

Growing natural hedges

Debt finance and earnings volatility

Companies are becoming increasingly skilful at combining economic analysis of their business units with financial management. By exploiting the relationships between their earnings and interest rates, they can reduce their exposure to economic risk. Frontier has been engaged in helping a number of clients reduce the overall volatility of earnings without reducing their average level, thereby increasing the value of the firm.

While many firms hedge the interest rate risks associated with debt finance, few hedge the interest rate risks arising from operating income. Understanding how the components of operating income move with interest rates creates an opportunity to improve financial risk management by adjusting the structure of fixed and floating debt.

The benefits of reduced volatility can be realised on many fronts. Lower volatility enables the company to increase its use of debt and the associated tax shield. Cash management is easier and investment programmes are less likely to be interrupted by liquidity constraints. Hedging economic risk also makes the performance of the firm and its managers more transparent, by separating their performance from the behaviour of the economy.

Steps to hedge-building

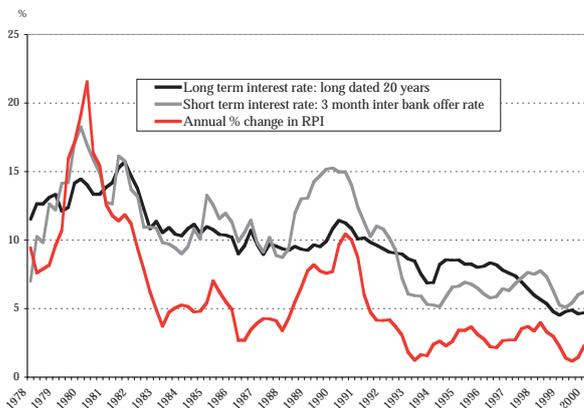
There are three analytical steps to choosing a fixed/floating debt structure designed to hedge operating income risk.

- ❑ Step 1: review the relationship between interest rates and other macroeconomic variables.
- ❑ Step 2: assess how these economic variables have an impact on company earnings.
- ❑ Step 3: combine the first two steps to establish the links between interest rates and company earnings, and use these to inform the choice of the appropriate mix of debt.

Interest rates and the economy

Historically, there has been a strong positive correlation between inflation and nominal interest rates – as illustrated in Figure 1 – but a negative correlation between inflation

Figure 1: Nominal interest rates and inflation



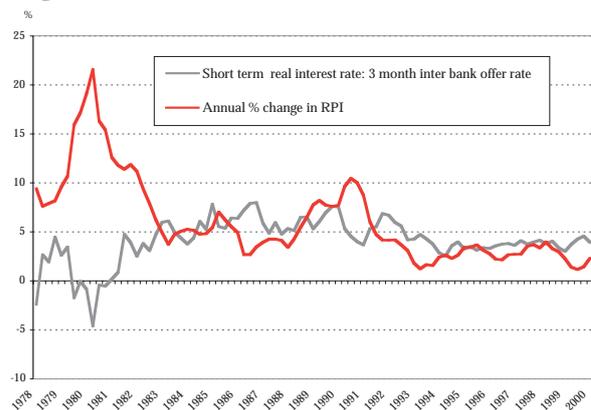
Source: ONS

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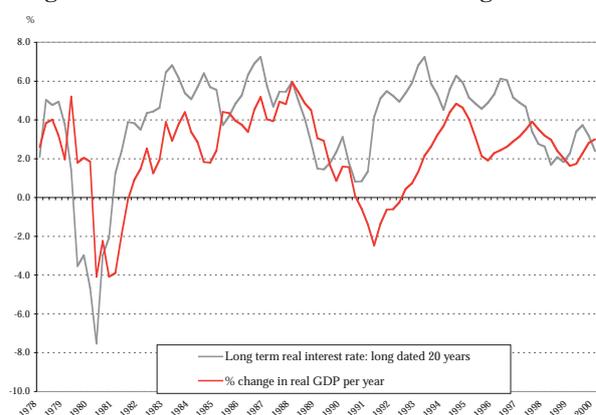
and real interest rates -- as illustrated in Figure 2. In other words, when inflation rises, interest rates rise, but not by as much as inflation. By definition the real rate of interest, which is the nominal rate less inflation, then falls.

Figure 2: Real short-term interest rates and inflation



Source: ONS, Frontier calculations

Figure 3: UK real interest rates and GDP growth



Source: ONS

As figure 3 shows, however, the relationship between interest rates and economic growth is not as clear as the relationship between interest rates and inflation.

These results can be summarised by looking at the statistical correlation between the variables. The table below shows the correlation co-efficients of interest rates with inflation and growth for the period since 1978.

Inflation, growth and interest rates

Interest rates	Correlation co-efficient with inflation	Correlation co-efficient with real GDP growth
Short-term nominal interest rate	0.85	-0.38
Long-term nominal interest rate	0.80	-0.33
Short-term real interest rate	-0.59	0.38
Long-term real interest rate	-0.81	0.49

Source: Frontier calculations

Overall, the data shows a stronger correlation between inflation and interest rates than between real interest rates and the economic cycle. This is important to step 2, the analysis of a company's earnings exposure to these factors.

Example I: Property companies

To identify natural hedges within a business, treasury management decisions need to be taken at the highest level. Consider, for example, an expanding property company. Property incomes are strongly cyclical, so the company may be concerned to hedge the volatility of income from its existing portfolio. However, property prices are also very cyclical. So during a downturn, the company will lose on existing cash-flow but gain from the lower cost of expansion. Such balancing effects may not be captured unless hedging decisions are taken at the highest level.

Understanding economic risk

There are two ways of arriving at an understanding of a company's exposure to inflation and the economic cycle. The first is a *top-down* approach, which establishes the relationship between the company's earnings and interest rates over time.

The second is to conduct *bottom-up* analysis, decomposing earnings into their constituent parts. The purpose is to estimate the impact of inflation and growth on the sub-components of revenues and costs. In most cases this approach is preferable, as it makes it easier to avoid confusion between the impact of the economic cycle and the underlying growth of the company.

Having determined the impact of inflation and growth on individual components such as sales revenue, payroll and property costs, the next stage is to aggregate these effects to achieve an estimate of the overall impact on earnings. This aggregation will net out off-setting exposures, thus exposing

Example II: Regulated utilities

Many utility companies in the UK are subject to RPI-X regulation. This gives their revenue strong protection against movements in inflation. Given that many of their costs (e.g. labour) will also move with inflation, this means there is a strong case for these companies to use index-linked debt.

However, detailed analysis reveals a danger in these companies placing too much reliance on index-linked debt. The reason for this is that periods of high inflation are often associated with slow or negative growth, which would damp down demand and hence revenues. On this scenario, floating rate debt would be a better hedge for the utility company.

Example III: Hedging earnings in the retail sector

A leading grocery retailer asked Frontier Economics to examine how it might adjust its debt structure to hedge its earnings. Frontier divided the retailer's revenues and costs into their main components and estimated the impact of inflation and growth on each of these.

Using these estimates, we worked through a range of economic scenarios for inflation and growth and the implications for the retailer's earnings. We were able to assess the impact of alternative debt structures and provide a framework for future financing decisions.

the natural hedges that may exist within the company as a whole. Linking these estimates to interest rates then sets the stage for choosing the appropriate mix of fixed and floating rate debt in Step 3.

Making a match

Managing the economic risk exposure of a company means choosing a mix of debt instruments designed to ensure that interest costs are most likely to move in line with the earnings of the business.

This objective can be expressed in a number of ways. The company may wish:

- to minimise the volatility of earnings after interest;
- to target a minimum interest cover ratio; or
- to ensure stable cashflow.

Differences in demand and cost structures between companies and sectors mean that the appropriate mix of fixed and floating debt will vary. Different mixes of debt will also have different hedging properties under varying economic scenarios.

For instance, a "supply side shock" caused by an oil price hike has generally led to high inflation, falling demand and low real interest rates. In contrast, a "demand side shock" caused by a surge in consumption has generally led, in the short term, to an acceleration in both inflation and growth, and has been met with high real interest rates.

To work out the appropriate mix of fixed and floating debt, it is necessary to assess how effective a hedge each type of debt would be over a sufficient range of different economic scenarios.

Natural value

Exploiting a natural hedge against economic risk requires not only a good understanding of the economic cycle and the links between interest rates, inflation and growth, but also a detailed grasp of company-specific drivers of demand and costs. However, the potential for improved management of debt funding, leading to a significant increase in company value, makes this a worthwhile investment.

Please contact Rob Francis for information about these issues (rob.francis@frontier-economics.com).