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**Chris Dillow** December 4 2019

# “ Revisiting the equity premium puzzle

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What long-term returns can we expect on equities? Investors have a problem here, because two common-sense answers yield very different results.

One answer is to add a reasonable risk premium to prospective risk-free returns. Standard economic theory suggests this premium should be only around two percentage points. Adding this to real long-term gilt yields – which are almost minus 2 per cent – implies that we should expect a total return on equities of around nothing.

But there's a more optimistic view. It goes like this. Let's assume the market is fairly valued on a dividend yield of 4.2 per cent, so this yield won't systematically change. And let's assume that dividends, after inflation, rise at the same rate as real GDP, which we can assume to be around 1.5 per cent a year. With the dividend not changing, this implies that share prices rise by around 1.5 per cent a year in real terms. Adding to this a running yield of 4.2 per cent gives us expected annual returns of 5.7 per cent.

Now, if you are holding large amounts of equities, you must believe something like the latter view. But why is this view right and the risk premium approach wrong?

Yes, the optimistic view happens to have been what we've seen in the past. Real returns have averaged 5.5 per cent per year since 1900. But in itself this is not good enough. We need a good reason to believe that history will repeat itself.

To see what this reason might be, let's remember the origin of the dilemma we have here. Back in 1985, US economists Rajnish Mehra and Edward Prescott pointed out that there had been an equity premium puzzle: returns had far exceeded what theory predicted. The puzzle hasn't really disappeared since then, as my chart shows. Each point on the line shows the excess return on equities over cash since the date on the horizontal line. Only if you had bought near the peak of the tech bubble in the late 1990s

would you have had returns close to what theory predicts. Otherwise, you'd have done better.



Which poses the questions: why has this been the case, and why might it remain true in future?

To see why, remember conventional theory. This says that equity returns should depend on their riskiness, where this is defined as equities' volatility and likelihood of them falling in bad times.

This generates only a small risk premium, though. Perhaps there should be a higher risk premium. If so, we should reasonably expect high returns on equities in future.

But what might generate such a high risk premium? Here, our puzzle deepens. Some of the proposed explanations for the equity premium puzzle were refuted by the financial crisis.

Economists used to think that recessions made us especially risk averse, or that even small falls in our spending hurt us badly because they forced us to change a lifestyle to which we have become accustomed. On this view, we need a high risk premium on shares to compensate for the pain caused by them losing us money in recessions.

These explanations predict that the 2008-09 recession should have been a painful experience. But it wasn't. Christoph Merkle at Kuehne Logistics University found that UK shareholders were less unhappy after suffering big losses in 2009 than they

expected to be. Investors, then, are resilient to price falls and recessions. But this means the risk premium on equities should be small. The equity premium puzzle, therefore, is even deeper than we thought in the 1980s.

What, then, might justify a big risk premium? The answer – as you might expect – is: big risks.

One is of the sort of catastrophe advanced economies haven't seen since the second world war – of a major war, huge inflation or an enormous drop in gross domestic product (of much more than we saw in 2008-09). The chance of these is tiny, but the small chance of a terrible event could justify a large risk premium.

A second possibility is that investors must be well compensated for taking on the risk that incomes will shift from profits to wages. Standard theory underplays this danger. This is because if shareholders are also workers, the risk is tiny: what we lose as shareholders, we gain as workers. If, however, shareholders are not workers, then distribution risk does matter. And history tells us it does. New York University's Sydney Ludvigson and colleagues have shown that most of the rise in US share prices since 1980 is indeed due to a shift in incomes from wages to profits.

But of course if shares can rise a lot when profits rise at the expense of wages, it follows that they can fall a lot when the opposite happens. Worse still, the 1970s experience tells us that the risk tends to materialise when other nasty things are happening for shareholders, such as rising taxes, inflation, disorder and support for leftist political parties.

There's a third possibility, pointed out by the National Institute of Economic and Social Research's Roger Farmer. It's that many people who would like to buy assets that deliver long-term returns cannot actually do so, because some of them have not been born yet while others are too young and poor. This has two effects. It means there is insufficient demand for equities, which means low prices and high expected demand. But it also means that equities are riskier than they should be because some of the people who should step in to buy them when prices are low and expected returns high do not do so. On both counts, expected returns on equities should be high.

Now, many of you won't like these possible justifications for high expected returns. The first two tell us that there are big risks. And the third implies that free markets are inefficient. Nevertheless, if you expect high long-term returns on equities, you must believe something like these stories.