Trademark Values in Corporate Restructuring

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Abstract

In corporate restructuring under Chapter 11, an asset valuation is a central task for both legal and financial reasons. In the area of intangible assets, however, generally accepted accounting principles (GAAP) do not reflect internally-generated assets such as brands, trademarks, and other intellectual property. In practice, arbitrary rules of thumb are used to fill this gap, and closure, liquidation, financing, and restructuring decisions are made on this basis.

This paper reports the progress that has been made so far in developing theoretical and empirical bases to improve trademark valuation in corporate restructuring. The model and the applied results have been incorporated since 2006 in some of the most significant corporate restructuring cases in the U.S.

The econometric study of trademark values in liquidation and reorganization presented is based on new data being generated as a result of self-regulatory changes in financial accounting – specifically those brought about over the last six years by FASB's statements 141 and 142 (as well as the international IFRS-3 standard).

The new accounting framework for business combinations requires acquiring entities to perform a detailed purchase price allocation that segregates the values attributable to trademarks and other IP from general Goodwill. Publicly traded companies generally disclose these itemized values in their SEC filings. Recently, we have begun building a database of pre-merger revenue information in combination with specific trademark value allocations from a variety of acquisitions occurring in both liquidation and going concern contexts. Our initial results are consistent with the severe reduction in value that has come to be expected, but reflect a statistically significant non-linearity that has substantial financial impact in large cases.

 F. Torres

Trademark Values in Corporate Restructuring

In the bankruptcy context, capital formation undergoes not just an upheaval but a restructuring process which restores a measure of rationality into the system. Technically, in the United States, the term bankruptcy refers to a set of laws aimed at providing for the collection, preservation, and maximization of value of a debtor's assets for the benefit of creditors (Salerno 2001). It is, therefore, a regulated transfer of assets to settle claims. The transfer occurs at a certain relative value of assets to liabilities and, thus, the valuation of assets and liabilities is one of the key concerns of the interested parties, each acting on the basis of powerful economic incentives. While the valuation of real estate and most tangible assets is carried out routinely in the economy, supported by active and organized secondary markets, an increasingly important proportion of assets, intangibles, remains as a mostly *ad hoc*, case by case, valuation exercise in the context of, at best, incipient secondary markets.[1] In the bankruptcy context, a systematic approach to the valuation of intangibles is needed, yet few formal or empirically-based models have emerged to tackle the question of how to assess the value of intangibles and the reduction in value that results from the insolvency, restructuring, or dissolution of firms. In our work advising various parties with regard to this issue, we have begun to develop such a framework. This paper reports on our progress[2] in the area of trademark asset valuation in the context of corporate restructurings under Chapter 11 of the U.S. Bankruptcy Code.

1.   The Bankruptcy Context

Codified under Title 11 of the U.S. Code, the Bankruptcy Code includes only odd-numbered[3] chapters, three of which contain generally applicable provisions (Chapters 1,3, and 5), while the

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[1] The Ocean Tomo "Patent Auctions" are less than two years old and have included only a sampling of patents and other IP.

[2] Invaluable research and discussions of this work in progress were contributed by Daryl Martin, David Drews, Doug Bania, and Nathan Reams at CONSOR.

other chapters contain specific provisions for different circumstances. Business reorganization typically falls under the provisions of Chapter 11, and these regulations allow for the firm's existing management to supervise the process of liquidating assets and reorganizing the business enterprise, under the rules that apply to the debtor-in-possession ("DIP"). Under Chapter 11, the restructuring of the corporation is carried out as a judicially supervised negotiation among the various classes of interested parties;

In corporate restructuring under Chapter 11, an asset valuation is a central task for both legal and financial reasons. In the area of intangible assets, however, generally accepted accounting principles (GAAP) do not reflect internally-generated assets such as brands, trademarks, and other intellectual property. In practice, arbitrary rules of thumb are used to fill this gap, and closure, liquidation, financing, and restructuring decisions are made on this basis. For instance, it is not uncommon for valuation studies to assume the business is a "Going Concern," calculate the value of the subject intangible assets, and then apply a standard 80% or 90% reduction in value considering the liquidation of the assets. These percentages, however, are "rules of thumb" and are not based on empirically, or theoretically supported analyses.[4]

The valuation of the bankrupt firm under a liquidation context is a key to supporting the pursuit of a Chapter 11 reorganization rather than a conversion to a Chapter 7 liquidation. There must be enough additional value in reorganization to pursue the, sometimes, lengthy process of developing a plan of reorganization and following through on all the regulatory requirements to its confirmation by the Court.

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[3] The exception being a special Chapter 12 introduced in 1986 to create special relief for family farmers.
[4] In some cases, they are simply a misapplication of the "80/20 rule" that non-economists in business think of as "Pareto's Law."

2.   Intellectual Property in Bankruptcy

Trademarks, patents, and other intellectual property ("IP") are generally recognized as business assets, and many characteristics of a trademark are paralleled by other asset classes like financial assets, in particular promises-claims. Yet, trademark values cannot be observed directly; they cannot be looked up in the Wall Street Journal like stocks and bonds. IP values in general, and trademark values, in particular, require a specialized appraisal.

Traditionally, the trademark values have been under-reported in financial statements due mainly to two factors, which stem from generally accepted accounting principles (GAAP):

1. Internally-generated intangible assets are not capitalized nor reported on the balance sheet; rather, their historical costs (to design, prosecute, maintain, advertise, and defend) are expensed in the current year, and

2. A vague Goodwill category has been utilized to capture the all-encompassing excess of the purchase price over book value paid in mergers and acquisitions.

Since 2001, the Financial Accounting Standards Board (FASB) issued statements 141 and 142 reforming that practice, at least partially. The changes introduced with those statements have created a uniform framework whereby the acquiring entity must perform a detailed purchase price allocation that segregates the values attributable to trademarks and other IP. More specifically intangibles based on contracts and legal rights are distinguished from general Goodwill, which remains a residual value. This accounting definition, however, is not without controversy. Analytically, Goodwill is derived from the existence, quality and character of other intangible assets and intellectual property, and it is not a truly separate and identifiable asset.[5]

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[5] Russell Parr, "Goodwill — A contrary View," presented at the 20th Annual IP Law Conference of the American Bar Association (April 2005).

Reputation for quality or service, customer loyalty, and other attributes of Goodwill exist to the extent they are supported by identifiable and valuable intangible assets, not in a vacuum.

Consequently, full trademark values are not reflected in company financials, and when they are reported, they only refer to acquired trademarks. This situation will continue even once FASB Statement 157, which establishes a framework for "Fair Value" measurements, comes into effect at the end of 2007.

One of the most striking consequences of this situation is that, according to various empirical studies, the overwhelming majority of the market value of the companies in the S&P500 index has to be attributed to intangibles, mainly trademarks and patents. In other words, the book-to-market multiples, which historically were very high in the run up to 2000, were not inflated because stocks were overvalued. Rather, they were high to correct the understatement of intangibles that were not recorded in the books, but were clearly recognized by investors. For example, during the 1990's, Barth, et al found that brand value estimates developed by a well-known IP consultancy provided significant explanatory power for share prices, incremental to advertising expense, operating margin, growth and market share (Barth 1999). The value-relevance of trademarks is also supported by research conducted by Seethamraju (2003). Correspondingly, Lev and Sougiannis found that the value relevance of accounting information is limited in industries where intangibles have a central role, namely R&D intensive industries (Lev and Sougiannis 1996). Other researchers, however, cast doubt as to the total absence of excess valuations, even when the role of investments in intangible assets is taken into account (Bond and Cummins 2000).

Pursuant to the latest regulations, publicly-traded companies generally disclose the itemized values of acquired intangibles in their Securities and Exchange Commission (SEC) filings and, therefore, have been building up a potential database of trademark values in particular.[6] In addition, a certain proportion of each year's mergers and acquisitions (M&A) represent acquisitions of assets in the context of bankruptcy proceedings, i.e. a liquidation of assets. When this occurs, additional research usually can determine the necessary pre-liquidation sales levels to complete the trademark value analysis.

Over the past year, a database of relevant transactions has been under construction for the specific purpose of supporting the valuation of intangibles in liquidation and restructuring. The analysis was initially developed for a comprehensive liquidation analysis commissioned in support of the reorganization of one of the most iconic brands in consumer goods, specifically in the food industry. The database is in continuous development, and the use of any non-public information is gradually being allowed under the terms of confidentiality agreements or as soon as it becomes part of the public record. Since that time, we have been incorporating empirical data in the determination of the ratios used to derive liquidation values from going concern valuations. As public company records and trade publication databases generally report material transactions, we have been able to identify which transactions have been specifically sale/purchase agreements involving trademarks, and other intellectual property and intangible assets.[7] In this paper, we report on the empirical analysis of relevant cases involving the purchase of trademarks, in liquidation and in the general course of business, with special emphasis in the bakery products industry.

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[6] For this report, we have limited the focus on trademarks, while other IP will be researched in the near future.

[7] While intangible assets are assets that do not have a tangible form, such as brands, reputation, below-market contracts, trademarks, know-how, etc.; intellectual property is strictly the legally protected forms of trademarks, copyrights, patents, and trade secrets.

3.   The Trademark Value Model

The value of trademarks purchased in the course of going concern and bankruptcy transactions is a function of many factors. Typically, the revenue associated with such intellectual property, as well as the relevant discount rate, useful life assumptions, applicable royalty rate, profit margins, risks, and market conditions determine trademark values. In practice, many of the parameters and circumstances of these transactions are not disclosed, at least not to a sufficient level of specificity, or are not properly quantified in SEC filings. As a result, even recent studies use simple proxies in quantifying the effect of trademarks. For example, Seethamraju (2003) uses the number of trademark registrations owned by a firm as an explanatory variable, and then capitalizes the statistically-associated increase in sales as a measure of trademark value.

The approach followed in the research reported in this paper is different. Rather than looking to explain stock prices or marginal profitability as a function of intangibles, we seek to determine, or explain, the value of a firm's acquired trademarks as a function of the sales levels they support, the context in which it was acquired (liquidation or going concern), the industry, and other exogenous factors.

From our experience in intellectual asset consulting, we have reason to hypothesize that royalty rates, risk, and margins across industries play a less determinant role than sales, and tend to mutually compensate their effect on the ratio of trademark value to sales. The conceptual model presented below, and the initial empirical results which we report here, seem to support this conjecture.

4.   An Equilibrium Model

The most abstract expression of the conceptual model of trademark value is the following

functional relationship between trademark value (V™) and its explanatory variables:

$$V™ = f(S, t, GL, LIQ, \text{other factors}) (1)$$

The general model in equation (1) simply states that V™ is a function of the amount of revenue

associated with the trademarks (*S*), the year in which the transaction takes place (*t*), whether the

trademarks refer to a global market or are mainly domestic (*GL*), whether the trademarks were

purchased in a liquidation scenario (*LIQ*), and other factors that will be modeled as an error term

in the empirical version of the model.

The monetary value of a trademark, as typically incorporated in the purchase price allocations

we researched, is calculated on the basis of the "Relief from Royalty" method.[8] This method can

be viewed as a variation of the Income Approach, i.e., of the valuation of an asset as the net

present value of the expected income stream accruing to the asset. It can also be considered as

an intangible asset parallel to the Discounted Dividend models used in financial analysis.

The Relief from Royalty method establishes the value of a trademark (or patent usually) as the

capitalized value of the royalties that the company is relieved from paying due to the fact that it

owns the asset. Essentially, the fair market value of a trademark is deemed to be the present

value of those avoided royalties. This method typically uses royalty rates that are based on

comparable marketplace transactions, and applies them to a forecast of the revenue stream

expected to be associated with the use of the asset in the market. In the case of patents, the time

horizon is typically no more than 20 years, which is the statutory life of a patent. In the case of

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[8] For a review of intangible asset valuation techniques, see (Anson 2005).

trademark assets, on the other hand, the time horizon may extend, for all practical purposes, to infinity, as properly maintained trademark registrations do not lapse.

The functional form adopted in our analysis for the expression in (1), assuming for the purposes of the initial discussion the case of a domestic trademark in a going concern equilibrium, is based on a simple continuous time model of sales growth.

The sales associated with the trademark (S_t), as a continuous function of time (t) grow at a constant annual rate (g) from time 0:

$$S_t = S_0 e^{gt} \tag{2}$$

The amount of (nominal) sales is discounted (S') to the present ($t = 0$) from any year t using the firm's cost of capital (k):

$$S'_t = S_0 e^{(g-k)t} \tag{3}$$

Each year, royalties are payable to the trademark asset licensor at a market rate (r) which reflects in part the opportunity cost of developing a functionally equivalent trademark, and the operating margins prevailing in the industry where the licensee firm operates. Thus, the discounted value of the royalty payments in year t is:

$$R_t = rS'_t = rS_0 e^{(g-k)t} \tag{4}$$

Taking the integral of the infinite series of royalty payments, we can define the net present value of the trademark (V^{TM}) in the base year as the area under the growth path of the discounted royalties:

$$V_0^{TM} = rS_0 \int_0^\infty e^{(g-k)t} dt \qquad (5)$$

which can be solved to yield the following expression:

$$V_0^{TM} = S_0 \frac{r}{e^{(k-g)} - 1} \qquad (6)$$

From (6) we can also derive a (constant) ratio of trademark value to sales as a function of the

royalty, discount, and growth rates:

$$\frac{V_0^{TM}}{S_0} = \frac{r}{e^{(k-g)} - 1} \qquad (7)$$

Clearly, (6) and (7) imply a trademark will be more valuable, absolutely and relative to the

annual sales level, the higher the royalty rate it warrants in the market, the faster the growth of

the underlying product branded by the trademark, and the lower the cost of capital to the firm.

The following table illustrates the relative orders of magnitude of this ratio, considering a fixed

5% royalty rate, in four scenarios combining high and low risk (reflected in the cost of capital)

and growth rates:

Trademark Value to Sales Ratio	Slow Growth (g=2%)	Fast Growth (g=5%)
High Risk (k=30%)	15%	18%
Low Risk (k=12%)	48%	69%

The only significance of the 5% royalty rate is that it is the most frequent rate among publicly

available IP licensing agreements.[9] But, for any given rate, the table seems consistent with the

rationale that a trademark is more valuable if, given the risk level of the industry, it is associated

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[9] Approximately 19% of the agreements in the RoyaltyStat.com database have this rate.

with faster growing sales. Trademarks are expected to be more valuable in faster growing / lower risk industries, than in slower growing / higher risk ones.

Considering the conceptual model at this level of abstract of abstraction, we considered the question of what would be the effect of the sale of the trademark asset in an orderly liquidation, carried out in the course of a corporate restructuring process. The royalty rate would generally not be affected, as it is taken to be the prevailing rate in the market for that IP in the specific use it is being exploited. The discount rate, post-reorganization, would also be substantially similar to the pre-reorganization cost of capital, as that is customarily the discount rate utilized, typically the CAPM rate adjusted for size effects and the added risk of the intangible asset class. Finally, the medium-to-long term expected growth rate of the reorganized business of the firm may also not change materially after the reorganization. However, in the market, the trademark's goodwill and market potential usually suffers by being associated to a bankruptcy, given the essential economic function of trademarks – that of reducing consumer search costs (Landes and Posner 1987) – as consumers tend to revise their perceptions of quality, stability and other desirable attributes of the branded products. Thus, an initial conjecture was that the effect of a liquidation on trademark values is a one-time shock to the value, relatively independent of the specific subject property.

5.   Variable Royalty Rates Model

The royalty function represented in expression (4) above is clearly a special case of a more general relationship between royalties and sales. Most trademark licensing agreements incorporate a sliding scale for the royalty rate as sales levels increase or cross certain thresholds. Consequently, the trademark value as an asset *to the licensor* decreases at the margin, while the value of the trademark input increases at the margin *to the* licensee.   To incorporate this

relationship in the model, and to later examine empirically the prevalent idea that trademarks, as

inputs to the firm, exhibit increasing returns to scale, we can adopt the following simple

relationship, where α (with $0 \geq \alpha$) represents the sales-elasticity of royalty payments, and ρ is

the base royalty rate:

$$R_t = \rho S'^{\alpha}{}_t = \rho S_0^{\alpha} e^{\alpha(g-k)t} \qquad (8)$$

Substituting expression (8) into (3), we arrive at the following equation for V^{TM} as function of

sales:

$$V_0^{TM} = \rho S_0^{\alpha} \int_0^{\infty} e^{\alpha(g-k)t} dt \qquad (9)$$

which can be solved to yield the following expression:

$$V_0^{TM} = S_0^{\alpha} \frac{\rho}{e^{\alpha(k-g)} - 1} \qquad (10)$$

To reiterate, our hypothesis is that trademark value is elastic with respect to sales, so that α will

likely be greater than one from the point of view of the acquiring entity. At the margin, since

trademarks produce sales in (virtual) perpetuity, a small increase in annual sales is reflected

more than proportionately in the net present value of the trademark asset.

6.   Statistical Model and Estimation

To derive a first basis for the statistical model for estimation, we can take natural logs of

expression (10) to arrive at the following linear form:

$$Ln(V_0^{TM}) = Ln(\rho - \alpha(k - g)) + \alpha \cdot Ln(S_0) \qquad (11)$$

In expression (11), the first right-hand side term is generally determined by industry

characteristics, as well as capital market forces, and other exogenous factors to a specific firm or

transaction. In general, market royalty rates are higher the higher the operating margins are, and this is correlated with the cost of capital and the growth rate of the firm in a way that makes the first term a relatively uniform value across industries and, in this analysis, it is considered a constant. The coefficient of the log of Sales, finally, measures the elasticity we expect to be less than unity.

For this paper, we are reporting on the use of the sample data we have accumulated for the consumer-oriented trademarks, which we have used and disclosed to support the liquidation and restructuring valuation of the IP of major corporations in the Bakery Goods and other consumer product segments. The dependent variable is the trademark value (in U.S. dollars) determined pursuant to FASB's statements 141 – 142 and disclosed in SEC filings. The explanatory variable of interest is the Revenues associated with the trademarks during the most recent full year, trailing twelve months, (in U.S. dollars) previous to the bankruptcy petition in the case of Chapter 11 liquidations. The sample data acquired through our research was used to estimate the parameters of a specific form of this general model, capturing the effects of all other factors in an "error" term (ε). The generalized form of the statistical model was the following:

$$Ln(V^{TM}) = \beta_0 + \beta_1\, Ln(S_0) + \beta_2\, LIQ + \beta_3\, GL + \beta_4\, t + \varepsilon \qquad (12)$$

In this expression, β_0 would represent the constant portion of the ratio as shown in (11), and β_1 will serve to estimate the sales-elasticity of the trademark value (α). The next two explanatory variables utilized are dummy variables. *LIQ* is equal to 1 if the trademark was sold/bought in a liquidation scenario and zero if in the ordinary course of business. *GL* is equal to 1 if the trademark has a global scope and zero if it is predominantly domestic. The time variable *t* represents the year the transaction took place, and was used as a simple proxy to control for

several effects that could be affecting the relationship during the first few years of the

application of the FASB statements that give rise to the trademark valuation data, such as: the

gradual learning process of the market participants, the growing visibility of the transactions and

the consequent increasing competitiveness of the IP liquidation market, as well as the slight

inflation effects of the last few years.

The model in (12) was estimated using OLS with a sample of 31 transactions that fit the

comparability criteria necessary for the valuation, namely large consumer good firms and a

preference for the food sector.[10] The range of transaction types is wide; the largest transaction in

the sample is the 2000 purchase of the Nabisco brands by Kraft ($11.7 billion USD), while the

smaller is the 2005 purchase in liquidation of the Comdial trademarks by Arisoft ($200,000).

The median trademark transaction was for $26 million, and the median annual sales level is

approximately $200 million.[11]

The general form of the model in (12) yielded the results shown in Tables 1 and 2.

Table 1
General Model (12) OLS Estimates
Dependent variable: $Ln(V™)$

Variable	Coefficient	Std. Error	t-statistic	p-value	
Constant	466.009	255.838	1.8215	0.08006	*
$Ln(S_0)$	1.00563	0.130739	7.6919	<0.0001	***
LIQ	-1.99686	0.490205	-4.0735	0.00039	***
GL	1.10898	0.580508	1.9104	0.06718	*
t (year)	-0.233636	0.127063	-1.8387	0.07740	*

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[10] The software used was "gretl" (GNU Regression, Econometric, and Time-Series Library), version 1.6.0, available at http://gretl.sourceforge.net. /.
[11] See chart in the appendix for a sample list of data points and the regression results.

Table 2
General Model (12) OLS Estimates
Regression Statistics

Mean of dependent variable	16.9966
Standard deviation of dep. var.	2.52887
Sum of squared residuals	33.6354
Standard error of residuals	1.1374
Unadjusted R^2	0.824684
Adjusted R^2	0.797712
F-statistic (4, 26)	30.5759 (p-value < .0001)
Log-likelihood	-45.2518
Akaike information criterion	100.504
Schwarz Bayesian criterion	107.673
Hannan-Quinn criterion	102.841

From these results, it appears that the overall model fits the (panel) data quite well, with an adjusted R^2 of approximately 0.8 and a correspondingly significant F-statistic.[12] The individual coefficients for the revenue and liquidation variables are also significant at the 95% confidence level, while the constant term and the time and global variables are significant at the 90% level.

Considering the hypothesis regarding returns to scale for the use of trademark assets, it must be noted that the coefficient that measures the elasticity of trademark value to sales is very close to unity. If constant returns are assumed ($\alpha = 1$), then sales and trademark values must be proportional and the estimated model can be simplified by subtracting $Ln(S_0)$ from both sides of the model. To test this idea, a second model was estimated as a reduced form of (12) assuming ($\alpha = 1$), noting that the dependent variable is now the natural log of the trademark-value to sales ratio:

$$Ln(V^{™}) - Ln(S_0) = \beta_0 + \beta_2 \, LIQ + \beta_3 \, GL + \beta_4 \, t + \varepsilon \quad (13)$$

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[12] Tests for the normality of residuals and the absence of heteroskedasticity accord with the assumptions of OLS.

The results for this second regression yielded the results shown in Tables 3 and 4.

Table 3
Reduced Model (13) OLS Estimates
Dependent variable: $Ln(V^{TM})$-$Ln(S)$

Variable	Coefficient	Std. Error	t-statistic	p-value	
Constant	471.398	219.006	2.1524	0.04046	**
LIQ	-1.99523	0.479619	-4.1600	0.00029	***
GL	1.10641	0.566665	1.9525	0.06132	*
t (year)	-0.236271	0.1093	-2.1617	0.03967	**

Table 4
General Model (13) OLS Estimates
Regression Statistics

Mean of dependent variable	-2.41757
Standard deviation of dep. var.	1.59721
Sum of squared residuals	33.6378
Standard error of residuals	1.11617
Unadjusted R^2	0.560479
Adjusted R^2	0.511644
F-statistic (3, 27)	11.4768 (p-value < 0.0001)
Log-likelihood	-45.2529
Akaike information criterion	98.5057
Schwarz Bayesian criterion	104.242
Hannan-Quinn criterion	100.376

These results show a reduced determination of the model, as not only do the R2 and F-statistic decline, the Log-likelihood does not increase relative to the reduction in parameters, as measured by all three information statistics. It would appear, therefore, that the slight increasing returns detected in the first empirical model cannot be ruled out easily, although the relationship is very close to proportional. Simply put, a 1% change in sales is associated with a greater than 1% increase in the value of the trademark asset.

In reporting estimated values for bankruptcy proceedings, or in valuation analyses generally, it is

important to establish a suitable range of estimated values. Typically, the interval reported is the

interquartile range, i.e. the 50% confidence interval. The coefficient of interest is the one that

corresponds to the liquidation variable. Table 5 shows the 95% intervals for all the coefficients.

Table 5
Confidence Intervals of the Coefficients
t(26, .025) = 2.056

Variable	Coefficient	95% confidence interval
Ln(S)	1.00563	(0.736894, 1.27437)
LIQ	-1.99686	(-3.00449, -0.989226)
GL	1.10898	(-0.0842736, 2.30223)
Year	-0.233636	(-0.494818, 0.0275462)

7.   Application and Discussion

We now proceed to apply the estimated model (12) to the analysis of the valuation questions

touched upon at the beginning of the paper. In 2007, for a predominantly domestic trademark,

the going-concern trademark value function is as follows (substituting $LIQ = GL = 0$ and t =

2007 in the estimated model shown in Table 3):

$$Ln(V^{TM}) = -2.8985 + 1.00563\ Ln(S), \quad \text{and thus,}$$

$$V^{TM} = 0.0551 S^{1.0056} \quad (14)$$

In the same year, a similarly domestic trademark, the liquidation context trademark value

function is as follows (substituting $LIQ = 1$, $GL = 0$ and t = 2007 in the estimated model shown

in Table 3):

$$Ln(V^{TM}) = -4.8954 + 1.00563\ Ln(S), \quad \text{and thus,}$$

$$V\text{\texttrademark} = 0.00753S^{1.0056} \quad (15)$$

Dividing equation (15) by (14), we obtain the proportion of trademark value that remains in a liquidation context, when compared with a going concern scenario; this liquidation value ratio is:

$$V\text{\texttrademark}_{liq}/ V\text{\texttrademark}_{gc} = 0.1358 \qquad (16)$$

In other words, the liquidation trademark value is only 13.58% of the going concern value. Given the information available, the liquidation discount as applied to consumer goods trademark values is statistically stable among different-sized transactions and overall situations. With respect to the statistical model, this ratio can be shown to be the anti-log of the coefficient of the liquidation context dummy variable (*LIQ*). As such, this ratio represents a sample average and, as such, is only a central tendency. The range of likely values is defined by the standard error of the estimated coefficient. In valuation analysis, the customary range is the interquartile interval, rather than the full 95% interval. Thus, in this case, the 50% confidence interval around the estimated coefficient starts at 8.84% and has an upper level of 18.54%. Consequently, the empirical estimation of the model finds liquidation discount ratios most likely fall between 81.5% and 88%, with a central tendency at approximately 91.2% of the going concern value.

As far as the overall relationship of trademark values and Sales, Chart 1 illustrates the estimated model, where trademark value is seen to increase more than proportionately to annual sales, more clearly in the going concern scenario, compared with the liquidation scenario. This means that an additional unit of annual sales is reflected in more than one additional unit of trademark value. It is important to note, however, that this multiplier is not very large (0.6%), and compared to more common stock market metrics, trademark value is only one component of a market value to sales ratio for example. Finally, global trademarks seem to have a higher value,

relative to annual sales, as evidenced by the positive coefficient found, and the passage of time slightly decreases the relative value of the trademarks.

In summary, the hypotheses formulated from the conceptual perspective are generally consistent with the data examined so far. A great proportion of the variation exhibited by trademark values in recent transactions is related in a systematic way to observable variables, and the objective basis of the liquidation discount ratios we have found can supplement the rest of the evaluation techniques customarily applied. The quality of the liquidation analyses can improve significantly on that basis alone.

Chart 1
Trademark Value and Annual Sales
Domestic Trademarks (2006)
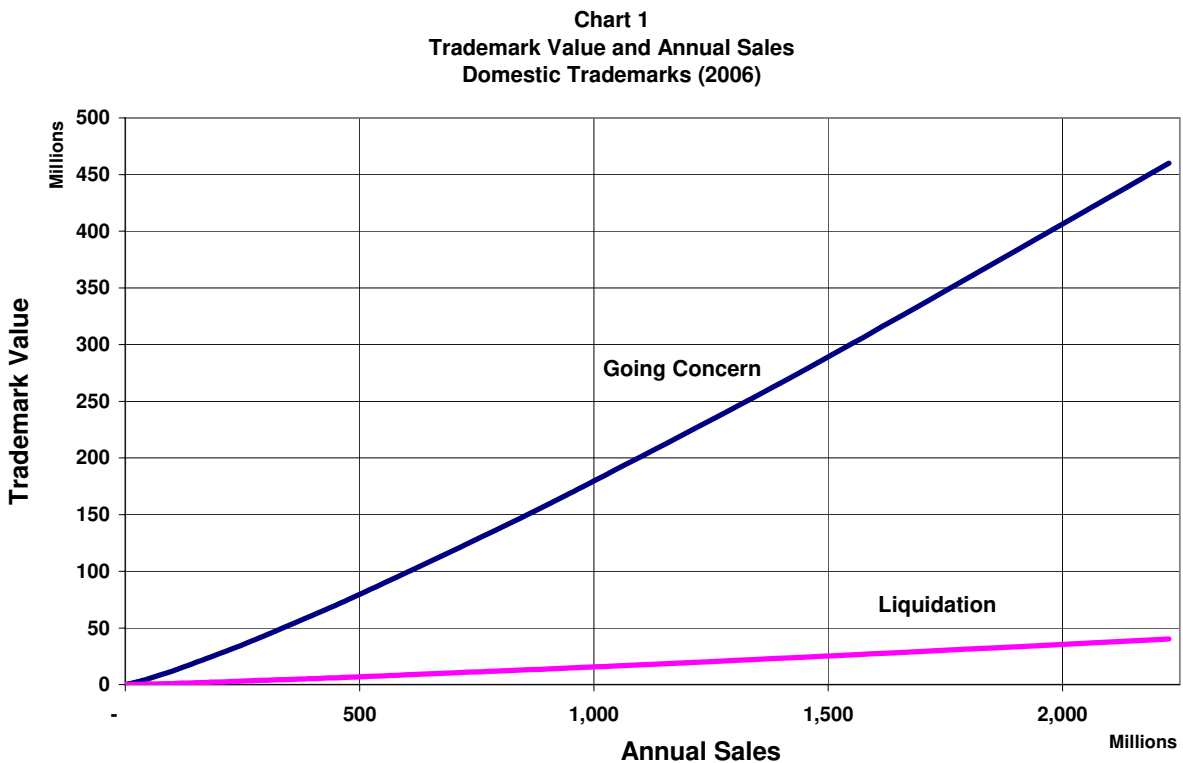
8.   Future research

The application of the model beyond the food sector is still in development, as we gather more detailed information regarding the purchase price allocations, and additional ways to more explicitly model the liquidation scenario, the effects of global trademarks, inflation, etc, are still necessary extensions of the model.

Admittedly, sample size is probably the largest drawback of the work so far, but a model such as this may be seen as a significant improvement to the use of simple averages among a few comparable transactions, as often happens. Worse yet, the unexamined use of arbitrary rules of thumb must be avoided. Valuation of assets in bankruptcy, however, has been shown to be a particularly stubborn area where perverse incentives among competing parties lead to inconsistent enterprise valuations. Gilson, et al have found, lastly, that valuation errors are systematically related to competing interests and the relative bargaining strengths of the claim holders (senior debt versus junior), management's equity ownership, and outside bidders (Gilson 2000).

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Appendix

Observations and Regression Results
(partial)

Going Concern and Liquidation Trademark Values