

Hedging Policy Consistency --
Theory versus Practice
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Why Should Companies Hedge?

- Good Reasons:
 - To reduce the expected direct and indirect costs of financial distress by mitigating the impact of possible negative market conditions
 - To minimize tax expense by avoiding higher tax brackets due to high income volatility
 - To optimize capital structure to lower the cost of capital
 - To decrease the total risk for large undiversified shareholders and stakeholders
 - To avoid underinvestment in otherwise profitable projects due to lack of, or the high cost of, external financing
- Bad Reasons:
 - Corporate hubris (the "company size" hypothesis)
 - Entrenched management's excessive aversion to valuable risk-taking

Hedging Policy in Theory and in Practice

- Hedging Tools:
 - Options Contracts
 - Futures Contracts
- Hedging Policy:
 - Hedges cover an existing risk exposure
 - Hedges are applied to a significant portion of the company's output or input price risks
 - Hedges are maintained until maturity
 - Hedging policy is followed consistently over a meaningful period of time
- Applying these criteria to current management practice would show that most companies do not implement a consistent hedging policy

Differences between Insurance and Hedging Decision Models

Insurance Decision Model	Hedging Decision Model
1. The risk event would have very strong negative impact on the company.	1. The risk event would have only moderate negative impact on the company as market prices tend to return to equilibrium levels.
2. The risk event would be unique and would create a strong disadvantage against competitors.	2. The risk event would be shared with competitors and would not create a strong disadvantage.
3. There is no natural hedge for the risk event.	3. Input and output prices may provide a natural hedge for each other.
4. Management does not focus on the probability of the risk event.	4. Most companies forecast input and output prices and implicitly or explicitly have expectations for the likelihood of different price levels.
5. Insurance premiums represent a small portion of operating expenses.	5. Hedging cost can become a significant expense for the company.

Hedging Decisions - Key Characteristics

- Management has significant hedging flexibility:
 - Price risk is not a binomial event, and price volatility is usually moderate
 - Companies have operational flexibility to respond to negative price changes
 - The availability of financial reserves allows companies to absorb temporary losses
 - Prices of outputs and inputs tend to return to levels where companies can generate a normal profit
- Being right about whether to hedge or not to hedge is expected:
 - Companies develop input and output price forecasts for their planning and strategy formulation processes
 - Price forecasts are a key element of management's overall view of the future
 - Investors also perceive the ability of management to forecast the prices of key inputs and outputs as a part of their core competencies
 - So, even though the cash flow from hedge instruments should be considered in combination with the profits and losses from regular business, significant hedging losses would reflect negatively on management
- Being wrong about whether to hedge or not to hedge is costly:
 - Hedging can add significant additional costs to a company and alter its relative profitability
 - Hedging can create profitability patterns very different from the rest of the industry
 - Hedging can cause a real competitive challenge
[If an airline, for example, locks into a jet fuel price for its supply and later the price drops, it can find itself at a severe disadvantage against competitors.]

Management Expectations-based Hedging

- Management assesses hedging opportunities based on its future price level and volatility expectations

Management price expectations

Put option with management expected strike price

Payout function of available futures contract

Payout function of available futures contract with management price expectations

Management Expectations-based Hedging - Decision Criteria

- Expected negative payout (ENP) for the futures contract

$$EPP = E[g(P_S, P_F)] = \int_{-\infty}^{P_S} f_E(P_S) * g(P_S, P_F) dP_S = \int_{-\infty}^{P_S} f_E(P_S) * (P_F - P_S) * Q_H dP_S$$

- This expected negative payout is perceived by management as the "cost of buying insurance" for that particular price risk

- Value at risk (VAR) for the futures contract (for 97.5% confidence)

$$VAR = (P_F - P_E + 1.96 * \sigma_E) * Q_H$$

- The ENP and the VAR inform management's decision to hedge or not to hedge

Management Expectations-based Hedging - Empirical Evidence

- Statistical Evidence
 - Large companies maintain hedging capabilities but usually under-hedge
 - Hedging intensity increases with the ratio of market-to-book value

- Anecdotal Evidence
 - Why didn't Daimler-Benz hedge its currency exposure in 1995?

"Some analysts explained the lack of hedging by their understanding that Daimler-Benz had a view that the dollar would not fall below DM 1.55. With this view, hedging would have been expensive—it would have had to sell dollars at a cheaper price than it expected to get without hedging." -- [Stulz, René M., Risk Management and Derivatives, 1st edition, Thomson Southwestern Publishing Company, 2002.

Conclusions

- Management Expectations-based Hedging, unlike traditional approaches, properly incorporates management's expectations in the hedging decision process. It fits better with the statistical and anecdotal evidence.
- Accordingly, traditional theoretical prescriptions for consistent hedging policy should be seriously revisited and revised.
- Based on Management Expectations-based Hedging, theory should focus on developing practical tools that support management hedging decision processes.
