

Strategies for managing risk in equity

Founders, senior executives, and venture capitalists often own restricted equity in startup companies, which they must manage proactively to minimize the risk and maximize value, says C. Mark Tang.

The rapid growth in the biotechnology equity market and the explosion in the number of biotechnology initial public offerings (IPOs) have created unprecedented wealth in the western hemisphere in the form of restricted securities—shares

(equity) in newly founded companies that can be traded only in compliance with regulations imposed by the relevant authorities.

The recent volatility of the biotechnology sector markets serves as a stark reminder of the risks and rewards faced by any investor holding equity. However, entrepreneurs, company founders, and venture capitalists—referred to here collectively as “bioentrepreneurs”—holding low-cost basis equity and/or restricted equity (see

Glossary) in biotechnology companies are particularly vulnerable, having few options through which they can manage market risks.

Moreover, bioentrepreneurs, in particular those who are also company founders, may be reluctant to diversify their stock in order to reduce risk either because they have an emotional attachment to the stock, or because selling the stock (to raise the capital to allow them to reinvest in other companies) would result in capital gains tax.

Bioentrepreneurs have various options, however, for managing the risks associated with a concentrated biotechnology position—i.e., one in which most of a stockholder’s financial wealth is associated with

just a few biotechnology stocks. Some of the possibilities are discussed below (see Table 1):

- I. Hold onto your shares through the thick and thin of your wealth;
- II. Sell your shares, and re-invest the proceeds in different companies, sectors, or geographic locations (i.e., diversify);
- III. Use various strategies to generate cash from your shares and/or reduce the associated risks.

I. Holding out

One option is simply to retain your position—and the associated risks that come with it. There are two main types of risk associated with holding a single biotechnology stock:

- Systematic or “market” risk, which reflects the general economic climate. Systematic risk cannot be eliminated;
- Nonsystematic or “company-specific” risk, which reflects the risks associated with a specific company. Nonsystematic risk can be reduced or eliminated through diversification.

Although it is possible that, over a long period of time, a single solid biotechnology company’s stock could out-perform the market, it is highly unlikely that all will make it. One means of lowering the nonsystematic risk is by diversifying—holding shares in 40 or more companies from different sectors (see Fig. 1). Eliminating or minimizing nonsystematic risk reduces the volatility of the overall portfolio compared with that of the (average) individual biotechnology stock, thereby preserving the bioentrepreneur’s accumulated wealth.

II. Selling and reinvesting

Thus you may choose to liquidate your position (under a registration statement, Rule 144, or via a private placement) and re-invest the net proceeds, for example,



© Corbis Stock Market

C. Mark Tang has followed and invested in the biotechnology industry for over a decade. He has been a biotechnology analyst, venture capitalist, wealth-management financial adviser, and publisher of the Bio/Medical Technology Stock Newsletter. Tang currently works for Morgan Stanley Dean Witter, New York (cmtang21@aol.com). The opinions expressed in the article are the personal opinions of the author.

into different stocks in different sectors.

By law, bioentrepreneurs who hold restricted securities may only sell them to the public in a registered transaction or through an “exemption from registration.” Restricted securities that do not have an accompanying registration statement (also known as Rule 144 in the United States) can be sold to the public only after they have been held for at least one year.

Bioentrepreneurs (“insiders”) can sell their restricted securities at a discount to a major investment bank, although not all shares will be eligible: every investment bank has its own criteria on trading volume, price limits, and the minimum size of each transaction. The shares are usually exchanged for cash at a reasonable discount (perhaps 5–15%) to account for their lack of liquidity. Non-affiliates (“non-insiders”) can sell their fully paid stock freely after a holding period of two years.

The main impediment to diversification is tax of capital gains—a tax on the difference between the purchase price of an asset and its sale price. Bioentrepreneurs must estimate how much more the rate of return on a diversified portfolio would have to be, compared with that rate anticipated on the single biotechnology stock, to compensate for the increased (capital gains) tax liability over a specific period of time. However, bioentrepreneurs could consider the tax incurred by diversification as an “insurance premium” paid to prevent the value of their assets declining significantly.

III. Hedging, monetizing, and diversification strategies

Finding ways to reduce the risk of holding equity, while deferring capital gains taxes, has become a significant challenge for bioentrepreneurs. But there are strategies

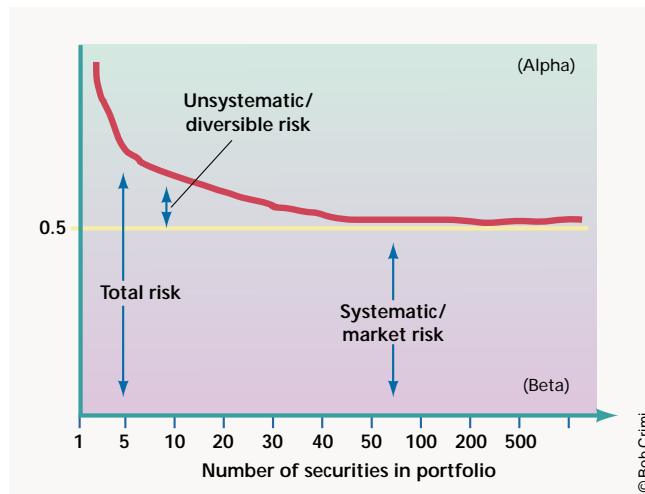


Figure 1. Systematic (market) risk and nonsystematic (company-specific) risk

to reduce the risk and limit the volatility of an asset while upholding many of the benefits of ownership of concentrated equity (see Table 1). Hedging—protecting against loss through future price fluctuations—is one such strategy. For example, a shareholder may turn to “options”—the right to buy (a “call option”) or sell (a “put option”) a fixed quantity of stock at a fixed price on a specified date in the future. Monetizing—a means of converting stock into cash or a cash equivalent—may also be desirable. The “right” decision is unique for each bioentrepreneur, dependent on their tolerance of risk and their objectives. The goal is to find the right balance between risk and rate of return, and in most instances the best results are achieved through a combination of the alternatives (see Table 2).

Your options

Protective put option. A bioentrepreneur owns XYZ biotech stock, but is unable or unwilling to sell his or her shares today. The entrepreneur seeks to reduce the risk of the shares falling below a target price (the downside risk) before he or she is able to sell, and so decides to buy a *put option*

from an investment bank, settled in cash. This gives the bioentrepreneur the right to sell the shares after a given period, receiving a cash payment for the amount, if any, by which the strike price (the price set in the put option) of the option exceeds the share price at maturity. The bioentrepreneur pays a fee for the downside risk protection obtained, but benefits from any upside potential (i.e., the amount by which the maturity price exceeds the strike price).

Example: The current market value of XYZ biotech stock is \$100 per share. A bioentrepreneur purchases a one-year, European-style, cash-settled

protective put option from an investment bank. For example, she may set a \$90 strike level, costing \$15 per share. If, after redemption of the option, the market value of the shares was \$180, the bioentrepreneur would keep \$80 upside appreciation (settled in cash) at a cost of \$15. However, if the shares fell to \$60, her shares would remain valued at \$90, avoiding the \$30 loss she would otherwise have incurred without the put option.

Zero-cost (cashless) collars. A bioentrepreneur owns XYZ biotech stock (market price \$100), is unable or unwilling to sell the shares today, but seeks to reduce the downside risk without paying the upfront *put option* premium. However, the entrepreneur is willing to forgo any appreciation of the share price above a target price. In this instance, the bioentrepreneur simultaneously buys a *put option* and sells a *call option* (giving the holder the right to buy shares at no more than a set strike price), both settled in cash. Such a strategy allows for hedging a concentrated biotech equity position while retaining some upside potential. The advantages are that there is no up-front payment for the hedge, and the shares need not be sold.

Example: A bioentrepreneur enters into a zero-premium collar with a major investment bank. He purchases a one-year, European-style, cash-settled *put option* from an investment firm and finances the put premium by selling a one-year, European-style, cash-settled *call option* to the same investment company. For example, the put

Table 1. Risk management—summary of hedging, monetizing, and diversification strategies

Strategy	Objective		
	Diversify	Hedge	Monetize
Protective put option	No, except if combined with loan	Yes	No, except if combined with loan
Cashless collars	No, except if combined with loan	Yes	No, except if combined with loan
Exchange fund	Yes	Yes	No, except if combined with loan
Charitable remainder trust	Yes	Yes	Partial
Borrowing on margin	Yes	No	Yes

Table 2. Risk management—summary of strategic outcomes

	Disposition	Zero-premium collar	Covered call writing	Put purchase	Participating prepaid forwards
Defer capital gains (low tax basis)	No	Yes	Yes	Yes	Yes
Remove future price risk	Yes	Yes	Yes/no	Yes	Yes
Retain voting rights	No	Yes	Yes	Yes	Yes
Certainty of sale/price	Yes/no	No	No	No	No

option could have a \$90 strike price, whereas the call option has a \$125 strike price. At the end of contract, should the market value rise to \$180, the bioentrepreneur can only sell at \$125, giving up \$55 upside appreciation. If the shares fell to \$60, he can sell at \$90, avoiding a \$30 loss per share.

Zero-premium put spread collar. The bioentrepreneur can hedge his or her position between two put strikes, while relinquishing any appreciation of the biotech stock above a call strike. No net upfront out-of-pocket expense is incurred, and the bioentrepreneur retains ownership, voting rights, and current dividends. However, the bioentrepreneur is at risk if market price falls below the lower put strike price. Here, the bioentrepreneur will hope that the immediate risk is concentrated in first 25% of depreciation of XYZ stock.

Example: XYZ is trading at \$100. A bioentrepreneur enters into a zero-premium put spread collar with a major investment bank. She purchases a one-year, European-style, cash-settled put option (no. 1) from an investment firm and finances the put premium by selling a one-year, European-style, cash-settled call option, and a one-year, European-style put option (no. 2) to the same investment company. For example, the put option no. 1 purchased has \$100 strike price and put option sold no. 2 has a \$80 strike price, whereas the call option sold has a \$125 strike price. Should the stock market value rise to \$180 by the end of the contract, the bioentrepreneur can only sell at \$125 (the call option strike price), giving up a \$55 upside appreciation. If shares fell between \$80 and \$100, the two put option strike prices, she sells at \$100, with no pure risk for stock depreciation. If the stock fell to \$60 (below the lower put strike price \$80), she sells at the market price of \$60, losing \$40.

Covered call writing. With this strategy, a bioentrepreneur can monetize a portion of the position and hedge some of the downside risk without realizing a sale of the shares. The bioentrepreneur owns XYZ

biotech stock and is willing to forfeit all the appreciation above a target price, but wishes to generate cash from his or her equity position. The bioentrepreneur earns an upfront premium for agreeing to sell the stock at a future date, at the call strike price. The bioentrepreneur relinquishes the appreciation of the stock above the call strike price, but maintains downside risk of the stock, retaining ownership.

Example: A bioentrepreneur sells an

investment bank a one-year, European-style, cash-settled call option struck at the target sale price of \$125. The investment bank makes an up-front payment of \$15 per share in an option premium. At the end of contract, if the share price is \$180 (above \$125), the entrepreneur has to sell shares at \$125, relinquishing the \$55 appreciation. If the share price falls to \$60, he would keep the \$15 cash (call option premium) per share.

Exchange fund. The bioentrepreneur donates certain concentrated biotech equity positions of low-cost basis or restricted shares in exchange for shares of a professionally managed diversified portfolio, which is more likely to preserve the capital and appreciate more steadily. Transfers of this type should not incur federal income tax. (Note that legislation has been introduced that may eliminate the benefits of exchange funds.)

Prepaid forward. A bioentrepreneur who owns XYZ biotech stock wishes to

Glossary

Affiliate: An "affiliate" is generally defined as an officer or a director of the issuing company or a beneficial owner of more than 10% of the issued shares.

American-style option: Exercisable at any time prior to and including the expiration date. The value of American-style options before expiration will typically be greater than or equal to intrinsic value.

Call option: A call option gives the holder the right, but not the obligation, to buy the underlying asset at an agreed strike price at any point during a fixed period of time (American style) or on a fixed date (European style).

Capital gain: The gain reflects the increase in the value of a capital asset (an investment or real estate) above the purchase price. The gain is not realized until the asset is sold. A capital gain may be short term or long term, but both must be declared as income for tax purposes.

Cash settlement: The settlement of an option contract at expiration through the payment of cash in the amount by which the option is in the money, i.e., the difference between market value and strike price.

European-style option: Exercisable only on the expiration date. Value before expiration of European-style put option may be less than intrinsic value.

Intrinsic value: The difference between market value and strike price. For calls, the intrinsic value = market price – strike price. For puts, intrinsic value = strike price – market price.

Liquidity: A term that relates to the measure by which a large volume of shares can be bought or sold without affecting the share price. When there are large numbers of buyers or sellers, the equity has high liquidity.

Put option: A put option gives the holder the right, but not the obligation, to sell the underlying asset at an agreed strike price at any point during a fixed period of time (American style) or on a fixed date (European style).

Restricted equity: In the United States, Rule 144 identifies two primary categories of restricted securities: (i) stock (registered or unregistered) of the issuing company owned by an affiliate of the issuer; (ii) unregistered shares issued by the company or acquired through a private transaction. Rule 145 restricts the sales of restricted securities received through a merger, consolidation, or reorganization by: (i) an affiliate of the disappearing company, but not an affiliate of the surviving company; (ii) a non-affiliate who acquired shares through a private transaction.

reduce exposure to downside risk but maintain partial upside appreciation, while monetizing the maximum amount possible without incurring taxes. Purchase price may not be taxable until maturity. The bioentrepreneur retains ownership, voting rights in the company, and current dividends payable, and has no margin call risk as in the case if he or she borrows against the stock and use the proceeds to diversify.

Example: A bioentrepreneur enters a three-year prepaid forward contract. She could receive a purchase price of \$80 (80%) in exchange for an obligatory delivery of a number of shares at maturity, based on the settlement price. The transaction also could have a floor price of \$100 and a ceiling price of \$125. The bioentrepreneur forfeits appreciation above the ceiling price, but is not at risk for stock price depreciation below the floor price. She may generate 75–90% of the stock's current value immediately.

Charitable remainder trust. The bioentrepreneur irrevocably delivers securities to a trust and designates an income beneficiary, who receives a lifetime cash flow,

and charitable beneficiaries. Because the property is removed from his or her estate, the bioentrepreneur will benefit from a charitable income tax deduction. (The downside is that the bioentrepreneur does not own or control the stock anymore, even if he or she is still relatively young.)

Borrowing on margin. The bioentrepreneur can obtain a loan collateralized by the concentrated biotech equity position to increase liquidity and achieve diversification through reinvestment of the loan proceeds. In this instance, the interest expense is generally tax deductible against an equal amount of net investment income.

However, borrowing on margin does not hedge against future declines in the value of the biotech stock. There is margin call risk if the share price drops significantly, especially during industry recession or specific problems with a company.

Conclusions

Although bioentrepreneurs with concentrated biotechnology equity positions may be exposed to the high risks associated

with the volatility of their portfolio, the decision to diversify is not an easy one. Several factors should be taken into account:

- The percentage of net worth of the bioentrepreneur represented by the concentrated biotech equity position
- The inbuilt capital gain and associated tax rate
- The bioentrepreneur's investment time horizon and objectives. (Over a long period of time, a single solid biotechnology company's stock could out-perform the market.)
- The perceived strength of the underlying security.

Be aware that the particular strategy chosen will depend on each bioentrepreneur's unique situation and his or her personal goals. Bioentrepreneurs should consult their legal, tax, and investment advisors about the suitability and risks inherent in their chosen strategies before making a transaction. And they should always remember: past returns are not necessarily indicative of future performance.

