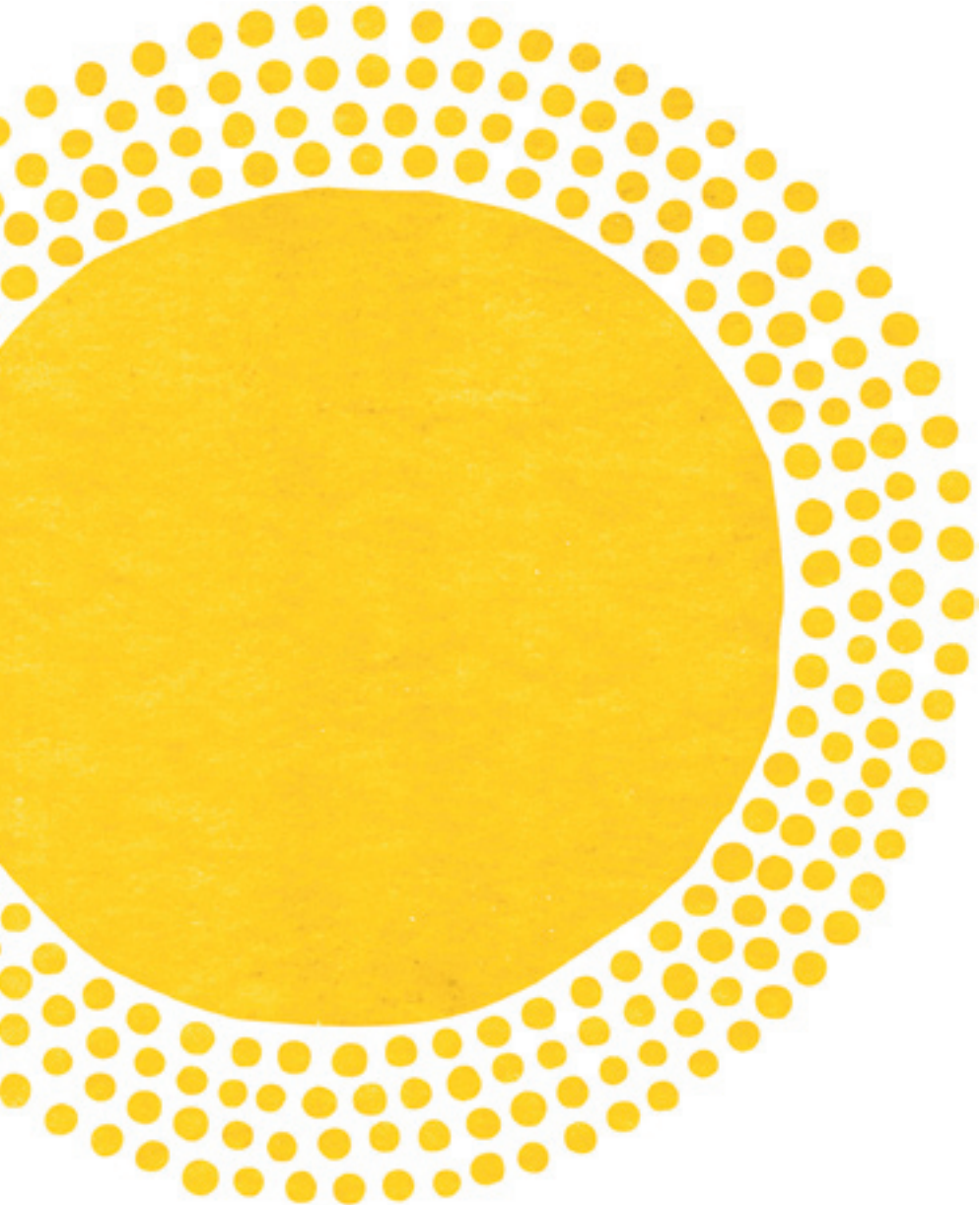
Yet it is also impressive to note how resilient capitalism has been over at least 150 years of periodic upheaval. The best data series we have for very long equity market performance is, not surprisingly, for the USA. And looking at inflation adjusted total returns (dividends plus capital gains) since the mid-19th century shows something quite remarkable: namely that the very long-run trend of real equity returns is apparently around 6% to 6½% per year, and that this tendency has so far survived the most terrible of historic events, including world wars, depressions and social upheaval.

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It is equally clear, however, that the scale of overshooting either side of this remarkably consistent trend is very large. One standard deviation in this chart is 34% in logs, meaning that when the market is two standard deviations above trend – as it was at the height of the tech bubble – it is some ten years ahead of itself. At the beginning of 2009, the US market was around one standard deviation below trend, and in that sense moderately rather than outstandingly cheap.

That is in particularly sharp contrast to June 1932, when the market troughed some 3.4 standard deviations below trend, cheaper by a large margin than any other period. The other major overshoots to the downside (more than two standard deviations below trend) occurred in 1857, when the banking system all but completely collapsed in the aftermath of World War I, shortly after Pearl Harbor, and following the two oil shocks of the 1970s. Thus one can say that war and/or inflation have been associated with three of the worst equity market overshoots, while a broken credit system following the collapse of a particularly extended or frenetic boom have accounted for the other two.

Conspicuously absent from this list are the great depression of the 1890s, or indeed the 1870s slump. During both of these episodes, the market bottomed around one standard deviation below trend, and in both cases a year or more ahead of the low point in output. Equally relevant perhaps is the observation that, in both 1857 and in the summer of 1931, real equity returns were also around one standard deviation below trend. In both those episodes, it was the final implosion of the banking and credit system that led to the final dramatic overshoot in the equity market itself.



To put it even more simply: the US equity market has only traded at much cheaper levels than it was in late 2008/early 2009 when either the survival of the nation itself, or of its banking system, was under the most serious threat.

This strongly suggests that the key question for investors in 2009 is not “will the recession be long and deep?” (it almost certainly will be), nor whether the relationship between governments and markets is changing (it already is), nor even whether private sector attitudes towards leverage will be profoundly altered by recent events (they surely will be), but rather whether the extraordinary policy measures now underway can gradually stabilize the (global) banking and credit markets, which are themselves arguably already discounting depression.

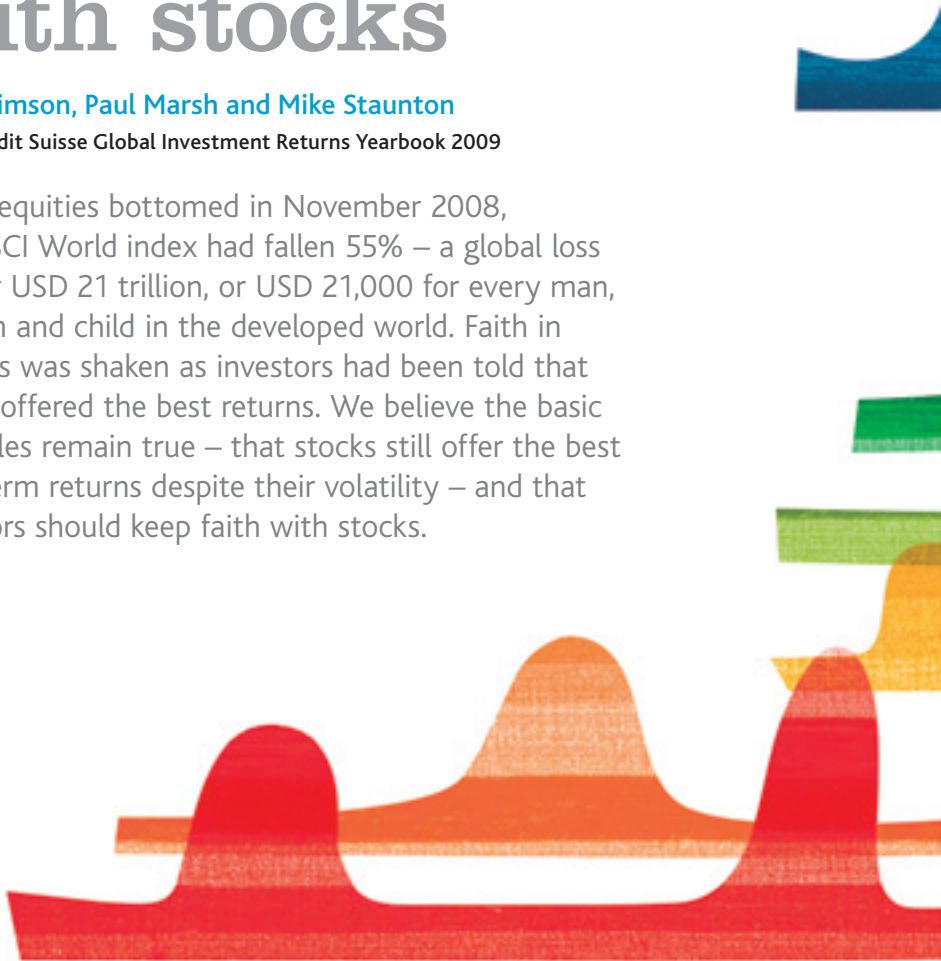
And yet, for that to happen, governments themselves must remain both credible and creditworthy. If they do, the current crisis – severe as it is – should in the end lay the foundation for a greener global economy and a more sustainable prosperity. ●

# Keeping faith with stocks

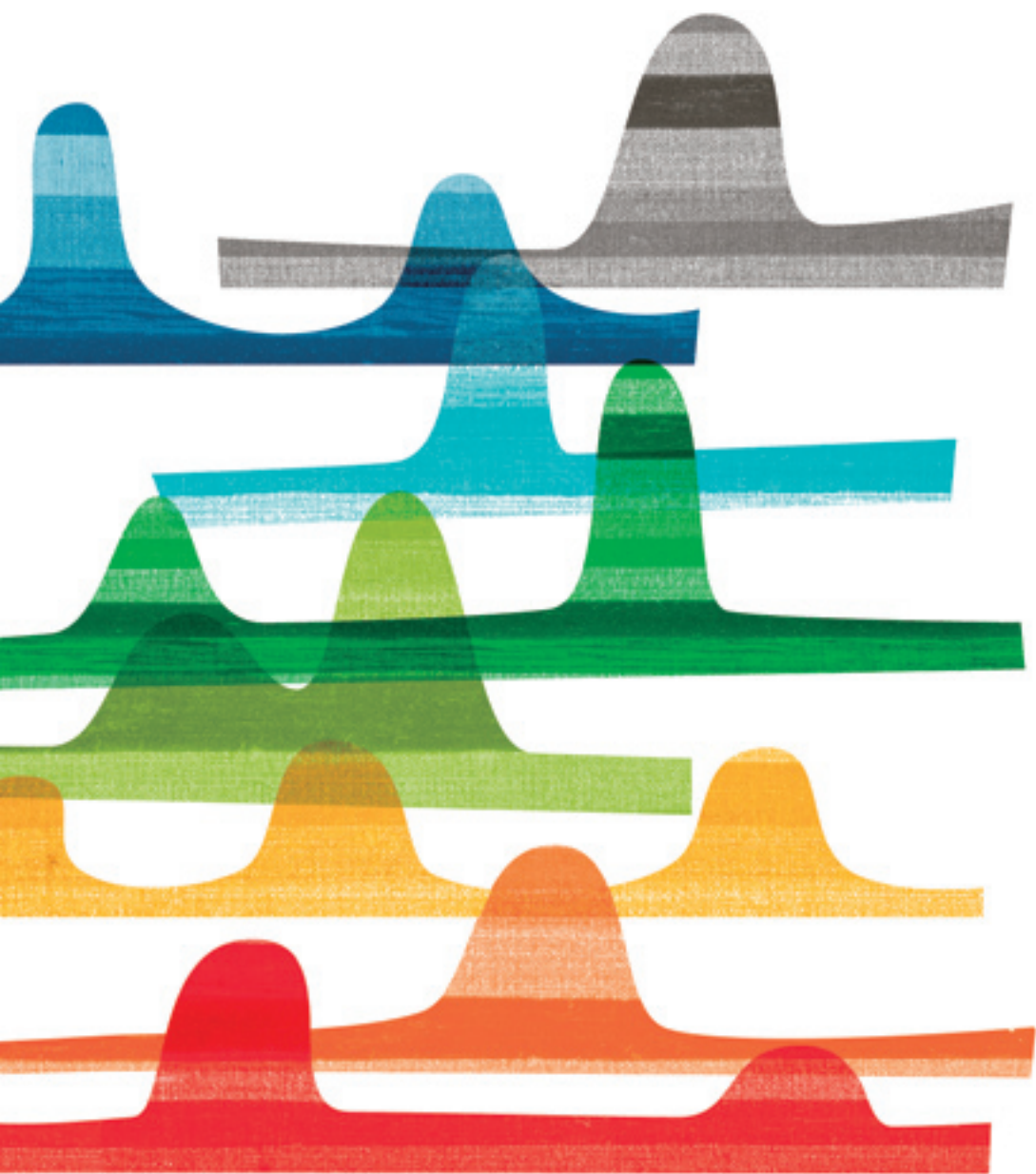
Elroy Dimson, Paul Marsh and Mike Staunton

From Credit Suisse Global Investment Returns Yearbook 2009

When equities bottomed in November 2008, the MSCI World index had fallen 55% – a global loss of over USD 21 trillion, or USD 21,000 for every man, woman and child in the developed world. Faith in equities was shaken as investors had been told that stocks offered the best returns. We believe the basic principles remain true – that stocks still offer the best long-term returns despite their volatility – and that investors should keep faith with stocks.







**What should we expect from equities?** To answer this requires a long-term perspective. A week may be a long time in politics, but even a decade is too short to judge stock returns. Some decades are depressingly poor, while others are tantalizingly good. To understand equity returns, the long term must be long indeed. Fortunately, the Yearbook database meets this test with 109 years of data for 17 countries that together represent some 90% of world stock market value.

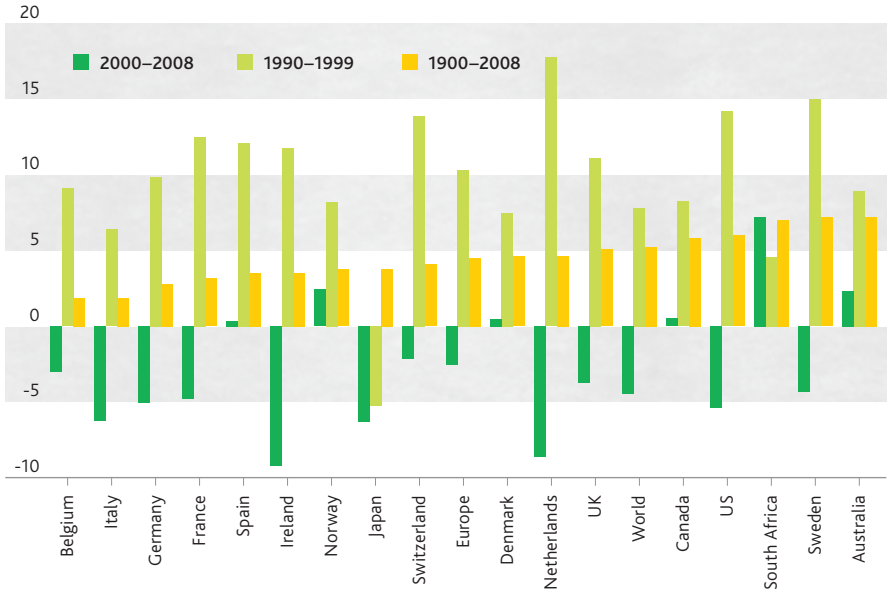
The last decade has been the lost decade. The 21st century began with a savage bear market. By its nadir in March 2003, US stocks had fallen 45%, UK and Japanese equities had halved, and German stocks had fallen by two-thirds. Markets then staged a remarkable recovery, only to plunge again late in 2007 into another epic bear market fuelled by the credit and banking crisis. Since 2000, the MSCI World index has lost a third of its value in real (inflation-adjusted) terms, while the major markets all gave negative real returns of an annualized -4% to -6%.

The demons of chance are meant to be more generous than this. Equity investors require a reward for risk. At the end of 1999, investors cannot have expected, let alone required, a negative risk premium from equities, otherwise they would simply have avoided them. Looking at the nine years that followed does not tell us that risk premiums have decreased, but just that investors were unlucky. Indeed, they received a savage reminder that the very nature of the risk for which they sought a reward means that events can turn out badly, even over multiple years.

Figure 1 shows annualized real returns over three periods for the 17 countries in the Yearbook database. The dark green bars relate to 2000–08. Real returns were negative for the world index and the largest markets, and were negative or close to zero everywhere except Australia, South Africa and Norway. 21st century returns have fallen far short of investors' expectations.

In contrast, the light green bars show that the 1990s was a golden age. Inflation fell from the high levels of the 1970s and late 1980s, lowering interest rates and bond

**FIG 1** Real equity returns around the world  
in recent periods and over the long run (%)



Source: Elroy Dimson, Paul Marsh and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2009* and *Triumph of the Optimists*, Princeton University Press, 2002  
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yields. Meanwhile, expected profits growth accelerated. This led to strong performance from equities (except in Japan), bonds and even bills (see the 2009 Sourcebook).

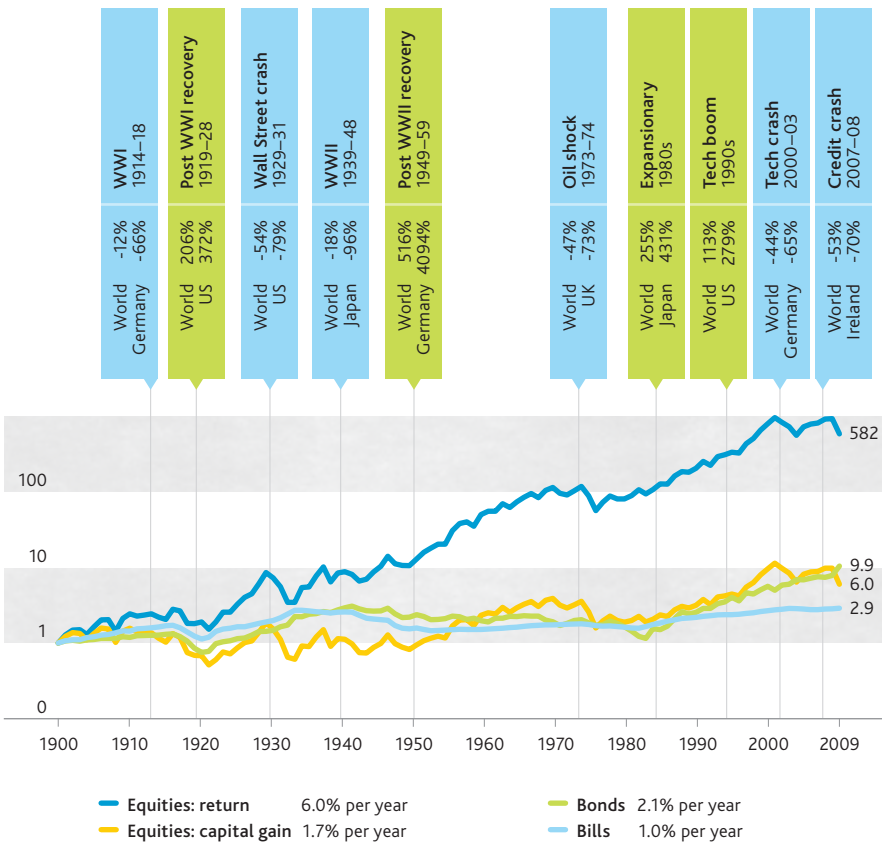
The 1990s contrast starkly with the opening years of the 21st century. Yet the 1990s are just as misleading. Golden ages, by definition, recur infrequently. To understand risk and return in the markets – which is the Yearbook’s underlying rationale – we need to examine much longer periods than one, or even two, decades. This is because stock markets are so volatile.

The orange bars in Figure 1 show real returns over our full 109-year backhistory. These returns are much less favorable than those for the 1990s, but equally, they contrast sharply with the poor returns over 2000–08. They demonstrate the more realistic perspective that longer periods of history can bring. They also provide a reassuring reminder that, over the long run, there has been a reward for the higher risk from investing in stocks.

## Long run returns and extreme periods

An initial sum of USD 1 invested in US equities in 1900 grew, with dividends reinvested, at an annualized rate of 9.2% per year to become USD 14,276 by the end of 2008. Such is the power – over 109 years – of compound interest, “the most powerful force in the universe” (a phrase incorrectly attributed to Albert Einstein).

FIG 2 Cumulative returns on US asset classes in real terms, 1900 to 2008



Source: Elroy Dimson, Paul Marsh and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2009* and *Triumph of the Optimists*, Princeton University Press, 2002

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Since US consumer prices rose by almost 25-fold over this period, it is more helpful to compare returns in real terms. Figure 2 shows that an initial investment of USD 1 would have grown in purchasing power by 582 times. The corresponding multiples for bonds and bills are 9.9 and 2.9 times the initial investment, respectively. These terminal real wealth figures correspond to annualized real returns of 6.0% on equities, 2.1% on bonds and 1.0% on bills.

Besides revealing impressive long-run equity returns, Figure 2 also sets the various bear markets of the last century in perspective. Events that were traumatic at the time now appear just as setbacks within a longer-term secular rise. The boxes in Figure 2 highlight the extremes of stock market performance since 1900, both negative (blue boxes) and positive (green boxes).

The blue boxes highlight real equity returns in the World Wars and the four worst bear markets – the Wall Street Crash, the 1973–74 oil shock/world recession, the bursting of the internet bubble, and the credit/banking crash that (for equities) began in earnest in November 2007. They show that the two world wars were less damaging to world equities (real returns of -18% and -12%) than the peacetime bear markets (real returns of -44% to -54%). The worst bear market to date was the Wall Street Crash from 1929 to 1931, when the world index fell by 54% in real, US dollar terms. However, this remains a close call. The peak to trough real return during the current banking/credit crash stands at -53%. If the current remission falters and we hit new lows, it could yet become the worst bear market on record. In its short nine-year life, the 21st century already has the dubious honor of hosting two of the four worst bear markets in history.

The blue boxes in Figure 2 also show real equity returns in the worst afflicted countries in each downturn. Not surprisingly, during the world wars, the losers fared worst. In World War II and its aftermath, Japanese and German equities were decimated, with returns of -96% and -88% respectively, while both US and UK equities enjoyed small positive real returns. Similarly, in each peacetime bear market, the worst hit countries underperformed the world index by 30%–55%. Even in a crash, when correlations rise significantly, global diversification still makes sense.

The green boxes in Figure 2 summarize real returns over four “golden ages.” The 1990s, which we highlighted in Figure 1, was the most muted of the four, with the world index showing a real return of 113%. The world index rose by appreciably more during the 1980s (255% in real terms) and the two post-world war recovery periods – by 206% in the decade after World War I and 516% from 1949 to 1959. During the latter period, several countries enjoyed staggering returns. For example, in the nascent

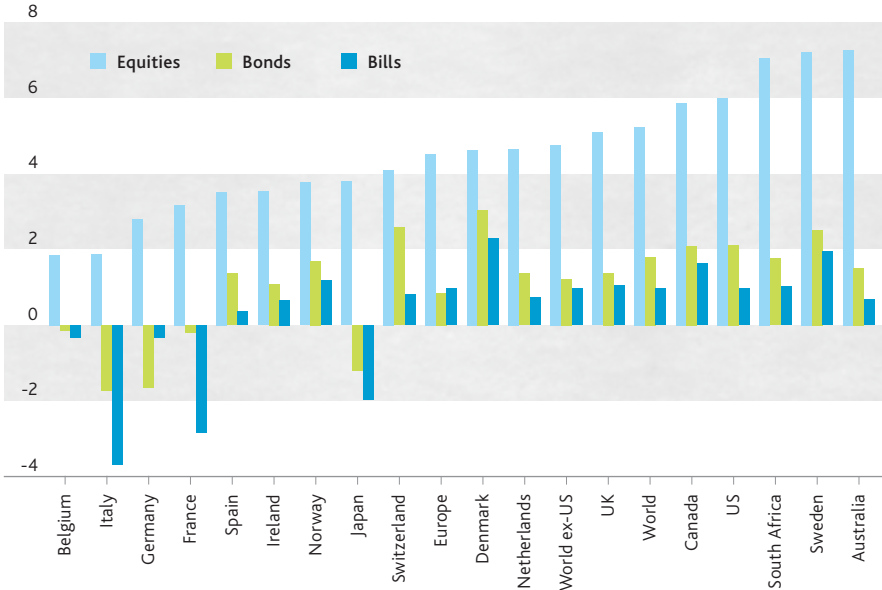
years of the German and Japanese “economic miracles,” real equity returns were 4094% (i.e., 40.4% per year) and 1565% (29.1% per year), respectively.

**Long run returns around the world**

Until recently, most of the long-run evidence cited on historical asset returns drew almost exclusively on the US experience. This gives rise to a serious danger of “success” bias, since in the 20th century, the United States rapidly became the world’s foremost political, military, and economic power. By focusing on the world’s most successful economy, investors could gain a misleading impression of equity returns elsewhere, or of future equity returns for the USA itself.

The Yearbook now allows us to make global comparisons. Figure 3 shows annualized real equity, bond and bill returns over the last 109 years for the 17 Yearbook countries plus the world index, the world ex-US, and Europe, ranked in ascending order of equity market performance. The real equity return was positive in every location,

**FIG 3 Real returns on equities, bonds and bills internationally, 1900 to 2008 (%)**



Source: Elroy Dimson, Paul Marsh and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2009* and *Triumph of the Optimists*, Princeton University Press, 2002  
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typically at a level of 3%–6%. Equities were the best performing asset class everywhere. Furthermore, bonds beat bills everywhere except Germany. This overall pattern of equities beating bonds, and of bonds outperforming bills, is precisely as we would expect, since equities are riskier than bonds, while bonds are riskier than cash.

Figure 3 shows that, while in most countries bonds gave a positive real return, five countries experienced negative returns. The latter were also among the worst equity performers. Mostly, their poor performance dates back to the first half of the 20th century, and these were the countries that suffered most from the ravages of war and civil strife, and from periods of high or hyperinflation, typically associated with wars and their aftermath.







As we conjectured, Figure 3 confirms that the USA performed well, with real equity and bond returns of 6.0% and 2.1% per year, respectively, placing it in fourth position for both asset classes. But while US stocks performed well, the USA was not the top performer, nor were its returns especially high relative to the world averages. Many of the best performing equity markets over the last 109 years tended to be resource-rich and, quite often, New World countries.

“Over the long run, investment in equities has proved rewarding, but has been accompanied by significant volatility.”

### **The historical equity risk premium**

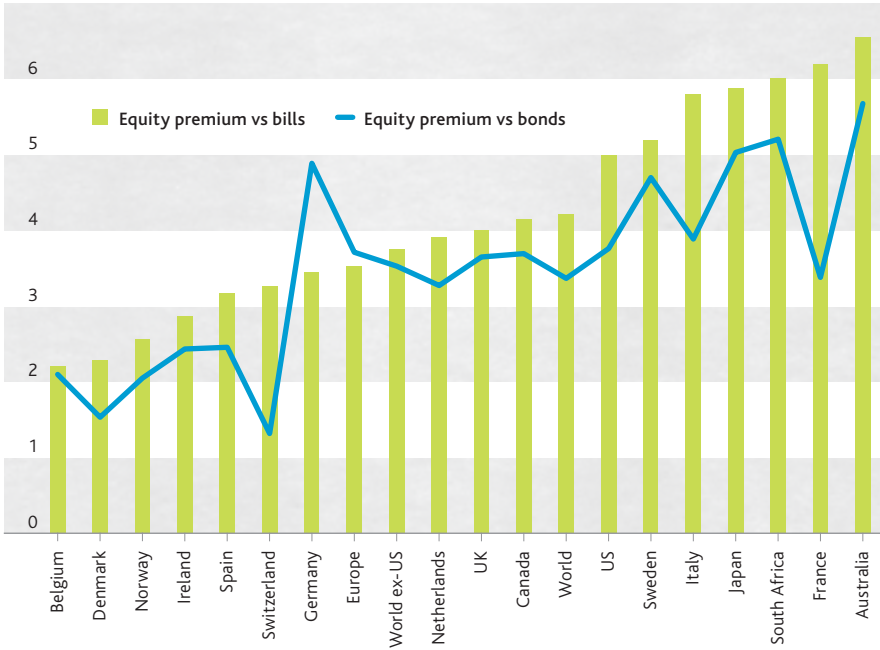
Over the long run, investment in equities has proved rewarding, but has been accompanied by significant volatility. Investors dislike volatility and they will invest in equities only if they expect compensation for this risk. What we would really like to know is what risk premium investors require today, as this determines current valuations and future expected returns. Sadly, there is no reliable way of observing this, but what we can do is measure the risk premium that investors have obtained in the past.

We measure the historical equity premium by comparing past equity returns with the return on risk-free investments. Some people use treasury bills (very short-term, default-free, government securities) as the risk-free benchmark, while others use long-term government bonds. We prefer treasury bills, as bonds are subject to uncertainty about future inflation and real interest rates.

Figure 4 shows the annualized historical equity premiums from 1900 to 2008, with countries ranked by their premium relative to bills, displayed as bars. The annualized premium, relative to bills, was 5.0% for the USA, 3.7% for the world ex-US and 4.2% for the world. The line-plot shows the premium relative to bonds. The story here is similar, although the premiums are on average 0.8% lower since this is the amount by which bonds outperformed bills. The annualized premium relative to bonds was 3.8% for the USA and 3.4% for the world.

Investors' beliefs about the equity premium remain heavily influenced by Ibbotson Associates' numbers for the United States based on data starting in 1926. The premiums shown in Figure 4 are lower than had previously been thought, because of our global focus and longer time frame.

**FIG 4 Worldwide annualized risk premiums relative to bills and bonds, 1900 to 2008 (%)**



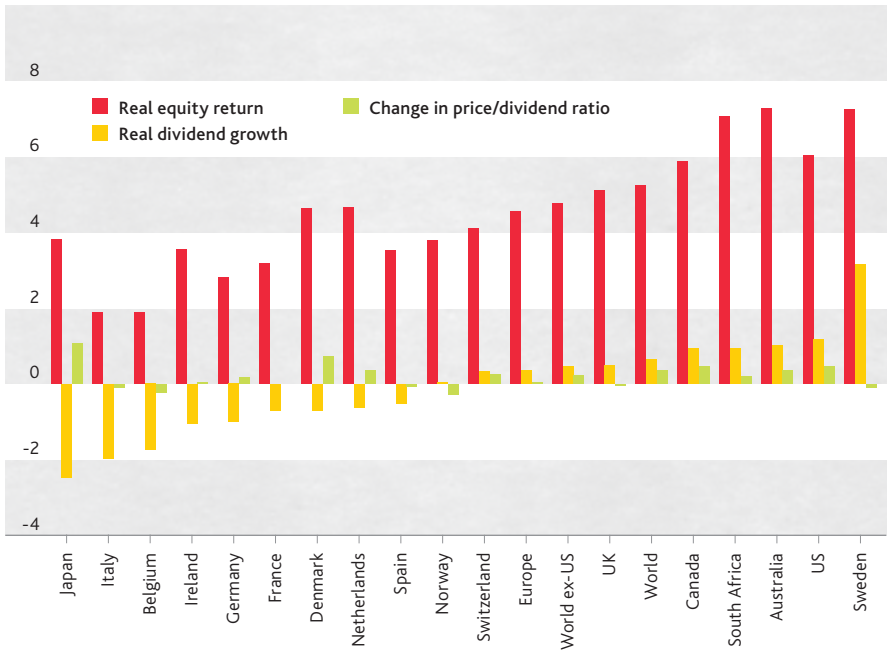
Source: Elroy Dimson, Paul Marsh and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2009* and *Triumph of the Optimists*, Princeton University Press, 2002  
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### Risk premium components

Is the historical equity premium a good guide to what investors expected and priced in beforehand as their required compensation for risk? Because equities are so volatile, we cannot be sure of this, even over periods as long as 109 years. Investors may have enjoyed more than their share of good luck, making the past too good to last. If so, the historical premium would reflect “the triumph of the optimists” – the success of equity investors – and overstate what we could expect in future.

An alternative approach is to delve deeper to infer what investors in each country were expecting, on average, in the past. We do this by decomposing the historical premium into three major components, namely, (i) the (geometric) mean dividend yield

FIG 5 Real dividend growth around the world, 1900 to 2008 (%)



Source: Elroy Dimson, Paul Marsh and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2009* and *Triumph of the Optimists*, Princeton University Press, 2002  
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net of the real risk free rate, (ii) the annualized growth rate of real dividends, and (iii) the annualized change in the price/dividend ratio over time.

Of these three, the dividend yield has been the dominant factor historically. This may seem surprising, since day-to-day, investors seem focused on capital gains and stock price movements. Indeed, over a single year, equities are so volatile that most of an investor's return comes from capital gains or losses, with dividends adding a relatively modest amount.

However, reinvested dividends dominate long-run returns. Looking back at Figure 2, we can see the large difference in terminal wealth that arises from reinvested income. The darker blue line shows the total return from a policy of investing USD 1 in

US stocks at the start of 1900, and reinvesting all dividend income. It shows that, 109 years later, the initial investment would have grown in purchasing power by 582 times, giving a total real return of 6.0% per year.

The orange line shows the return obtained by a fund that paid out all of its income to beneficiaries, rather than reinvesting dividends. This line shows that the USD 1 initial investment would have grown to just six times its initial value, equivalent to a real capital gain of 1.7% per year. Thus a portfolio of US equities, with dividends reinvested, would have grown to almost 100 times the value it would have attained if the investor had spent or squandered the dividends.

The longer the investment horizon, the more important is dividend income. For the seriously long-term investor, the value of a portfolio corresponds closely to the present value of dividends. The present value of the (eventual) capital appreciation dwindles greatly in significance.

The other two major components of the equity premium are the growth rate of real dividends and the change in the price/dividend ratio. The orange bars in Figure 5 show annualized real dividend growth from 1900 to 2008, with countries ranked in ascending order from left to right. They reveal that real dividend growth has been lower than is often assumed. Real US dividends grew at an annualized rate of just 1.2%, but this was enough to place the USA in the second highest position. Most countries recorded real dividend growth of less than 1% per year, and dividend growth for the world index was only 0.65%. Dividends and, probably, earnings have barely outpaced inflation. The final contributor to the equity risk premium is changes in valuation ratios, but the green bars in Figure 5 show that the importance of this can also be overstated. Over the last 109 years, the price/dividend ratio of the world index grew by just 0.36% per year.

### **Investors' expectations**

Figure 4 showed that the annualized historical risk premium relative to bills on a globally diversified equity portfolio (the world index) was 4.2%. This comprises 3.2% for the amount by which annual dividends exceeded the real risk free rate, 0.65% per year from real dividend growth and 0.36% per year from re-rating, i.e., an increase in the price to dividend ratio. Using this decomposition, we can now return to the question of whether 4.2% was what investors required/expected in advance. Our analysis (see the Sourcebook for details) indicates that part of this amount arises from past good fortune and factors that are unlikely to recur.

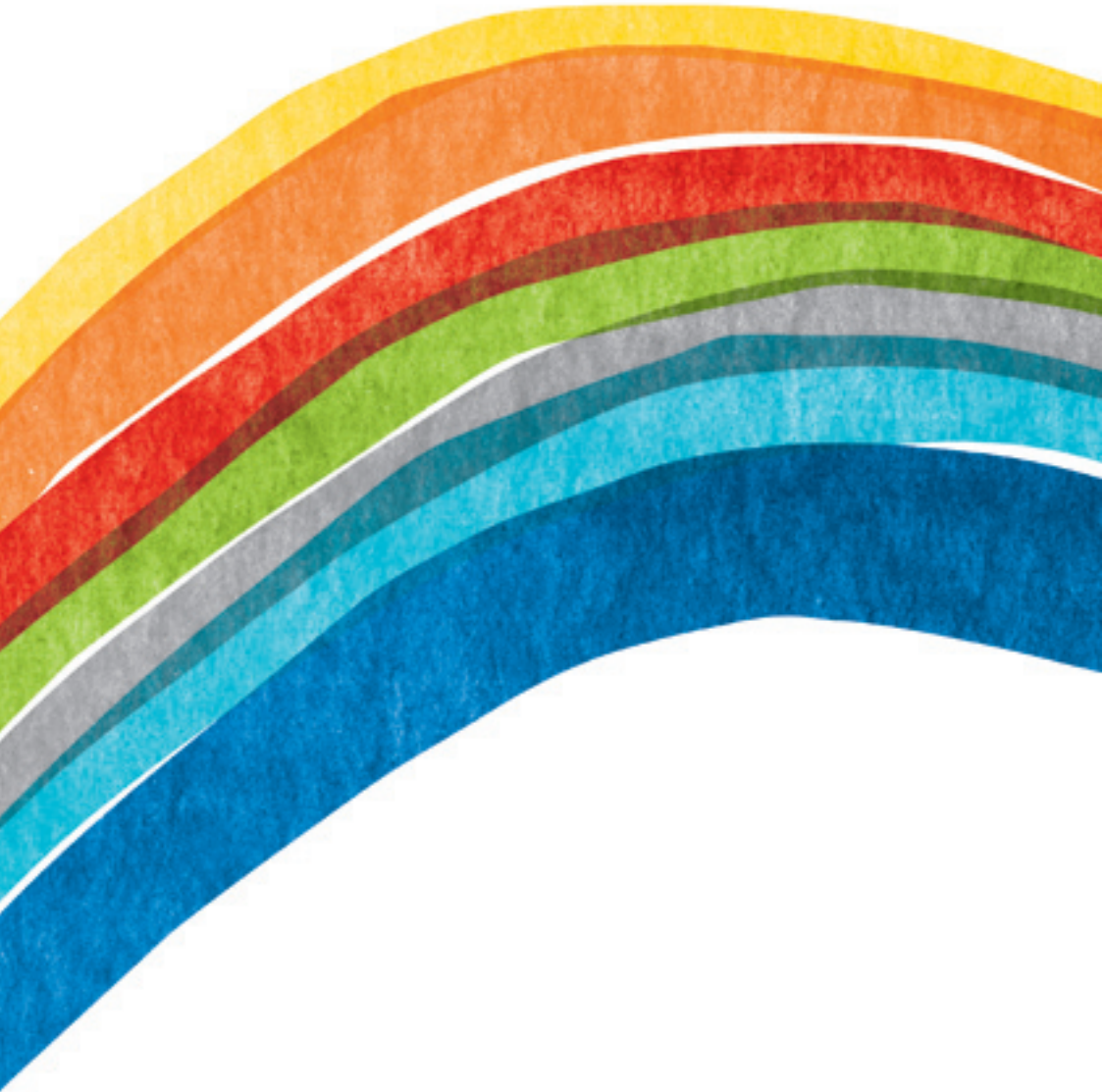
## “The longer the investment horizon, the more important is dividend income.”

For example, the gradual re-rating of equities over the last century reflects – at least in part – reduced investment risk. In 1900, most investors held a limited number of domestic stocks from a few industries – railroads then dominated. As the century evolved, new industries emerged, diversified closed- and open-ended funds appeared, liquidity and risk management improved, and institutions and wealthy individuals invested globally. As equity risk became more diversifiable, the required risk premium is likely to have fallen. This will have driven stock prices higher, but it would be perverse to interpret this rise as evidence of an increased risk premium. Furthermore, insofar as stock prices rose because of disappearing barriers to diversification, this phenomenon is non-repeatable and we should not expect such re-rating to persist.

Similarly, our analysis indicates that dividend growth turned out to be higher than expected. The 20th century opened with much promise, and only a pessimist would have believed that the next 50 years would involve widespread civil and international wars, the Wall Street Crash, Great Depression, episodes of hyperinflation, the spread of communism, and the start of the Cold War. During 1900–1949, the annualized real return on the world equity index was 3.5%. By 1950, only the most rampant optimist would have dreamt that over the following half-century, the annualized real return would be 9.0%. Yet the second half of the 20th century was a period when many events turned out better than expected. There was no third world war, the Cuban missile crisis was defused, the Berlin Wall fell, the Cold War ended, productivity and efficiency accelerated, technology progressed, and governance became stockholder driven. The 9.0% annualized real return on world equities from 1950 to 1999 almost certainly exceeded expectations and more than compensated for the poor first half of the 20th century.

This type of reasoning coupled with more formal analysis leads us to conclude that the 4.2% per year historical equity premium on the world index exceeded expectations, and was higher than the premium investors required in advance. After adjusting for non-repeatable factors, we infer that investors expect an annualized equity premium (relative to bills) of around 3%–3.5%. This is below the long run historical premium and well below the premium in the second half of the 20th century. Many investment books still cite figures as high as 7%, but investors who rely on such numbers are likely to be disappointed.

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Nevertheless, even with a lower equity risk premium of 3.5% per year, equity returns still compound rapidly. Equity investors can expect to be more than 40% richer relative to investing in cash over a 10-year horizon, and twice as rich over 20 years. This represents a substantial premium that should encourage investors not to lose faith in equities.

However, while investors should keep faith with stocks, they should not harbor fantasies of an immediate return to either previous (and with hindsight, unrealistic) market levels, or to previous high rates of return. Markets are likely to take a long time to recover from the battering they have received during the credit and banking crisis.

In spite of this, we are confident that equity investors should continue to expect an appreciable long-run risk premium, albeit a somewhat smaller one than historically. We were spoiled by the high returns of the 1980s and 1990s, when equities seemed a sure fire route to getting rich quickly. Today, as we look ahead, while we should expect to enrich ourselves from equities, the process is likely to be one of getting rich more slowly. However, this does not mean getting steadily richer. Equity returns are far from steady – they are very volatile. Markets will not get to their higher destination smoothly: returns could easily come in short bursts rather than gently over time. We need to take a long-term view, and be ready for the inevitable periodic setbacks, which can be severe, while recognizing that there are risks to being out of equities as well as in. ●