INSTITUTE OF ACTUARIAL & QUANTITATIVE STUDIES

Subject: RM & IM 1

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Currency Hedging

Stable revenue streams are extremely important to any corporation striving to maximize shareholder value. Volatile revenue streams imply a risky business environment and an uncertain picture of the future. Shareholders demand a higher rate of return for this sort of volatility, so they would rather put money in safer stocks that promise the same rate of return with less risk. As a result, the valuation of a volatile company is generally lower than that of its peers with more stable revenues.

Fortunately, a corporation often has more control than it realizes over this revenue generation risk. Consider the case of WidgetCo, a fictional U.S. - based company that has been manufacturing America's finest widgets for many years and has impressed shareholders with steadily increasing revenue and earnings growth. This year, however, much of its sales are originating abroad for the first time. Specifically, a craze for all things widgety in Japan has significantly boosted its orders there, so its anticipated U.S. sales of $50 million are matched by an anticipated 5,000 million yen in Japanese sales, which are also worth $50 million, at an exchange rate of 100 yen to the dollar.

WidgetCo management has never worried about its negligible foreign exchange risk in the past, but is now afraid that these large foreign orders are adding considerable uncertainty to the firm's future revenue flows. The company manufactures custom widgets, whose complex nature means that most orders take a minimum of three months to complete. Payment arrangements are finalized before production starts, although payment is only made on delivery. To make matters worse, WidgetCo's powerful Japanese customers are unwilling to assume any foreign currency risk exposure and will only pay in Japanese yen. Moreover, WidgetCo's suppliers and manufacturing operations are U.S.-based so there is no natural hedge between its yen-based revenues and the U.S. dollar expenses.

As such, WidgetCo is exposed to the risk that the value of the yen will change against the dollar between each order and its delivery, which means that its Japanese revenues will translate into more (or less) than the $50 million nominal value of the order. Should WidgetCo hedge this risk, and if so, how?

WidgetCo could decide to do absolutely nothing about the risk. The expected revenue is still $100 million, albeit that the U.S. dollar value of the 5,000 million yen coming from Japan is at risk from fluctuations in the U.S. dollar-yen exchange rate. If nothing happens to the exchange rate during each of the three-month periods between orders and deliveries, WidgetCo will be able to exchange its yen for dollars at the 100-to-1 rate each time and achieve cumulative revenues of

$100 million. This would make the shareholders happy and demonstrate that WidgetCo is still profitable and growing.

This is not very likely, however. If, as is far more possible, the exchange rate deviates at all over the three-month production periods, the cash flows from Japan will become uncertain. WidgetCo doesn't take a view on the direction of the yen, so it assumes that the exchange rate is just as likely to rise as to fall. That means it is equally likely to realize more or less than the nominal U.S. value of the Japanese order. For example, if the exchange rate becomes 80-to-1, the 5,000 million yen will become worth significantly more than the anticipated $50 million. In fact, they will now be worth $62.5 million, and WidgetCo's cumulative revenues will be $112.5 million. However, if the exchange rate became 125-to-1, WidgetCo's Japanese revenue would only be worth $40 million.

If both of these possibilities are equally likely, what should WidgetCo do? The answer lies in the shareholder's view of the company. The shareholders expect the company to increase its revenues and profits steadily, and would likely lose much confidence if revenues came in lower than expected. In the case where the exchange rate becomes 125-to-1, the $40 million revenue would force WidgetCo to report a loss for the year, and shareholders would definitely lose confidence in its earning potential.

So this uncertainty is best avoided. An upside surprise, though, would likely be unsustainable in the long term, since fluctuations in a foreign exchange rate should be random in the long term. WidgetCo's shareholders will realize this, and will likely discount such extraordinary profits. They also may realize that the unexpected upside this time could give way to an unexpected downside next time.

Although WidgetCo might be lucky enough to report a short-term gain, it cannot rely on a discernible increase in its longer-term expected returns. This makes it impossible to justify taking on greater risk, and so it becomes apparent that management would be remiss if it did not hedge against this kind of foreign exchange risk. Portfolio management theory espouses that risk should be as low as possible for a specific rate of return, and it certainly makes sense in this example.

After some deliberation, WidgetCo decides that its new policy will be to enter into forward contracts at the same time that each sale to Japan is signed—these forward contracts are arrangements with a third party to exchange a fixed amount of currency at a predetermined exchange rate. In this manner, WidgetCo's managers can rest assured that widget manufacturing will continue to be a solidly reliable business.