2. If the market is not perfect and different investors have different information, then exactly what information set are we talking about? If you are ABC's CEO, then you may have more information than the public. You may know whether the government will open a fraud investigation against you and whether you have the next new hit drink in the lab right now. You could know whether $50 today is too high or too low. Put differently, the market may be efficient with respect to publicly available information, but it need not be efficient with respect to insider information.

What should you conclude if you can determine authoritatively that the expected rate of return is really 20%? (This can happen either if you determine that the expected payoff is $60, not $55, or if the expected payoff is $55, but today's price is $45.83.) You could now draw one of two conclusions:

If you find the expected rate of return is really 20%: (a) Your 10% model could be wrong; (b) the market was not efficient.

1. The CAPM is not the correct model. Instead, the market followed some other pricing model and wanted to set the expected rate of return for ABC at 20% in the first place.
2. The stock market is not efficient.

Can you see why market efficiency is so difficult to prove or reject? If you wish to proclaim a belief in market efficiency, and if you then find empirically that prices are not what your model predicted, you would simply proclaim that it was your model for the appropriate expected returns in your financial market that was wrong, not that the market was inefficient. It was your fault, not the market's. You just have to go back and search more — possibly forever — until you find the right pricing model.

Is market efficiency so difficult to disprove that it becomes a "faith"?

Short-Term versus Long-Term Market Efficiency

Over long horizons (say, 1 year or longer), market efficiency is extremely difficult to disprove. The reason is that no one knows exactly what the correct model of pricing is. As you saw in Chapters 9 and 10, benchmarking stocks to peers is a reasonable method that does, but its empirical reliability is modest. (And the CAPM is empirically simply wrong, despite its great intuition). Simply put, pick any stock, say ABC. We are not sure and cannot agree whether ABC should earn 10%, 20%, or 30% a year. This ambiguity renders market efficiency a concept that itself in practice often evades empirical testing. It is also why market efficiency is sometimes (perhaps unfairly) derided as being more religion than science. Based on the existing long-run evidence, some reasonable analysts conclude that financial markets are generally efficient (and our [CAPM] pricing model is wrong); and other reasonable analysts conclude that financial markets are generally not efficient.

Practically useful? Rarely over very long horizons, where efficiency is often more a matter of faith.

Of course, in extreme circumstances, market efficiency can be a useful claim even on such long horizons. We know that no reasonable model of financial markets should give investors great bets like "+$1 million with 99% probability and –$1 with 1% probability." Expected returns this high would be way out of line with *any* reasonable pricing model. Even expected rates of return of 100% per year would surely be unreasonable for (most) stocks. Of course, few people doubt that big U.S. financial markets are, to such a first approximation, efficient — we all know that you just can't earn that much. But there is a large gray zone where it is difficult to distinguish between model error and market inefficiency. Because no one knows for sure what the correct model of expected stock returns is, no one can tell you

Okay, let me qualify this for long horizons.

😆Exception: crypto bros

affirmatively whether the stock market set the price of ABC stock so as to offer investors an expected rate of return on ABC of, say, 10% a year or 12% a year.

Practically useful? Definitely yes over short horizons.

However, over short horizons (say, a day or so), market efficiency is a surprisingly useful concept. The reason is that over a single day it does not matter as much whether you believe the expected rate of return on ABC is 0%, 10%, or 20% per annum. Even on the high end of 20% per annum, the expected rate of return is still only about 5 basis points per day. Roughly speaking, regardless of whether you believe in the CAPM or not, you should expect day-to-day returns to be just a tiny bit above 0%. You should attribute most daily price movements to random fluctuations, presumably caused by unpredictable news of changes in the economic environment. However, if you can predict day-to-day stock movements (and you have thousands of days of historical stock returns to work with), then chances are that you would not blame the pricing model. Instead, you would probably conclude that the market is not efficient.

Dilbert on Predictability of Noise: 2013-01-05

Important

- Over short time intervals (say, days), market efficiency is a very powerful concept. The expected rate of return should be tiny. If it is different, the market is probably inefficient.
- Over long time intervals (say, months or years), it is difficult to pin down what the appropriate expected rate of return is. This makes it difficult to disentangle errors in the pricing model from market inefficiency.
- Prices should move only when there is news about future cash flows or discount rate changes, where news is defined as the unanticipated component of new information that is arriving. Such news can be firm-specific or market-wide.

Relation to Perfect Market

Perfect market ⇒ efficient market.

Although the efficient market concept is different from the perfect market concept, the two are intimately linked — in fact, so much so that they are often casually confused. The reason is that if a market is perfect, economic forces drive it instantly toward market efficiency. Put differently, if a market were perfect but inefficient, it would be too easy to get rich. Too many smart investors would trade and the inefficiency would disappear. Market prices would instantly adjust to prevent this from happening. Therefore, if a market is perfect, it is inevitably also efficient.

Efficient market ⇏ perfect market.

The converse is not true, however. It is quite possible for an imperfect market — for example, one in which there are taxes or different opinions — also to be efficient. You could even (crudely) think of market efficiency as the result of the trades of many investors with many different information sets (opinions). The market price is the outcome at which investors do not wish to trade further. Appropriately weighted by investment amounts, one half believes the market price is too low; the other half believes it is too high. Of course, efficiency should be contemplated market by market. It is probable that some financial markets are efficient while others are not. The closer a market is to being perfect, the more likely it is to be efficient.