

Interpreting signals
from the global economy
and financial markets

Decoder



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In Focus

- Holders of equity are – on average – compensated for the risk they take compared to holders of safe assets. But how much? Even the average realized excess return is hard to measure.
- Recent academic work allows us to look back 223 years. This shows that 20th century excess returns are much higher than those in the 19th or 21st century (so far).
- Numbers from long ago are relevant inasmuch as they tell us something about human risk tolerance and the profitability of cutting-edge companies.

Equity risk premium (1) – historical excess returns

The return on the S&P500 was some 25 percent in 2024, including dividends. If you held your savings in cash instead, your interest amounts to 5 percent. That puts the excess return for holding equity at a handsome 20 percent, a compensation for the fact that not every year is like last year, and investors put their capital at risk when buying equity. How high these excess returns are *on average* is the topic of much discussion. This is related to, but not the same as, the discussion about the expected or required equity risk premium *looking forward*. We will tackle these issues in two Decoders, starting today with some recent evidence about historical returns. Then, on Monday, we will look into expected future returns.

The equity risk premium (ERP) compensates for the variability of equity prices, but it is the same variability that makes even average realized excess returns hard to estimate. If we look at American data over the last 50 years, equities outperformed the interest rate on cash by 7.5 percent. But the volatility of the S&P500 – the standard deviation of annual returns – was some 16.5 percent. That means that just a one-standard deviation shock in prices moves the average excess return over the whole period by 34-41 bps. APG stalwarts will remember we made a similar point in [a 2011 Decoder on this topic](#), showing that even a century of data leaves us with a large estimation error.

More data please

Undeterred by these statistical facts, [researchers recently presented](#) new evidence that uses 223 years of financial market data, starting in the year 1800. As you would expect, there are certain challenges going back more than two centuries. Chief among these is that the settlement of bankrupt companies is often hard to reconstruct; but leaving companies that go bust out of the data paints a picture that is too optimistic, due to survivorship bias. The shoddy bookkeeping of dividend income is another hurdle. And, surprisingly, efforts at computing the ERP also suffer from the fact that time series for safe assets do not extend so far back, at least in the United States. This has researchers wrestling with the credit premium in municipal and corporate bonds of the 19th century. >

In Figures

Excess return estimates (1)

	USA	UK
1800-1899	-0.6	1.4
1900-1999	5.5	4.6
2000-2023	1.7	0.6
1800-2023	2.3	2.7

Excess return of equities over risk-free bonds, averages from [Chambers, Dimson, Ilmanen and Rintimäki \(2023\)](#). The authors present several estimates for each period, from different researchers. This is the Dimson, Marsh and Staunton + extension estimate, which merges the highest quality data for different periods into one series.

Data: Chambers, Dimson, Ilmanen and Rintimäki (2023), table 1.

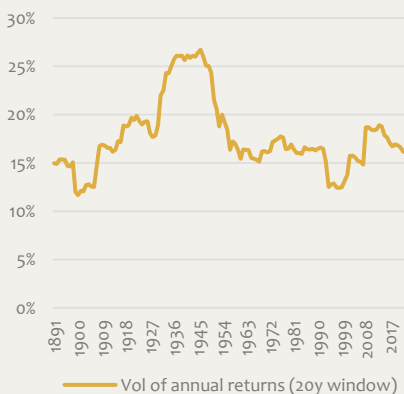
Excess return estimates (2)

	USA	World ex-US
1900-2023		
on bonds	4.7	2.9
on bills	6.0	3.9

Equity excess return averages from [Dimson, Marsh and Staunton \(2024\)](#).

Data: Dimson, Marsh and Staunton (2024).

Volatility is not trending down



The volatility of the S&P500 fluctuates around a mean of around 17 percent, the current level.

Data: Robert Shiller (2024), APG AM.

A solution to the problem of safe asset availability is to look to the UK instead. The market for Gilts was well established throughout the 19th century, and recently high-quality data on equities was also uncovered. Another advantage of looking outside the US is that it allows us to check whether the American experience is typical.

Special country, special period

The 7.5 percent average excess return of equities over cash that we reported on the previous page is a chunky number that has economists at a loss. It seems excessive to compensate for the risk that is present in equities. But it is also an outlier, and benefits from the effect we described in the first paragraph: if we only include the terrible equity years 1973 and 1974 in the sample, the excess return drops to 5.8; in the preceding period 1954-74 (as far back as Bloomberg allows), equities had an excess return over cash of only 2.7 percent. To look at even longer periods we have to rely on economic historians. The table on the top left shows averages over 1800-2023, for the UK and the US. Post-World War II returns contribute to the fact that the American 20th century shows the highest number in the table, both compared to the other centuries and to the UK. The realized equity excess return over the whole 223 years is between 2.3 and 2.7 percent annually for the two countries.

Here we must note that all researchers compute their premium not over cash but, as it seems, over the return on long-dated bonds. This makes a big difference: it means that the 21st century US number sits on top of a 5.2 percent bond return, rather than a 1.8 percent cash return. As for the negative excess return in 19th century America, the authors reckon that the bonds used in that century probably carried enough credit risk to make the excess return versus a truly safe rate a “small positive number”. That would make the American excess return over 223 years approximately equal to the British number.

One more estimate

Another well-known source of long-run financial market data is what is today known as the [UBS Global Investment Returns Yearbook](#). This year’s summary edition has the statistics for the US and the world ex-US, a collection of 89 countries that excludes America. The second table shows the average excess return over bonds as well as bills for the period 1900-2023. As it excludes the somewhat lower equity returns of the 19th century, the average comes out higher, especially for the US.

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Investor’s tolerance of risk is a human characteristic”

What use are 19th century numbers?

It is tempting to assume that the average excess return for equity is a natural constant that we can estimate ever more precisely from realized returns, as the amount of data increases. This supposes that we can usefully compare stock returns from the railroad era (circa 1850) to the current performance linked to artificial intelligence. And maybe we can: even though the level of development was very different, in both cases companies used cutting edge technology to create semi-monopolies and to realize impressive profits for a while. On the demand side, realized excess returns show how much compensation was needed to entice investors to take risk. If investment risk is roughly the same – taken relative to safe assets – and investors’ tolerance of it is a human characteristic, then we can usefully compare excess returns across centuries.

To assess whether the “risk is roughly the same” we can use yet another long dataset, the monthly levels of the S&P500 [compiled by Robert Shiller](#). Taking the standard deviation of the annual price return over consecutive 20-year periods, we see ups and downs but no trend; the bulge in the middle is due to the slump in 1930-1932 and our choice of a 20-year window. It’s not inconceivable that the



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During 1793-1862 stocks beat bonds in none of the 30-year periods

experience of the 1930s has some relation to the exceptionally high excess returns of the 20th century. It also makes sense that this influence has waned in the 21st century.

What use are historical excess returns?

There is a certain comfort knowing that equity has produced a premium in the past, if your investment strategy assumes it will produce one in the future. It's good to keep in mind, though, that there are no guarantees: [Edward McQuarrie](#), whose research was used in table 1 above, found that during 1793-1862, in only a small minority of the 20-year periods stocks beat bonds – and in none of the 30 or 50 year periods.

This makes it dangerous to base your estimate of the future equity risk premium (ERP) just on a historical average of excess returns. It seems proper to take account of current circumstances, and to specify what factors will drive excess returns in the future. We will look at this problem in a follow-up Decoder, to be published on Monday.

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