VALUING BRAND STRATEGIES WITH REAL OPTIONS

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Abstract

We propose a real options approach to valuing brand equity accounting for the staged process of developing and managing the corporate brand and the way brand value may be leveraged via a portfolio of expansion and extension options. Real options framing and modeling enables capturing the value of *strategic marketing flexibility* to leverage the brand, not properly accounted for by traditional brand evaluation methodologies. The practical relevance of this approach is validated via an actual business application where the brand of Starbucks when pursuing a growth marketing strategy is appraised and its impact on share price determined. A revised assessment of Starbucks is performed later when the business environment deteriorated, with brand leveraging plans and risk exposures quantified under alternative brand management forward strategies. The embedded interacting brand expansion and extension growth options form an integral part of a dynamic corporate brand management strategy that enables marketing, strategy and finance come closer together.

Key words: brand equity, valuation approaches, real options, brand leveraging strategies, brand risk exposure

A strong brand represents an important intangible asset that can significantly shape a firm's competitive advantage. A single strategic brand or a portfolio of brands strengthens the relationship between the firm and its customers creating long-term brand equity value. A strong brand may allow charging a premium price or achieving an extended volume, enlarging firm revenues, profits or cash flows; it may also provide a cushion or partial insurance against downside risk exposure. A brand may also be leveraged strategically, providing valuable expansion options or extending the menu of product offerings. As a result of increased market uncertainty concerning customer needs or product opportunities and a greater need for accountability in marketing programs and budgets, it is imperative for managers to pursue more active or *flexible* brand portfolio leveraging strategies (Aaker 2004a, 2004b; Fischer, 2007). A number of challenging questions thereby arise. For example, how can a parent brand be exploited as a *flexible* platform in pursuing brand expansion or extension opportunities? How should the firm *actively* manage embedded *marketing flexibility*?

In this article we revisit brand management and valuation, merging key ideas from brand marketing with modern finance tools based on real options analysis to value contingent marketing plans and strategic flexibility. We build upon two key marketing ideas. First, that effective brand management presupposes the successful design and implementation of a brand equity valuation system (Keller and Lehmann, 2003). Second, that brand, as an intangible market-based asset, can be leveraged similar to tangible assets providing managers with significant leveraging (brand expansion and extension) *options* (Srivastava, Shervani and Fahey, 1998).

This article follows a strand of literature that proposes new metrics converting marketing investments into financial value or innovative approaches to measuring market-based intangibles such as brand (Ailawadi, Lehmann, and Neslin, 2003; Gupta, Lehmann and Stuart, 2004). It also helps address recent calls for more theory-based work on brand equity (e.g., Raggio and Leone, 2007, 2009; Keller and Lehmann, 2006).[1]

Our article makes two main contributions to the literature. A key contribution lies in developing and demonstrating the real-life application of a novel, real options

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[1] "We believe that the primary obstacle to further development of managerially useful brand equity measures and tools remains the lack of a theoretical foundation for the concept of brand equity…" (Raggio and Leone, 2007).

approach to valuing brand equity, bridging the gap between product market constructs and financial performance outcome measures of brand equity. We take into account the staged process of developing, managing and leveraging a firm's corporate brand and the resulting brand expansion and extension options, thereby addressing the first research challenge posed by Keller and Lehmann (2006): "How do you assess and identify the option value of the extension potential of a brand?"[2]

We further illustrate the value of *dynamic* or *active* brand management contingent on the realization of alternative future scenarios, making an explicit link between management's strategic marketing plans and brand equity creation. We thereby enable managers to assess the value impact and risk exposure implications of alternative strategies for building and managing a brand as a growth options portfolio. In giving flesh to dynamic brand management, we also respond to the second research challenge raised by Keller and Lehmann (2006): "How should a brand be built and managed as a growth platform?" Finally, we address how management can assess the risks posed from leveraging brand assets via extensions (Aaker, 2004b). Hence, our analysis can be of real value and guidance for the strategic marketing decision making process within the firm.

Valuation Approaches

Standard valuation approaches (e.g., NPV, multiples) have difficulty valuing intangible assets, such as brand (Barth, Beaver, and Landsman, 1998; Mizik and Jacobson, 2009). The direct valuation approach based on discounted cash flow (DCF) or net present value (NPV) analysis presumes there is a single, objective value of the asset based on its fundamentals, namely the expected future cash flows to be generated from use of the asset and their riskiness – typically reflected in a constant discount rate (e.g., Damodaran, 2002). However, the riskiness of the cash flows and hence the discount rate

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[2] Real options applications in marketing are limited. Levett et al. (1999) view the "dynamic" relationship between the firm (seller) and customers (buyers) as a set of options: the firm has options to sell while the customers hold options to purchase. Such options are interdependent as the customers' purchase decisions are influenced by sales alternatives and switching costs. Dias and Ryals (2002) suggest that marketing plans are more defendable if real options theory is used to explain the value-creating potential of brand investments. Haenlein et al. (2006) modify the Customer Lifetime Value (CLV) approach to incorporate the option to abandon unprofitable customers. Salinas and Ambler (2009) conduct a literature survey of 24 brand valuation methods classified into four categories; within "other", real options is indicated as a potential tool for valuing brands and undertaking brand management decisions.

are not constant across the different stages in the life-cycle of the asset or in different (good or bad) future states, particularly if various options or contingent decisions (e.g., expansion or abandonment) are involved. This approach is particularly problematic to implement in the case of young or growth firms, firms in dynamic industries or firms with significant intangible assets such as patents or brands.

Relative or comparable firm valuation methods are often used as an alternative or complementary approach. These are based on the premise that comparable assets should be priced similarly and that the value of an asset can be obtained from the recent pricing of similar assets in the market having comparable characteristics. A set of similar firms is identified and their market value is linked through a multiplier to a common standardizing factor or value driver, such as earnings or sales (Damodaran, 2002; Berger and Ofek, 1995). The multiplier (e.g., price-to-earnings or enterprise value-to-sales ratio) transforms the accounting measure (value driver) into an estimated firm value. This boils down a complex function of future cash flows and discount rates into a simple linear relationship: estimated firm value is the level of the value driver for the specific firm times the corresponding multiplier (Liu, Nissim, and Thomas, 2007). This bypasses the DCF need of making future projections or estimating the future growth rate in the terminal or forecast horizon value. The implied assumption is that the market is efficient and it correctly prices these assets, at least on average, so one can rely on previous recent market estimates of similar assets to infer the price of other assets. Obviously, if the market temporarily misprices certain assets in certain periods (e.g., the internet IPOs during the new economy bubble in the early 2000s), then past mispricing will be carried through in the next valuation. Moreover, the problem is particularly exacerbated in case of valuing brand assets as the market may not be able to accurately value the comparable benchmark firms in the first place. If the market does not know exactly how to price certain assets or firms involving complex portfolios of growth options or intangibles generally, the usefulness of relative valuation will be limited. In such cases, the problem of identifying true comparable firms is more severe: one needs to identify all relevant characteristics that make firms comparable, besides being a typical or average firm in the same industry (Bojraj and Lee, 2002). For example, it is not enough to have the same

level or growth in sales if the underlying profitability of those sales is different or the extent of intangible assets or growth option potential varies.

The impact of intangible assets such as brand may be only partly reflected in short-term accounting measures or value drivers, such as current premium prices, revenue premium or enhanced earnings. Ailawadi, Lehmann, and Neslin (2003) estimate revenue premium as an outcome measure of brand equity. Most approaches view intangibles as affecting accounting fundamentals and therefore as already incorporated into multiples and reflected in the firm financial performance measures (Barth, Beaver, and Landsman, 1998). Some authors (e.g., Damodaran, 2002) argue that the impact of intangibles should therefore not be treated separately as that would amount to double counting. Other authors recognize, however, that accounting measures may not reflect fully the long-term profitability and other consequences of intangible assets (Mizik and Jacobson, 2009). Kohlbeck and Warfield (2007) find that intangibles lead not only to higher revenues and earnings in the current period but they also affect the dynamic properties of earnings (earnings persistence). Mizik and Jacobson (2009) show that brand assets are indeed not fully reflected in current accounting metrics such as profit margin and that they may influence firm valuation through indirect effects on the value-to-sales multipliers.

It appears brand assets may have both a direct, short-term effect reflected in the value driver (e.g., sales or revenue premium) and a long-term impact reflecting future potential affecting the multiplier itself (e.g., enterprise value-to-sales). The latter "multiplier premium" of a branded firm may partly reflect a "brand option premium" arising from managerial flexibility to exploit or leverage the brand via its portfolio of brand expansion or extension options. We show how the value of the branded firm is explicitly linked to management's marketing strategy to leverage its corporate brand in more creative ways, not only by flexibly expanding its scale of operations (resulting in a form of volume premium) but also by extending the menu of its product offerings depending on contingent future circumstances (a product extension premium). Much of this future potential value will only be realized in future years contingent on management's proper development and timely exercise of future brand expansion and extension options under the right market and competitive circumstances. If future circumstances turn unfavourable, such potential value may not fully materialize. Hence it

cannot be fully reflected in current revenue premiums or contemporaneous accounting measures, though an imperfect and noisy estimate of it should be reflected in appropriate market-based firm performance measures. We posit that the there is no single, objective value of a branded firm based on cash-flow fundamentals as DCF analysis or constant multiple approaches based on comparable industry averages presume. Value derives from management's strategic marketing plans as to how to leverage the corporate brand, finding new ways to market its existing products or conceiving of new products to sell to its existing or new clients. There is no readily-determinable constant multiple to use from the average of "comparable" firms in the industry, as the notion of what is comparable should properly reflect a comparable level of sales or profitability, growth options value and management vision and quality. The true relationship between branded firm value and a value driver such as sales is likely nonlinear as it embeds a complex portfolio of brand expansion and extension options influenced by market uncertainty, managerial strategic vision, flexibility and incentives, and competitive reactions whose collective value impact is dependent on future contingent developments and is potentially non-additive.

Ailawadi, Lehmann, and Neslin (2003) summarize five broad objectives deemed desirable by academics and practitioners in measuring brand equity: (1) to guide marketing strategy, (2) to assess the extendibility of the brand, (3) to evaluate the effectiveness of marketing decisions, (4) to track the brand's health, and (5) to assign a financial value to the brand. The ideal brand equity measure should thus be: (1) grounded in theory; (2) rich, complete or encompassing various brand equity facets; (3) diagnostic/predictive of changes in brand value and explanatory of underlying reasons; (4) capturing future potential and brand extendibility; (5) objective; (6) monitored on a regular basis; (7) single number for easier interpretation and tracking; (8) intuitive and credible to senior management; (9) robust, reliable but able to reflect real changes in brand health: and (10) validated against other brand equity measures. Fischer (2007) proposes that any measure of brand value must meet six requirements drawn from Financial Accounting Concepts No.2, FASB 1980: future oriented (relevant), objective, complete (reliable), comparable (consistent), simple (understandable) and cost-effective

(excess of benefits over costs). We consider all the above criteria relevant, except for "objectivity", which we view as misplaced for reasons explained herein.

Existing measures of brand equity can be grouped into two broad categories: *customer-based* measures and *market-based* firm performance outcomes (Figure 1). The latter can be further subdivided into product market based and financial performance outcomes (e.g., see Keller and Lehmann, 2001). The first group is focused on assessing *customer-based* sources of brand value, such as brand image, consumer awareness, attitudes, attachments, loyalties and knowledge (e.g., Aaker, 1991; Ambler and Barwise, 1998; Keller, 1993). These measures, typically based on consumer surveys, are often theory motivated, assess several sources of brand equity, and generally have diagnostic or explanatory ability. But they do not offer a simple, single measure of brand performance nor show the dollar-value impact on the bottom line.

[FIGURE 1 ABOUT HERE]

Product market outcome measures. Brand equity should ultimately enhance the product market performance of the firm, enabling it to attain a *premium* price (e.g., Aaker, 1991), volume or relative price (Chaudhuri and Holbrook, 2001), premium revenue (Ailawadi, Lehmann, and Neslin, 2003) or profit (Dubin, 1998) relative to a comparable unbranded firm (or private label). These measures are grounded in theory in that they assess the incremental benefit due to the brand name, are more complete in that they reflect the combined effect of various customer-based sources and can be translated into dollar value that appeals to management. But they have limited diagnostic or explanatory value. They often rely on customer opinions about what they would buy in hypothetical situations and may result in biased estimates. A brand might result in a higher volume and do not command a price premium or a higher market share might result for confounding reasons other than the brand presence. They are primarily focused on the current strength of a brand and its present impact on product market variables (current price, volume, revenue, profit) and do not capture the brand future potential and its extendibility.

Financial performance outcomes assess the incremental impact of the brand as a financial asset by assessing the extra value with vs. without the brand, e.g., by estimating the DCF value of resulting brand licensing fees and royalties (e.g., Interbrand method) or by relying on comparable firm multiples and transaction prices on brand sales and acquisitions (Mahajan, Rao, and Srivastana, 1994). Thus, they attempt to capture future brand potential. Future potential is typically assessed by means of subjective judgement (e.g., subjective multiples applied by Interbrand) and comparables benchmark prices are subject to our previous criticism on multiples. Stock market prices may not properly reflect the value of brand-based options, are not stable and may fluctuate in response to other factors unrelated to marketing strategy and brand–related activities. Thus, they have limited diagnostic and explanatory value as their link to marketing strategy and activities is not clear. Their reflection of brand future potential and embedded brand leveraging options such as brand extendibility is partial and incomplete.[3] [4]

We develop a novel, real options approach for valuing and managing the brand equity portfolio of expansion and extension options. Our "brand option premium" approach integrates elements of the two market-based firm performance outcome approaches above and meets all the above listed criteria, except for objectivity. It bears similarity with product market variables (e.g., enhanced volume) in that it quantifies the enhanced volume of operations resulting from the brand but in a contingent way through brand expansion options; it also quantifies the enhanced volume resulting from

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[3] A classic debate in marketing concerns the relation between customer-based and financial market-based brand equity. *Customer-based* brand equity (CBE), capturing "the differential effect of the brand on consumer response" (Keller, 1993), has been extensively studied (e.g., Chaney, Devinney, and Winer, 1991; Simon and Sullivan, 1993; Aaker and Jacobson, 1994; Lane and Jacobson, 1995; Barth et al., 1998; Rao, Agarwal, and Dahlhoff, 2004). *Financial* brand equity (FBE) has been assessed as the present value of incremental cash flows accruing to the firm from the products and services carrying the brand name compared with similar offerings without it (e.g., Farquhar, 1989; Simon and Sullivan, 1993; Park and Srinivasan, 1994; Ailawadi, Lehmann, and Neslin, 2003; Srinivasan, Park, and Chang, 2005).

[4] Following on Srivastava and Shocker's (1991) suggestion that measurement and management of brand equity should draw upon multidisciplinary research, Srivastava, Shervani, and Fahey (1998) connect marketing constructs to financial outcomes. In light of this "marketing-finance interface", other authors examine how brand may enhance shareholder value. Keller and Lehmann (2003) discuss the staged "brand value chain" as instrumental to understanding the underlying value creation process. Rao, Agarwal and Dahloff (2004) examine the effect of the chain's first stage (the marketing investment associated with the branding strategy) on the intangible value of the firm. Keller and Lehmann (2006) propose that brand equity can be managed and measured at three levels: product (brand building), customer (brand market testing), and financial (shareholder value enhancement). Marketing efforts would make more sense if the financial impact of brand value creation can be measured.

extensions into new products and customers, accounting for the future value potential of brand extendibility. It quantifies the current value of future brand expansion and extension options (i.e., Present Value of Growth Options or PVGO emanating from the brand) and assigns a single dollar-value of brand PVGO and its impact on firm value and share price. It therefore shares similarity in purpose and philosophy with other financial performance measures. However, rather than be based on traditional DCF or multiples/comparables transaction prices, it relies on real options methodology to more appropriately ascertain the future potential of brand leveraging options such as brand extendibility. It is grounded in theory in that it determines the equity value contribution of the brand as the value of the firm with the options enabled by the brand vs. without these options. It is a direct valuation method that expands the horizon of NPV to include the future potential of brand leveraging options, recognizing that the resulting single dollar-value estimate (*Expanded-NPV*) is rather subjective, but appropriately so. The size and riskiness of brand asset cash flows are not intrinsic or exogenously set but are owner/user dependent. The value of an intangible asset such as a brand is *not* an objective outcome, but rather it critically depends on the best way that asset can be used or leveraged in the future by innovative and flexible quality management under the right circumstances. It does so by linking brand value creation explicitly to management's vision, marketing strategy and contingent changes in the firm's environment, resulting in higher diagnostic and explanatory value. The resulting valuation, associated strategic marketing plans and contingent brand management guidelines under alternative future scenarios are more transparent, intuitive and credible to senior managers than previous approaches. Our brand option premium approach also allows for an examination of brand strategy risk exposure under alternative future contingent scenarios. We thereby extend Keller's (1993) notion of brand equity to incorporate both the marketing (strategic) and financial dimensions attributable to the brand.

We discuss next brand development and leveraging as a multistage option. The following section quantifies the value of Starbucks' brand and its price impact. We then provide a revised appraisal under downturn conditions. A menu of alternative marketing strategies is then devised and valued. We finally assess the risk exposure underlying these alternative strategies and conclude with managerial and theoretical implications.

Conceptual Background: Brand Development and Leveraging Options

A firm can build or acquire, and subsequently leverage, corporate brand equity (Park, Jaworski, and MacInnis, 1986; Farquhar, 1989). A firm's parent brand equity development typically follows a three-stage life-cycle involving brand building via *launch* and *reinforcement* stages and brand leveraging via potential *expansions* and *extensions* (Park, Jaworski, and MacInnis, 1986; Aaker and Keller, 1990; Boush and Loken, 1991; Reddy, Holak, and Bhat, 1994; Broniarczyk and Alba, 1994; Lane and Jacobson, 1995; Randall, Ulrich, and Reibstein, 1998).[5]

Embedded in the staged brand development process are managerial flexibilities to exercise the *option to launch* the new brand, *reinforce* it, and subsequently *leverage* it via *brand expansion* or *extension options* involving existing or new products and services. Parent brand equity can be leveraged by (a) expanding parent brand activities on *existing* products in new markets (*brand expansion option*), and/or (b) extending the parent brand to *new* product lines or new categories and markets (*brand extension option*). Management can exercise *brand expansion* and/or *extension options* contingent on favorable future market conditions. This involves assessing and exploiting brand equity as a growth options platform.

Extending Ansoff's (1957) product-market matrix, Figure 2 Panel A describes an *Expanded* (or Strategic) Brand Equity Value (BEV) matrix examining brand building and leveraging options across two dimensions: (a) existing versus new markets or customers (vertical), and (b) existing versus new products (horizontal axis). The lower-left region (quadrant i) represents the current brand strategy (existing products addressed to existing customers or markets), including parent brand building options concerning the launch and reinforcement phases of the brand equity life-cycle. The top-left quadrant (ii) represents brand equity leveraging options in the form of brand *expansion* of existing products into new markets involving (1) new geographic areas; (2) new market segments; and (3) new distribution channels. Line (4) and new category (5) brand *extension* options are shown in the lower- and upper-right quadrants (iii, iv) of the *Expanded* BEV matrix of Figure 2A.

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[5] The *launch* phase (phase I) is the internal stage during which a product or service is marketed to allow the consumer assess the brand and store it in memory. The *reinforcement* phase (phase II) allows expanding sales via related marketing campaigns aimed at facilitating quick memory retrieval of brand attitudes and favorably impacting consumer behavior.

[FIGURE 2 ABOUT HERE]

Brand is thereby viewed as incorporating a portfolio of strategic real options. Brand management involves valuable flexibility enabling management to respond to uncertainty and adapt to changes in future market conditions. Real options modeling enables capturing the value of *marketing flexibility*, not properly accounted for by traditional brand evaluation methodologies.[6] A real options approach allows recognizing the embedded growth opportunities and properly accounts for their value contribution to Brand Equity Value (BEV).

The basic structure of the brand development lifecycle, including brand leveraging expansion and extension options, can be seen as a multi-stage (compound) option (Figure 3, Panel A).[7] Investing in parent brand development generates a set of staged call options, each reflecting the right but not the obligation to proceed to the next phase.[8] The launch of a branded product with a premium perception (phase I) creates a follow-on *reinforcement* option (phase II), which in turn creates a subsequent option to *leverage* the brand equity (phase III). Brand equity accumulation in the development stages (*launch* and *reinforcement*) enables the brand to be leveraged via exercise of *brand expansion* and/or *extension options* (Farquhar, 1989). The three subcategories of brand expansion are represented as branches (1), (2), (3) at the top right of Figure 3 Panel A, while the line and new category extensions are shown as branches (4), (5) at the bottom.

Growth options embedded in brand equity building and leveraging strategies are of expansion-type and have a similar payoff structure. The generic payoff of such expansion-type options is of the form:

$$E = \max(-I + e\,V; 0) \tag{1}$$

where *I* represents the marketing investment cost to exercise the brand-related option, *V* is the present value of cash inflows from unbranded sales, and *e* is a multiplicative

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[6] Commonly used NPV or DCF-based approaches often lead to a biased result by neglecting the multi-stage optionality of the brand development process.

[7] Once the parent brand is created, it can be *actively* managed as a portfolio of leveraging options, involving coordination and exploitation of potential synergistic interactions among various "driving" or "endorsing" roles of the master brand (Aaker, 2004b).

[8] Marketing expenditures are not mere costs to be expensed, but "investments in what consumers know, feel, recall, believe, and think about the brand" (Keller, 2000). Such investments allow for the creation of brand equity based on consumer knowledge and its exploitation as a "strategic bridge."

expansion factor applied to the above underlying asset (*V*). The brand development options are indicated as E^L (*Launch* option) and E^R (*Reinforcement* option), having e_L and e_R as expansion factors, respectively, multiplying the present value of cash inflows from the existing parent brand (Parent Brand Value, PBV).[9] Essentially, management has the right to invest in additional marketing actions to "expand" the scale and value of the parent brand.[10] The typical payoff of a brand *launch* option (analogously for other *brand building options*) is $E^L = \max(-I_L + e_L \text{PBV}; 0)$.

A similar payoff structure applies to brand *leveraging* options. A *brand expansion option* is indicated as E^{EXP}, with PBV, e_{EXP} and I_{EXP} as underlying asset, expansion factor and marketing investment outlay, respectively. Expansion of the existing branded product portfolio provides the firm with growth options in new geographic regions, new market segments or via new distribution channels (e.g., set-up of foreign subsidiaries, agreement with new distributors). *Brand extensions* involve options to expand the parent brand with new products into existing or new markets. Two main types of *brand extension options* (E^{EXT}) can be exercised: a *line extension*, which incrementally extends the existing parent brand to a new product version within current categories (e.g., use of a different color or flavor); and a *category extension* to an entirely new product category, potentially addressing the needs of a new group of customers. Payoffs of brand extension options differ in terms of the underlying asset (*V*) corresponding to the present value of cash flows deriving from the newly branded product or service. Figure 3 Panel B summarizes the basic brand options architecture involving the various options (and their payoffs) embedded in the brand development and leveraging process.[11]

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[9] Investment costs needed to foster memory storage of consumers' positive evaluations of the newly introduced brand via affective reaction, cognitive response or behavioral intention (*Launch* option) are denoted I_L, while costs related to induced activation of previously stored brand attitudes (*Reinforcement* option) are I_R.

[10] Upon expiration of each option, management has the flexibility either to preserve the same level of brand equity (i.e., receive the cash flows expected from existing brand equity, BEV, at no extra cost) or to incur extra marketing costs to additionally obtain "*e*" times current PBV. Each option is exercised only if future market developments are favorable. Management has the flexibility to defer any brand leveraging investment until economic conditions are more favorable or back out altogether if they turn out unsatisfactory, creating more value than investing immediately in brand expansions or extensions.

[11] The brand equity life-cycle may also be terminated via exercise of *brand abandonment options* (e.g., sale for market price, liquidation for salvage value, securitization of trade-mark rights). A brand may be weakened or strongly damaged by targeting too many segments or channels causing dilution of brand

[FIGURE 3 ABOUT HERE]

Having conceptualized the various options embedded in the typical brand equity life-cycle, assessing the *expanded* value of a firm's parent brand requires considering the compound option nature of its development and leveraging process. This involves accounting for all brand-related options in the portfolio and assessing their value considering the relevant time of exercise contingent upon optimal exercise of all follow-on options within a backward induction process. The resulting *Expanded* Brand Equity Value (*E*-BEV) is:

$$E\text{--}\mathrm{BEV} = \underbrace{\mathrm{PBV}}_{\substack{\textbf{Parent Brand}\\\textbf{Value}}} + \underbrace{E^{EXP} + E^{EXT}}_{\substack{\textbf{Brand Leveraging}\\\textbf{Options}}} \tag{2}$$

Parent brand value (PBV) accounts for the present value of expected cash flows associated with management´s existing business plan commitments, typically determined using traditional methods (e.g., royalty relief or discounted cash flow). This includes the value of parent brand building options. The "stand-alone" determination of *Expanded* BEV must be seen in the broader context of total firm valuation as the *E*-BEV contributes to the *Expanded* Enterprise (or Equity) value of the firm (EV), as follows:

$$\mathit{Expanded}\ \mathrm{Equity\ Value} = \underbrace{\mathrm{Value\ of\ Net\ Assets\,in\ Place}}_{\textbf{Base\ DCF\ component}} + \overbrace{\underbrace{\mathrm{PBV} + \mathit{Brand\ Leveraging\ Options}}_{\textbf{Growth\ Options\ component}}}^{\textit{E}\textbf{-BEV}} \tag{3}$$

In line with the equity-based nature of brand value, the *Expanded* (Equity) Value of a firm can be estimated as the sum of two main components: a) the base DCF (or NPV) component, accounting for the present value of cash flows from net assets in place

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building efforts (over-expansion), by the cumulative effect of incremental line extensions (horizontal over-extension) or the lack of capability for fulfilling market expectations (vertical over-extension).

(including PBV); and b) a growth options component (PVGO), representing the value of the portfolio of brand leveraging expansion and extension options.[12]

The latter value of growth options from brand leveraging is higher in more volatile environments and for staged investments so it is assessed as a portfolio of growth options (rather than by subtracting a higher growth rate from the constant-growth terminal value perpetuity formula). Moreover, the value of the brand options portfolio depends on its fit and interaction within the broader firm asset portfolio and must be assessed incrementally. That is, it must be assessed as the difference in the value of the firm with versus without the brand-enabled options. A real options valuation (ROV) recognizes the embedded brand-enabled growth opportunities and properly accounts for their incremental value contribution to BEV. *Expanded* BEV is estimated herein using standard option pricing methods (e.g., see Cox, Ross and Rubinstein, 1979; Trigeorgis, 1996). We illustrate application of the real options approach to BEV in a real-life valuation of Starbucks at two different periods and market environments: first, under a growth strategy in an up market in June 2007, and later using various forward marketing strategies when economic conditions deteriorated in December 2008. Risk exposure assessment of these brand leveraging strategies over the ensuing period is also discussed.

Implementation: Valuing Brand Equity of Starbucks

Marketing Growth Strategy in Up Market (June 1, 2007)

Starbucks is the world's leading retailer of specialty coffee with one of the most recognizable brands.[13] About 83% of U.S. adults are aware of Starbucks and 85% of Starbucks customers would recommend the company to others. Starbucks brand represents an experiential, would-be "master brand". Much of the success of Starbucks' brand stems from a unique customer experience in its coffeehouse stores by offering a variety of quality coffee and complementary products with a high-quality customer

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[12] The Value of Net Assets in Place drives the Enterprise Value. If adjusted for Net Debt, it yields the Equity Value of the firm. The base DCF is estimated under a no-further-growth policy. The second value component represents all growth options associated with brand leveraging.

[13] Starbucks was ranked fourth among the world's most influential brands in 2005 by Brandchannel.com and fifth in Fortune's 2006 survey of America's most admired companies. According to BrandFinance250, Starbucks corporate brand was worth about $6.2B in 2006 based on the royalty relief method.

service in an appealing trendy environment. Starbucks' broader coffee-related "third place experience" (third gathering place outside of home and work) succeeded in creating an emotional connection with consumers not easily replicable by other retailers.[14] Starbucks's offering is a classic example of inexplicable consumer demand for a tangible product (coffee) enriched with *intangible* attributes (a strong brand image).

Starbucks successfully replicated its business model at new locations in the U.S. and around the world by building on its "third place coffee-related experience", enlarging its range of products and services in innovative ways, from refined and enlarged beverage and food menus (such as a warm food platform) to new product categories ranging from teddy bears, to appliances, CDs and WiFi services, to movies and books. An application of the generic *Expanded* BEV matrix to Starbucks, summarizing its brand leveraging opportunities via market and product development, is shown in Figure 2 Panel B.

In this section we evaluate the brand equity of Starbucks using real options analysis as of June 1, 2007, a time when the company was pursuing a growth strategy in a growing market. We follow a bottom-up approach, identifying and valuing the portfolio of growth options embedded in Starbucks' current and planned future businesses, focusing on its brand leveraging expansion and extension options. As the company's parent brand was already built and reflected in current assets in place, the incremental growth options exercisable by management in the long-term (beyond a 5-year planning horizon) are precisely the brand leveraging expansion and extension options. These brand leveraging growth options are in addition to (and contingent on) the base DCF value (i.e., the assets-in-place value under a no-further growth policy). A growth options "map" of Starbucks' brand expansion and extension options is shown in Figure 4.

[FIGURE 4 ABOUT HERE]

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[14] "The human connection: it's the foundation of everything we do at Starbucks. One customer, one barista, one community, one great cup of coffee at a time. That seemingly simple relationship, which today develops in more than 10,500 Starbucks stores around the world, inspires millions of people to embrace us as their neighborhood gathering place. That same connection is at the heart of our passion to innovate and grow in new markets, with new tastes, new sounds and new experiences." (Howard Schultz, Chairman, and Jim Donald, President and CEO, Starbucks 2005 Annual Report).

Leveraging its formidable brand generated significant expansion (or growth)-like options for Starbucks´ main business divisions, retail and specialty.[15] The first step, before determining the "intangible" value of the embedded growth options that future exploitation of Starbucks' brand equity may generate, is to confirm a standard DCF or NPV analysis (Web Appendix W1, Panel A). We then determine a "base DCF" version by performing a variant of DCF analysis if Starbucks were to follow a no-further-growth policy (namely, maintaining only its assets in place by pursuing a steady-state growth merely sustaining current operations).[16] This is to avoid double counting for growth prospects beyond the 5-year plan when we later add the value of growth opportunities assessed as real options on the company´s "base DCF" asset value. The standard DCF estimate of Starbucks equity value (assuming an average terminal growth rate g of 6% and a WACC of 8.8%) is $21.3Billion (B), close to the market capitalization as of June 1, 2007 of $21.6B. Base enterprise value (base EV or base DCF) under a no-further growth policy is estimated at $15B.[17]

The long-term total incremental investment outlays required for exploiting Starbucks´s brand expansion and extension options after the 5-year horizon are estimated at $15.1B (as of 2012 or year 5), or at about $12B in present value terms (as of June 1, 2007 or $t = 0$). These optional investment outlays are to be incurred in pursuing long-term growth opportunities beyond the committed (5-year) business plan horizon. The present value of brand-enabled growth options (PVGO) will effectively replace use of the cash-flow perpetual growth rate g in the terminal value calculation.[18]

The base DCF firm (asset) value or base Enterprise Value (base EV) is net of all projected capital expenditures (I) including those needed to pursue growth opportunities beyond the 5-year committed business plan (base EV = NPV = $V - I$). Total firm or

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[15] Retail operations refer to the management of all company-operated stores, while specialty operations include all activities performed outside of the own retail channel (e.g., licensed store operations).

[16] In determining base DCF, we set capital expenditures equal to depreciation charges and remove the growth rate (set g = 0) in the terminal (perpetuity) value after the 5-year forecast horizon.

[17] Standard DCF, applied to a 5-year business plan (2007-2012), is based on: risk-free rate r = 4.7%, β = 1.1, market risk premium = 5%, cost of equity = 10.2%, cost of debt = 5.5%, tax rate = 38%, target debt ratio D/(D+E) = 20%, *WACC* = 8.8%, terminal (perpetuity) growth rate g (US) = 5%, g (International) = 7% (average global perpetuity growth rate g = 6%).

[18] The value of investment outlays can be approximated as the difference (in perpetual terms) between the residual value of capital expenditures under the Gordon model of constant (terminal) growth and the "base" value under a no-further-growth policy (terminal value of depreciation expenditures).

enterprise value (EV) is seen as the passive NPV component of brand equity value plus the related growth options. The underlying base asset for the above growth options is the gross present value of future firm cash flows expected from the tangible assets in place including the parent brand (Base V = Gross Value of Assets in Place + PBV). This base gross asset (firm) value is estimated at \$27B (V = base EV + I = 15 + 12B).[19]

To apply eq. (2) estimating the *expanded* brand equity value (*E*-BEV) for Starbucks we must determine the combined value of its brand leveraging (expansion and extension) options using the real options methodology. To do so, we must identify the precise brand leveraging growth options (described in Figure 2 Panel B) applied in the case of Starbucks´ expansion and extension opportunities globally. Starbucks' "option map," illustrated in Figure 4, shows the timing and interconnections among Starbucks' various brand expansion and extension options. Each individual expansion (or extension) option has an expansion-type payoff of the form $-I_i + e_i V$, with all component inputs (I_i, V, e_i) for each option determined from a detailed examination of Starbucks' business operations in each business area. I_i represents the future optional investment outlay necessary to exercise that specific option and e_i represents the specific expansion factor (multiplying the underlying asset V). The capitalized value of all additional (incremental) capital outlays to fund long-term growth as of terminal year 2012 (year 5), estimated at \$15.1B, is allocated to the various (expansion or extension) growth options in Starbucks´ various business areas according to their relative weight in Starbucks' prospective revenue mix. This allows estimating the investment cost or exercise price (I_i) of individual expansion or extension options within each business area shown in the first term of the payoff expression below each option in the option map of Figure 4. Detailed notes on how parameters (I_i, e_i, V etc.) were estimated are in Web Appendix W2.

The expansion factors for each individual business (e_i), shown in the second term of the payoff expressions below each option, were derived based on an in-depth investigation of each business expansion prospect. The expansion factor for the U.S. retail market over a 5-year horizon (after 2012 or $t = 5$) was estimated at $e_{us} = 0.25$. Exercise of the U.S. expansion option would enable the company expand by 25% its

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[19] From a brand equity view base gross asset (firm) value is adjusted for current net debt including capitalized value of operating leases (\$3.1B), resulting in a base gross equity value (gross value of net tangible assets and parent brand) of \$23.9B.

existing U.S. retail store business (which itself constituted 55% of the underlying base company asset value, V_1). The investment outlay to exercise this U.S. retail store expansion option (as of year 5) was I_{us} = \$5.85B. The current (t = 0) value of the U.S. retail store expansion option (shown above the relevant option hexagon) is \$1.67B. The expansion factor for Starbucks' international growth via own stores was estimated to be 1.2, calculated by analogy with U.S. outlets as a store expansion return. Starbucks' specialty business of licensed stores and new distribution channels (being 15% of company revenues and expected to reach 18% in 5 years) provided additional strategic options expanding the brand to new markets and channels outside company-operated stores. Outside of retail stores, Starbucks leveraged its powerful brand equity through partnerships and alliances distributing its products across a variety of alternative distribution channels (such as grocery channel, vending machines, ready-to-drink beverages, foodservice channels) depicted in the four sub-branches of the third branch in the option map of Figure 4. Related expansion factors are 0.4, 2.3, 2.8 and 0.3.

In terms of brand *extension* (lower main branch in the option map of Figure 4), the company planned to extend its business across markets via line extension and new product category extension options (mainly in entertainment). Regarding line extension (top sub-branch), Starbucks aimed to create new food options that complemented the core beverage business. Following recent launch of a cold sandwiches lunch program, Starbucks considered further extension of its food line by launching hot breakfast, the "warming platform" program. Such initiative would create a compound option as the company may not only expand the warming platform into breakfast items in new geographic markets, but also have a follow-on option to offer warm lunch, especially in its own retail stores internationally.

Finally, Starbucks embarked on a totally new category extension in the entertainment business (last branch in the option map of Figure 4). The company viewed music, books and movies as complementary and enhancing the coffeehouse "third place" experience, aiming to leverage its loyal customer base and brand equity in the entertainment sector. The entertainment category consisted of two main subareas: music, and movies and books. The music subarea itself consisted of 3 subcategories (sub-branches): CD sales via own stores, its website, and iTunes in partnership with Apple.

As to the brand extension option regarding the sale of CDs in retail stores, the payoff structure depended on: a) the underlying asset representing the whole retail channel (including own retail and licensed stores) accounting for 83% of the whole business ($0.13 * V_1$); b) a multiplier giving the (same) CD sales revenue as % of total retail store sales as currently (0.003); and c) a prospective CD sales multiple of 2.5x (estimated as the ratio between projected CD sales in 2012 and 2007), assuming 2012 CD sales are 2.5 times those in 2007. The two extension options involving digital music online sales via Starbucks own website and via iTunes in cooperation with Apple depended on a second underlying asset, the value of the global digital music downloads business (V_2).

The expansion factors into the digital music business via Starbucks.com and the Starbucks Entertainment Store are linked to the company's expected market shares, 1.5% and 1%. The option to extend the parent brand to the production and distribution of movies and books through the retail channel ($0.83 \times V_1$) is twice the scale of the CD sales through the retail stores option. The expansion factors of the various growth options leveraging the Starbucks brand make relative economic sense.

We use a standard lattice-based option valuation model to value the above brand expansion and extension options for Starbucks as of June 1, 2007 (see Cox et al., 1979; Trigeorgis, 1996). Most options are American with a five-year maturity (2012), with the exception of the warm lunch and movies and books extension options that have maturity up to year 20. The forward-looking volatility of Starbucks main business (V_1), implied from near at-the-money (EX = $30) call option contracts on the company's shares with sufficient liquidity and relatively long maturities, is 30%. The business volatility of the digital music business (V_2) is 60%. The valuation results for each option and any follow on options along that branch of business (as of $t = 0$ or June 1, 2007) are shown on the top of the hexagon representing each relevant option in the option map of Figure 4.

The combined value of all of Starbucks' brand leveraging expansion and extension growth options (i.e., PVGO) is $9.85B ($9B for brand expansion options and the rest for brand extension). With 782,800,000 shares outstanding, this is $12 a share (43% of the then price of $29 or 30% of the long-term estimated value of $42 a share). This is roughly equal to the $13 share differential between analysts´ target price of $42 and the then current price of $29. Overall, the *Expanded* Equity Value of Starbucks as of

June 1, 2007, made up of the company's DCF-based (gross) equity value of expected cash flows from its net tangible assets and the parent brand ($23.9B) plus the incremental growth option value of its brand expansion and extension options portfolio (PVGO of $9.85B), is $33.75B or $43 a share (close to the analysts' median target of $42). The total brand value (*Expanded* BEV) of Starbucks, reflecting the value of the parent brand (estimated based on the royalty DCF method by BrandFinance plc at $6.2B) plus the incremental value of the brand leveraging options portfolio of $9.85B, is $16B or $20.4 a share (half of Starbuck´s target value of $42 or 70% of the $29 price on June 1, 2007).

Revised Valuation: Alternative Scaled-down Marketing Strategies in a Downturn (December 31, 2008)

"The trouble at Starbucks sits on the shoulders of Howard Schultz" (*The Wall Street Journal*, August 28, 2008). Starbucks completed the year with encouraging trends and momentum in its international business but experienced a consistent weakening in its U.S. business. Since the previous valuation the company shares dropped by two-thirds in a year and a half, from $29.13 on June 1, 2007 to $10.20 on November 10, 2008. This sharp decline in value was partly due to the global economic slowdown and two price raises in 2007 to mitigate dairy cost increases. Growing pressure on traffic impacted customer visits to Starbucks stores. The firm also experienced market share erosion as McDonald's and Dunkin' Donuts counter-offered with more affordable premium coffee and breakfast items. Starbucks was facing a more challenging economic, competitive and operating environment. Founder Howard Schultz fired the CEO Jim Donald, who had become arrogant with success, and took over.

Although major investment bank analysts covering Starbucks considered its near term rather challenging, they believed Schultz could offer a great value proposition benefiting from ease of commodity prices and countering downside risks of further traffic reduction and competition. Analysts' views were sometimes contradictory. Morgan Stanley, claiming that neither reducing growth nor closing stores were "panacea" strategies, expressed (on November 10, 2008 when Starbucks price was $10.20) a one-year target view of $13 based on store closure estimates and product innovation. Morgan Stanley pointed out that customers' price sensitivity really mattered and that the key

business opportunity for Starbucks lied in capturing low-frequency coffee consumers through down-scale market initiatives. Other analysts, like Deutsche Bank, pointed out that overexpansion by Starbucks was destroying value.

In light of the recent drastic changes in the business and the consequent scaled-down growth strategy, we performed a revised valuation of Starbucks under the more severe economic conditions, as of December 31, 2008. A revised standard DCF valuation of Starbucks´s equity gave $6.7B, yielding a share price of $9.00, close to the market price of $9.46. Base equity value under a no growth policy was actually higher, $6.9B, yielding a share price of $9.32.[20] That is, should Starbucks maintain its current (even though scaled-down) growth strategy, it would be destroying share value (of about $0.32 per share) under the worsened business conditions. Announced cost-cutting measures involving moderate store closings, improved operational performance and further beverage and food innovation seemed inadequate for company recovery under the new economic landscape. Analysts argued that better high-priced food or espresso would not bring enough consumers back. Analysts offered various improvement suggestions:[21]

- reduce focus on coffee as consumers reach their coffee-consumption limit;
- expand selectively to contain competitive brand erosion and management distraction, re-establishing the "third-place" experience;
- leverage the customer base becoming a total stomach destination (offering also a quality meal).

If perceived overexpansion was constrained, roll-out of selective corporate growth plans should not destroy as much value.

Given the worsened business outlook for Starbucks, we re-estimate the value of current tangible assets and the parent brand or base gross equity value (Base $V(t_2)$ = EV + I − Debt = 9.5 + 5.3 − 2.6 = 13.7B).[22] We also account for a competitive erosion yield, δ,

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[20] Revised DCF, applied to a new rolling 5-year business plan (2009-2013), is now based on: risk-free rate r = 4.2%, β = 1.05, market risk premium = 5%, cost of equity = 9.45%, cost of debt = 6.25%, tax rate = 34%, target debt ratio D/(D+E) = 29%, WACC = 7.9%, terminal (perpetuity) growth rate g (US) =1.5%, g (Intl) = 2.5% (average global perpetuity growth = 2%).
[21] For example, see Danny Meyer, "How to Fix Starbucks," *New York Magazine*, March 30, 2008.
[22] The main inputs of the revised (along with the initial) DCF valuation, along with those used by the main investment bank analysts covering Starbucks, Morgan Stanley and Deutsche Bank, are given for comparison in Panel A of the Appendix. Panel B summarizes the main inputs used for our option valuations.

of 5%. The revised volatility of Starbucks' main business ($V_1(t_2)$), implied from current near at-the-money option contracts on its shares, had now risen to 80%. The volatility of the digital music business ($V_2(t_2)$) also rose to 120%.

Brand equity value is contingent on *managerial flexibility* to appropriately adapt internal organization and marketing initiatives to the changing business conditions. In revising the brand leveraging options platform (including expansion factors and investment outlays) according to the new business conditions, the Expanded BEV (*E-BEV*) differs depending on the alternative brand leveraging strategy management might choose to implement. We therefore consider a menu of various option-based brand leveraging strategies underlying alternative *static* or *dynamic* managerial styles. Each of these strategies focuses on one type of brand expansion/extension option. Figure 5 summarizes the alternative option-based brand strategies, the particular brand expansion/extension type involved, the associated brand portfolio strategy style, the company (total and per share) value deriving from that strategy implementation and the associated option value creation (or destruction). Seven alternative strategies are considered next (denoted **S1** to **S7**).

[FIGURE 5 ABOUT HERE]

S1: If Starbucks aggressively pursues (is committed to) the entire portfolio of brand expansion and extension options (including entertainment) as previously planned, simply scaled down under the worsened economic conditions, company value would drop to $6.27B, a value destruction of $4.55B. Equity value declines due to myopically pursuing all preset (though scaled down) growth plans as if committed. No newly branded offering is involved. If this myopic "grow-as-usual" strategy is pursued, share price declines to $8.45 (below the current level of $9.46).

S2: If management instead implements only its brand expansion plans in the main business but drops all brand extension plans in entertainment, as many analysts recommended, company value is preserved ($7B), confirming the current price of $9.46. A committed execution of scaled-down expansion plans in the company´s core business only, as analysts expected under the current environment, reaffirms the current market

valuation. If Starbucks were to follow the analysts' advice dropping brand extensions simply implementing its scaled-down brand expansion plans, the value of the committed expansion-only strategy confirms what these analysts were getting using standard DCF. The resulting value loss is $3.80B. Both of the above strategies represent a static, committed view of brand portfolio leveraging. These strategies and the associated brand leveraging options map are illustrated in Panel A of Figure 6.

[FIGURE 6 ABOUT HERE]

S3: The value impact is positive if brand leveraging flexibility is accounted for. The *Expanded* Equity Value deriving from a flexible strategy (S3) involving brand expansion options (as per the original option map of Figure 4) under revised input assumptions while dropping all brand extension plans is $11.68B, involving a value gain of $0.86B. By leveraging its brand as a growth platform, the share price rises to $15.74. Existing branded products are expanded with no new offerings. If this strategy is committed now, it reduces to S2 (the committed NPV of S3).

S4: This strategy, besides maintaining all brand expansion options, involves a single extension option into warm lunch, following on the rollout of warm breakfast. With this additional brand extension option, *Expanded* Equity Value rises to $11.77B, yielding a share price of $15.86. The related value gain is $0.95B. The associated brand portfolio strategy is a branded house.[23]

S5*: This is the base-case all-growth strategy from the previous plan. It maintains all planned expansion and extension options but at a reduced scale, as shown in Panel B of Figure 6. Revised equity value is $11.92B. The combined value of all brand leveraging options is $1.10B. The additional category extension options in entertainment (beyond S4), however, do not generate any significant increase in share price under the

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[23] In line with Aaker (2004b), the newly offered warm lunch items could be marketed under the existing Starbucks parent brand with a descriptor to enhance clarity (so the customer knows exactly what is being offered), providing synergy (multiple market exposures and innovation enhancing awareness for all housed product brands) and leverage (the parent brand gets reinforced into more business contexts).

deteriorated conditions ($16.06 vs. $15.86 under S4). Both the options and the classical portfolio view still apply.[24]

S6: This strategy eliminates all brand extension plans but enhances those involving food items. In a counter-response to McDonald's and Dunkin' Donuts launch of new premium coffee with breakfast items, Starbucks may stage a horizontal extension of its breakfast line with successive launch of warm lunch and follow-on upscale meals (a compound option). Warm breakfast launch opens up possibilities for vertical extension into premium branded meals. Rethinking quality food offerings for up and current markets significantly improves *Expanded* Equity Value ($12.93B). Value creation almost doubles ($2.11B), with share price reaching $17.43.[25]

S7: A different "vertical" strategy entailed moving coffee further up, launching a separate new luxury brand for coffee-related products (e.g., STARbeans) in addition to above horizontal and vertical extensions (Panel C of Figure 6).[26] This move might overcome the saturation concern. This flexible upscale strategy appears most value enhancing (+$2.79B), resulting in *Expanded* Equity Value of $13.61B.[27]

Sensitivity analysis confirms the option-like behavior of the above brand leveraging strategies.[28] Figure 7 Panel A shows how the *Expanded* Equity Value of Starbuck's revised base strategy S5* increases nonlinearly with business volatility (σ_1). Panel B confirms our assertion in the case of Starbucks that the enterprise value-to-sales multiplier is not constant, as the *Expanded* Enterprise Value is a nonlinear (convex) function of sales, cautioning against the conventional use of such multiples for branded or

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[24] This brand strategy involves a dynamic portfolio of leveraging options exercisable by management if circumstances are favorable but left expiring worthless otherwise (options view). It also involves a branded house with a sub-brand (portfolio view).

[25] This strategy corresponds to a branded house with Starbucks playing the supporting role of an endorser brand. This would allow devoting a specific space in selected stores serving upscale meals and associating key organizational features (such as credibility) embedded in the parent brand with new upscale food offerings.

[26] This could be achieved via the acquisition of smaller, elite players in the U.S. and across the globe (e.g., Blue Bottle in San Francisco, Intelligentsia in Chicago, Monmouth Coffee in London). These elite smaller rivals posed a threat to the company's historic business advantage.

[27] A house of brands strategy could accommodate the new premium-coffee brand to mitigate any incompatible association with Starbucks' parent brand, minimize potential channel conflict (luxury coffee shop vs. store) and enable targeting different groups of customers (high-class vs. mass urban consumers).

[28] All option-based branding strategies above are an increasing function of the underlying gross equity value (value of tangible assets and parent brand). Strategies with low optionality (S1, S2) are more sensitive to a decrease in the underlying parent brand value compared to more dynamic strategies (S3, S4, S5, S6, S7).

high-growth firm value estimation. The multiplier (slope of the curve) varies with the level of sales (increasing from 1.3 to 4 to 6) and differs (is higher) for high (strong) vs. low (weak) branded firms. Figure 8 provides enterprise value/sales multiples for comparable unbranded (private labels) and branded (listed) firms in the specialty coffee industry over the period. The figure confirms that branded firms command a higher EV/sales multiple and that the multiple is not stable over time. Our option-based results on EV/sales for Starbucks are close(r) to comparable branded firm market estimates (McDonald's). Figure 9 illustrates an industry characteristic curve showing a nonlinear (monotonically increasing) relationship between brand option value score (% of enterprise value) and different levels of market uncertainty for high-branded (or high growth) firms in the broader food and beverage sector.[29] It suggests that higher volatility is associated with higher brand option value for a given industry (with different curves characteristic of high or low growth industries). The above results imply that investing incremental resources in brand equity-related options under increased market uncertainty may actually enhance firm value, contrary to traditional logic.

[FIGURES 7, 8 AND 9 ABOUT HERE]

Risk Exposure Analysis of Leveraged Brand Options Portfolio

In choosing the type of brand leveraging strategy to pursue, management must also consider the resulting business risk exposure. A brand portfolio management tool should provide guidance both on how to value growth (expansion and extension) opportunities as well as on assessing the embedded risks. An options portfolio perspective allows classifying and assessing the impact of the risks of expanding, extending or abandoning a brand.

Given our proposed options approach to brand portfolio leveraging, it is natural to parallel the use of delta (δ) as a measure of option sensitivity in brand portfolio risk assessment. When dealing with a financial call option on a stock, one asks how the value of the option would change (ΔC) for a unit change in the value of the underlying asset

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[29] Similar firm value-uncertainty results are found by Oriani and Sobrero (2008) for R&D-based technology strategies among U.K. manufacturing firms.

(ΔV). δ gives such a measure.[30] By analogy, one can estimate the brand equity risk exposure or brand equity delta (δ_{BE}), measuring the sensitivity of the value of the brand leveraging options portfolio (ΔE) to changes in the underlying company base value (ΔV) over a specified period:

$$\delta_{BE} = \frac{E(t_1) - E(t_2)}{V(t_1) - V(t_2)} \qquad (4)$$

where $E(t_1) \equiv$ *Expanded* Brand Equity Value at t_1 or $E - BEV(t_1)$ and $E(t_2) \equiv E - BEV(t_2)$, representing the values of the brand equity options portfolio at the initial valuation time t_1 (here, as of June 1, 2007) and the revised time t_2 (December 31, 2008), and $V(t_1)$ and $V(t_2)$ are the underlying company base values at these times.

The above expression may take different forms depending on the type of embedded riskiness. If, for example, management wants to assess the impact of brand damage resulting from lack of capability to deliver a high-end experience when exercising a brand vertical extension option, it can verify how - given the change in company base value - the value of the brand portfolio would change at t_2 as a result of implementing such strategy compared to the original (time t_1) brand expansion option.

To appreciate the degree of brand equity risk in the form of brand expansion or extension hazard associated with each strategy (S1-S7), we provide a benchmark via a classified range of values for δ_{BE}. By examining which δ_{BE} and associated risk group characterizes each branding strategy, management can make more informed choices concerning the trade-off of embedded flexibility value versus risk exposure. Figure 10 categorizes brand equity risk as high, medium or low depending on δ_{BE} being above 0.75, between 0.5 and 0.75, or below 0.5, respectively. A high δ_{BE} implies a high sensitivity of brand portfolio option value to a given change in base company value (net tangible assets plus PBV), entailing high vulnerability to sudden or large variations in the base-case business scenario. A medium or low δ_{BE} comparatively involves smaller sensitivity to sudden changes in business conditions.

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[30] In financial options δ is the hedge ratio used for constructing an equivalent hedge portfolio. To obtain a variant of this measure in percentage changes, one can multiply δ by the current asset price (V) divided by the current call option value (C). This gives the option's elasticity (ε).

A brand risk exposure analysis of the above strategies (S1-S7) was performed to assess their sensitivity to changes in parent brand building activities over the period. The degree of brand risk exposure is summarized in Figure 10 and in the last column of Figure 5. None of the brand strategies in December 2008 is in the low risk category. Any of these strategies would expose the company to a high or medium brand equity risk given the deteriorated business conditions. The two static commitment strategies (S1, S2) are the most vulnerable, appearing value destructive and highly risky. The more flexible strategies (S3-S7) involve lower (medium) risk exposure, being less sensitive to deteriorating business conditions.

Figure 10 provides a brand equity risk map for Starbucks' alternative brand strategies (S1-S7). It plots brand equity risk exposure (δ_{BE}) against the change in underlying company base value (ΔV) between June 2007 and December 2008. The slope of each line measures the degree of brand option sensitivity to a given company value change (ΔV). Above the 45° line lie the highly risky "static" commitment strategies S1-S2 (high risk region), while below it lie the flexible brand strategies S3-S7 involving a lower degree of brand equity risk exposure (medium/low risk region).

Conclusion

The brand equity literature has benefited from the combined contributions of three main streams (Figure 1). Product market measures reflect the combined effect of consumer-based sources of brand equity (better revealed by customer-based measures), but are focused on the current strength and do not capture the brand's extendibility and future potential. Standard financial measures attempt to capture long-term potential but are incomplete and have limited diagnostic value as their link to marketing strategy is not made clear. All these measures in combination play a useful role to synthesize a comprehensive picture of both current and future brand health. However, each one alone is incomplete. Our "brand option premium" approach for quantifying brand leveraging options integrates important characteristics of both product market and financial performance outcome measures, helping bridge the gap between these literature streams.

It properly quantifies the brand's extendibility and future potential while elucidating the link between management's strategic marketing plans and brand value creation. It can be used to better monitor the impact of alternative strategic marketing decisions on long-term brand equity value. It brings out the subjective nature of brand equity value as it is intrinsically linked to the quality of management and its strategic vision of how to best use or leverage the brand. In tracking changes in brand health over time, our approach should be supplemented with customer mindset measures in diagnosing the underlying consumer basis of revealed problems when guiding marketing decisions. It is essential to be aware of the consumer-based sources of brand option premium changes as well as the future opportunities and risks faced by the brand.

We revisited challenging research issues at the interface between marketing, strategy and finance. We employed real options analysis to shed new light on several key marketing research challenges, such as accessing the option value of the extension potential of a brand or better understanding how a brand should be developed, managed and leveraged as a growth platform (Keller and Lehmann, 2006). It remains to address what are the key issues to be considered by managers when trying to use our analysis as an example upon which to assess their own brand growth portfolio. Also, what are the implications or lessons for other researchers that may want to use our approach for other case applications or for follow-on empirical work? What do we expect to be the most challenging issues managers and researchers will likely face in applying real options to brand valuation the way we did?

A key prerequisite in applying our approach is deep understanding of the business/industry context, uncertainties and optionalities and translation of strategic marketing plans (expressed as set of brand expansion and extension options) into a growth options platform (portfolio) – similar to the "growth option maps" underlying alternative marketing strategies for Starbucks (S1-S7). Another issue managers and researchers will face involves the measurement of key input parameters particularly volatility (σ), growth rates (trends), competitive erosion yield (δ) and expansion factors (e_i). Common sense and consistency criteria must be used, e.g., when all options are committed or volatility is eliminated standard DCF-based valuation should result.

A particularly challenging issue for both managers and researchers is dealing with option interactions and non-additivity (Trigeorgis, 1993) of expansion/extension options as they are all embedded in one asset (firm brand equity). The value of a brand expansion or extension option may depend on what other brand equity options are also present so it must be assessed as the difference between the value of the entire brand equity portfolio with minus without the specific option at hand. Hence there is no "objective" value to a specific brand option as its incremental contribution to the brand equity portfolio and firm value may depend on which other options, resources and capabilities make up the specific firm portfolio, i.e., its complementarity, substitutability or redundancy with other portfolio components. Similarly, brand options may be interdependent in that a successful extension may help build or strengthen a brand, which in turn facilitates further extensions. Berk and Kase (2009) value human resource training flexibility in a rapidly growing market based on emerging technology as the difference with vs. without the HR training option. The empirical analogue here is to consider two comparable firms in the same industry using the same technology but having different brands (or one being a private label used as benchmark), with the difference in market values attributable to the difference in their brand equity. Nonetheless, unlike other approaches like the revenue premium (Ailawadi, Lehmann, and Neslin, 2003), our valuation of Starbucks was able to capture the extendibility and future potential of the brand without requiring identification of another otherwise identical benchmark firm (without the brand) – it rather benchmarked on itself (using a base DCF estimate without the growth option potential).

Further Implications for Managers

Our brand option premium approach has several advantages for managers over other market-based firm performance outcome methods and addresses the need raised by Ailawadi, Lehmann, and Neslin (2003): "Current methods for valuing future potential depend on subjective multipliers or on the swings of the supposedly "efficient" stock market… Further research should quantify the long-term financial value of a brand." This problem might be more severe if the future (growth) potential of brands is not properly priced by investors due to difficulty in valuing brand equity based on conventional tools (e.g., DCF, revenue premium, comparable firm or transaction multiples) or due to market

sentiment. Product market measures such as premium price or revenue premium only account for the impact of brand strength on immediate revenue or cash flow. Financial performance outcome measures presumably assess not only the short-term impact of brand assets on firm value via an accounting value driver but also seek to estimate the brand long-term future potential. Nevertheless, as our Figure 7B confirms, the linear relationship they typically assert between branded firm value and the underlying accounting measure (e.g., sales) via a constant multiplier is simplistic. It does not properly capture the nonlinear characteristics of the complex portfolio of brand expansion and extension options arising from active brand management. As the value of brand leveraging options is higher in more volatile environments and for more staged marketing investments, brand value should be assessed as a portfolio of brand-related growth options. We hence caution against naïve conventional use of constant multiples (e.g., EV/sales), agreeing with Keller and Lehmann (2003) that the investment multiplier depends on the brand's growth potential (brand expansion option) and its risk profile and that it is higher for high-brand firms in growing industries. Our approach should thus enable managers better assess the utility of competing methods in building and managing a brand as a growth platform.

Our real options framework views the life-cycle of brand development and leveraging as a multi-stage options portfolio. Viewing the brand as a platform for developing and exploiting growth options necessitates a "dynamic" view of brand equity management. The brand expansion and extension growth option potential may be substantial, as the actual paradigmatic valuation of Starbucks indicates. In line with product market measures, our "brand option premium" approach quantifies the current value of future brand expansion and extension options, capturing the enhanced volume effects associated with brand expandability and extendibility. Similarly to financial market performance measures, it assigns a single dollar-value capturing the future potential of the portfolio of all brand leveraging options. Managers hereby have access to a theoretically-grounded methodology to enable them directly estimate the incremental equity contribution of the brand (with vs. without brand leveraging options) and track changes in brand health over time under conditions of uncertainty.

We addressed how managers can find advantage in leveraging the brand via expansion and extension options, particularly so in growth industries characterized by high market uncertainty. Our approach may thus help managers to think differently how to capitalize on market uncertainty. The managerial usefulness of our approach is further enhanced by related brand risk exposure analysis. The selection of alternative brand leveraging strategies may expose the firm to high, medium or low brand equity risk under different contingent business scenarios. Monitoring brand option sensitivity provides a complementary tool to help managers assess and compare brand-related risks and opportunities under alternative conditions or strategic marketing scenarios. We view brand management as a dynamic, multi-stage process where brand equity is actively managed and reassessed over time as an ongoing indicator of long-term brand health. A dynamic view of managing and leveraging the corporate brand exposes managers to considerable growth opportunities as well as brand leveraging risks. Our approach should enable managers value and dynamically adapt brand strategies to market developments.

Our methodology offers a powerful way to evaluate the embedded brand expansion and extension growth options. It allows managers to translate various option-based branding strategies underlying alternative *static* or *dynamic* managerial styles into a practical growth option map. When managers visualize how they can actively manage the corporate brand fully recognizing its option-like characteristics and how these marketing strategies get converted into value, they will be in a better position to appraise what the brand equity is worth. Valuing brand leveraging options properly enables taking appropriate marketing actions leading to better brand management. Thus, besides its specific valuation advantage, a real options-based analysis of brand equity provides better guidance on how to manage and leverage the corporate brand strategically. The real-life Starbucks application provides an illustration of how managers can design and quantify alternative brand-leveraging strategic visions as well as assess their risk implications.

Our "brand option premium" approach responds to the recent calls for more theory-based work on brand equity valuation (e.g., Raggio and Leone 2007, 2009; Ailawadi, Lehmannn and Neslin, 2003) and fulfills the MSI/FASB requirements for a proper measure of financial brand equity (Ailawadi, Lehmannn and Neslin, 2003; Fischer, 2007). Besides being grounded in theory (yielding incremental option value,

with vs. without brand leveraging options, employing real options theory), it is more complete (accounts for product market measures such as premium price and volume while providing a bridge to financial performance outcomes); it is diagnostic and predictive (tracking changes in brand value and monitoring changes in brand health via risk exposure analysis); it properly captures future potential via an options assessment of brand expansion and extendibility opportunities (future-oriented and relevant); it is robust, reliable/verifiable and consistent, returning the same results for a given strategic marketing vision, and is applicable across companies/industries and tractable over time (comparable); it is based on readily available data (with exception of volatility estimates) determining the net value of benefits over costs; it is simple, understandable, and based on a single number (*E*-BEV or *Expanded* Equity Value); it is intuitive and credible to senior management; finally, it helps overcome accounting conservatism.

Our options premium approach is thus well suited for the proper assessment and management of the staged process of developing, leveraging and exploiting brand equity options over the life-cycle. This type of analysis can be of real value for the marketing decision making process in the firm. It can also help bring marketing, strategy and finance a bit closer together.

Theoretical Implications, Limitations and Future Research

There are three main limitations of the brand option premium approach. First, this analysis mainly applies to highly-branded firms where most growth option value can be attributed to leveraging the brand (via expansion or extension options) rather than to other intangibles sources. A second concern is the proper estimation of business volatility, a key driver of brand-based growth option value, and more generally understanding the broader, potentially ambiguous role and impact of uncertainty (of different types, e.g. market vs. technological). A third limitation relates to the portfolio option interactions, path dependencies and subjective valuation. Due to the non-additivity of brand-related expansion and extension options arising from potential interactions within the firm's specific brand options portfolio, estimation of growth options and brand value must be done with care. A firm's brand equity value may also depend on what other types of options, resources and organizational capabilities are already present,

which reinforces the role of past prudent, knowledgeable brand development and historic path dependency/stock accumulation (Dietrix and Cool, 1989).

The next question that naturally arises is "where to now," given the successful application of the real options approach with the Starbucks data? Despite the above limitations, it is our hope that this work will help pave the way for further brand valuation research. There are several directions going forward. On a small scale, researchers may validate the proposed approach with similar in-depth analysis involving a number of individual case applications of select branded companies from the past where we know what they actually did (what marketing plans they followed) and what the stock market valuation was. This might give further predictive validation to our approach (or potentially uncover market inefficiency in pricing brand options). With larger datasets, researchers may empirically estimate the implied value of the (expansion and extension) growth options portfolio (e.g., see Trigeorgis and Lambertides, 2012) embedded in the market value of leading brands across various industries. Caution must be used in sample selection and in estimating the implied growth option value, as the difference between current market value and DCF-based perpetual cash-flow value (under no growth policy) might not always be attributable to brand equity but also to other intangible assets or alternative sources of flexibility. Such empirical work would be useful to ascertain which industries or business contexts are generally endowed with high brand option values and which types of brand-related options prevail in different business contexts or industries.

Another direction is to use explanatory variables motivated from our real option analysis in large-scale empirical studies involving cross-sectional or panel data to investigate the relationship between uncertainty, brand value and firm performance. The impact and role of different types of uncertainty merit particular attention, e.g., is the impact of technological uncertainty on the value of a branded firm like Apple, HP, Intel, Nokia, Samsung or Research in Motion (Blackberry) similar or different than the impact of market or demand-driven uncertainty on branded firms like Starbucks or McDonald's? If different (e.g., see Oriani and Sobrero, 2008), how does the interaction between market and technological uncertainty affect brand value? How is firm value affected by the interdependence between brand options (of long term maturity) and technological options (of shorter or uncertain maturities)? Might a strong brand facilitate more effective

exercise of technological options or is it that missing out on a drastic new technology might severely handicap a brand or even threaten company survival? Should the firm proactively invest in new product-market spaces in both the brand development and the technology spheres to strengthen its future strategic position vis-a-vis this brand-technology interdependence? (Ansoff, 1957). Does the above differ in high vs. low-growth environments or by industry structure (e.g., in duopolistic vs. oligopolistic industries with more rivals and capacity constraints)? When should branded high-tech firms like Apple, Nokia or Samsung compete vs. cooperate e.g., via cross-licensing technologies? This is after all the essence of strategy.

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Figure 1. Dominant Literature Streams/ Brand Equity Measures

Brand Equity Measures

Customer-based measures

(attitudes, awareness, image,
loyalty, knowledge)

Market-based
firm performance outcomes

Product Market

(premium price, volume, revenue or profit)

(*present focus*)

Financial

(DCF of brand licensing,
multiples/transaction prices)

(*present + future potential?*)

Brand Option Premium

(brand expansion + extension options)

(*present + future options*)

Figure 2. Expanded Brand Equity Value (BEV) Matrix

Panel A. Generic

BRAND EXPANSION   **BRAND EXTENSION**

	ii		**iv**
New	(1) **New Geographic Area** (2) **New Market Segment** (3) **New Distribution Channel**	**BRAND EQUITY LEVERAGING**	(5) **New Products in New Markets** **BRAND EQUITY LEVERAGING**
MARKETS (CUSTOMERS)	**i**		**iii**
Existing	**PARENT-BRAND BUILDING** (launch & reinforcement)		(4) **New Products to Existing Customers (*cross-sell*)**

Existing   *Line Extension*   *New Categories*
                                                            New

PRODUCTS

Panel B. Applied to Starbucks

BRAND EXPANSION   **BRAND EXTENSION**

	ii		**iv**
New	(1) **Geographic Retail Expansion (Own Stores)** a) US; b) International (2) **New Mkt Seg./Licensed Stores** a) US (airports, B&N) ; b) Intl. (JVs) (3) **New Distribution Channels** a) Grocery Channel (Kraft) b) Vending Machines (Pepsi) c) Ready-To-Drink (Disc, Soda) d) Foodservice (Rest., Hotels)		(5) **Entertainment Business:** (a) Music i. CDs Sales via Stores ii. Online Downloads Via Starbucks.com iii. Via iTunes (Apple) (b) Movies & Books i. via Stores
MARKETS (CUSTOMERS)	**i**		**iii**
Existing	**PARENT-BRAND BUILDING** (coffee-related & compl. products/3° place experience)		(4) **Warm Breakfast & Lunch**

Existing   *Line Extension*   *New Categories*
                                                            New
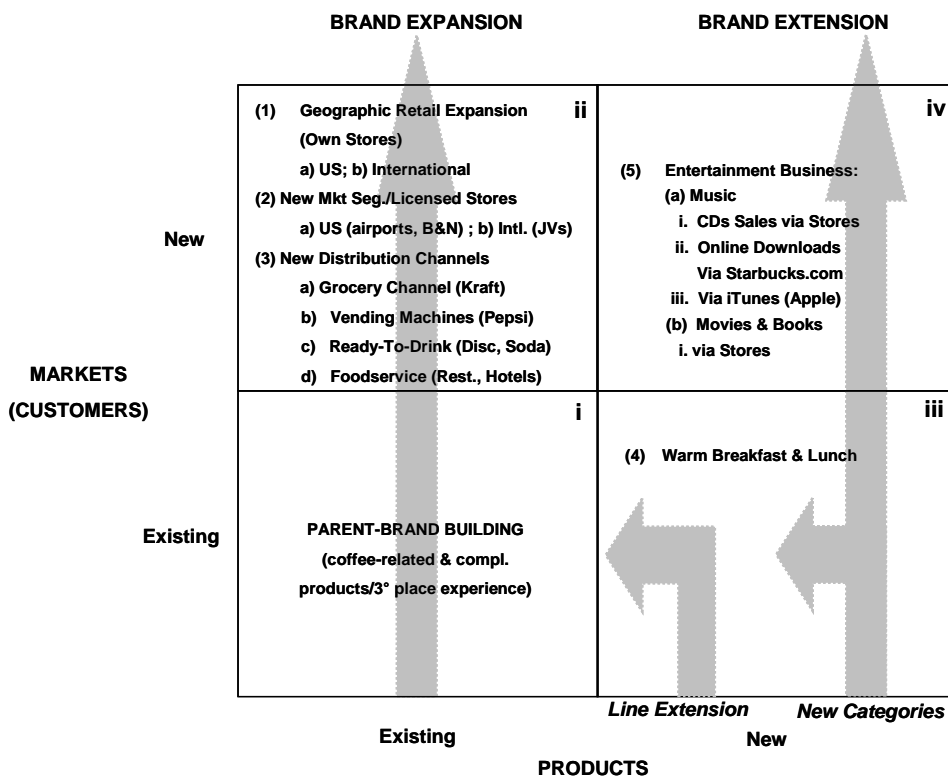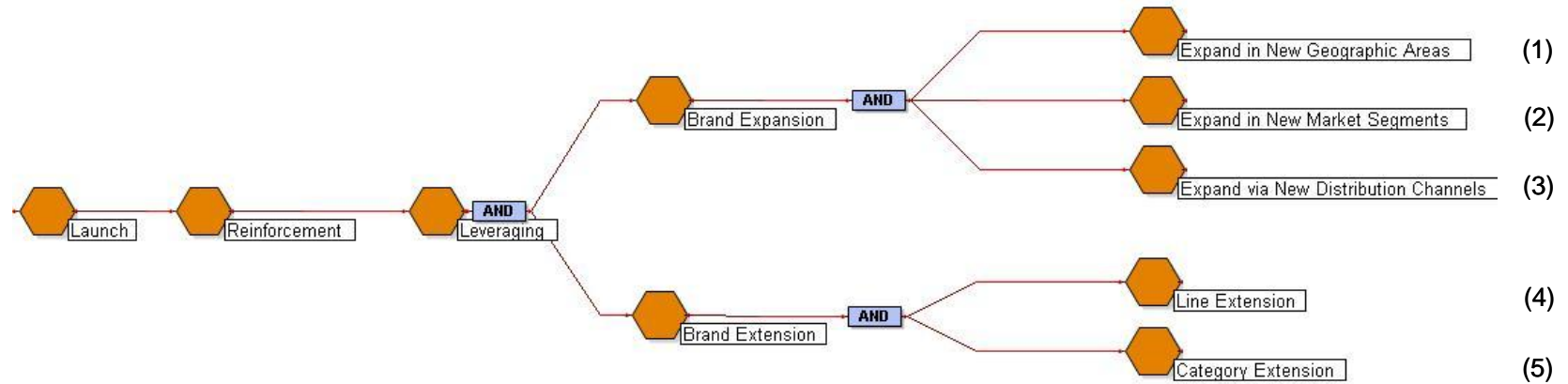
PRODUCTS

Figure 3. Brand Development Life Cycle as a Multistage Option

Panel A. Basic Compound Option Map

PARENT BRAND BUILDING OPTIONS **BRAND LEVERAGING OPTIONS**

Panel B. Basic Brand Options Architecture

STAGE	PARENT BRAND BUILDING		BRAND LEVERAGING			STAGE
	LAUNCH	REINFORCEMENT	BRAND EXPANSION		BRAND EXTENSION	
OPTION	Launch Option $$E^{L} = \max(-I_{L} + e_{L}\text{PBV};0)$$	Reinforcement Option $$E^{R} = \max(-I_{R} + e_{R}\text{PBV};0)$$	Expansion Option $$E^{EXP} = \max(-I_{EXP} + e_{EXP}\text{PBV};0)$$	LINE EXTENSION (4) / CATEGORY EXTENSION (5)	Extension Option $$E^{EXT} = \max(-I_{EXT} + e_{EXT}\text{V};0)$$	OPTION

Figure 4. Brand Leveraging Options Map for Starbucks under Growth (June 1, 2007)
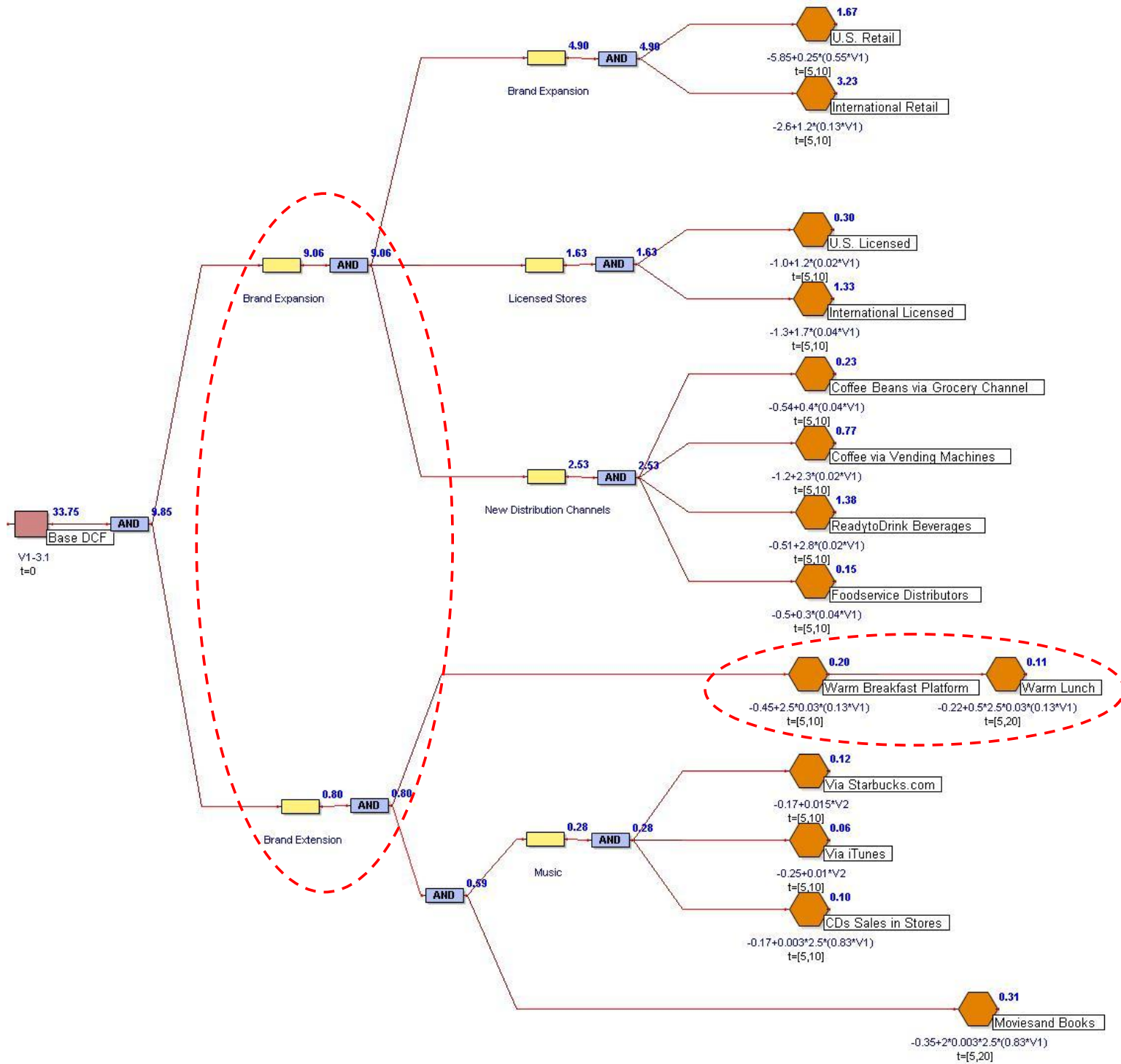
Figure 5. Alternative Brand Strategies in Economic Downturn and Related Risk Exposures (December 2008)

	STRATEGY	TYPE OF BRAND EXPANSION/EXTENSION	BRAND STRATEGY STYLE	BRAND PORTFOLIO STRATEGY	VALUE CREATION/DESTRUCTION	COMPANY VALUE (*EXPANDED* EQUITY VALUE)	SHARE PRICE	BRAND RISK EXPOSURE
S1	Commit to All Growth Plans	-	STATIC PORTFOLIO	No New Offering (NPV)	- $ 4.55 bln	$ 6.27 bln	$8.45	HIGH
S2	Commit to Expansion Options & Ignore All Extension Options	-		No New Offering (NPV)	- $ 3.80 bln	$ 7.02 bln	$9.46	HIGH
S3	Expansion Options Only (Ignore All Extension Options)	Brand Expansion		No New Offering	$ 0.86 bln	$ 11.68 bln	$15.74	MEDIUM
S4	Expansion Options + Original Warm Lunch Extension	Horizontal Line Extension		Branded House	$ 0.95 bln	$ 11.77 bln	$15.86	MEDIUM
S5 *	Keep All (Expansion & Extension) Options	Horizontal Line Extension, Horizontal Category Extension	DYNAMIC PORTFOLIO	Branded House, Subbrand	$ 1.10 bln	$ 11.92 bln	$16.06	MEDIUM
S6	Expansion Options + Upscale Meals Extension	Horizontal Line Extension, Vertical Line Extension		Branded House, Endorsed Brand	$ 2.11 bln	$ 12.93 bln	$17.43	MEDIUM
S7	Expansion Options + Upscale Coffee & Meals Extension	Horizontal Line Extension, Vertical Line Extension, Vertical Category Extension		Branded House, Endorsed Brand, House of Brands	$ 2.79 bln	$ 13.61 bln	$18.34	MEDIUM

Figure 6. Revised Brand Strategies in Different Scenarios (S₂, S₅, S₇) under Deteriorated Market Environment (December 2008)

Panel A. Revised NPV or Commitment Strategy (S2)
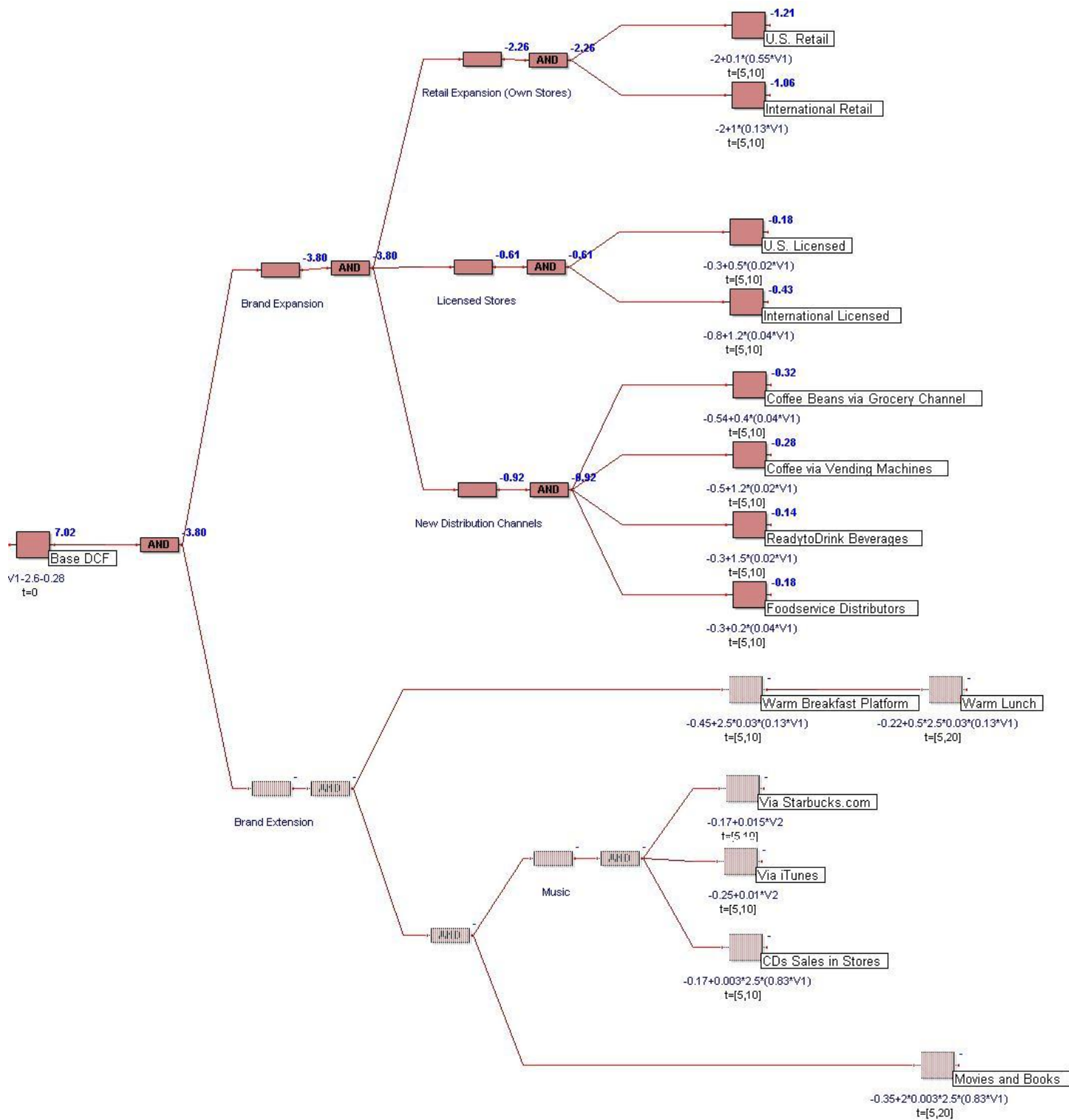
Panel B. Revised Brand Leveraging (Expansion & Extension) Strategy (S$_5$*)
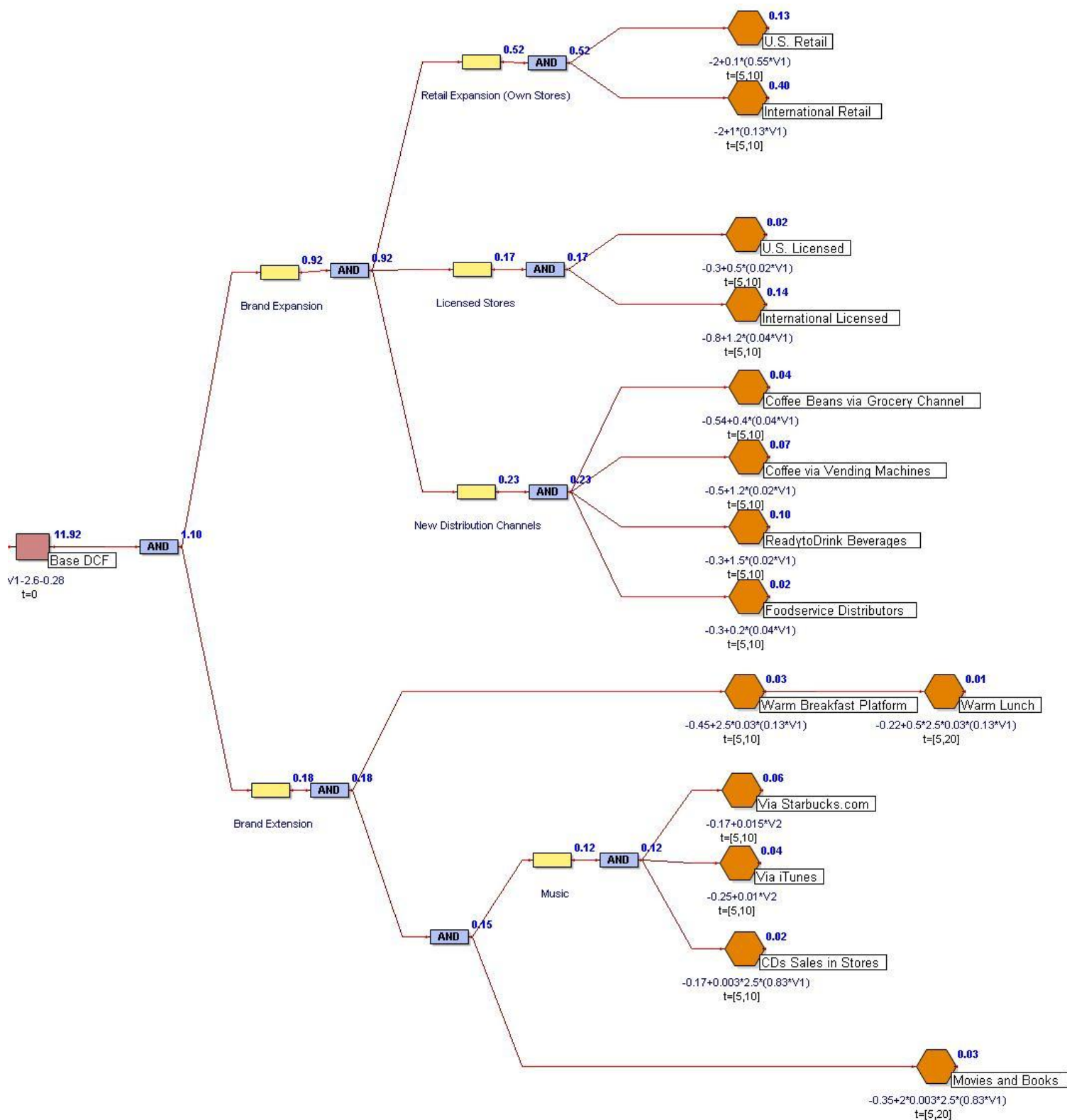
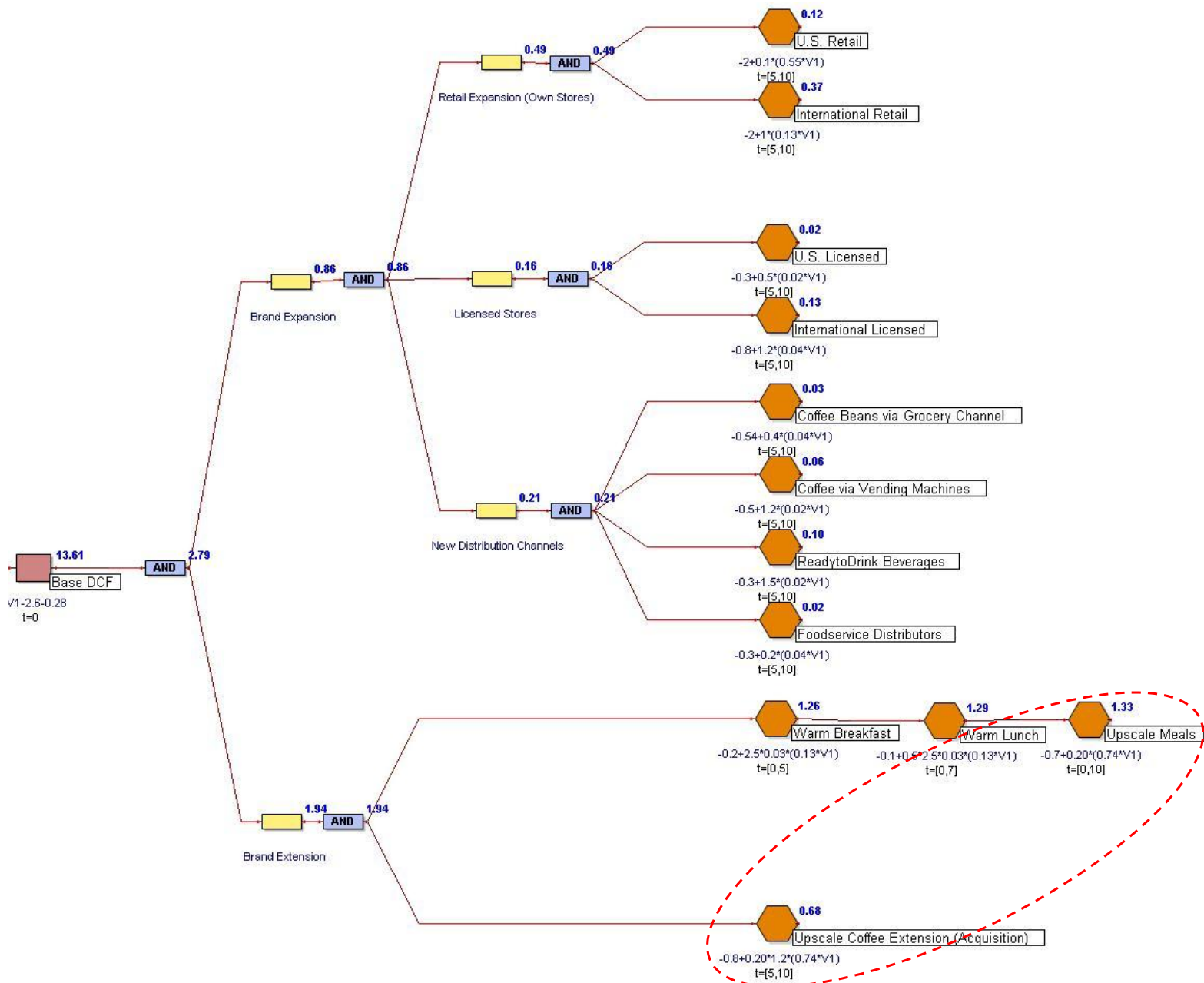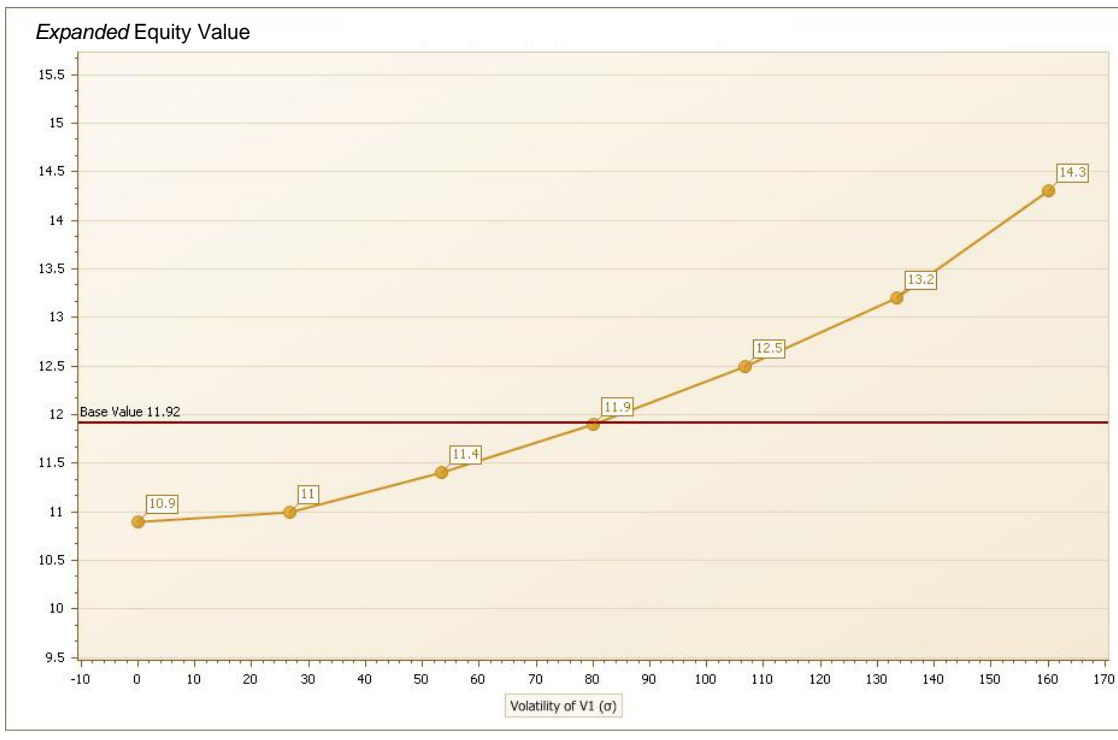## Panel C. Revised Upscale Coffee & Meals Extension Strategy (S7)

Figure 7. Sensitivity of Starbucks Value to Volatility and Sales

Panel A. *Expanded* Equity Value of Revised Base Strategy (S5*) vs. Volatility

Panel B. Estimated Enterprise value vs. Value Driver (Sales) – June 2007
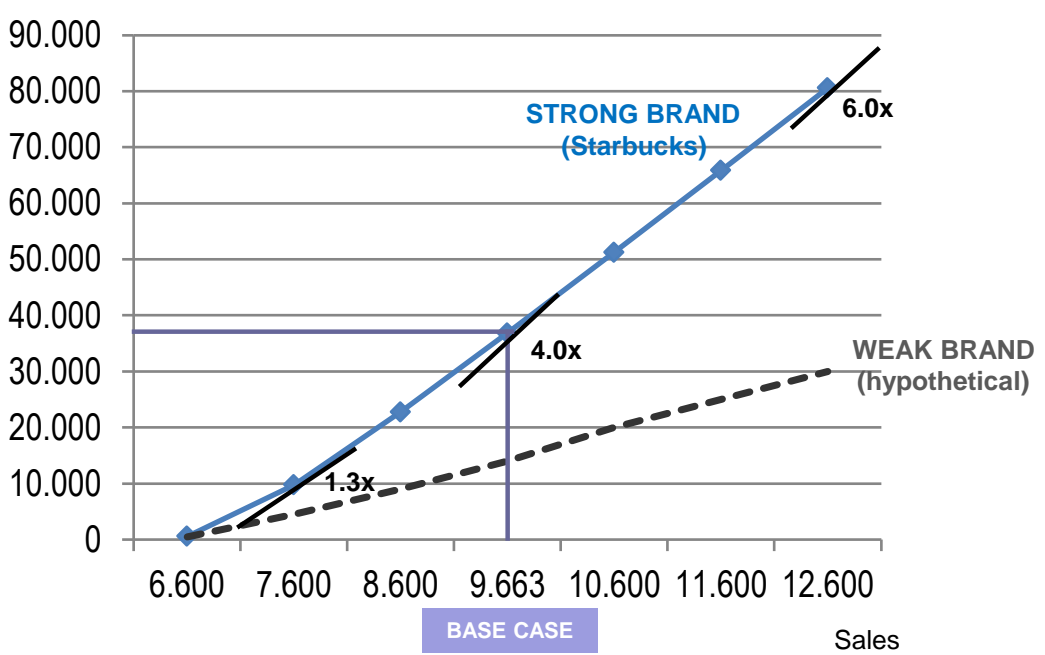
Figure 8. Enterprise Value/Sales Multiples for Comparable Unbranded (Private) and Branded (Listed) Firms in Specialty Coffee Industry

UNBRANDED (PRIVATE) LABELS		*June 2007*	*December 2008*	*July 2012*
		EV/Sales		
	Caribou Coffee	0.6	0.1	0.7
	Peet's Coffee & Tea	1.6	1.1	2.0
	Green Mountain Coffee Roasters (1)	2.5	2.1	1.1
	Average EV/Sales	**1.6**	**1.1**	**1.2**

COMPARABLE BRANDED FIRM				
	McDonald's	3.2	3.4	3.7

		EV/Sales (actual) (based on market data)		
	Starbucks	2.8	0.9	3.1
		EV/Sales* (Brand Options Value)		
		3.9 *	1.4 *	

(1) Fiscal year end (September).
(*) Based on brand option value estimated with our real options model.

Figure 9. Industry Characteristic Curve: Predicted Brand Option Value Score at Different Levels of Market Uncertainty for Branded Firms in Food & Beverages (2009)

Brand Option Value Score

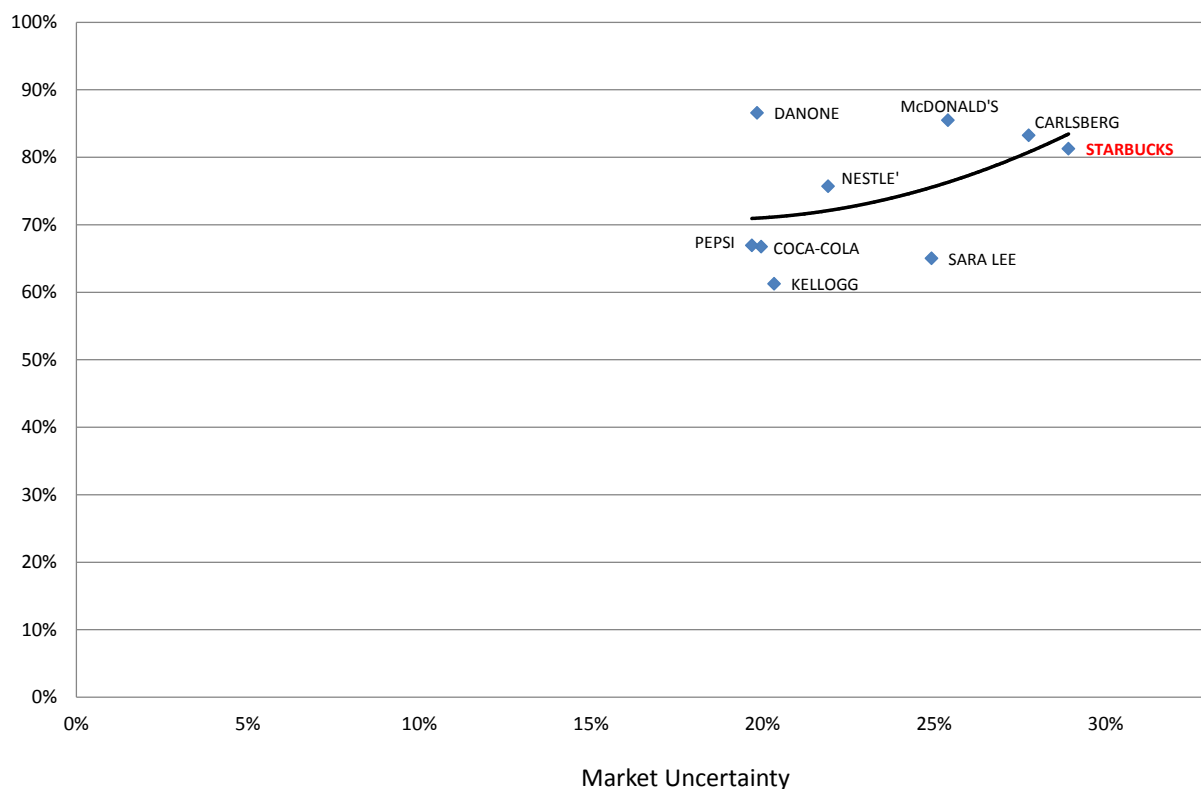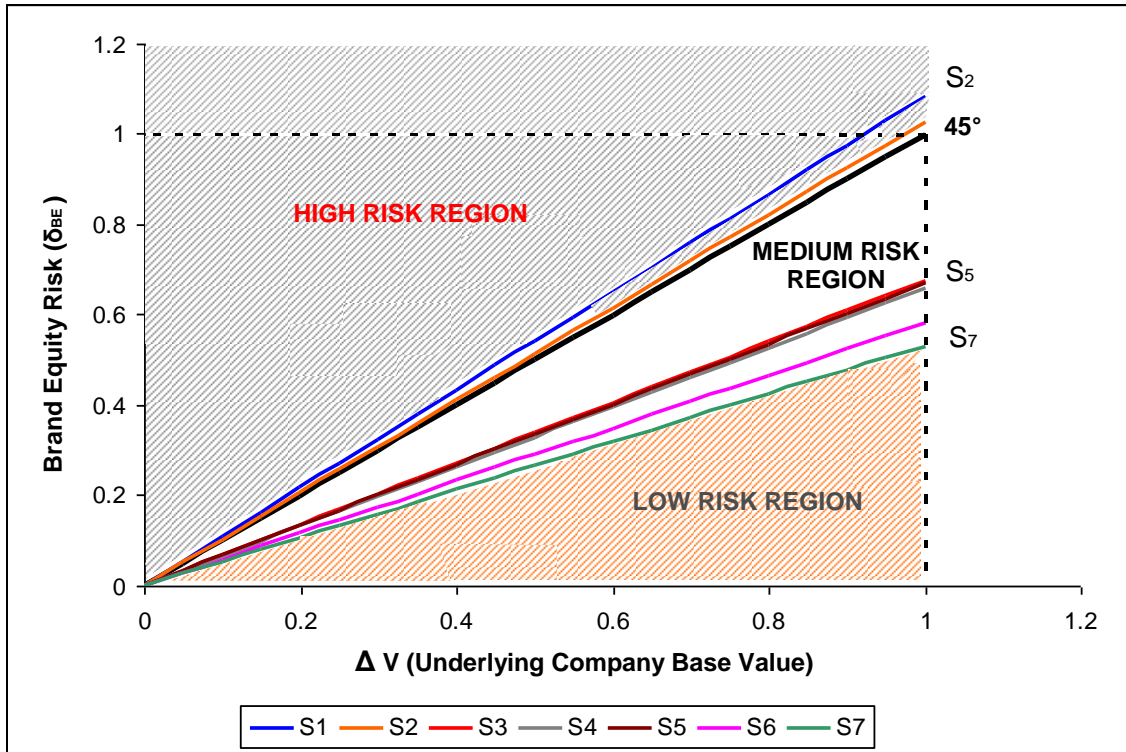**Figure 10. Assessing Brand Equity Risk Exposure for Starbucks' Alternative Strategies (S1-S7)**

δ_{BE}	BRAND EXPANSION/EXTENSION RISK
$\delta_{BE} > 0.75$	HIGH
$0.5 \leq \delta_{BE} \leq 0.75$	MEDIUM
$\delta_{BE} < 0.5$	LOW

Appendix. Summary of Basic Inputs for DCF and Option Valuations of Starbucks

Panel A. Basic Inputs for DCF Valuation

	Benchmarks		Our Valuation	
Source	Morgan Stanley	Deutsche Bank	June 2007	Dec 2008
Risk-free rate	4,2%	5,0%	4,7%	4,2%
Beta (adjusted)	1,05	1,25	1,10	1,05
Equity Risk Premium	5%	5%	5%	5%
Cost of Equity	9,4%	11,3%	10,2%	9,5%
Tax Rate	36%	33%	38%	34%
Cost of Debt	4,0%	na	5,5%	6,3%
Target Debt/Equity Ratio	na	na	20%	29%
Terminal Growth Rate	2,5%	1,5%	6,0%	2,0%
WACC	9,0%	8,0%	8,8%	7,9%

Panel B. Basic Inputs for Option Valuation

	June 2007 (t1)	December 2008 (t2)
Initial Company Value (V_1)	$ 27.0 bln	$13.7 bln
Volatility of Main Business (σ_1)	30%	80%
Growth in V_1	10,8%	1,8%
Initial Value of Digital Music Business (V_2)	$ 11.0 bln	$ 5.5 bln
Volatility of Digital Music Business (σ_2)	60%	120%
Growth in V_2	10%	1,5%
Competitive Erosion (δ)	0%	5%
Equity Risk Premium	5%	5%
PV of Investment Cost (Growth)	$ 12.0 bln	$ 5.3 bln
Expanded Equity Value (All Options)	$ 9.85 bln	$ 1.10 bln

Web Appendix W1: DCF Valuation of Starbucks in June 2007
(For Referee only; not to appear in the paper)

Panel A. Standard DCF (g = 6%)

Base DCF		1	2	3	4	5
	0	**2007E**	**2008E**	**2009E**	**2010E**	**2011E**
REVENUES	7787.0	9663.0	11900.0	14575.3	17755.5	21517.2
-COGS	-6600.0	-8201.0	-10129.0	-12372.6	-15053.3	-18209.2
-DEPRECIATION	-387.0	-478.0	-598.0	-731.3	-884.8	-1061.8
JOINT VENTURE INCOME	94.0	113.0	135.0	167.1	210.6	267.4
EBIT	**894.0**	**1097.0**	**1308.0**	**1638.5**	**2028.0**	**2513.6**
-TAXES	-332.5	-421.4	-501.6	-613.8	-746.7	-904.0
PROFIT AFTER TAX (EBIAT)	**561.5**	**675.6**	**806.4**	**1024.7**	**1281.2**	**1609.6**
+DEPRECIATION	387.0	478.0	598.0	731.3	884.8	1061.8
-INCREASE IN NET WORKING CAPITAL		-69.0	-59.0	-69.5	-83.0	-92.6
-CAPITAL EXPENDITURES	-771.0	-995.0	-1094.0	-1337.1	-1497.1	-1646.9
FREE CASH FLOW FROM OPERATIONS	177.5	89.6	251.4	349.3	585.9	931.9
Present value of FCF	*1,593.2*	82.3	212.2	270.9	417.5	610.2
Terminal Value (g= 6,0%)	*34,807.1*					
PV of Terminal Value	*22,791.1*					
as % of Enterprise Value	*93%*					
Enterprise Value	*24,384.3*					
- (Debt + Leases)	*3,111.1*					
Equity Value	*21,273.2*					

Share Price		**$27.18**			

Panel B. Base DCF (g = 0%)

Base DCF		1	2	3	4	5
	0	**2007E**	**2008E**	**2009E**	**2010E**	**2011E**
REVENUES	7787.0	9663.0	11900.0	14575.3	17755.5	21517.2
-COGS	-6600.0	-8201.0	-10129.0	-12372.6	-15053.3	-18209.2
-DEPRECIATION	-387.0	-478.0	-598.0	-731.3	-884.8	-1061.8
JOINT VENTURE INCOME	94.0	113.0	135.0	167.1	210.6	267.4
EBIT	**894.0**	**1097.0**	**1308.0**	**1638.5**	**2028.0**	**2513.6**
-TAXES	-332.5	-421.4	-501.6	-613.8	-746.7	-904.0
PROFIT AFTER TAX (EBIAT)	**561.5**	**675.6**	**806.4**	**1024.7**	**1281.2**	**1609.6**
+DEPRECIATION	387.0	478.0	598.0	731.3	884.8	1061.8
-INCREASE IN NET WORKING CAPITAL		-69.0	-59.0	-69.5	-83.0	-92.6
-CAPITAL EXPENDITURES	-771.0	-478.0	-598.0	-731.3	-884.8	-1061.8
FREE CASH FLOW FROM OPERATIONS	177.5	606.6	747.4	955.2	1198.2	1517.0
Present value of FCF	*3,776.3*	557.3	630.9	740.9	853.9	993.3
Terminal Value (g= 0%)	*17,164.1*					
PV of Terminal Value	*11,238.8*					
as % of Enterprise Value	*75%*					
Enterprise Value	*15,015.1*					
- (Net Debt)	*3,111.1*					
Equity Value	*11,904.0*					

Share Price		**$15.21**			

Web Appendix W2: Explanatory Notes to Starbucks Analysis in June 2007
(For Referee only; not to appear in the paper)

1. The prospective revenue mix proportions used for Starbucks are the following: U.S. retail sales (U.S. company-operated stores) 55%, international retail sales (international company-operated stores) 13%, sales of coffee beans via the grocery channel 4%, vending machines 2%, ready-to-drink beverages 2%, foodservice accounts 4%, U.S. licensing fees and sales (U.S. licensed stores) 2%, international licensed stores 4%, food (including warming platform for breakfast and lunch) 9%, entertainment 5%.

2. In terms of retail store expansion Starbucks believed the consumer needs for a "third place" experience could be leveraged across cultures (in the Americas, Europe and Asia) providing a powerful platform for global expansion. Regarding U.S. retail store expansion (the top branch in the option map of Figure 5), with more than 8,300 stores already operated in the U.S. as of June 2006 the company had set a long-term target of operating 20,000 U.S. stores, believing at the time that growth opportunities in the domestic market were far from being exhausted. The expansion factor was estimated as a "store expansion rate of return", based on the ratio of the discounted expansion differential between the cash flows deriving from domestic stores growing at the higher growth rate of 18% and the present value of cash flows that would be generated under the current long term steady-state U.S. growth rate of 5%.

3. Rapid own-unit growth in international markets was anticipated to continue well into the future (second branch top right in Figure 5). Starbucks had already developed a presence in 36 countries outside of the U.S. By 2011, it expected to have stores in more than 50 countries. Over the next five years Starbucks´ business plan incorporated an average growth of 24% in international markets via committed expansion in existing countries (e.g., U.K., Japan, China) and in new geographic areas (e.g., Brazil, Russia, India, Egypt). Exercise of expansion options might lead to the highest number of international stores in the Asia-Pacific region (where Starbucks had 1,700 stores but targeted 10,000) and the biggest expected increase in Latin America (where the company had 210 stores but planned to expand them to 3,500). Among the Asian countries, management viewed China as the company's largest opportunity due to its large population, growing interest in Western products and increasing customer purchasing power. Attractive store-level returns were also expected to derive from low labor and construction costs. The return factor for own-store retail expansion in international markets was estimated at 1.4. This has been adjusted slightly (to 1.2) to take into account that the company is not likely to sustain the usual price premium (applied in the domestic market) in many of the foreign countries targeted by management. Many of the expansion-driven new locations were in developing regions where revenue margins were likely to be lower than domestic ones as a result of lower purchasing power. The international retail expansion factor of 1.2 was applied on the base of own international retail stores, which accounted for 13% of the underlying asset value V_1 (based on the proportion of international stores' sales in Starbucks' overall prospective revenue mix). This expansion option was exercisable in year 5 by paying an additional $2.6B in new store costs if the then payoff was positive.

4. First, Starbucks intended to leverage its partnership with Kraft Foods to distribute whole bean and ground coffee via the grocery channel beyond the U.S. market, starting with Canada and the U.K. Starbucks held a 61% share of the growing super-premium packaged coffee segment in food, drug and mass merchandise channels in U.S., selling coffee beans and teas to over 30,000 domestic grocery stores and warehouse clubs. Kraft managed all distribution, marketing, advertising, and promotion, allowing the company to remain focused on its retail operations. Second, through its North American Coffee Partnership with Pepsi Co, Starbucks planned to launch new coffee vending machines, having created the ready-to-drink coffee market in the U.S. (worth $0.9B). The vending machines would feature a new heated-on-demand capability to serve a selection of hot beverages in 45 seconds. Once the new vending machines were introduced in the domestic market, the company had the option to expand the branded vending machines internationally. The related expansion factor, assuming the same proportion of vending machines to retail stores internationally as in the U.S., was estimated to be 2.3. Third, specialty operations (with PepsiCo as a partner) included production and distribution of other branded ready-to-drink products, such

as bottled Frappuccino. The ready-to-drink bottled coffee beverage market was already large in Asia and Starbucks had an option to expand its reach further by leveraging its strong brand equity. In 2005 Starbucks entered this market in Japan and Taiwan by undertaking a hybrid brand expansion based on the Frappuccino product. Starbucks leveraged its expertise in the U.S. ready-to-drink coffee beverage market to create a similar, though differently branded, product for the Asian market (called Starbucks Discoveries). The related expansion factor for ready-to-drink beverages (2.8) was partly based on the potential global launch of a Starbucks-Pepsi co-branded carbonated cola assumed to acquire a 5% share of the related market. Fourth, specialty revenues could also be expanded by selling whole bean and ground coffees and teas to various foodservice operators, such as restaurants, hospitals, offices, and hotels. The company's total worldwide foodservice operations consisted of approximately 15,500 accounts.

5. Each store was to be fitted with a specially designed convection oven that could heat breakfast sandwiches quickly while maintaining the overall quality of the product (unlike a microwave). The warming program began with the rollout of egg and cheese breakfast sandwiches to several markets in 2006, following successful results in Seattle and Portland. The warm breakfast initiative added $35,000 in annual sales per store. By 2009 most U.S. stores would operate the breakfast warming platform.

6. Those own international retail stores constituted 13% of base firm business (with added value $0.13*V_1$) and were the primary value driver. Assuming each such store in the next 5 years (and for each current one there would be an additional 1.5 stores or a total of 2.5) adds a warm platform and this platform generates 3% of added revenues per store as currently in the US (the warm breakfast sales to average sales per store ratio being 0.03), the value driver ($0.13*V_1$) is multiplied by the compound multiplier (2.5*0.03). Given an estimated investment outlay of $0.45B for the warm breakfast program, its option payoff (at the time of launch between 5 and 10 years from now) is Max(-0.45 + (2.5*0.03)($0.13*V_1$) + warm lunch option, 0). The follow-on option to extend the program to warm lunch items has a longer maturity (from 5 up to 20 years) and proportionately similar payoff structure, only half the scale (both in the expansion factor (0.03 x 2.5) and the investment cost) to account for a lower degree of relatedness between warm lunch food and Starbucks coffee-related experience given leveraging of the existing in-store ovens.

7. Starbucks had already sold CDs in its stores with its Hear Music label since it acquired the small West Coast-based independent music label in 1999. Since then, the company engaged in significant parent brand extensions into the entertainment area, such as the launch of the 24-hour Starbucks Hear Music digital music channel 75 available to all XM Satellite Radio subscribers, the co-production and distribution of a childrens movie (Akeelah and the Bee) and the promotion of a book (For One More Day by Mitch Albom). Starbucks had also formed a partnership with the William Morris Agency (a talent and literacy agency) to assist it in identifying future music, film and book prospects for future production, marketing and distribution. Until then, the entertainment business had been an interesting side strategy for the company with little capital investment. Nonetheless, Starbucks had the vision and distribution capabilities to develop a larger entertainment business, including selling CDs or DVDs through its stores. It could further leverage the availability of wireless broadband Internet services within its company-operated retail stores located in the U.S., Canada and selected stores overseas. Such a brand category extension in the music area might be exercised across three complementary business categories: a) CDs or DVD sales in stores; b) music downloads via the company's website Starbucks.com that also exploits its internet services; c) music downloads on iTunes through the newly announced initiative between Starbucks and Apple Computer. The latter partnership would allow Starbucks Hear Music's songs to be available for download on Apple's on-line store (iTunes) via "Starbucks Entertainment Store." Both on-line channels (Starbucks.com and Starbucks Entertainment Store) would allow Starbucks to sell its own labeled music inside its retail stores to laptop users and outside the usual outlets to the public of downloaders for the first time. A further extension into entertainment was to promote the sale of movies and books, leveraging the distribution capability of the company's retail network and potentially that of its partners, including Apple´s iTunes.

[1] Currently 85% of the company's revenues derived from retail sales via own stores and 15% were generated from specialty sales. Of the latter, 6% of revenues came from licensed stores. The sum of 85% and 6% gives a current rounded figure of 90%. Prospectively (within 5 years), this figure was expected to

be closer to 83% due to a relative decline in the % deriving from retail stores to accommodate other businesses such as entertainment (5%) and new distribution channels (12%).

8. The entertainment business was assumed to grow at the global weighted average retail growth rate of 19% over the period 2007-2012.

9. Currently 85% of this business was controlled by Apple´s iTunes platform. Assuming the company's share of the global digital music business via its partnership with iTunes in 2012 is 1% of the business controlled by the iTunes platform, V_2 is estimated at about \$11B. If R_{SBUX} and V_{SBUX} represent Starbucks´ revenues from the music download segment and the resulting business value, respectively, and R_{MKT} and V_{MKT} represent the revenues and business value of the global market, the proportion $V_{MKT} = V_{SBUX} \times (R_{MKT} / R_{SBUX})$ allows to infer the market value.

10. The greater factor for international licensed stores expansion (1.7) relative to that via U.S. stores (0.25) partly reflects the higher potential to be realized through acquisition of JV stakes overseas, besides being applied on a smaller base (4% of V_1 vs. 55% of V_1). The relatively higher expansion factor for the new vending machines distribution channel (2.3) reflects the market power advantage of the combination between a vending leader like Pepsi Co. and the specialty coffee expertise of Starbucks protected in these channels of trade for some years. This represents a major development for the vending industry which has been struggling to sustain its eroding hot beverage business. The higher ready-to-drink category expansion factor (2.8) reflects both its international market potential and the launch of a coffee-flavoured carbonated soda through a co-branding strategy with Pepsi Co.