

## Financial Engineering

## **Effects of Higher Interest Rates**

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Each of the actions currently being taken or contemplated by the Federal Reserve Board of Governors, US Treasury, Comptroller of the Currency, etc., to rescue or stabilize financial institutions will create money. In the likely absence of proportionally-higher real output, we face more money chasing the same amount of goods. That spells continued inflation, and thus the expectation of inflation, both of which raise interest rates.

Higher interest rates will reduce the present value of many assets, as their future cash stream will be discounted in the market by these higher rates.

These affected assets include those that provide services or cash in the future, like real estate, equity stocks, and most long-term bonds. For many investors and some consumers (those purchasing long-term services, e.g., owning real estate is buying an infinite-life stream of rental services), much higher interest rates will greatly reduce their wealth. That is, for many assets higher interest rates will discount future cash streams more than it will increase the size of those streams.

This effect is exacerbated by the reduced effective demand for such assets caused by more-expensive and less-available lending. It is moderated slightly by people fleeing financial assets for tangible assets.

Whether a given real estate asset becomes more or less valuable in a higherinterest-rate environment, depends on how interest rates rise and the relative strength of two elasticities, as explained below.

The decrease in real estate values stemming from higher rates is moderated slightly by people fleeing financial assets for tangible assets. This effect (an elasticity) is unlikely to offset the direct effect of higher rates on discounting future cash flow (a mathematically straight-forward elasticity).



Furthermore, the "fleeing" elasticity is also dominated by the simple price elasticity. In a new higher-interest rate environment, price elasticity sends capital into real estate because of its reduced cost. All this occurs after the original real-estate owner (perhaps now a seller) is adversely affected.

In the unlikely event that real-estate cash flow increases enough, from the indirect effects of higher rates (like cheaper dollars to spend on rent), to offset the higher discount rate, then original real-estate owners would still be worse off in an expected-utility sense. That is because the uncertainty over real estate prices will very likely be much higher in such an environment, e.g, "...where is the bottom of this plunging real estate market?" Most owners are risk averse. There are no effects of higher rates that would raise the real (inflation-adjusted) rents. Hence, enough 'fleeing" will raise asset prices, but not rents.

If all rates rise, then the market discounts all future net cash flow from a given real estate asset at higher rates, thus decreasing the present value of the entire future of any given cash-flow scenario. If just the near end of the yield curve increases substantially, then only the near cash flow is so adversely affected. Additionally, the negative effects of reduced liquidity and higher cost of carry further reduces real estate values.

As such, you do not want to own real estate when all maturities of interest rate rise sharply. Rather, you want to use capital to buy in cheap afterwards. Profit would come from rates subsequently falling enough to raise the price, on an inflation-adjusted basis, enough to justify the use of capital until you sell.

It would be unfortunate to buy a real estate project, even one that has only tenants with 1-year leases, in a low-interest-rate environment and immediately afterwards have the entire curve rise sharply. In particular, the borrowing power of potential purchasers will fall, thus reducing the effective demand (along with the market and collateral value) of the project. Worse yet, such a rise is often associated with reduced business activity and disposable income, which will also decrease effective demand for such leases.

Why shouldn't real estate increase in value, as a real asset, as interest rates increase? Because a lease is locked in, the stream of payments over time is worth less. Unencumbered real estate (no leases) would increase in value. Similarly,



highly leveraged real estate should become attractive if the debt is fixed rate and assignable.

Apart from such adverse wealth effects, the object of many people's wealth is consumption (including charity), which will be separately affected by high interest rates.

Simplistically, interest rates are the sum of real-economic growth and inflation. Very-high interest rates are mostly inflation. In August 1981, the 18.79% 3-month Libor was associated with negative real growth and in the neighborhood of 20% inflation. Consumption is reduced proportionally by inflation, e.g., 20% inflation reduces consumption by 1/5 per year.

## PROTECTION AGAINST HIGHER INTEREST RATES

Institutional investors can now access the financial markets to hedge the abovementioned dangers very inexpensively. This low cost is due to several factors that have depressed the price of fixed-income volatility compared to historic levels. If rates rise substantially, then it will be too late as such protection will be far more expensive. For this reason, it is advisable to pre-pay today for many years of interest rate protection, because interest rates are at an historical low. These markets do not price opinion, but only reflect actual interest rate moves. The risk in waiting to purchase these instruments is that it will likely be a single momentous event that will precipitate an overnight doubling or tripling of costs.

However, few retail financial services firms are equipped to offer this service. If a retail customer approaches a typical financial service firm for such interest-rate insurance they would either not receive proper advice or be charged excessive fees. To buy such protection efficiently requires access to more mathematical-finance expertise and relationships with derivative trading desks, than most such firms can readily provide.

The field of interest-rate hedging is very highly specialized. Most firms who regularly deal in these instruments only conduct this type business with very large institutions and in very large quantities. A small business owner would not be able to meet the minimum transaction sizes, nor justify the high transaction design fees.



Specialty Risk Management Consulting firms, such as Wealth Design, LLC, are able to bring clients the expertise and experience in the design of these specialized hedging transactions, along with access to the trading desks of major financial institutions. They are also able to offer clients a significantly lower minimum threshold, substantially lower fees, and access to the highest quality counterparties.

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