A PRACTICAL APPROACH TO BUSINESS UNIT HURDLE RATES, PORTFOLIO ANALYSIS AND STRATEGIC PLANNING

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Abstract. During the course and scope of our work as corporate finance advisors and researchers we have encountered a number of executives who struggle with their current methods of estimating business unit hurdle rates, and their methods of evaluating business unit portfolios. A number of these executives subjectively picked a hurdle rate--many times between 10 to 15%--without engaging in any form of analysis. Worse, some employed formal analysis merely to "back into" a desired hurdle rate. To address situations like these, we adopt a well-known financial model and modify it for use in a business unit context through the use of a strategic accounting beta. Significantly, we also recast and simplify the mathematical expression of the model, which provides a level of transparency to the model that makes it easier for corporate finance and strategy executives to understand and therefore use. It also facilitates a practical form of portfolio analysis, which can be used in conjunction with various capital budgeting methods to question certain strategically significant assumptions, as well as to inform and direct more mathematically rigorous forms of analyses. The linkage between the two approaches--hurdle rate estimation and portfolio analysis--was found to be very useful in strategic planning processes where, in order to secure the requisite funds to execute a business strategy, the objective is to show how a business unit can meet (and hopefully exceed) a given hurdle rate.

Keywords: Hurdle Rates, Portfolio Analysis, Strategic Planning, Capital Allocation

JEL classification: G30; G31; L10; L11

Introduction

Portfolio analysis helped to usher in the modern eras of both strategy, via the popular share-growth matrix (Henderson, 1979), and finance via the mean-variance framework (Markowitz, 1952). Contrary to relatively high expectations, both approaches produced mixed results: many corporate diversification programs were effectively reversed in the 1980s, and financial models were heavily criticized following the financial crises of 1987, 1997-1998 and 2007-2008. Nevertheless, many firms continue to be structured as some form of holding company thereby requiring the allocation of capital across a portfolio of business units via some form of strategic planning process. Such processes typically involve a business unit creating a strategy to satisfy a

consumer want or need, which is expected to generate a return that is at least equal to that required (i.e., a hurdle rate) in compensation for the use of the holding company's capital. In this paper, we consult many historically seminal works from a cross-discipline (corporate finance and corporate strategy) perspective to create a practical approach for estimating business unit hurdle rates as well as a related approach for analyzing a portfolio of business units at the holding company level, the output of which can be used to practically inform strategic planning processes and the capital allocations resulting therefrom.

By way of background, Coase (1937) observed that firms are effectively created to bring select market activities private, or under an enterprise's direct management and control, in the hopes of better or more economically directing production activities. The result of these activities is some form of product/service offering for which it is expected that consumers will pay a price at least equal to (and hopefully in excess of) total production costs, including the opportunity cost of capital thereby generating *residual income* (Fruhan, 1979; Stewart, 1999 [1991]).

Many firms--even those that concentrate on a specific industry--consist of portfolios of businesses units that typically produce different products/services. For example, consider an insurance holding company that is composed of business units that offer various kinds of insurance such as that for automobiles, homeowners, life, commercial general liability, workers compensation, etc. While all of these products fall under the same industry classification (insurance) they are all very different and thus may require the governance of specialized business units.

Reasons why a firm would want to diversify across a broad array of products/services pertain to revenue opportunities (e.g., cross-selling, up-selling), cost control (e.g., reduced selling, general and administrative expenses), economies of scale (e.g., fixed costs, marketing expenses), or any combination thereof. To realize the value of such strategies, many firms are organized as holding companies that regularly employ some form of strategic planning process (Martin, 2014; Mintzberg, 1994), the findings of which can be used to allocate a firm's capital over some given duration (one- and five-years seem to be the most popular). Many of these processes have, over the recent past, been stretched due to the volatility of the 2007-2008 global financial crisis and the resulting influx of capital that many firms experienced due to the easy money policies enacted in response to that crisis. This volatility can be seen, for example, in short-term Commercial and Industrial Loans in the United States as illustrated in Figure 1.

Some corporate finance executives are using this situation as a catalyst to reevaluate their firm's strategic planning processes, and the analyses that inform those processes, particularly in the areas of: (1) business unit hurdle rates as no readily acceptable models are available to inform the estimates of such rates, and (2) portfolio analysis given the multitude of approaches that can be used to perform such analysis. In this paper, we approach both of these topics from the same perspective; namely, from the relationship of a business unit's performance to that of its holding company as measured by core strategic metrics and related statistics.
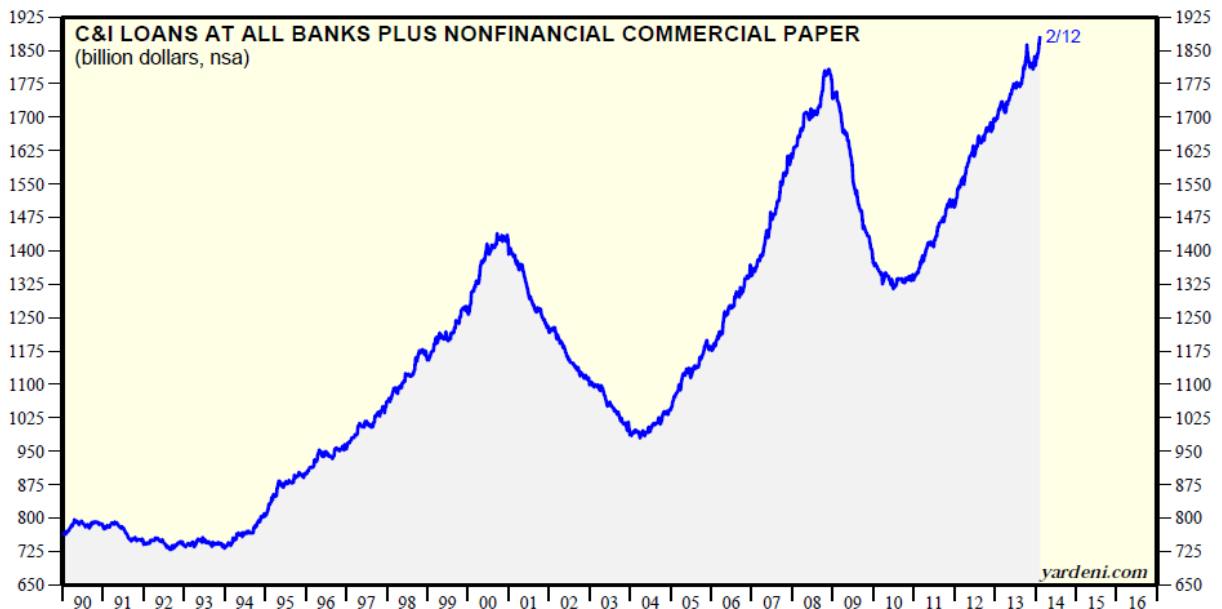
Figure 1: Commercial & Industrial (C&I) Loans: 1990 – 2014

Data sources: Board of Governors of the Federal Reserve System and Yardeni Research, Inc. Observe that C&I loans are at twenty-plus year highs. See Ryan (2014) for an example of the practical implications of this environment (p. 22).

Business Unit Hurdle Rates

Hurdle rates are, like value, inherently subjective and thus are based on estimates. Models such as the capital asset pricing model (CAPM; Sharpe, 1964) often serve as the basis for hurdle rate estimates at the holding company or enterprise level. This model is effectively built on two core variables: a risk-free rate, which is the nominal return of a security that has absolutely no possibility of default, and a premium for exposure to the risk of the broader market that cannot be diversified away:

- A typical proxy for the risk-free rate is the yield of U.S. securities such as the 10-Year Treasury-Note. To this rate would be added any related Credit Default Swap (CDS) spread, which together effectively give a "risk-free rate." Regarding the use of CDS in this estimate, which is not traditional, given the current global monetary environment it behooves corporate financial analysts to account for market-derived default estimates in their "risk-free rate" assumptions.
- The risk premium is a function of the expected market return less the risk-free rate and a risk multiplier, which is based on the covariance of a firm's securities' prices to those of the broader capital market and is popularly known as beta.

Three of the above four parameters are fairly easy to estimate: data for the risk-free rate are available from a broad array of vendors, and estimates of the market premium are available from a number of researchers (e.g., Morningstar, 2012; Fernandez, Aguirreamalloa and Corres, 2012). Data to derive beta estimates are also easy to obtain, but the use of beta has generated much more controversy than the other parameters. At the center of the controversy is the question of

whether relative securities' prices are the right basis to measure risk. For an example of the criticism from highly successful financial practitioners see Warren Buffett's thoughts contained in the *1993 Berkshire Hathaway Annual Report* (http://www.berkshirehathaway.com/letters/1993.html). To address this controversy, some firms employ the multi-factor models of arbitrage pricing theory (APT; Ross, 1980), and such models have achieved some level of popularity (e.g., Fama and French, 1992). Whatever approach is chosen, at least models are available to inform hurdle rate estimates at the enterprise level in contrast to the situation that exists at the business unit level.

During the course and scope of our work as corporate finance advisors and researchers we have encountered a number of corporate finance executives who struggle with their current methods of estimating business unit hurdle rates. For example, we have encountered executives who subjectively picked hurdle rates--many times between 10 to 15%--without engaging in any form of analysis. Worse, some have employed formal analysis merely to "back into" a desired hurdle rate. These situations are problematic because setting an appropriate hurdle rate is a critically important corporate finance function: set too low, a firm will take on too many projects and initiatives with the likely result of destroying value over time. Set too high, and a firm runs the risk of passing over value creating projects and initiatives. Thus, the stakes of selecting appropriate business unit hurdle rates are strategically significant.

The two main approaches of estimating business unit rates are to estimate the beta of the CAPM, or the factors of APT, based on comparable statistics from publicly held firms similar to the business units being analyzed, or to employ the use of an *accounting beta* or accounting factors (Damodaran, 2006). An accounting beta substitutes an accounting variable for securities' prices as the basis for the risk regression. The rationale for this approach is that key accounting outputs such as earnings (Damodaran, 2006) or metrics like return on assets (O'Brien, 2006) more directly align with the fundamentals that lead market behavior and thus are an appropriate basis for the beta of a hurdle rate calculation based on the CAPM.

Firms structured as holding companies are effectively mini-markets in which their respective business units compete for resources (including capital) in much the same way that firms on the market compete, albeit in concentrated form. And, much like a public market, a key basis of this competition is expected profitability, all the more so when competition is contained within a firm given the absence of market pricing. Earnings are, of course, the ultimate measure of performance, but profitability can be a much more useful analytical measure, especially operating margin, which is often heavily used in corporate financial and strategic analyses. Additionally, we have observed that many business units do not have detailed balance sheets thereby complicating the use of metrics like return on assets. As such, we typically use operating margin as the basis for our accounting beta. Alternative measures can, of course, be used to calculate accounting betas but a full discussion of this topic is beyond the scope of this introductory paper and thus is topic for further research.

We base our business unit hurdle rate approach on the CAPM because this model is very popular with corporate finance professionals (e.g., Graham and Harvey, 2002), but we have recast the mathematical expression of the model. To explain, we do not employ the traditional covariance-variance method of calculating beta but rather employ a volatility ratio-correlation coefficient approach. Our rationale for expressing the model in this manner is that many executives have difficulty visualizing how statistics like covariance and variance apply to both their businesses and the returns required of those businesses, in contrast to statistics like volatility and correlation, which they do understand and frequently manage to. For example,

corporate executives often expect business units that are experiencing significant margin expansion (i.e., increasing volatility) to produce similar results, and they also typically expect units that are experiencing significant margin compression (also increasing volatility) to improve their performance. By way of background, *volatility* refers to variation over time as measured by standard deviation and has no direction; meaning, it does not indicate whether something goes up or down, just how variable it is over time.

Corporate managers also tend to expect business units that are positively correlated to a holding company to perform at a level commensurate with the company, while they may give negatively correlated business units time to develop and grow given the "diversification benefits" generated by those units. By way of background, *correlation* is the degree to which two or more quantities are linearly associated. Correlation does not imply causality (which is significant for strategic planning purposes as we will discuss). The metric used to measure correlation is the correlation coefficient, which can have a value between +1 and -1. The larger the numeric portions of the coefficient, the stronger the correlation. The sign indicates positive or negative correlation: positive when both quantities move (increase or decrease) in the same direction and negative when they move in opposite directions. The absence of correlation is indicated by a correlation coefficient of 0.

We discuss corporate finance uses of volatility and correlation for strategic planning purposes later in this paper; for now, we will formally express our model noting that for purposes of this introductory exposition business unit hurdle rates will be calculated on an all equity basis and in a single currency. Debt can easily be included in actual analyses by taking a weighted average of the capital structure to estimate the weighted average cost of capital (WACC), and O'Brien (2005) explains how to estimate consistent costs of capital across currencies in integrated financial markets.

$h \quad = R_F + [(v * r) * (R_M - R_F)]$

where

$h \quad$ = business unit hurdle rate

$R_F \quad$ = risk-free rate = Treasury Note Yield + the CDS spread

$v \quad$ = volatility ratio = sample standard deviation of a business unit's operating margin / sample standard deviation of the holding company's operating margin. Our relativity is based on holding company performance but peer group performance, industry performance, etc., could be used in lieu of holding company performance if management deems those bases more relevant. A full discussion of this topic is beyond the scope of this introductory paper and thus is a topic for additional research.

$r \quad$ = correlation coefficient of a business unit's operating margin to the holding company's

$R_M \quad$ = the market return following the traditional CAPM expression, which some firms apply to their business unit hurdle rate calculations. Other firms, however, substitute the return of the firm, i.e., the "internal market" return (R_{IM}), for the market return while still others use a peer group return, industry return, etc., in lieu of the market return. As with the above, a full discussion of this topic is beyond the scope of this introductory paper and thus is a topic for additional research.

Note: The traditional expression of an accounting beta is $cov_{U, F}$ / var_F or the covariance of the business unit's operating margin and the holding company's operating margin divided by the variance of the holding company's operating margin. The two expressions, the traditional one and our above version, obviously produce the same result.

The benefits of our expression are that it is easy to use, and its business logic is easy to understand, because it is based on parameters that many corporate finance professionals regularly work with; namely, operating margin, volatility and correlation. Nevertheless, models should generally be used to inform decision-making, not to automate decisions. Failure to adhere to this seemingly obvious point has caused, or contributed to, many flawed financial decisions both recently (e.g., Lowenstein, 2010) and historically (e.g., Lowenstein, 2000), and it could also result in flawed business unit hurdle rate decisions. For example:

- Consider the case of negatively correlated business units: based on our above expression, the statistics of such units result in a negative accounting beta and thus a hurdle rate that is less than the risk-free rate. This is obviously not correct because business units exposed to the marketplace are exposed to risk that cannot be diversified away thereby necessitating a premium to a risk-free rate, not a discount. To address situations like this we establish a minimum hurdle rate as we explain in a below example.

- We typically use twenty quarters of data to calculate business unit hurdle rate estimates: with business units operating less than twenty quarters, such as start-up and immature business units, a number of analytical alternatives are available--including market or peer-group statistics--to estimate a hurdle rate. Alternatively, techniques such as venture capital analyses or simulation could be used to inform such estimates. Therefore, we have observed relatively few business units for which the required information, in some form or fashion, are not available to practically estimate hurdle rates.

Table 1: Business Unit Hurdle Rate: Detailed Example

Calculation			Notes
(a)	1.9%	10-Year Treasury Note Yield	Data source: http://www.bloomberg.com/markets/rates-bonds/government-bonds/us/, 1/10/2013
(b)	0.4%	CDS Spread on the 10-Year Treasury	Data source: S&P Capital IQ, 1/10/2013
(c) = (a)+(b)	2.3%	Risk-free Rate (R_F)	
(d)	0.9	Unit's Operating Margin Volatility	Sample standard deviation, 20 quarters
(e)	0.4	Firm's Operating Margin Volatility	Sample standard deviation, 20 quarters
(f) = (d)/(e)	2.2	Volatility Ratio (v)	
(g) = (d),(e)	0.7	Correlation Coefficient (r)	Derived over 20 quarters
(h) = (f)*(g)	1.5	Accounting Beta	
(i)	6.0%	Market Premium (R_M - R_F)	Data source: Morningstar (2012)
(j) = (h)*(i)	9.2%	Risk Premium	
(k) = (c)+(j)	11.6%	Business Unit Hurdle Rate (h)	

Note: all calculations are subject to rounding.

An example will serve to demonstrate the utility of our approach. Table 1 is based on an actual analysis that has been scrubbed and disguised to protect the identities of both the business unit and its holding company. As the table illustrates, the mechanics of our business unit hurdle rate calculation are very straightforward. Therefore, we will continue with the example by adding other business units to the analysis. The data used in the continued example is a synthesis of three actual analyses that have also been scrubbed and disguised to protect the identities of the respective business units and their holding companies. For space considerations we have limited the example to four business units within one assumed domestic holding company. International business units could involve foreign exchange effects, which as noted previously is a topic beyond the scope of this introductory paper, but is a topic addressed by O'Brien (2005).

Table 2: Business Unit Hurdle Rate: Multiple Units

Business Unit	Volatility Ratio	Correlation Coefficient	CAPM	Hurdle Rate	Mean Operating Margin
BU-1	0.7	-0.2	1.5%	4.3%	6%
BU-2	0.9	0.6	5.4%	5.4%	8%
BU-3	2.2	0.7	11.6%	11.6%	17%
BU-4	1.5	-0.4	-1.3%	4.3%	12%

Note: all calculations are subject to rounding.

The hurdle rate for the third business unit in Table 2 (BU-3) was the subject of the calculation illustrated in Table 1, and the hurdle rate for the second business unit in Table 2 (BU-2) was similarly calculated. Issues arise with the first and fourth business units in the table (BU-1 and BU-4, respectively) because they are negatively correlated. As defined here, a business unit is negatively correlated if its operating margin behaves differently than its holding company's over time. Examples can be found in the accident, health and life business units of some property and casualty insurance companies, the consumer finance business units of some industrial holding companies, etc. Indeed, many holding companies allocate capital to such business units precisely because of the "diversification benefits" of low-to-negative correlation when such benefits are assumed to be sustainable. Therefore, to address the calculation issue with such units we typically establish a minimum hurdle rate as a function of the risk-free rate, which in Table 1 was estimated at 2.3% (note (c)), and some portion of a market premium, which we subjectively estimated at 2% or one-third of the estimated 6% market premium that was also estimated in Table 1 (note (i)). Some may find subjective adjustments like these troubling; if so, we note once again that hurdle rate estimates are, like estimates of value, inherently subjective. Furthermore, this type of adjustment has precedence with certain successful financial executives including Warren Buffett, the popular Chairman and CEO of Berkshire Hathaway (Hagstrom (2014), p. 66). This is not to say that more quantitatively intensive methods are not available to inform such adjustments; only that the value of such methods is suspect if decision-makers at both the holding company and business unit levels do not agree with, or understand, the methodological logic.

As an example, we have observed that some practitioners use value-at-risk (VaR) models and resulting *economic capital* metrics to estimate hurdle rates (e.g., Oliver Wyman, 2007). Economic capital is simply the difference between a modeled loss at some level of confidence and an expected loss. We do not follow such an approach due to statistical challenges with VaR, especially during times of distress (Taleb, 2005 [2004]; Lowenstein, 2010 and 2000), and the confusion that many of our client executives have experienced working with VaR. One source of confusion is the relationship of volatility and risk, which are *not* the same thing: volatility is measured by standard deviation, as noted above, while *risk,* as Klarman (2009) has explained, is "the probability and amount of potential loss" (p. xxxviii). Combining these two very different things into one "risk-based" measure has resulted in flawed financial decisions in both the 2007-2008 financial crisis (e.g., Lowenstein, 2010) and the 1997-1998 financial crisis (e.g., Lowenstein, 2000). Analyzing them separately, however, has facilitated many successful investments. For example, Klarman (2009) observed that "a volatile stock may become deeply undervalued, rendering it a very low risk investment" (p. xxxviii).

Portfolio Analysis

Following our use of the CAPM to estimate business unit hurdle rates, it is logical to extend the analysis to the portfolio level via the mean-variance framework given the relationship of the two approaches (i.e., asset pricing theory and modern portfolio theory) in modern financial economics. In a corporate finance context, the mean-variance framework has the benefit of being very visual and therefore potentially useful for corporate strategic planning. In fact, our expression of the CAPM lends itself to this type of analysis as Figure 2, which was constructed from the data contained in Table 2, illustrates.
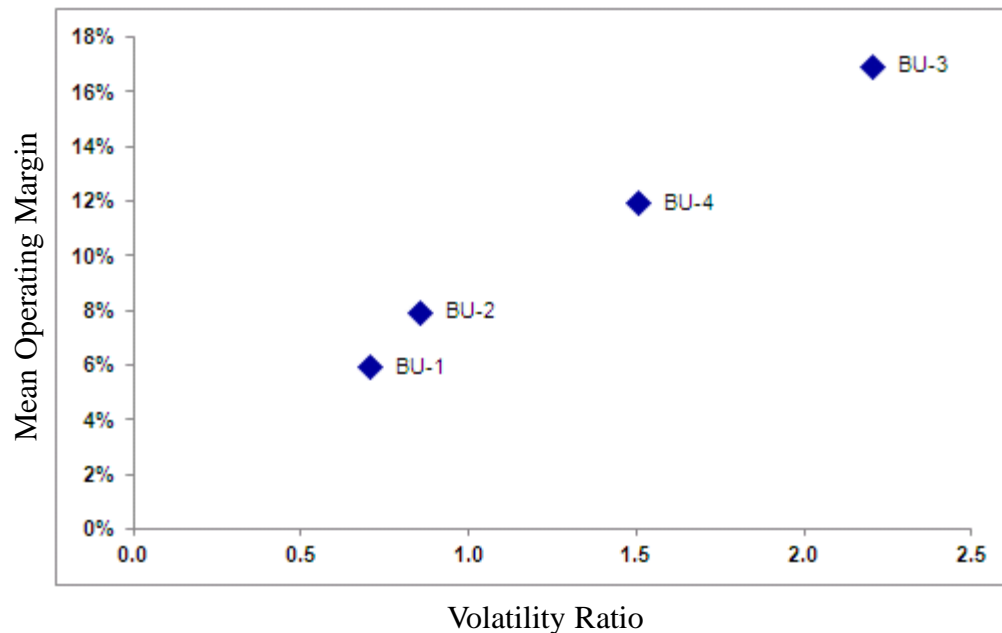

Figure 2: Portfolio Analysis: Mean-Variance Example

Figure 2 visually, which is to say qualitatively, portrays a relatively efficient frontier that suggests the business units seem to be profitable at levels commensurate with their relative volatilities. But is such a suggestion strategically significant? If it is, what are the planning and funding implications of it? Furthermore, is this kind of suggestion all of the strategic insight that portfolio analysis can provide? If it is, the benefits seem relatively limited from a strategic planning perspective. To explain why, consider that one benefit of the holding company structure is that optimally designed business unit portfolios should be worth more than the sum of the individual units. Examples of why this is so include the diversification benefits of low-to-negatively correlated business units and the option value of certain other business units (i.e., lower volatility ones) based on the influence that volatility has on option pricing (Black and Scholes, 1973). In fact, both of these subjects are frequently addressed in strategic planning processes, which tend to be informed by a variety of analytical output. This output is frequently summarized in a narrative, which is anchored to some form of forecast that serves as the basis of capital allocation requests. We have found that the analyses conducted to inform these requests

could be improved upon when they are linked via a common framework. Such a linkage, for example, facilitates the generation of pointed questions, the answers to which help to inform and direct the need for more mathematically rigorous forms of analysis. Typical questions posed to business unit executives during strategic planning processes include the following:

- Why did you prioritize the growth opportunities of your business in the manner you did?
- To what extent are your claimed diversification benefits real and sustainable, and how can they be practically tracked?
- The concept of "real options" makes a great deal of intuitive sense but the analyses surrounding claimed optionality are far less intuitive. How can we tell which business units really do have "option value," and when and why that value should be exercised?
- To what extent does your analysis provide insight into potential competitive risks, and how those risks can be strategically managed?

Before considering how to practically address questions like these within a common framework, first recall that our hurdle rate model employs a volatility ratio-correlation coefficient approach and observe that how we used each of these statistics result in natural bounds; namely, a volatility ratio of less/greater than one means that a business unit is less/more volatile than its holding company, and a correlation coefficient of less/more than zero means that a business unit moves in a different/the same direction as its holding company. Combining these two statistics produces a two-by-two portfolio matrix, to which we can add a third dimension-- profitability--by way of mean operating margin. Figure 3 outlines the basic strategic planning characteristics of this matrix, which is a new addition to the strategic matrix literature (Lowy and Hood, 2004).

To demonstrate the utility of this matrix, we will continue with our example by graphically displaying in matrix form the volatility, correlation and margin outputs of Table 2, and then we discuss our strategic findings that will include the identification of pointed questions and/or analytical considerations that can be used to inform strategic planning processes.

The business unit in the lower left-hand quadrant of Figure 4, titled *Growth,* represents the first business unit (BU-1) in Table 2. As can be seen, this business unit has a moderate mean operating margin (6%), low volatility ratio (0.7), and is negatively correlated (correlation coefficient of -0.2). This unit therefore seems to have attractive growth characteristics; meaning, diversification benefits and the seeming potential for margin expansion, which formal strategic and financial analyses would have to validate. For example, is the negative correlation the result of materially different product/service offerings or is it simply a function of potentially transient market dynamics such as life cycle effects? Similarly, is the relatively low volatility due to a newer product that has yet to achieve its market potential or a more mature product that is stagnating?

The upper left-hand quadrant in Figure 4 is titled *Options,* and represents the second business unit (BU-2) in Table 2. This unit's positive correlation (correlation coefficient of 0.6) could be indicative of similar product/service offerings between the business unit and its holding company and thus its relatively low volatility ratio (0.9) may equate to a reasonably priced growth option *if* the potential for sustainable margin expansion exists. As volatility is a key option pricing variable certain lower volatility business units can be viewed as low cost options *if* future strategic initiatives and execution activities result in sustainable margin expansion, sustainability being a core corporate strategy concept since Bain (1956). If analysis supports exercising the option during the current strategic planning cycle, then capital can be allocated to pursue a strategy expected to result in sustainable margin expansion; however, if analysis

determines that the option is not yet ready to be exercised, then the holding company could retain and manage the option within its portfolio of options (i.e., the business units falling within this quadrant) until such time as disposition (i.e., exercise or liquidation) is decided upon.
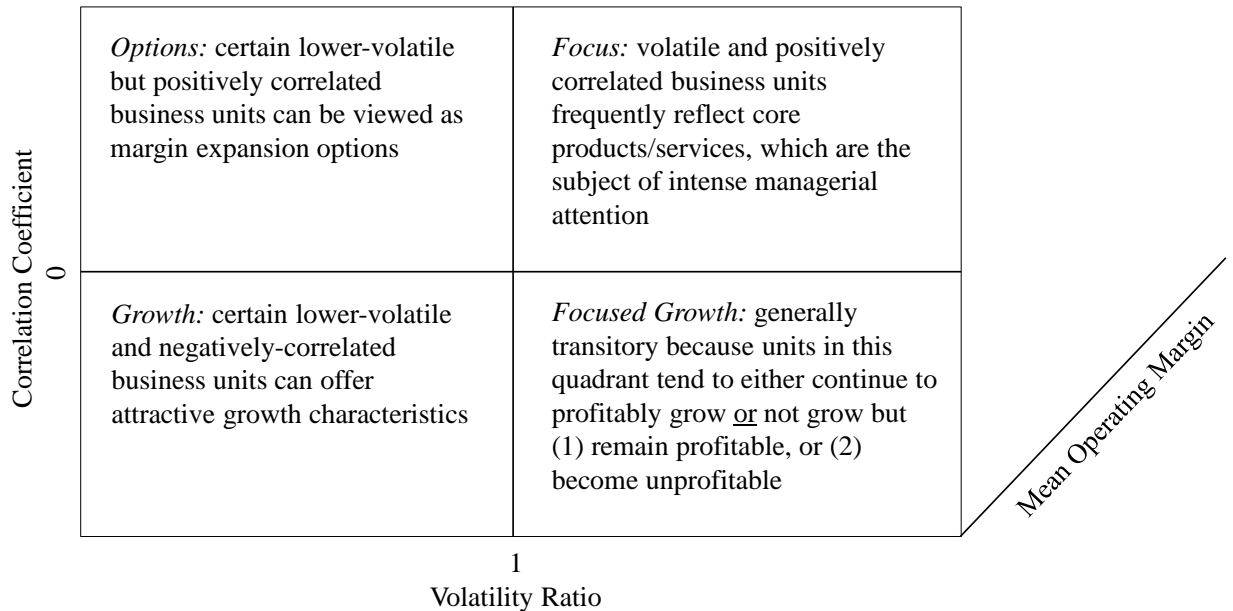

Figure 3: Volatility, Correlation and Margin (VCM) Matrix

The third business unit (BU-3) resides in the upper-right quadrant, titled *Focus*, and is relatively volatile (volatility ratio of 2.2), positively correlated (correlation coefficient of 0.7) and highly profitable (mean operating margin of 17%). Such units tend to be the subject of intense managerial attention because they can powerfully influence the overall performance of a holding company. Therefore, the intense managerial attention is certainly understandable but herein lays the competitive risk of "the innovators dilemma" propounded by Christensen (2000 [1997]); namely, focusing intensely on the performance of very successful business units to the detriment of emerging and potentially disruptive ones. The solution to this dilemma, according to Bower and Christenson (1995), is to manage potentially significant sources of competitive disruption "in an organizational context where small orders create energy, where fast low-cost forays into ill-defined markets are possible, and where overhead is low enough to permit profit even in emerging markets" (p. 53). This is exactly the context in which venture and/or immature business units, which were mentioned previously, should be managed; namely, taking every reasonable effort to make such units profitable as quickly as possible so they can be evaluated within the context of the broader business unit portfolio.
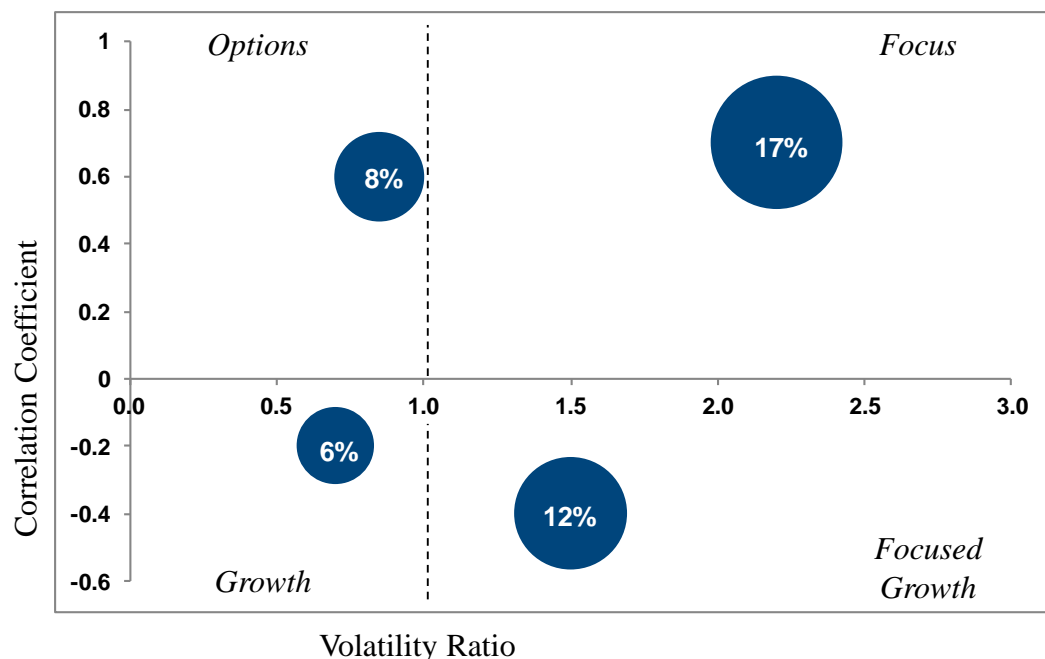
Figure 4: VCM Matrix Example

<u>Note</u>: bubble sizes reflect the mean operating margin of each business unit reflected in Table 2.

The final business unit (BU-4) in the exhibit, titled *Focused Growth*, is in the lower right-hand quadrant and is relatively volatile (volatility ratio of 1.5), negatively correlated (correlation coefficient of -0.4) and profitable (mean operating margin of 12%). Business units like this are generally transitory because they generally tend to either profitably grow thereby transitioning to the *Focus* quadrant or not grow and follow one of two paths: remain profitable and thus a valuable portfolio component or, in the case of eroding profitability, become candidates for divestment or closure if they cannot be turned around.

　　At this point it is important to note that the objective of portfolio analysis like this is *not* to derive definitive conclusions; indeed, overselling the conclusions of portfolio analysis from either a financial (Markowitz, 1952) or strategic (Henderson, 1979) perspective helps to explain the troubling results generated from portfolio analysis in the past. However, when used properly, portfolio analysis can effectively enable more rigorous or mathematically intensive forms of analyses that can be used to practically inform strategic planning, and the capital allocations resulting therefrom.

Strategic Planning Overview

Strategic planning is the process of defining a firm's objectives and then allocating capital to economically achieve those objectives over time. According to Kaplan and Norton (2001), this process "should articulate the theory of the corporation, the rationale for having SBUs [strategic business units] operating within the corporate structure, rather than having each SBU operating as an independent entity, with its own governance structure and independent source of financing" (p. 169). In implementing this process, Mintzberg (1994) suggests that planners should, "make their contribution *around* the strategy-making process rather than *inside* it. They should supply

the formal analyses or hard data that strategic thinking requires, as long as they do it to broaden the consideration of issues rather than to discover the one right answer" (italics original; p. 108). Formal analyses should generally begin with the estimation of required rates of return or hurdle rates which, amongst other things, will help to anchor or ground the forthcoming planning to the firm's financial constraints. Significantly, these hurdle rates often serve as the discount rates of cost-benefit, net present value (NPV) analysis that is typically included in many strategic plans. While NPV analysis is both popular and appropriate for some business units, it is not appropriate for others. For example, it is well known that NPV does not adequately capture the value of optionality (e.g., Amram and Kulatilaka, 1999). Additionally, businesses experiencing dynamic growth are difficult to value with NPV analysis. More advanced forms of analyses such as real options valuation, scenario analysis, simulation, etc., are frequently needed to model business units like these. In general, NPV is optimal when applied to stable, mature businesses because the costs and benefits of such businesses can be modeled with reasonable assumptions. Obviously, all of the various analyses that may be used must coherently come together in a strategic plan and its capital request.

One issue that sometimes complicates this process is unclear roles and responsibilities surrounding all of the analyses that may be performed in strategic planning; meaning, analyses that are typically conducted by corporate finance and business unit analysts. The emergence of analytical "centers of excellence" in many global firms has exacerbated confusion between these two groups such as when corporate financial analysts seek to "add value to the business" by undertaking business unit-specific analysis that traditionally has been the domain of business unit analysts. To help rectify such situations we have identified the following five core strategic planning steps and related roles and responsibilities:

1. At the holding company level, corporate finance should prepare summaries of business unit operating histories that compare actual-to-expected performance, along with estimates of appropriate required rates of return or hurdle rates.
2. Also at the holding company level, corporate finance should gain an understanding of how the firm's portfolio of business units could be economically managed across a strategic planning cycle. As part of this effort, pointed strategic questions should be generated, the answers to which will inform the analyses that will be conducted by the business units in preparation for the planning cycle.
3. At the business unit level, analysts should work through the specifics of their strategic plans in detail, and estimate the amount of capital that is required to economically fund them. A significant portion of the work involved in this effort will be addressing key strategic questions, both the ones generated in step two above, as well others generated from the business units' analyses. One of the analytical tools that we have practically employed in this area is a business unit-specific mean-variance analysis such as that illustrated in Figure 2, which has proven strategically useful when it is used properly. A full discussion of this topic is beyond the scope of this paper and thus is a topic for further research.
4. Also at the business unit level, analysts should practically quantify the expected outcomes of their strategy via a formal cost-benefit analysis.
5. Finally, business units should prepare a formal plan for holding company management's review that proposes a strategy to meet and hopefully exceed their assigned hurdle rate, and that identifies the amount of capital that is required to economically fund it.

While the above is a basic overview, it has the benefit of clear roles and responsibilities in that both corporate finance and business unit analysts operate within their respective circles of competence, and as such each can efficiently "broaden the consideration of issues" that need to be addressed during the strategic planning cycle: corporate finance estimates hurdle rates and provides guidance on how the portfolio of the holding company's business units could be economically managed while business units conduct the analyses needed to derive and support their strategies, and related funding requirements, to meet and hopefully exceed their assigned hurdles.

Conclusion

Dialogue in strategic planning sessions can sometimes become heated, especially on the subject of business unit hurdle rates. For example, we have been involved in sessions where business unit executives have aggressively challenged their estimated hurdle rates. In one such instance, an executive of a high performing unit actually asked, "Why am I being punished with such a high hurdle rate? Given my unit's performance, our hurdle rate should be much lower!" One generally cannot reply to such questions by commenting on the basics of asset pricing theory, but that does not mean theory should be ignored.

The central premise of the CAPM (i.e., that a required rate of return is a function of a risk-free rate plus a premium for risk that cannot be diversified away) has a great deal of intuitive appeal. Therefore, when the model's logic is applied to a core strategic metric like operating margin the results can prove both practical and insightful. For example, in response to an executive who challenged his hurdle rate in a manner similar to that described above it was noted that: (1) a hurdle rate is simply a required rate of return *not* a reward or punishment, and that (2) the business unit in question's margin expansion was highly correlated to the holding company's and this was expected to continue, hence the "relatively high" hurdle rate. Therefore, (3) to the extent this executive wanted a lower hurdle rate he was advised to begin assessing diversification options. Thus, attention was directed away from the mathematical calculations of the hurdle rate and toward the strategic dynamics of the business unit, which is obviously the correct focus of strategic planning discussions, and something that is generally not possible with more quantitatively complex approaches (such as VaR).

Portfolio analysis can also serve as a source of contention because the implications of it are so high; namely, the allocation of a firm's capital. While a variety of formal frameworks and models are available to inform portfolio analysis, the complexity inherent in many of them often serves to complicate, rather than enable, strategic planning. But again, this does not mean that theoretical models should be ignored: by leveraging existing theory we were able to create a practical portfolio matrix from the same variables that were used in our business unit hurdle rate model (operating margin, the volatility ratio and the correlation coefficient) thereby linking the two analyses. Such a linkage helps to focus attention on key strategic considerations like profitability (operating margin), volatility (margin expansion or contraction), diversification (the correlation coefficient), and competitive dynamics, which are appropriate topics of strategic planning discussions in contrast to the idiosyncrasies of the analytical techniques that are used to inform the planning.

One area that has begun to generate some level of contention at many firms is a strategic planning analytical rivalry between corporate finance and business unit analysts. Each of these functions obviously can and should play a role in strategic planning, and therefore by clearly

delineating roles and responsibilities for each a holding company can help to ensure both the process efficiency of its strategic planning efforts as well as the allocative efficiency of its capital.

In closing, the approaches presented in this paper were designed and implemented to facilitate the kind of targeted questioning—or, to paraphrase Mintzberg (1994), to facilitate a broadening of the consideration of issues—that has characterized many successful strategic planning efforts and corporate finance functions over time. As Drucker (1954) insightfully observed, "The most common source of mistakes in management decisions is the emphasis on finding the right answer rather than the right question" (p. 351). Nowhere, perhaps, is this more applicable in early 21st century corporate finance than in the areas of business hurdle rates, portfolio analysis and strategic planning.

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