2011 Volume 2

Journal of Business Valuation

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LETTER FROM THE EDITOR

This edition of *The Journal of Business Valuation* features papers presented at the 2010 CICBV-ASA Joint Business Valuation Conference in Miami.

The topics included in this edition are at the forefront of the North American valuation profession both in theory and in practice. Readers are reminded that the papers contained in *The Journal of Business Valuation* are not the opinions of our Institute but rather of the authors who submitted the papers for this journal.

I would like to thank all of the authors who have submitted papers to our Journal, and also the volunteers and staff who made this edition possible.

Jay Patel, CA, CBV, ACCA (UK)
Chair, Editorial Committee

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SQUARING THE CIRCLE: CAN THE INCOME AND MARKET APPROACHES BE RECONCILED?[1]

by Don M. Drysdale, CPA/ABV, ASA
Drysdale Valuation, Tucson

Introduction

The Uniform Standards of Professional Appraisal Practice ("USPAP") require business appraisers to "reconcile the applicability and relevance of the approaches, methods and procedures used to arrive at the value conclusion(s)."[2] For those who are CPAs and practice business valuation, the Statement on Standards for Valuations Services No. 1 states that you should, "… present a reconciliation of the valuation analyst's estimate or various estimates of the value of the subject interest."[3] Do these standards mean that we, as business valuation professionals, are required to do a mathematical reconciliation of the approaches and methods we use? I can see how some might interpret these standards in that way.

Those who perform valuation work in the financial reporting arena are required to follow the fair value hierarchy found in the Accounting Standards Codification ("ASC"). While this is not intended to be a primer on the ASC and I will not present the details of the fair value hierarchy, Level 2 of that hierarchy clearly states a preference for the market approach. At the same time, purchase price allocations and Step 2 of a goodwill impairment analysis will, most likely, require the development of a DCF model. In these cases, a mathematical reconciliation is vital.

So, the question remains, can the income approach and the market approach be reconciled? I believe the answer is yes, with the ubiquitous qualifier, "under certain circumstances." The public guideline method can be reconciled with a DCF using the Comprehensive Adjusted Public Guideline ("CAPG") method. I do not believe CAPG is the right tool in every case, nor do I believe it can be used as a black box where you input numbers and an appropriate value is the output. Critical analysis on part of the valuation analyst is always required. However, in the correct circumstance, I believe the CAPG method can be a powerful tool.

Fundamental Concepts

In order to understand the CAPG method, we must first understand a few foundational concepts. This first of these is the fact that a price-to-earnings multiple is nothing more than the mathematical

1 This paper was adapted from a presentation delivered at the CICBV-ASA Joint Business Valuation Conference held October 4-6, 2010 in Miami, Florida.
2 Appraisal Foundation, *Uniform Standards of Professional Appraisal Practice*, Standards Rule 9-5 (b).
3 American Institute of Certified Public Accountants, Statement on Standards for Valuation Services No. 1, *Valuation of a Business, Business Ownership Interest, Security, or Intangible Asset*, ¶68.

reciprocal of a capitalization rate. This implies that the discount rate used in the income approach and a guideline multiple used in the public guideline company method are both a measure of the cost of capital. They may be expressed differently, but they both measure the risk associated with an investment. This means that on a basic mathematical level the income approach and the market approach are really the same thing.

Under the income approach we use a measure of economic benefit (usually cash flow) and we divide it by a capitalization rate or discount rate to arrive at a value. Under the market approach we use a measure of economic benefit (i.e. earnings or EBITDA) and multiply it by a valuation multiple to arrive at a value. Mathematically they are the same.

To prove this mathematically, we can multiply a million dollars of cash flow by a P/E multiple of 5 to arrive at a value of $5 million. The mathematical inverse of the P/E multiple of 5 is 20%. We can take the same million dollars of cash flow and divide it by a 20% capitalization rate to arrive at the same $5 million value (see Table 1).

Table 1:

Assumptions:		
Discount rate	=	23%
Growth rate	=	3%
Capitalization rate	=	20% (.23-.03)
P/E multiple	=	5
Earnings	=	$1,000,000
$1,000,000 * 5	=	$5.000.000
$\frac{\$1,000,000}{0.20}$	=	$5,000,000

This means that the key to reconciling the income approach and the market approach is to use the same measure of economic benefit and the same cost of capital for both approaches. If we do so, we will arrive at the same value. Using the same measure of earnings should be easy enough. The real difficulty is arriving at the same cost of capital. Most of us in the business valuation profession use CAPM or its derivative, the build-up method, to estimate the cost of capital under the income approach. With public guideline companies, the cost of capital is estimated from valuation multiples of public guideline companies. Anyone who has been in the business valuation profession for any length of time will understand that using valuation multiples from public guideline companies (unadjusted) will, more often than not, result in a value for the subject interest which is much higher than the value estimated by a DCF. In order to reconcile these divergent measures of the cost of capital, we need to identify, and quantify, where we can, the differences between the cost of capital of the public guidelines and our valuation subject. Doing so will allow us to adjust the valuation multiples of the public guidelines so that they are more appropriate to our valuation subject.

To identify and quantify the differences in the cost of capital, we must first express them in the same manner. This means converting the valuation multiple from the public guideline companies into a capitalization rate. This is done by taking the reciprocal of the multiple by dividing the number one (1) by the valuation multiple (see Table 2).

Table 2:

$$\text{P/E Multiple} = \frac{1}{\text{Capitalization Rate}}$$

This yields an earnings capitalization rate. The discount rate can be determined by adding back the expected long-term blended growth in earnings. Said another way, the capitalization rate can be expressed as the discount rate minus the blended growth rate (see Table 3).

Table 3:

$$\text{P/E Multiple} = \frac{1}{\text{Discount Rate - Growth}}$$

The discount rate can be further broken down to its individual parts via the CAPM (see Table 4).

Table 4:

$$\text{P/E Multiple} = \frac{1}{(R_f + RP_m + RP_s + RP_u) - g}$$

Where:

R_f	=	Risk free rate
RP_m	=	Equity risk premium
RP_s	=	Size premium
RP_u	=	Other unsystematic risk premium
g	=	Expected blended long-term growth

Once we understand these mathematical relationships, reconciling the costs of capital becomes an exercise of substituting one or more of the above variables applicable to the public guideline for a variable that is more applicable to the valuation subject. This means adjusting the multiples from the public guidelines for differences in size, other unsystematic risks, and expected

growth. This paper is not intended to present the details of how to quantify these differences. Doing so would take up more pages than we have available here. As such, I will provide summaries of how these adjustments are made.

Adjusting the Public Guideline Multiples

The first of these adjustments is probably the most obvious. Public guideline companies are usually much larger than most private subject companies we work with. Empirical data tell us that larger companies are generally thought of as being less risky than smaller companies. More specifically, the Duff & Phelps' Risk Premium Report and Morningstar's SBBI yearbook provide the data needed to make adjustments for differences in size. To adjust for differences in size, we simply substitute the subject interest's size premium for the public guideline's size premium. For example, if the public guideline has a size premium of 3% and our valuation subject has a size premium of 6%, we replace the guideline's 3% with the subject's 6% in the formula shown in Table 4.

Adjusting the public guidelines for other unsystematic risk (aka company specific risk) is more subjective than adjusting for size. The company specific risks for the public guidelines can only be imputed. We can find and estimate all the other CAPM variables for the public guidelines, leaving us to solve the equation for the company specific risk in order to determine its amount. And, of course, the company specific risk for the valuation subject is a matter of professional judgment. Assuming we determine that the company specific risk for a public guideline is 2.5%, and the valuation subject has a company specific risk of 4.5%, we would replace the guideline's 2.5% with the subject's 4.5% to adjust for differences in company specific risk.

The subjectivity of the adjustment for expected growth lies somewhere between the adjustment for size and the adjustment for other unsystematic risks. Online data sources provide analysts' estimates of future growth for many public companies. But these estimates are limited to estimates for the next year and for the next five years. That means the valuation analyst must make a judgment about the public guideline's growth beyond five years. This task is made easier under the concept of "mean reversion." In this context, mean reversion suggests that over the long-term, growth rates of most companies will revert to the mean growth of the overall economy. Data indicate this rate of growth is between 2.5% and 3%. With the 5-year analysts' estimated growth and the concept of mean reversion, we can compute a blended long-term growth expectation for each public guideline company.

Assuming a public guideline has an expected blended growth of 5% and our subject company has an expected blended growth of 3%, we would replace the guideline's expected growth of 5% with the subject's expected growth of 3% to adjust for differences in growth. Table 5 illustrates the adjustments for size, other unsystematic risk and growth.

Table 5:

$$\text{P/E Multiple} = \frac{1}{(R_f + RP_m + RP_s + Rp_u) - g}$$

$$\text{Unadjusted 11.11} = \frac{1}{(0.03 + 0.055 + 0.03 + 0.025) - 0.05}$$

$$\text{Adjusted 6.25} = \frac{1}{(0.03 + 0.055 + 0.06 + 0.045) - 0.03}$$

By making these adjustments, we see that the guideline P/E multiple in the example goes from 11.11 down to 6.25. The mathematical formula that accomplishes the same procedure is shown in Table 6.

Table 6:

$$\text{Adjusted Multiple} = \frac{1}{\frac{1}{\text{Guideline Multiple}} + \theta + \mu + \lambda}$$

Where:

θ = Subject size premium less guideline size premium

μ = Subject unsystematic risk less guideline unsystematic risk

λ = Guideline growth less subject growth

When we input the same variables into this formula as were used in the previous example, we see that it yields the same result — the guideline P/E multiple is adjusted from 11.11 to 6.25 (see Table 7.)

Table 7:

$$6.25 = \frac{1}{\frac{1}{11.11} + 0.03 + 0.02 + 0.02}$$

Where:

θ = 0.06 - 0.03 = 0.03

μ = 0.045 - 0.025 = 0.02

λ = 0.05 - 0.03 = 0.02

Invested Capital Example

The previously presented example and formula related to the P/E multiple, which measures the value of equity. In many cases we may want to arrive at a value of the invested capital for the valuation subject This can be accomplished with the addition of the ratio of market value of equity to the market value of invested capital ("MVIC"), as a variable to the equation (see Table 8).

Table 8:

$$\text{Adjusted Multiple} = \frac{1}{\frac{1}{\text{Guideline Multiple}} + \varepsilon\,(\Theta + \mu) + \lambda}$$

ε	=	Market value of equity divided by MVIC
θ	=	Subject size premium less guideline size premium
μ	=	Subject unsystematic risk less guideline unsystematic risk
λ	=	Guideline growth less subject growth

With this formula, the guideline multiple should be an invested capital multiple, such as MVIC-to-EBIT or MVIC-to-EBITDA, and the resulting adjusted multiple should be applied to the subject company's EBIT (in the case of a MVIC-to-EBIT multiple) or EBITDA (in the case of a MVIC-to-EBITDA multiple). When we populate the variables we can see the effect of the adjustments on the multiple (see Table 9).

Table 9:

$$5.714 = \frac{1}{\frac{1}{8.00} + 0.60\,(0.03 + 0.02) + 0.02}$$

ε	=	Market Value of Equity is 60% of MVIC
θ	=	0.06 - 0.03 = 0.03
μ	=	0.045 - 0.025 = 0.02
λ	=	0.05 - 0.03 = 0.02

This example shows that the public guideline invested capital multiple of 8 is adjusted down to 5.714.

Revenue Multiple Example

We can also use this technique to adjust revenue multiples. To do so, we add an additional variable representing the ratio of revenue to after-tax EBITDA. The formula containing this additional variable is found at Table 10.

Table 10:

$$\text{Adjusted Multiple} = \frac{1}{\frac{1}{\text{Guideline Multiple}} + \alpha\,\varepsilon\,(\Theta + \mu) + \lambda}$$

α	=	Revenue to after-tax EBITDA ratio
ε	=	Market value of equity divided by MVIC
θ	=	Subject size premium less guideline size premium
μ	=	Subject unsystematic risk less guideline unsystematic risk
λ	=	Guideline growth less subject growth

When the variables are populated, we can see the impact on the revenue multiple (see Table 11.)

Table 11:

$$0.748 = \frac{1}{\frac{1}{0.80} + 1.25 * 0.60\,(0.03 + 0.02) + 0.05}$$

α	=	Revenue is 125% of after-tax EBITDA
ε	=	Equity – 60% of MVIC
θ	=	0.06 - 0.03 = 0.03
μ	=	0.045 - 0.025 = 0.02
λ	=	0.10 - 0.05 = 0.05 (difference in revenue growth)

It is important to note here that the growth rates need to match the multiple being adjusted. For example, earnings growth should be used with a P/E multiple, EBITDA growth should be used with a MVIC-to-EBITDA multiple, and revenue growth should be used with a revenue multiple.

Case Study

This case study is based on an actual goodwill impairment engagement where my firm performed Step 2 of the analysis. In this analysis we measured the fair value of the subject company under the public guideline company method. We also performed a DCF analysis that was used as the basis for measuring the fair value of various intangible assets. A summary of some of the financial metrics is contained in Table 12.

Table 12:							
$ in millions	AIN	BLL	DOV	KMT	KTEC	NDSN	Subject
Revenue	$888.9	$7,214.7	$5,995.7	$1,740.0	$105.5	$879.4	$231.6
Gross profit	287.6	1,214.0	2,140.2	475.6	39.0	494.1	67.3
Operating income	23.8	669.1	654.4	10.5	2.9	117.3	20.4
Pre-tax earnings	28.5	477.7	566.5	(11.1)	2.2	115.7	(20.7)
Adjusted earnings	31.4	340.3	378.1	(6.0)	1.7	79.7	(13.0)
EBITDA	93.2	948.3	909.5	105.6	5.9	150.0	52.5
Total assets	1,372.2	6,792.1	7,772.3	2,357.6	80.7	1,106.2	647.0
Current assets	511.1	2,677.1	2,589.6	884.4	59.6	331.6	127.9
Total liabilities	929.3	5,313.0	3,731.9	956.9	28.4	481.9	528.8
Current liabilities	194.4	1,552.1	943.5	386.7	22.5	126.2	57.8

The growth information for the public guidelines and the subject company are contained in Table 13.

Table 13:							
	AIN	BLL	DOV	KMT	KTEC	NDSN	Subject
Historical Revenue:							
1-year	-20.4%	-4.9%	-22.4%	-33.5%	-21.4%	-21.3%	-25.9%
3-year	-4.0%	4.5%	-0.4%	-9.2%	7.5%	-0.2%	-9.51%
5-year	-0.5%	6.1%	3.4%	-3.3%	5.5%	3.1%	1.29%
Analysts' estimates							
5-year revenue	2.7%	9.0%	5.5%	12.2%	5.9%	7.1%	
5-year earnings	14.0%	12.0%	14.0%	7.18%	15.0%	14.9%	13.0%
Blended long-term growth - EBITDA	5.98%	5.81%	5.73%	2.93%	5.05%	5.50%	4.50%

Table 14 shows the computation of market value of invested capital for each of the public guidelines.

Table 14: Shrs & $ in millions	AIN	BLL	DOV	KMT	KTEC	NDSN
Stock price	$19.38	$49.22	$38.52	$24.40	$11.13	$56.71
Shares outstanding	27.6	94.1	186.2	81.4	4.9	33.6
Market value of shares	$534.8	$4,631.6	$7,172.4	$1,986.2	$54.5	$1,905.5
Market value of options	4.1	105.0	64.1	23.1	0.0	0.0
Market value of equity	538.9	4,736.6	7,236.5	2,009.3	54.5	1,905.5
Interest bearing debt	515.9	2,532.7	1,827.0	325.0	5.7	201.2
MVIC	$1,054.8	$7,269.3	$9,063.5	$2,334.3	$60.2	$2,106.7
Mkt value of equity to MVIC	0.5109	0.6516	0.7984	0.8608	0.9053	0.9045

Table 15 shows the computation of the P/E multiple, the implied cap rates and the implied discount rate for the public guidelines, and the implied other unsystematic risk.

Table 15 $ in millions	AIN	BLL	DOV	KMT	KTEC	NDSN
Market value of equity	$538.9	$4,736.6	$7,236.5	$2,009.9	$54.5	$1,905.5
Divided by adjusted earnings	$31.4	$340.3	$378.1	$(6.0)	$1.7	$79.7
P/E multiple	17.16	13.92	19.14	(334.98)	32.06	23.91
Capitalization rate (inverse)	0.0583	0.0718	0.0522	(0.0030)	0.0312	0.0418
Add blended growth rate	0.0598	0.0581	0.0573	0.0293	0.0505	0.0550
Discount rate	0.1181	0.1299	0.1195	0.0263	0.0817	0.0968
Size adjusted equity risk premium[1]	0.0851	0.0678	0.0648	0.0767	0.1112	0.0852
Implied other unsystematic risk:						
Discount rate	0.1181	0.1299	0.1195	0.0263	0.0817	0.0968
Less risk-free rate	(0.0402)	(0.0402)	(0.0402)	(0.0402)	(0.0402)	(0.0402)
Less size adjusted equity risk premium	(0.0851)	(0.0678)	(0.0648)	(0.0767)	(0.1112)	(0.0852)
Implied other unsystematic risk	(0.0072)	0.0219	0.0145	(0.0906)	(0.0697)	(0.0286)

[1] Median of the formula derived size adjusted equity risk premia from Puff & Phelps Risk Premium Report with size measured by annual sales, 5-year average EBITDA, total assets and number of employees.

In the analysis we arrived at the conclusion that the MVIC-to-EBITDA multiple was the most appropriate multiple to use. We computed this multiple for each of the public guideline companies in Table 16, based on the results of the previous tables.

Table 16: $ in millions	AIN	BLL	DOV	KMT	KTEC	NDSN
MVIC	$1,054.8	$7,269.3	$9,063.5	$2,334.3	$60.2	$2,106.7
Divided by EBITDA	$93.2	$948.3	$909.5	$105.6	$5.9	$150.0
MVIC to EBITDA multiple	11.31	7.67	9.97	22.11	10.20	14.04
EBITDA capitalization rate (inverse)	0.0884	0.1304	0.1003	0.0452	0.0980	0.0712
Add blended long-term growth	0.0598	0.0581	0.0573	0.0293	0.0505	0.0550
EBITDA discount rate	0.1482	0.1885	0.1575	0.0745	0.1485	0.1262
Subject's size adj. ERP	0.0967	0.0967	0.0967	0.0967	0.0967	0.0967
Less guidelines' size adj. ERP	(0.0851)	(0.0678)	(0.0648)	(0.0767)	(0.1112)	(0.0852)
Add subject's unsystematic risk	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150
Less guidelines' unsystematic risk	0.0072	(0.0219)	(0.0145)	0.0906	0.0697	0.0286
Gross adjustment	0.0338	0.0220	0.0324	0.1256	0.0702	0.0551
Multiply by Mkt value of equity to MVIC	0.5109	0.6516	0.7984	0.8608	0.9053	0.9045
Net adjustments	0.0173	0.0143	0.0259	0.1081	0.0636	0.0498
EBITDA discount rate	0.1482	0.1885	0.1575	0.0745	0.1485	0.1262
Add net adjustments	0.0173	0.0143	0.0259	0.1081	0.0636	0.0498
Adjusted EBITDA discount rate	0.1655	0.2028	0.1834	0.1826	0.2121	0.1760
Less Subject's blended growth	(0.0450)	(0.0450)	(0.0450)	(0.0450)	(0.0450)	(0.0450)
Adjusted EBITDA capitalization rate	0.1205	0.1578	0.1384	0.1376	0.1671	0.1310
Adjusted MVIC-to-EBITDA (reciprocal)	**8.30**	**6.34**	**7.23**	**7.27**	**5.98**	**7.63**

The median of the adjusted MVIC-to-EBITDA multiples is 7.25 with a mean of 7.13. We selected the median as most applicable and computed the fair value of the enterprise as shown in Table 17.

Table 17: $ in millions	
EBITDA	$52.5
Selected MVIC-to-EBITDA Multiple	7.25
Enterprise value	**$380.6**

We then developed a DCF model from management's assumptions as shown in Table 18, arriving at the same enterprise value as with the public guideline companies.

Table 18: $ in millions		Year 1	Year 2	Year 3	Year 4	Year 5	Residual
Revenue		$245.5	$275.0	$297.0	$311.8	$321.2	$330.8
Gross profit	29.0%	71.2	79.7	86.1	90.4	93.1	95.9
Operating expenses	10.96%	26.9	30.1	32.6	34.2	35.2	36.3
EBITDA		44.3	49.7	53.5	56.2	57.9	59.6
Depreciation. and amort.		36.9	36.5	36.2	36	36.2	36.3
EBIT		7.4	13.2	17.3	20.2	21.7	23.3
Income taxes	37.0%	(2.7)	(4.9)	(6.4)	(7.5)	(8.0)	(8.6)
Debt free income		$4.7	$8.3	$10.9	$12.7	$13.7	$14.7
Depreciation and amort.		36.9	36.5	36.2	36.0	36.2	36.3
Working capital needs	3.57%	(3.9)	(8.3)	(6.2)	(4.1)	(2.6)	(2.7)
Capital expenditures		(1.1)	(1.2)	(1.3)	(1.4)	(1.4)	(1.5)
Cash flow to inv. cap.		36.6	35.3	39.6	43.2	45.9	46.8
Capitalization rate							11.0%
Capitalized residual							425.5
Present value factor	14.0%	0.93659	0.82157	0.72067	0.63217	0.55453	0.55453
Present values		$34.3	$29.0	$28.5	$27.3	$25.5	236.0
Enterprise value							**$380.6**

Conclusion

The income approach and the market approach can be reconciled, and one method to do so is the Comprehensive Adjusted Public Guideline method. This method allows us to analyze and identify the differences in the cost of capital derived from the build-up method and the cost of capital derived from public guideline valuation multiples. While this method will not be appropriate in all circumstances, it can be very helpful when appropriately applied.

2

FAIRNESS OPINIONS IN AFFILIATED PARTY TRANSACTIONS

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I. INTRODUCTION

This article discusses fairness opinions in affiliated party transactions and focuses on the following topics: what fairness opinions address, what "fairness" means, criticism of fairness opinions, Delaware law's impact on their content and use, FINRA and SEC requirements, and valuation methods employed.

Our recommendations and comments are italicized and placed in a paragraph under the relevant text.

Affiliated party transactions, also known as related party transactions and non-arm's-length transactions, include the following:

- going-private transactions through a negotiated merger (one-step freezeouts),
- going-private transactions through a two-step transaction (two-step freezeouts – a tender offer followed by a short-form merger),
- going private through a reverse stock split,
- leveraged buyouts with management participation,
- recapitalizations,
- material sales of particular parts of a business to insiders,
- transactions in which high-vote shares receive greater consideration than low-vote shares, and
- transactions in which insiders receive different consideration from other shareholders.

A. What Do Fairness Opinions Address?

A fairness opinion is a letter report that states whether or not a transaction, or the consideration paid in a transaction, is fair from a financial point of view to a group of constituents as of a specific date. It is addressed to the fiduciaries responsible for determining whether the proposed transaction should be recommended on behalf of these constituents. Fairness opinions are normally prepared by a knowledgeable financial advisory firm, generally an investing banking firm or a

valuation firm. An opinion of fairness from a financial point of view expresses the financial advisor's conclusion, supported by its analyses that the financial terms of a proposed transaction fall within a range to which the parties might reasonably agree. The opinion letter sets forth the assumptions, limitations and procedures relevant to the conclusion.

B. What is Financial "Fairness?"

A determination of financial fairness weighs what is being given up against what is being received in a particular transaction. The financial advisor determines a range of values based on various valuation approaches, giving consideration to current financial data and expected future results. Unlike a valuation, a fairness opinion does not determine a specific dollar value of a company, but instead determines whether the proposed transaction is financially fair based on the terms of the transaction and on market conditions at the date of the opinion.

It is important to note that even if a proposed transaction is deemed fair, it does not mean that the proposal must be accepted. Directors may exercise their business judgment to reject a proposed transaction even if the consideration offered is fair. Furthermore, a fairness opinion is not a recommendation that the parties enter into a transaction; it merely provides a basis for decision-making and is only one of the factors the decision-makers should consider.

C. The Widespread Criticism of Fairness Opinions

There have been extensive criticisms of fairness opinions in affiliated party transactions in the financial press,[1] in academic articles,[2] and in the courts. The fact that fairness opinions are necessarily subjective can lead to different views, and the quality of the analyses has often been questioned. The criticisms, however, go deeper. The principal criticisms address:

- opinions that are conflicted because a major portion of the fee is contingent on closing,
- perceived bias because of past and potential future relations between the opinion-giver and the acquiror,
- an appearance that analyses are manipulated to achieve a pre-determined result, and
- the extensive use of disclaimers in the opinion letter.

D. Fairness Opinions in Affiliated Party Transactions

By their nature, going-private and other affiliated party transactions may be subject to controller opportunism. In these transactions, a public company's board of directors usually appoints an independent committee that engages an independent firm to render a fairness opinion.[3] The opinion report with its financial analyses evidences that the fiduciaries' approval is based on consideration of the transaction's benefit for the minority shareholders. A fairness opinion provides decision-makers with information which may affect their decision, and it confirms in litigation that they used reasonable business judgment in approving the transaction. In addition, summaries of the financial analyses underlying the opinion are provided to minority shareholders in the proxy statement or tender offer to assist in their decisions.

1 See, *e.g.*, Andrew R. Sorkin, "Mergers: Fair Should Be Fair," N.Y. Times, Mar. 25, 2005.
2 See, *e.g.*, Steven M. Davidoff, "Fairness Opinions," 55 Am. U. L. Rev. 1557 (2006).
3 There is one exception: Delaware exempts short-form mergers from a fairness requirement (*Glassman v. Unocal Exploration Corp.*, 777 A.2d 242 (Del. 2000)). Under Delaware law, a controller who owns at least 90% of each class of stock may consummate a "short-form" merger without a shareholder vote. The shareholder's only remedy is appraisal.

II. DELAWARE'S INFLUENCE ON FAIRNESS OPINIONS IN AFFILIATED PARTY TRANSACTIONS

The Delaware courts have effectively set the standards for reviewing fairness of corporate affiliated party disputes. Delaware corporate law is widely accepted and a majority of listed companies are incorporated in Delaware.

A. Delaware Requires Financial Advisors for Freezeouts

Delaware requires that when a freezeout is proposed, the independent committee must be given the ability to hire their own independent financial and legal advisors and be given sufficient time to react. Moreover, the shareholders must be given adequate summaries of the advisor's analyses to enable the shareholders to make an informed judgment.[4] Although a 2000 Delaware decision held that "fairness opinions … are not generally essential as a matter of law, to support an informed business judgment,"[5] later decisions began to call for them.[6] A 2010 decision on this issue, *CNX Gas*, not only effectively mandated fairness opinions in freezeouts but spelled out as well that unless the independent committee affirmatively recommends the transaction based on its financial advisor's opinion, the Court will subject the transaction to a strict standard of scrutiny ("entire fairness" review) rather than the more lenient "business judgment" review.[7]

The fairness opinion requirement, along with the necessity of the independent committee's positive recommendation to the minority shareholders based on it, arose from freezeout transactions. Although these decisions address freezeouts, we believe that the reasoning which requires an independent financial valuation as well as a positive recommendation could be expanded in the future to other types of affiliated party transactions.

B. Delaware Disclosure Requirements

The general rule in Delaware today is based on the Court's insistence that shareholders receive information that enables them to understand the basis of the independent committee's recommendation so that they can decide on their course of action. Directors have "a fiduciary duty to disclose fully and fairly all **material** information within the board's control."[8]

The key determinant as to information that must be disclosed is whether that information is **material** to the minority shareholder. If the Court has decided that a certain type of information, such as financial analyses, is material in the subject case, disclosure is required. The U.S. Supreme Court in 1976 set forth the "materiality" standard that is still in force:

> An omitted fact is material if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote. Put another way, there must be a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the "total mix" of information made available.[9]

4 *In re Pure Resources, Inc. Shareholder Litigation*, 808 A.2d 421, 445 (Del. Ch. 2002).
5 *Crescent/Mach I Partners v. Turner*, 846 A.2d 963, 984 (Del. Ch. 2000), citing *Smith v. Van Gorkom*, 488 A.2d 858, 876 (Del. 1985).
6 See *Pure Resources* at 445, *In re Cox Communications, Inc. Shareholder Litigation,* 879 A.2d 604, 624 (Del. Ch. 2005).
7 *In re CNX Gas Corporation Shareholder Litigation*, 4 A.3d 397, 412-3 (Del. Ch. 2010). The Court also ruled that the committee be empowered to elect to take appropriate defensive measures, such as a "poison pill." *Id.* at 414-5.
8 *Gantler v. Stevens*, 965 A.2d 695, 710 (Del. 2009), citing *Stroud v. Grace*, 606 A.2d 75, 84 (Del. 1992).
9 *TSC Industries, Inc. v. Northway, Inc*., 426 U.S. 438, 449 (1976).

Vice Chancellor Leo Strine stated in *Pure Resources* (2002) that the general legal standards that govern plaintiffs' claims for disclosure of financial information are settled:

> [S]tockholders are entitled to disclosure of all **material** [emphasis added] facts pertinent to the decisions they are being asked to make. . . . [They] rely on those documents to provide the substantive information on which stockholders will be asked to base their decision whether to accept the merger consideration or to seek appraisal.
>
> As a result, it is the information that is **material** [emphasis added] to these various choices that must be disclosed. In other words, the S-4 and the 14D-9 must contain the information that "a reasonable investor would consider important in tendering his stock," including the information necessary to make a reasoned decision whether to seek appraisal.[10]

1. Delaware Does Not Require Disclosure of Data Sufficient for Independent Determination of Fair Value

Although the Courts agree that minority shareholders must have a basis for understanding how the Board came to its decision, Delaware does **not** require disclosure of all the extensive and detailed information necessary for minority shareholders or their advisors to conduct an independent valuation. Indeed, "Delaware law does not require stockholders be 'given all the financial data they would need if they were making an independent determination of fair value'."[11] The Court has said, "A disclosure that does not include all financial data needed to make an independent determination of fair value is not, however, per se misleading or omitting a material fact. The fact that the financial advisors may have considered certain non-disclosed information does not alter this analysis."[12] It observes that a minority shareholder who believes the transaction is unfair and wishes to conduct an independent valuation can undertake an appraisal action.[13]

2. Delaware Does Requires Summaries of Advisor's Financial Analyses

The Delaware Courts recognize the materiality of substantiated valuations and the necessity of disclosure to minority shareholders of the important information in the financial advisor's analyses.[14] Delaware requires that a detailed summary of the analyses underlying a fairness opinion be included in the documents sent to shareholders. The *Pure Resources* decision stated:

> [C]ourts must be candid in acknowledging that the disclosure of the banker's "fairness opinion" alone and without more, provides stockholders with nothing other than a conclusion, qualified by a gauze of protective language designed to insulate the banker from liability.
>
> The real informative value of the banker's work is not in its bottom-line conclusion, but in the valuation analysis that buttresses that result. . . . [A] minority stockholder engaging in the before-the-fact decision whether to tender would find it material to know the basic valuation exercises that [the investment banker] undertook, the key assumptions that they used in performing them, and the range of values that were thereby generated.[15]

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10 *Pure Resources* at 448-9, citing *Zirn v. VLI Corp.,* 621 A.2d 773, 779 (Del. 1993).

11 *Globis Partners, L.P. v. Plumtree Software, Inc.,* 2007 Del. Ch. LEXIS 169 (Nov. 30, 2007) at *45, citing *Skeen v. Jo-Ann Stores, Inc.*, 750 A.2d 1170, 1174 (Del. 2000).

12 *In re General Motors (Hughes) Shareholder Litigation*, 2005 Del. Ch. LEXIS 65 (May 4, 2005) at *65.

13 Recent cases in which the Court deemed the disclosures adequate and pointed out the appraisal option are *In re 3Com Shareholders Litigation*, 2009 Del. Ch. LEXIS 215 (Dec. 19, 2009) at *21 and *In re Cogent, Inc., Shareholder Litigation*, 7 A.3d 487, 516 (Del. Ch. 2010).

14 As discussed below, the SEC also requires a summary of the fairness opinion analyses in going-private transactions.

15 *Pure Resources* at 449.

A 2010 decision similarly held, "[S]tockholders are entitled to a fair summary of the substantive work performed by the investment bankers upon whose advice their board relied in reaching their recommendation."[16]

Although the summary must cover the various methods used by the financial advisor, it does not have to disclose whether or why the advisor's analyses deviated from accepted practices or from the Delaware standards for determining fair value.[17] In addition, if the financial advisor has performed its DCF analysis based on its own projections, there is no requirement to disclose these projections.[18]

In practice, these summaries of investment banker analyses are often of limited value to shareholders. The summaries give limited data such as ranges of value and the names of selected guideline companies and guideline transactions without presenting data for these companies. The summaries of DCF analyses give a range of value, discount rates, and the method of calculating terminal value but often give no other data. It is our belief that these summaries are therefore of limited value to shareholders. The Court should consider requiring that the valuation section of the advisor's presentation to the independent committee (which has to be filed with the SEC) be attached as an exhibit to the document sent to shareholders.

3. Summary of Management Projections Provided to Advisor Is Required

Delaware has ruled that a proxy statement should "give the stockholders the best estimate of the company's future cash flows as of the time the board approved the [transaction]."[19] The Court said:

> [S]tockholders must measure the relative attractiveness of retaining their shares versus receiving a cash payment, a calculus heavily dependent on the stockholders' assessment of the company's future cash flows. . . .
>
> It would therefore seem to be a genuinely foolish . . . inconsistency to hold that the best estimate of the company's future returns, as generated by management and the Special Committee's investment bank, need not be disclosed when stockholders are being advised to cash out. . . . Indeed, projections of this sort are probably among the most highly-prized disclosures by investors. What [investors] cannot hope to do is replicate management's inside view of the company's prospects.[20]

Nonetheless, even though a valuation analysis is heavily dependent upon the projections utilized, the Delaware Courts permit summaries and do not require detailed management projections to be disclosed.

When the disclosed management projections included no more than revenues, gross margin, operating profit, and EPS, the Court determined that "full disclosure of the projections would [not] alter the total mix of available information."[21] More recently, however, the Court in *Maric Capital* ordered that projected free cash flow be included in the summarized projections,[22] ruling that "management's best estimate of the future cash flow . . . is clearly material information."[23] In a situation

16 *Cogent* at 511; see *Pure Resources* at 450.
17 *3Com* at *21.
18 *Id.* at *23.
19 *David P. Simonetti Rollover IRA v. Margolis*, 2008 Del. Ch. LEXIS 78 (June 27, 2008) at *30, citing *In re Netsmart Technologies, Inc. Shareholders Litigation*, 924 A.2d 171, 203 (Del. Ch. 2007).
20 *Netsmart* at 203.
21 *3Com* at *7, fn. 11 and *10.
22 *Maric Capital Master Fund, Ltd. v. Plato Learning, Inc.*, 2010 Del. Ch. LEXIS 115 (May 13, 2010) at *9.
23 *Id*. at *11.

where a company disclosed projections that the financial advisor had not used, the Court required that the projections relied on by the advisor also be disclosed.[24]

When projections were stale, the Court understandably ruled that no disclosure was required.[25] Similarly, the Court also did not require disclosure of projections that it deemed incomplete because they did not reflect known risks.[26]

In practice, the determination of what is material to the investor and important to the "total mix of information" varies within the Court of Chancery. The recent Maric Capital *decision (discussed above) requiring the disclosure of projected free cash flow is a positive step for investors.*

In our view, given the emphasis that the Delaware Courts have placed on DCF analyses in valuation cases,[27] *more detailed management projections should be disclosed.*

C. Delaware Requires that Financial Advisor's Conflicts Be Disclosed

"[C]onflicts of interest must be disclosed [whether or not] there is evidence that the financial advisor's opinion was actually affected by the conflict."[28] When an advisor had previously worked for the buyer, the Court criticized a proxy statement because it did not disclose "how much [the investment bank] was paid, whether it would have received the same payment even if it was unable to render a fairness opinion . . . or how much [it] has earned in recent periods from . . . members of the buyer group."[29] In a situation where the investment bank rendering a fairness opinion benefited from its ownership of securities, the Court ruled that the bank's entire benefit, including benefits as a debtholder and warrantholder, must be disclosed.[30]

The Court recognizes the conflict raised by contingent fees, stating that "the contingent nature of an investment banker's fee can be material and have actual significance to a shareholder relying on the banker's stated opinion."[31]

The Court also recognizes that projections prepared by a party with an interest in the transaction may be biased. It rejected a valuation based on projections prepared by an officer who bought a business from a company.[32]

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24 *Netsmart* at 200.

25 *In Re PNB Holding Co. Shareholders Litigation*, 2006 Del. Ch. LEXIS 158 (Aug. 18, 2006) at *69-70. "[O]ur law has refused to deem projections material unless the circumstances of their preparation support the conclusion that they are reliable enough to aid the stockholders in making an informed judgment." *Id.* at *60.

26 *In re CheckFree Corporation Shareholders Litigation*, 2007 Del. Ch. LEXIS 148 (Nov. 1, 2007) at *10-11.

27 See*, e.g., Grimes v. Vitalink Comm. Corp.,* 1997 Del. Ch. LEXIS 124 (Aug. 26, 1997) at *3 ("[The] discounted cash flow model [is] increasingly the model of choice for valuations in this Court."); *Gholl v. eMachines, Inc.,* 2004 Del. Ch. LEXIS 171 (July 7, 2004) at *20 ("This [DCF] method is widely accepted in the financial community and has frequently been relied upon by this Court in appraisal actions.").

28 *In re John Q. Hammons Hotels Inc. Shareholder Litigation*, 2009 Del. Ch. LEXIS 174 (Oct. 2, 2009) at *56.

29 *Ortsman v. Green*, 2007 Del. Ch. LEXIS 29 (Feb. 28, 2007) at *4-5.

30 *Simonetti* at *26.

31 *Louisiana Municipal Police Employees Retirement System v. Crawford*, 918 A.2d 1172, 1191 (Del. Ch. 2007).

32 *McPadden v. Sidhu,* 964 A.2d 1262,1272 (Del. Ch. 2008).

D. Delaware Requires Independent Opinions in Affiliated Party Transactions

Recent Delaware decisions have been critical of independent directors who engaged firms that had recently advised the control shareholder or were otherwise conflicted.[33] The Court has stated that independent committees should hire their own advisors, holding that where an independent committee employed an advisor who had previously worked for the control party, the "conflict of interest robs [the] fairness opinion of its value as an indicator of fairness."[34]

Since the committee is responsible for negotiations with the control party, and the opinion-giver may function as the committee's de facto financial advisor in connection with these negotiations, the independence of the financial advisor is particularly vital.

1. Advisor Should Structure Its Fee to Maintain Independence

Fairness opinion fees are often about 25% of the customary M&A advisory fee for a transaction of the same size; however, most firms have a minimum fairness opinion fee. Assignments for independent committees sometimes include advisory work and assistance in negotiations.

Furthermore, the committee may contract to pay an incremental fee contingent on the advisor negotiating a higher price. This fee structure rewards the advisor for increasing the consideration paid to minority shareholders. This structure is unlikely to be judicially criticized.

The credibility of an opinion is harmed if the advisor's fee is substantially contingent on closing. Moreover, the fee structure should not give the appearance of favoring a positive opinion. The advisor's engagement letter should provide that the fee is payable whether or not its opinion favors the proposed transaction.[35]

E. Additional Criticisms by the Delaware Courts

The Court criticized opinions that are hastily rendered. In *Weinberger*, the seminal Delaware valuation case, the Delaware Supreme Court discussed the "cursory preparation of the [investment bank's] fairness opinion" in five days, but attributed the problem to the defendants, stating that "the rush imposed on Lehman Brothers by Signal's timetable contributed to the difficulties under which this investment banking firm attempted to perform its responsibilities."[36] More recently, when a fairness opinion was produced in a week, the Court derided the opinion as "pure window dressing intended by defendants to justify the preordained result."[37]

Also, the Court has faulted some opinions that considered what shareholders were receiving but did not weigh what insiders were getting. When high-vote shares received a substantial premium over low-vote shares, the advisor was faulted for failing to opine upon the relative consideration to be received by shareholders in each class.[38] In another case, the Court criticized the directors'

33 *Finkelstein v. Liberty Digital, Inc.,* 2005 Del. Ch. LEXIS 53 (Apr. 25, 2005) at *64, fn. 39; *Gesoff v. IIC Industries Inc.,* 902 A. 2d. 1130, 1150-1 (Del. Ch. 2006); *In re Tele-Communications, Inc. Shareholders Litigation*, 2005 Del. Ch LEXIS 2006 (Oct. 11, 2006) at *41.

34 *Gesoff* at 1150.

35 To demonstrate that the fee is not contingent on a favorable opinion, the engagement letter should contain language such as "The fee for our opinion is $XXX,000, of which 50% shall be paid upon execution of this letter and 50% shall be paid at the time we inform you that we are prepared to render our opinion."

36 *Weinberger v. UOP, Inc*., 457 A.2d 701, 712 (Del. 1983).

37 *In re Sunbelt Beverage Corp. Shareholder Litigation*, 2010 Del Ch. LEXIS 1 (Jan. 5, 2010) at *19.

38 *Tele-Communications* at *55. See also *Levco Alternative Fund Ltd. v. Reader's Digest Association, Inc*., 803 A.2d 428 (Del. 2002).

reliance on a fairness opinion regarding sale of a company that did not consider the concurrent sale of a subsidiary to a major shareholder.[39]

Opinions normally address only the fairness of the consideration to be paid in a given transaction. A transaction can be structurally unfair if certain inside shareholders are receiving materially different consideration than the outside shareholders[40] *or if a class of securities is receiving unjustifiably disproportionate consideration.*[41] *An opinion that the consideration is fair is misleading if the advisor has reason to believe that the transaction taken as a whole is not fair.*

III. GOVERNMENTAL AND PROFESSIONAL REQUIREMENTS FOR FAIRNESS OPINIONS

A. FINRA Rule 5150

The Financial Industry Regulatory Authority, Inc. ("FINRA"), the successor to the National Association of Securities Dealers, Inc. ("NASD"), is a non-governmental self-regulatory organization that has regulatory oversight over all securities firms that do business with the public. It regulates its members through the adoption and enforcement of rules and regulations governing business conduct of member firms.

FINRA Rule 5150 (formerly Rule 2290) became effective in 2007. It set forth disclosure and procedure standards applicable to all FINRA members who render fairness opinions. Although these standards are not explicitly applicable to non-member firms, all practitioners would be well advised to conform to them.

Rule 5150 requires that FINRA member firms have written procedures for approval of a fairness opinion, as well as procedures for internal approval of a fairness opinion. When an internal committee is used, the firm must have written procedures as to the process for selecting committee members, the qualifications for persons on the internal committee, and provisions for review and approval by persons not on the deal team. The committee can include someone on the deal team, but the committee must have a "balanced review."

Rule 5150 also sets forth specific required disclosures that must be made when fairness opinions are included in documents sent to public shareholders. The chart below shows the required disclosures and the customary responses to these requirements.

Disclosures required by Rule 5150	Customary disclosures in practice
1. Whether the member has acted as advisor to any party to the transaction.	1. Past engagements disclosed; hedged as to future engagements.
2. Whether compensation is contingent upon closing. (Amount does not necessarily have to be disclosed.)	2. Whether compensation is contingent is disclosed; compensation amount is often (but not always) disclosed.

39 *Alidina v. Internet.com Corp.*, 2002 Del Ch. LEXIS 156 (Nov. 6, 2002) at *25.
40 *Hammons* at *55-56.
41 See *Tele-Communications* and *Levco*.

3. Any material relationships between the member and any party to the transaction (i) during the preceding two years or (ii) mutually understood to be contemplated	3. Past relationships are disclosed; no disclosure as to future relationships.
4. Whether an internal committee approved fairness opinion.	4. Disclosed.
5. Whether the member has independently verified any company-supplied information that formed substantial basis for its opinion. If so, describe the information verified. (When no information is verified, a blanket statement is sufficient.)	5. Blanket statement that no company-supplied information has been verified by the advisor.
6. Whether the opinion expresses a view as to the fairness of any compensation to officers and directors relative to the payment to public shareholders.	6. No opinion is expressed as to the fairness of compensation to any officers or directors.

B. SEC Rule 13e-3 Fairness Opinion Disclosure Requirements

The SEC has established rules with respect to disclosure in going-private transactions.[42] The actual opinion letter and a summary of the fairness opinion analyses must be included in the proxy statement or tender offer document (Form 14D-9) for the transaction. A description of the substance of written and oral reports and opinions by the advisor must be included as well.

The summary of the analyses must include a discussion of each methodology used. Data such as multiples used in guideline company and guideline transaction analyses and discount rates used in DCF analyses are included. Any limitation imposed on the scope of the investigation must be disclosed. In its comment letters to the company, the SEC often requests supplemental information and may ask for additional disclosure.

Written reports supporting the opinion must be filed as exhibits and must made available at the company's principal office for inspection or copying by a shareholder's designated representative. Companies sometimes make the advisor's final report publicly available.

Any material relationship between the advisor and the company and/or its affiliates must be disclosed. The SEC's requirements are limited to disclosure; it does not require that the advisor be independent.

42 For purposes of Rule 13e-3, going private transactions include any transaction which would cause a class of equity securities to be delisted or to become eligible for termination of registration, or would cause the reporting obligations with respect to such class to become eligible for termination. Other types of affiliated party transactions are not subject to Rule 13e-3.

IV. FAIRNESS OPINIONS IN PRACTICE

A. Methods for Determining Fairness

As any valuation professional would expect, most fairness opinions are based on three methods: discounted cash flow, guideline companies, and guideline transactions (including control premiums). These approaches are normally used unless relevant information, such as reasonable projections or relevant guideline transactions, is not available.

Other approaches occasionally used include asset value, liquidation value, present value of a projected future price, a leveraged buyout model, value available in a recapitalization, target prices published by security analysts, a regression model, and industry-accepted rules of thumb (such as value per ton of steel or per cable subscriber).

The frequently stated Delaware preference for discounted cash flow as a valuation methodology makes the use of DCF mandatory whenever adequate projections are available. But DCF should not be used as the sole approach; other methods should be used to corroborate the conclusion.[43]

About half of the published fairness opinions use a "premiums paid" analysis, which compares the premium over market to be paid in the subject transaction to average premiums paid in other transactions.

The use of average premiums as a standard of fairness is conceptually wrong and statistically flawed. Historical premiums are a biased sample: they include only acquisitions of companies that buyers view as undervalued and exclude companies viewed as overpriced. The premium paid is a result, not a cause: each premium depends on specific facts. Depending on a company's value, a small premium could be fair or a large premium could be unfair.

1. Price Less Than the Highest Bid Can Be Fair

Directors may choose, in their business judgment, to accept an offer whose value is certain rather than a facially higher offer whose value is uncertain or conditional. For example, they may choose to accept (i) a cash bid rather than a higher bid that is subject to anti-trust or other regulatory approval and therefore has a risk of not closing; (ii) a cash bid rather than a bid in stock or debt with a greater current market value; or (iii) a lower bid because of a perceived risk in the higher bid's financing.

The financial advisor is justified in providing a fairness opinion that the selected proposal is fair after giving consideration to the facts and circumstances of the transaction.

2. The Need for Heightened Due Diligence in Affiliated Party Transactions

The due diligence for preparing a fairness opinion in an affiliated party transaction has to be conducted with skepticism. The valuator should recognize that management may have an incentive to prepare overly conservative projections. It is essential to review forecasts that had been made

43 *In re Hanover Direct, Inc. Shareholders Litigation*, 2010 Del. Ch. LEXIS 201 (Sept. 24, 2010) at *5-6. ("[T]here are commonly accepted methodologies that a prudent expert should use in coordination with one another to demonstrate the reliability of its valuation. If a discounted cash flow analysis reveals a valuation similar to a comparable companies or comparable transactions analysis, I have more confidence that both analyses are accurately valuing a company.")

prior to the gestation of the proposal. The valuator should also review information provided to parties asked to assist in financing, since projections given to financing sources are less likely to be low-balled.

B. Appraisal Standards Set a Floor for Fairness

In Delaware, all frozen-out shareholders are entitled to receive at least the "fair value" of their stock, whether or not the structure of the transaction permits shareholders to use the appraisal remedy.[44] In Delaware and in a majority of other states, minority discounts, discounts for lack of marketability, and control premiums may not be considered when valuing shares in appraisal actions.

In arriving at a fairness opinion, the opinion-giver should consider the value of the minority shares under the appraisal standard, because appraisal value in the relevant jurisdiction represents a floor value for fairness. A cash or cash-equivalent transaction should not be considered fair if the consideration is below the price which the opinion-giver believes would likely be awarded in an appraisal action.

C. The Lack of Industry Standards for Fairness Opinions

No professional investment banking or valuation organization has yet proposed standards for fairness opinions. The SEC and FINRA rules do not address any standard that should be considered in determining the fairness of a transaction.

In practice, it is highly unlikely that any investment banking group would propose standards without prodding from the SEC. Members of the academic community have made "ivory tower" proposals involving such concepts as setting the methodology for determining discount rates and prescribing the weighting to be given to different valuation methods. These proposals appear to be impractical.

As the courts review and critique fairness opinions, they contribute toward the evolution of standards. Areas that the courts might conceivably address in the future include, among others, the impact of disclaimers on the credibility of an opinion, improved descriptions of the financial advisor's analyses, financial advisors' liability for questionable opinions, the impact on fairness of factors in addition to the consideration paid, and whether opinions need to be updated.

About the Authors

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44 *Metropolitan Life Insurance Co. v. Aramark Corp.*, 1998 Del. Ch. LEXIS 70 (Feb. 5, 1998) at *6.

3

BEST PRACTICES REGARDING CONTROL PREMIUMS: COMMENTS REGARDING THE APPRAISAL FOUNDATION'S PROPOSED WHITE PAPER ON CONTROL PREMIUMS[1]

by Eric W. Nath, ASA[2]
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After everything that has been written over the past 20 years on the topic of control premiums,[3] it is surprising that so many business valuers[4] still cannot understand why public company shares do not trade as minority interests, and why it is bad practice to add a control premium when valuing a private company using public company data. This paper will further the arguments against control premiums with some new observations that will extend and clarify these concepts. The conclusion of this paper will discuss the dangers of a *Daubert* challenge if one is applying control premiums, both in an accounting and financial reporting context as well as in more general cases.

The Problem of Language

Business valuation as a profession is fairly young. Although people have been valuing businesses for hundreds of years, and the CICBV and ASA have been accrediting business (intangible asset) valuers and appraisers since the 1970s, prior to the 1980s it was essentially a cottage industry. Professionals worked with pencil and paper, slide rules and pocket calculators. With the introduction of the personal computer thirty years ago, valuators gained the ability to work with numbers on automated electronic spreadsheets and produce reports using word-processing software. These advancements greatly reduced the time and cost for both professionals and clients. The advent of the Internet in 1995 further leveled the playing field and reduced costs for valuation professionals, setting the stage for rapid expansion of both supply and demand for business valuation services.

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1 The following article is a distillation of the comments of Eric Nath in a panel discussion on the Appraisal Foundation's proposed White Paper on control premiums presented to the ASA/CICBV Advanced Business Valuation Conference in Miami, Florida on October 6, 2010.

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3 Many articles have been written on the topic of control premiums. See, for example:
Gilbert E. Matthews, "Misuse of Control Premiums in Delaware Appraisals", Business Valuation Review, Summer 2008, pp 107-118, Lawrence A. Hamermesh and Michael L. Wachter, ''The Short and Puzzling Life of the 'Implicit Minority Discount' in Delaware Appraisal Law,'' 156 U. Pa. L. Rev. 1 (2007), pp. 3–4, Richard A. Booth, ''Minority Discounts and Control Premiums in Appraisal Proceedings,'' 57 Business Lawyer 127 (2001), Eric Nath, "How Public Guideline Companies Represent 'Control' Value for a Private Company", Business Valuation Review, December, 1997, pp 167-171, Eric Nath, "A Tale of Two Markets", Business Valuation Review, September, 1994, pp 107-112, Eric Nath, "Control Premiums and Minority Interest Discounts in Private Companies", Business Valuation Review, June, 1990, pp 39-46.

4 This paper, written for an international audience, will use the terms "valuers" and "appraisers" interchangeably to mean professionals involved in business valuation.

Although the technological capabilities of business valuers have evolved dramatically over the last three decades, some of the language and labels used to describe the concepts and the techniques employed in the profession have not kept up. Unfortunately, this slower evolution of the language has allowed many myths to take root and become embedded in the profession. One myth is that public shares trade as minority interests, and therefore convey no control to their owner. A related myth is that premiums paid for public companies in takeovers are indicative of the differential between minority value and control value. If one believes these myths then the obvious corollary is that the reciprocal of a control premium is a minority interest discount.

Language affects the way a culture thinks about and understands the world. In the business valuation profession, the language of "control premiums" has created misunderstandings that have continued to confuse many. Therefore, closer look at the language of control premiums is key to unlocking the logic and conclusions that public shares do not trade as minority interests, and that control premiums should not be used in business valuation (at least not in the traditional way[5]).

In the eyes of most business appraisers, a "control premium" denotes a premium paid in the takeover of a public company. This term entered the lexicon in the 1980s, and was so named based on the superficial observations that public company shares trade as non-controlling blocks, and premiums are generally offered by buyers interested in taking over a public company. On the surface, this differential in price appeared to quantify the value of control. Gigabytes of data have been generated and untold time devoted to analyzing so-called "control premium data" from public company acquisitions.

At the same time, the term "marketable minority interest" was invented as a way to describe what was understood to be the essential nature of shares in the public market. The reason that a public market price was thought to represent "minority" value is that public shareholders have none of the prerogatives of control such as the ability to hire and fire management, borrow money, make acquisitions, sell the company, etc. As a non-controlling block of stock that is nevertheless marketable, the term "marketable minority interest" seemed an obvious representation of what it was like to own shares of a public company.

It was only a short step from there to supposing that when valuing a private company, based on some form of public company analysis, the result was a "minority value." Furthermore, this was said to be true whether the public market data was applied as a multiple under the market approach or as a cost of capital input in the income approach. And, of course, if minority value from the public market is the base from which value is initially derived, then to develop a controlling interest value for a private company, or to determine potential impairment to value of a public company's operating unit on a control basis for financial reporting purposes would require the application of a "control premium" — which could conveniently be based on the so-called "control premium data" from public company takeovers.

5 Traditionally, one adds a "control premium" based on public company takeover premiums to a "marketable minority" level of value in order to obtain a "control-marketable" level of value. Some practitioners are now evaluating the differential in control versus minority at the cash flow level rather than through explicit premiums or discounts. This is an entirely different methodology which may be appropriate in some instances, but it will not be covered in this paper.

The Myth of the "Marketable Minority Interest"

One of the principles being proposed in early drafts of the Appraisal Foundation's White Paper on control premiums is that "control" is an "investment attribute." This concept is important, and true. It deserves deeper exploration in order to properly evaluate any final pronouncements in the Appraisal Foundation's White Paper.

For many business appraisers, it is difficult to understand how a small block of public stock doesn't represent a minority level of value. The answer begins, and really concludes, with the fact that public shareholders have total control over their investment. Goldman-Sachs buys and sells the same stock within the space of less than half a second: they surely have total control over their investment. Nor is this a special case — most investors in the public market have the ability to buy and sell within minutes, if not seconds. If "control" is an "investment attribute," then virtually every public shareholder has total control over their investment. This fundamental investment attribute of owning public stock has been ignored in almost every discussion about "control premiums" and "marketable minority value." Instead, the only issue discussed concerning "control" in a public market context is whether or not a public shareholder can exercise *management* control (i.e. hiring, firing, selling, etc.). But that completely misses the point. Except for large activist investors, no public shareholder has the least interest in anything to do with management control; it would defeat the whole purpose of having a public stock market in the first place! Public markets exist to allow investors the opportunity to easily invest (or disinvest) in companies without requiring any management skill or management responsibility whatsoever on the part of the investor. Management is intentionally outsourced. So, if public stockholders have total control over their investment and that is the only control they want or need, then how can a premium paid in the takeover of a public company possibly have anything to do with the differential in value between minority and control?

In addition to the fact that ownership of public shares conveys to the investor complete control over the investment itself, discussion in the literature concerning public company acquisitions has almost never acknowledged or even considered the fact that every sale of a public company has involved a control-level seller. Those who claim that premiums paid to acquire public companies somehow quantifies the differential in value between lack of control on the selling side and full control on the buying side are forgetting that every public company is actually controlled by a board of directors. The board, in turn, controls management, which exercises tactical control. Finally, it is not necessarily a foregone conclusion that the board of directors cannot be restructured by the shareholders, who represent a third level of control. So, in reality, there are three layers of control in a public company. Once one understands that a sale of a public company is nothing more or less than a transaction between a control seller and a control buyer, it becomes obvious that an acquisition premium for a public company cannot possibly have anything to do with the value of minority versus control.

To help avoid these misconceptions it would help to abandon the terms "marketable minority interest" and "marketable minority level of value" in favor of more to-the-point terms such as "public market value," "public market equivalent value" or perhaps "as-if publicly-traded value." These are better descriptors of what we are really talking about that will help us avoid controversies which seem to be over valuation theory but which are actually linguistic misunderstandings.

The Myth of the Control Premium

If premiums paid in takeovers of public companies have nothing to do with issues of minority value versus control value, why then are premiums usually paid in such acquisitions?

The answer is very simple. Besides the fact that everyone who owns an asset always wants to get the highest price in a sale, a more technical reason is that every seller has an opportunity cost which a buyer must overcome. Public shareholders face the same choice as any other control seller when asked to sell their shares in a tender offer: could I realize a higher return if I don't sell, and if so, how long might it take me to realize a better return — and what are the risks in the meantime? For example, if the stock of a given company is expected to appreciate in value at 10% or 15% over the next year or two, then today's bird-in-the-hand of a 30% or 40% premium might make sense, particularly if this premium is validated by a reasonably rigorous auction.

On a more mechanistic level, acquisition premiums are simply a manifestation of the laws of supply and demand in a liquid market. When buying pressure is put into the system (e.g. an M&A buyer makes a tender offer), the supply and demand curves shift and the price naturally goes up. This is simply Economics 101. The very same market reaction occurs when there is unexpected good news for a company; the stock price charts of public companies under both types of buying pressure tend to look remarkably similar, with higher relative volume and a jump in stock price. It doesn't take a tender offer for a stock to jump 30% in a day, and in fact most high volatility stock market action on the upside occurs in the absence of any proposed takeover. (The reverse phenomenon might be seen in the context of a blockage discount which represents, in effect, excess selling pressure.)

Also not to be forgotten is that tender offers usually only require approval of 90% of the current holders.[6] Exerting enough buying pressure to tip 90% of existing owners into the "sell" column will usually require a higher price (a premium over the previously unaffected value) in the relatively frictionless system of the public market, but usually not nearly as high as it might have to be if the requirement were 100%. It is a fact that sometimes a very high premium is required to tip 90% of the existing holders into the "sell" column, sometimes a low premium, and sometimes market dynamics are such that a company may be acquired at a discount. Again, nothing about these mundane market forces and dynamics speak to, or are driven by, a differential in value between "minority" and "control."

Summary and Conclusion

What can appraisers or valuers take away from the foregoing? First, public shareholders have total control over their investment. This is all the control any public investor needs, so the data being published on "control premiums" is in reality no such thing. It would be much more accurate and less misleading to name this data for what it really is: "acquisition premiums" or "transaction premiums." Although some of the premiums may include some sort of strategic element, there are many more things that enter into the premium data than simply strategic aspects. One thing these

6 "90%" is included here because this is usually the point at which a short-form ("squeeze-out") merger can be accomplished. Of course, not all buyers must meet the 90% hurdle if they already own a substantial position in the company, or if the board issues "top-up options". In addition, this author understands that in some states only an 80% acceptance rate is required to complete a squeeze out. These types of conditions might create less need to pay a high premium.

premiums most emphatically have *nothing* to do with is the value of control versus the value of no control.

Much has also been written in the last two decades about the fact that it is impossible to know which companies in the public market might sell for a premium.[7] Logically, if a public company was truly worth more than its trading price it would almost certainly be snapped up. Every single company in the public market is looked at every single day by strategic buyers, competitors, hedge funds, buy-out funds — there is probably no company that is not being continuously evaluated as a possible acquisition. Only in hindsight can we ever really know which public companies commanded an acquisition premium of some kind. But if we cannot know until our hindsight is 20/20 which companies command a premium, then clearly the only reasonable and logical assumption when using public stocks as a valuation proxy (under either the market approach or the income approach) is to assume that there is no acquisition premium which can be reliably linked with the data.

In ***Daubert v. Merrell Dow Pharmaceuticals (92-102), 509 U.S. 579 (1993)*** the U.S. Federal Court confirmed that the Federal Rules of Evidence — especially Rule 702 — govern the admissibility of expert testimony into evidence. Although *Daubert* did not involve an appraisal issue, these Rules of Evidence have recently become much more important in business valuation litigation. The nub of the *Daubert* case is contained in the following paragraph:

> Faced with a proffer of expert scientific testimony under Rule 702, the trial judge, pursuant to Rule 104(a), must make a preliminary assessment of whether the testimony's underlying reasoning or methodology is scientifically valid and properly can be applied to the facts at issue. Many considerations will bear on the inquiry, including whether the theory or technique in question can be (and has been) tested, whether it has been subjected to peer review and publication, its known or potential error rate, and the existence and maintenance of standards controlling its operation, and whether it has attracted widespread acceptance within a relevant scientific community.

With so much literature demonstrating the invalidity of "control premiums" and "control premium data," it should be a straightforward matter to have the report and testimony of any appraiser who wishes to assert a control premium excluded from the courtroom. In particular, the theory and application of control premiums have by now been shown to have been tested and found faulty, they have largely been rejected by most reputable appraisers, it can be shown that the error rate is close to 100%, and, finally, no rebuttal whatsoever has ever been written to support a claim that "control premiums" based on public company acquisition premiums have any scientific validity.

With respect to the Foundation's White Paper it must be acknowledged that accountants need some latitude in which to make the rules practiced in their industry. In particular, accountants should have the ability to make a rule that under particular conditions (whatever those may be) a premium for control may be permitted for financial reporting and impairment testing purposes. But if such a rule is adopted let there be no mistake that it would be only for purposes of expediency rather than accuracy. If, for accounting purposes, an appraiser or valuer applies a control premium to a marketable minority interest based on the control premium data, he or she may wish to think about whether the issue might ever be subject to dispute or litigation; if it is, a *Daubert* challenge will likely ensue.

7 *Ibid.*

Finally, and of utmost importance, it is imperative that if the White Paper comes out in support of control premiums for purposes of financial reporting and impairment testing, such support can only be narrowly relevant to the accounting world and not to any other area of appraisal or valuation.

Stay tuned, watch carefully, and in the meantime don't forget to think for yourself.

4

FAIR VALUE MEASUREMENTS OF EARN-OUTS AND OTHER CONTINGENCIES[1]

by Mark Zyla, CPA/ABV, CFA, ASA[2]
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Fair value measurements required in business combination accounting pronouncements by the International Accounting Standards Board and the Financial Accounting Standards Board has led to the application of valuation techniques to financial statements as well as an increased need for valuation specialists. However, there is a great deal of diversity in practice relating to valuation techniques. Auditors and company management continue to raise issues while best practices for fair value measurements continue to evolve.

Business combination statements issued simultaneously by the IASB and FASB in 2007 began a new trend, largely by requiring an increased level of fair value measurements in financial reporting. The acquired entity's assets and liabilities were required to be restated to fair value as of the acquisition date. The fair value measurement recognition requirement applies to all assets and liabilities including those that had previously not been recognized in the financial statements. The business combination accounting pronouncements also required the recognition of contingent assets and liabilities at their fair values. Another contingency common to business combinations is an earn-out provision that provides for an adjustment to the acquisition price at a later date. These earn-outs must also be measured and recorded at fair value as of the business combination date; then, they must subsequently be re-measured at each reporting date until the ultimate payment of the earn-out. The fair value measurement of these earn-out provisions, or contingent considerations, and other contingent assets and liabilities are the focus of this paper. This paper will begin with an accounting discussion, followed by three examples that demonstrate different methods of measuring the fair value of contingent consideration and their respective strengths and weaknesses based on the business situation to which they are applied. The methods discussed will be (a) the probability weighted method; (b) the option pricing method; and (c) a Monte Carlo Simulation using Crystal Ball to measure complex earn-out provisions.

Contingent Liabilities

Under US GAAP, or Topic 805, two types of contingencies require measurement — or consideration — in a business combination: those which arise due to a contractual obligation and those

1 This paper was adapted from a presentation delivered at the CICBV-ASA Joint Business Valuation Conference held October 4-6, 2010 in Miami, Florida.

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which are non-contractual. A warranty would be an example of the former contingency type. If a company sells a product and offers a warranty as part of that product sale, the liability to make good on that warranty continues even if the company is acquired later on in a business combination. According to the business combination standards, the likely amount of that warranty obligation has to be measured. Contractual contingencies are recognized at their fair value as of the date of the business combination and need to be measured and placed on the financial statements.

The other broad category of contingent asset and liabilities is non-contractual. If a non-contractual contingency is more likely than not to give rise to an asset or liability, it needs to be measured at fair value as of the acquisition date and recorded on the balance sheet (under US GAAP accounting requirement codified under Topic 805). However, the ways in which non-contractual contingencies are treated stand out as one of the few instances where the FASB's and the IASB's accounting for business combinations diverge. For example, under IFRS 3R, the companion statement to 141(R), the IASB requires that the contingency be recorded on the balance sheet if the fair value can be reasonably measured.

The original issue of FASB FAS 141(R) called for all contingent assets and liabilities to be measured at fair value as of the day of acquisition. Shortly after 141(R), Topic 805 was first issued, however, a number of questions arose about its practical application, particularly with respect to non-contractual liabilities. Did sufficient information exist and were parties willing to provide that information? Such questions came to bear heavily on a contingent liability situation within a lawsuit. If, for example, a company acquires another company in a transaction it is accounted for as a business combination. In a situation in which as part of due diligence, the target (purchased company) informs the acquirer that they have just been served with a patent infringement lawsuit, the acquirer then must go through its due diligence and, if they still desire, make the acquisition. As originally enacted in 141(R), the fair value of that litigation would be measured and recorded on the balance sheet. However, the likelihood of that occurring in practice is questionable, as information may difficult to obtain. In certain cases, General Counsel is unlikely to admit that their client owes X amount because that sum would be recorded on the balance sheet. The plaintiff's counsel would then view the acquirer's financial statements as evidence that their client is owed X amount. Indeed, that situation existed briefly before FASB changed its rules by issuing Financial Staff Position 141(R)-1. Now, however, a non-contractual contingency such as litigation or an environmental liability is recognized using the *more likely than not* test. If there is a greater than 50% chance that a contingent liability exists, then it must be measured at fair value.

Remeasurement

Acquired contingencies are measured as of the business combination date and can be adjusted throughout the measurement period as additional information becomes available. Adjustments made during the period have no income statement impact. The measurement period ends when all information about acquisition date facts and circumstances have been received, and cannot extend beyond one year from the acquisition date.

Once a party is outside the measurement period, acquisition contingencies are required to be remeasured annually. The remeasurement is assessed by considering whether conditions that created the contingency have improved or deteriorated. Once the contingency is resolved, a final adjustment is then recorded. Clearly, remeasurements and final adjustments to contingent assets

and liabilities in subsequent accounting periods have a direct impact on the income statement. Therefore, there is a critical need to correctly measure the fair value of the contingency within the measurement period in order to avoid earnings volatility. A valuation specialist can assist with measurements of this nature. Valuation specialists practising in this area are advised to examine the relevant accounting statements under which their files/cases may fall. While this paper focuses on US GAAP, IFRS also provides guidance for measurement of contingent assets and contingent liabilities, particularly Topic 805, Business Combinations for U.S. Practitioners.

Topic 820, the former FASB 157, provides guidance around the usage and application of fair value. FASB Staff Position FAS 141(R)-1 changed and allowed the requirement for non-contractual assets and liabilities to be measured under the more likely than not criterion, rather than absolutely at fair value. Several recent pronouncements further impacted contingencies. EITF 09-4, Seller's Accounting for Contingent Consideration, although never fully adopted, outlined provisions regarding disclosures for contingent consideration. Currently, another exposure draft about disclosures for loss contingencies is being discussed by FASB.

Examples of Acquired Contingencies

Another example of a contingent liability is an environmental liability. An illustrative situation wherein environmental liabilities would be brought to bear would be if a company acquires another company that has a plant with potential environmental issues. In this situation, the acquiring company may consult with two different environmental contractors in order to ascertain the details of cleaning up the environmental liability and what the scope and impact of such a project might be. In such a situation, there may be significant levels of uncertainty. The obligation is contingent because the acquirer may or may not be responsible for cleaning up the environmental liability. The applicable test is whether it is more likely than not the acquiring company will be required to do environmental remediation. If it is more likely, then the environmental liability would be recorded at its fair value.

In-process research and development (IPR&D) may be considered a contingent asset. The value of process technology is contingent upon whether the development effort is successful and the development efforts can be converted to a marketable product. If so, in-process research and development has value. If not, IPR&D does not have value. Some of the techniques this paper discusses in the next section may be used to value IPR&D.[3]

Other examples of acquisition date contingent liabilities are unfunded pensions, financial liabilities including convertible debt, income tax issues and indemnification. Anything that is based on a future unknown outcome is considered a contingency and, if it meets the more likely than not requirement under Topic 805, needs to be measured and recorded at the date of acquisition.

Contingent Consideration

The FASB master glossary states that contingent consideration is "usually an obligation of the acquirer to transfer additional assets or equity interests to the former owner of the acquiree, as part of the exchange for control of the acquiree, if specified future events occur or conditions are met."

3 As a side note, the AICPA is currently working on an aid to update their in-process research and development practice. This aid is expected to provide much more guidance on that specific asset. The exposure draft of this aid is expected to appear in 2012.

FASB also notes that contingent consideration may also give the acquirer the right to the return of previously transferred consideration.

The previous section of this paper outlined a number of contingent assets and contingent liabilities that may arise as part of a business combination. A specialized type of contingent liability is known as an earn-out, or contingent consideration. The following hypothetical example will illustrate the characteristics and nature of an earn-out:

To begin, let us assume that after doing their due diligence “Big Technology” (BT) offers to buy “Little Technology” (LT) for $20 million. After considering this offer, LT returns and says that although they really want to be acquired, BT’s offer has low-balled by failing to consider that LT has a beta version of a new technology with the potential to make significant sales in the future. In fact, LT believes that if its beta test is successful, they are actually worth not $20 million, but *$25 million*. After considering this development, BT returns to LT and says they are glad to hear about the potential of this new product but since LT has *not yet* completed the beta test, BT cannot take it, or its future sales, into consideration as an asset and therefore will stick to their initial $20 million offer. However, BT makes a caveat: if the new technology becomes successful they will pay LT the additional $5 million. BT stipulates that the additional $5 million *will be contingent* on the successful testing and patent application. Both LT and BT agree to this proposition and the deal is completed. In this example, both buyer and seller made additional considerations dependent upon the outcome of future events, demonstrating the power of contingent consideration. Under accounting standards, whether the contingent consideration is $5 million, zero, or something in between, the fair value must be measured as of the acquisition date.

Earn-outs

Earn-outs are very common in business combinations, particularly when a buyer and a seller cannot agree on a price. Earn-outs are useful in bridging a price gap and may help align the interests of the buyer and the seller after the date of acquisition. For example, when part of the consideration is contingent on a future outcome, it may be in the seller’s best interest to remain with that company and ensure that future outcome occurs. Because of the uncertainty in the current economic environment, business valuation specialists may see an increase in the use of earn-outs in business combinations, especially when M & A activity begins to rise. Indeed, the need for valuation specialists to measure the fair value of contingent consideration may increase in the future.

A purchaser’s obligation for contingent consideration can also be classified as a liability or as equity on the balance, depending on whether the obligation is certain at inception. The certainty refers to the existence of the obligation, not the dollar amount. Contingent consideration is classified as a liability if the obligation is certain. It is often settled in cash or in a variable number of the buyer’s shares (fixed amount). Contingent consideration is classified as equity if it is uncertain as to whether the performance targets will be met. Settlement would be a fixed number of buyer’s shares (variable amount). For example, if A says they will give B another 200 shares of common stock if a certain benchmark is met, the earn-out would be classified as equity as opposed to liability.

Turning now to the fair value measurement of earn-outs in business combinations, an area in which contingent consideration has become a hot topic due to the recent effecting of the accounting requirements. Business valuation specialists are now beginning to see acquisitions made after 2009 and are looking at financial statements with contingent earn-outs. As a result, the diversity

in practice has been observed and added to the conversations occurring around best practices in measurement of contingent consideration.

Measurement of Fair Value Contingent Consideration

The first thing valuation specialists should be aware of is that earn-outs need to be adequately measured. The analysis cannot be a simplistic measurement such as those which used to be seen in business combinations prior to the revised statement. For example, in the past, an acquirer and acquiree might disagree on the potential fair value consideration of an IPR&D. If the acquiree believed it deserved $5 million upon successful beta testing, and the acquirer zero, a compromise of $2.5 million could be reached. That type of compromise is no longer feasible. Today, there is far greater risk if the initial measurement is incorrect, meaning that simplistic measurements have a number of shortfalls. Using a midpoint in a range does not work because contingent consideration does not typically have a symmetrical pay out pattern. In fact, it is typically *asymmetrical*. It is more likely than not and is based on a number of factors which may impact whether that beta testing is successful. Thus, it is not just a simple 50/50 and, if management did go with 50/50, it is unlikely that it would make it through an audit. Whenever possible, the analysis should make visible observable market inputs.

What does the acquisition agreement say about what the contingent consideration is based upon? What are the terms of the agreement? For example, if management is asking the valuation specialist to measure the fair value contingent consideration, the first step the valuation specialist must take is to read the acquisition agreement and understand what the contingent consideration is based upon — what are the terms and benchmarks for successfully earning the additional consideration? Earn-out benchmarks can be based on financial metrics or milestone achievement metrics. Earn-outs based on a financial benchmark could resemble the following: if company A's EBITDA is over $1 million in the year following the merger, B company will pay A company an additional X amount. Or, if the benchmark is based on a milestone like successful beta testing, as in the case of the previous example, B will pay A an additional $1 million if beta tests are successful. A further consideration is, what exactly does the agreement stipulate successful beta testing to be? How is it defined and verified? Valuation specialists should always read the actual agreement and certainly not rely on summaries. After the actual agreement has been read and understood, the valuation specialist should begin to consider how they are going to begin to model the timing and the relative probabilities associated with the financial benchmark. Time is an issue. Is it a year from now, two years from now, is it based on EBITDA, or is it based on audited financial statements? Posing questions and taking under consideration the possible answers to these questions will help the valuation specialist make a decision on which methods are most appropriate to measuring the fair value of the specific contingent consideration they are involved with.

The length of the earn-out period also must be considered. The most effective way of ascertaining this period is by discussing the likelihood of achieving benchmarks and milestones and the applicable timelines with management themselves. Obtaining a familiarity with the industry, the market share and the competing products within the industry, will help the valuation specialist to develop probability analysis and the likelihood of achieving the benchmark performance. Obviously, if there is a history of successful completion of these types of products, better support for estimating probabilities and likelihoods becomes available. Developing supportable inputs to

the analysis is important. In fact, business valuation specialists are very likely going to be asked to support their probabilities and assumptions by the company's auditors.

Several additional questions may also be worth considering: are there caps on the earn-out or what is the upside? One of the areas where diversity in practice can be observed is within discount rates that are applied to contingent consideration. There are some that favour the weighted average cost of capital because it reflects the total risk of the business; others favour a lower discount rate. If one is using a probability analysis, or a Monte Carlo simulation, which will be addressed later in this paper, some of the risk will appear in the probability analysis — meaning that the business valuation specialist may be overcompensating for risk if the weighted average cost of capital is being used. Related to that, one of the risk factors worth considering when choosing a discount rate is the creditworthiness of the acquirer. If Big Technology buys Little Technology and they have contingent consideration based on a financial benchmark, this can be modeled using one of the techniques to be discussed in the next section. But that does not necessarily mean that Big Technology is going to have the financial wherewithal to pay off Little Technology. That is a risk factor which, as a valuation specialist, you need to take into consideration. That risk is outside what is typically accounted for when developing a weighted average cost of capital, yet is significant, particularly in the current economy. Do not automatically assume that just because there is a contingent consideration and an achieved milestone, that the acquirer is willing and able to pay the earn-out. The acquirer's credit risk must be considered when calculating the discount rate.

Historical market data for the industry is another key consideration that helps evaluate the reasonableness of assumptions. An outside valuation specialist should be ready to defend their assumptions in light of market data because an auditor is going to ask questions about the reasonableness of those very assumptions. Valuation specialists need to be able to support both their financial and non-financial assumptions. Some of these techniques and assumptions are fairly broad or rely on different types of assumptions, including probabilities. How do you support a probability or a discount rate that takes into consideration the creditworthiness of the acquirer? These factors need to be carefully considered.

Three Methodologies

There are three common ways of measuring the fair value of contingent considerations. The method you select depends on the facts and circumstances of the particular file. There is also a wide diversity of practice with regard to the assumptions that go into these methods. Regardless of which methodology is chosen, it is no longer acceptable to base an analysis on figures taken solely from discussions with management. That typically would not survive an audit. Information provided by management may be a starting point, but in order to survive an audit the analysis must be in line with industry and market research, while including a critical analysis of the information provided by management. What internal data does management have that can help support the reasonableness of assumptions? Valuation specialists need to be prepared to do additional work to support the reasonableness of their assumptions, particularly with using these types of methodologies:

Probability Weighted Average

The first step in the probability weighted method is to review the purchase agreement and understand the earn-out provisions. The purpose of this review is to identify the performance benchmark(s),

the time frame applicable to the benchmark performance, and the amount and timing of potential earn-outs.

The second step is to develop a set of potential future outcomes for the underlying benchmark performance metric. This assessment would be broad, including everything from macroeconomic and industry factors to specific company, product and input factors. When assessing expected operating performance, it may be helpful to decompose expected performance by product line or location in a "bottoms up" analysis. Another approach is to use the same reporting structure the company uses for financial statement preparation or budget analysis. The goal in this step is to develop a set of potential future outcomes considering the benchmark metric(s) and the applicable time frame.

Earn-out provisions often have more than one benchmark provision. If this is the case, it becomes imperative to understand whether the attainment of one of the benchmarks is independent of the other, or whether the attainment of one is correlated with the attainment of the other. Joint probabilities and/or scenario analysis can be used to understand more complex situations where benchmarks are correlated with one another. For example, the earn-out provision for the acquisition of a hamburger chain might have an annual revenue benchmark and a benchmark based on the number of new stores opened over a specific timeframe. In that case, the two benchmarks would be positively correlated. Revenues would likely increase as the acquirer opens new stores.

The third step is to calculate the earn-out amount relating to each of the potential future outcomes for the underlying benchmark performance(s). The fourth step is to assess the relative risk associated with each potential outcome in order to assign each potential outcome a probability weight. When performing these two steps, it is important to understand how contractual earn-out terms such as caps and claw-back provisions alter the amounts and risks associated with the earn-outs. The probability weights associated with the potential outcomes must total 100%.

The final step in measuring the fair value of contingent consideration is the mathematical calculation of the expected earn-out. The future value of the earn-out is simply the sum of all the expected potential outcomes times their related probabilities. The future value of the earn-out is then discounted to the present fair value of the earn-out using an appropriate discount rate.

In the following example,[4] there are two interdependent benchmarks. The calculation of the earn-out takes into account the joint probability associated with their attainment.

Assumptions:

- Acquirer Corporation purchases Target Corporation on January 1, 20X1 for $500 million.
- Target Corp. has just introduced a new product line that is expected to generate significant sales.
- If Target achieves a benchmark EBIT of $125 million in 20X1, Acquirer will pay an additional $15 million to the previous owners.
- Target also intends to spin off a division in 20X1, and expects to receive $10 million.
- If proceeds exceed $15 million, Acquirer will pay an additional $3 million to the previous owners.

4 Adapted from "Valuing Contingent Consideration under SFAS 141R, Business Combinations: Issues and Implications for CFO's and the Transaction Team," by Lynne P. Weber and Rick G. Schwartz, ASA Business Valuation Review, Summer 2009, pp. 62-64.

- The discount rate is 10%.

The fair value of the earn-out provision is $4,432,000, as calculated below.

Spin off	Operating Results	Earnout	Joint Probability	Probability Weighted	
Division is not sold 35%	EBIT < $125 million 25%	$0	8.75%	$0.000	
	EBIT > $125 million 75%	$15	26.25%	$3.938	
Division is sold for < $15 million 50%	EBIT < $125 million 95%	$0	47.50%	$0.000	
	EBIT > $125 million 5%	$15	2.50%	$0.375	
Division is sold for > $15 million 15%	EBIT < $125 million 95%	$3	14.25%	$0.428	
	EBIT > $125 million 5%	$18	0.75%	$0.135	
				$4.875	Expected Earnout
				$4.432	Present Value @ 10%

Option Pricing Method

Black-Scholes Options Pricing Model Options are contracts that give the owner the right to buy (or sell) an underlying asset from (to) the counterparty, at a certain price over a certain period of time. The option grants the owner a right. The owner can choose to exercise the right or can choose to let the option expire without exercising it. Options are derivative contracts, meaning their value is dependent on the value of the underlying asset.

The Black-Scholes Option Pricing Model was developed by Fischer Black and Myron Scholes in 1973 to calculate the price of an option. It is applicable to European style options that can only be exercised on the exercise day, but it is commonly used to value American options that can be exercised any time until they expire. The model is based on the assumption that returns on the underlying stock follow a lognormal distribution. The model is also able to account for the dividend yield on the underlying stock. The six basic inputs to the Black-Scholes Model are (1) the value of the underlying stock, (2) the exercise (strike) price, (3) the term, (4) the volatility, (5) the risk free rate and (6) the dividend yield. For a publicly traded stock, all of these inputs are observable. It is important to note that options often have value when they are out-of-the-money (the exercise price is below the current stock price). Their value is derived from future potential value which is recognized in the Black-Scholes Model.

Contingent consideration can be thought of as a real option from the seller's point of view. The earn-out provisions of a merger contract give the seller the right to receive additional consideration if

certain benchmarks are met. The benchmark provisions are similar to an exercise price. Therefore, an options pricing model can be used to measure the fair value of an earn-out.

The following example shows the application of the Black-Scholes Option Pricing Model to an earn-out provision.

Assumptions:

- Acquirer Corporation purchases Target Corporation on January 1, 20X1 for $5 million.
- The price is contingent upon Target achieving a benchmark EBIT of $1,125,000 by 20X3.
- EBIT is currently $1,000,000/ year.
- At the end of 20X3, Acquirer will pay additional consideration equal to the excess EBIT over the benchmark.
- The discount rate is 10% and the risk free rate is 3%.
- Volatility of earnings is 14% based on historic EBIT.

The inputs to the Black-Scholes Model for this example are: (1) the current $1 million level of earnings is the value of the underlying stock, (2) the benchmark of $1,125,000 serves as an exercise price, (3) the term is three years, (4) the volatility is 14%, (5) the risk free rate is 3% and (6) the dividend rate is 0%.

The calculations for the Black-Scholes Model are incorporated into an Excel spreadsheet which is shown below. The formulas used in the Black-Scholes Model spreadsheet are provided in the footnotes. The call price of $84,413 is the value of the contingent earn-out from the seller's perspective. Therefore, it would be an $84,413 earn-out obligation for Acquirer Corporation.

ACQUIRER CORPORATION

VALUATION OF CONTINGENT CONSIDERATION

BLACK-SCHOLES OPTIONS PRICING METHOD

Assumptions	
Expected EBIT	$ 1,000,000
Threshold EBIT (Exercise Price)	1,125,000
Volatility	14%
Risk Free Rate	3%
Time to exercise	3 years
Exercise Price	$ 1,125,000
Years to Expiration	3
Days to Expiration	1,095
Volatility	14%
Risk Free Rate – r	3.00%
d1 (1)	0.0067
N(d1)	0.5027
N(-d1) or [1-N(d1)]	0.4973
d2 (1)	(0.2358)
N(d2)	0.4068
N(-d2) or [1-N(d2)]	0.5932
Dividend Yield	0.00%
Call Value (2)	$ 84,413

Notes:

(1) N(d) = Cumulative density function (area under the normal curve) and d_1 and d_2 is as follows:

$$d_1 = \frac{\ln(\text{Market price/Exercise price}) + ((r + ((\text{Volatility}^2/2))*\text{years to expiration}}{\text{Volatility}*(\text{years to expiration})^{1/2}}$$

$$d_2 = d_1 - ((\text{volatility})*(\text{years to expiration})^{1/2})$$

Monte Carlo Simulation

Monte Carlo Simulation is a probability based computer simulation technique that makes use of repeated trials and random observations from specified inputs to predict future outcomes. The probability characteristics of the inputs are defined, and can include the type probability distribution, the range, the probability and/or the expected value. The output from a Monte Carlo Distribution is a frequency distribution based on 100, 1,000 or 10,000 trials, which is also specified by the user.

Monte Carlo distribution is best for modeling complex earn-out provisions with multiple potential outcomes, and/or interdependent outcomes. In practice, it is most often used with milestone type benchmark achievements such as FDA approvals, patent approvals or product launches. Monte Carlo is often used as a supplemental method to corroborate the results of other models, and it can also be used in conjunction with sensitivity analysis. One caveat is that the quality of the Monte Carlo simulation is entirely dependent upon the quality of its inputs.

The following example was prepared using Crystal Ball, an Excel-based Monte Carlo Simulation program created by Oracle.

Assumptions:

- Target Corporation has revenues of $100 million in 20X0.
- Target Corporation has three projects pending regulatory approval with decisions in 20X1.
- Projects A, B and C have a 30%, 40% and 50% chance of being approved, respectively.
- If approved, the projects are each expected to generate $10 million in revenue in 20X1.
- Acquirer Corporation must pay the previous owners 1% of annual revenues for 20X1 to 20X5.
- The growth rate for all projects is expected to be similar to historical rates, which were:

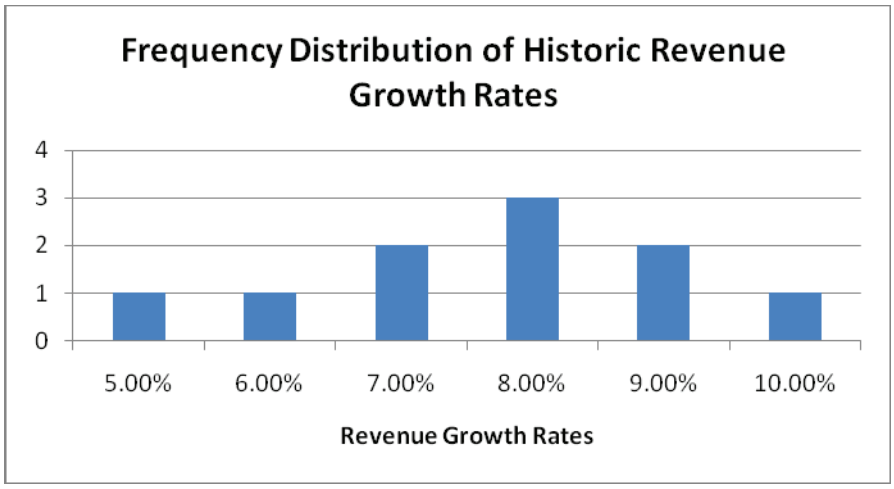
2000	01	02	03	04	05	06	07	08	09
9%	10%	8%	7%	8%	9%	8%	7%	6%	5%

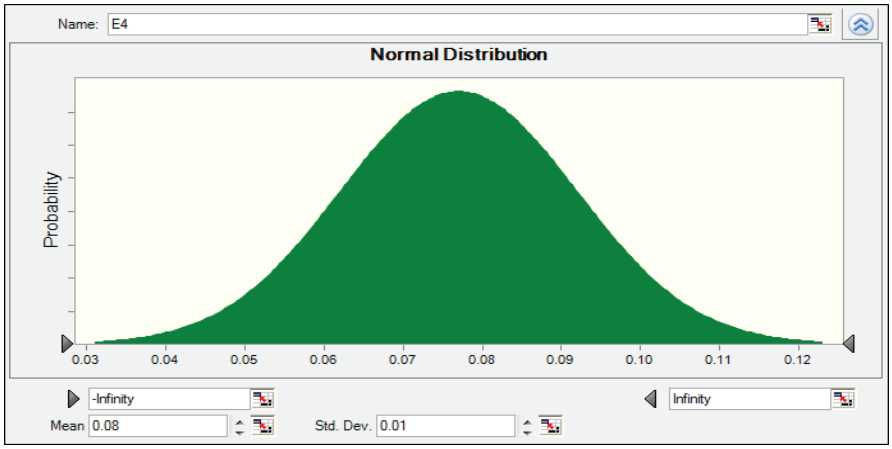
The first step is to analyze the benchmarks and determine the inputs and probabilities associated with them. In this example the earn-out is 1% of annual revenues for 20X1 to 20X5. Revenues are dependent upon the base level of revenues ($100 million in 20X0), the projected growth rate, and whether projects A, B and C are approved. The base level of revenues is known, but the growth rate and project approvals are inputs to the model and their probability characteristics must be analyzed and specified.

An analysis of historic growth indicates the following:

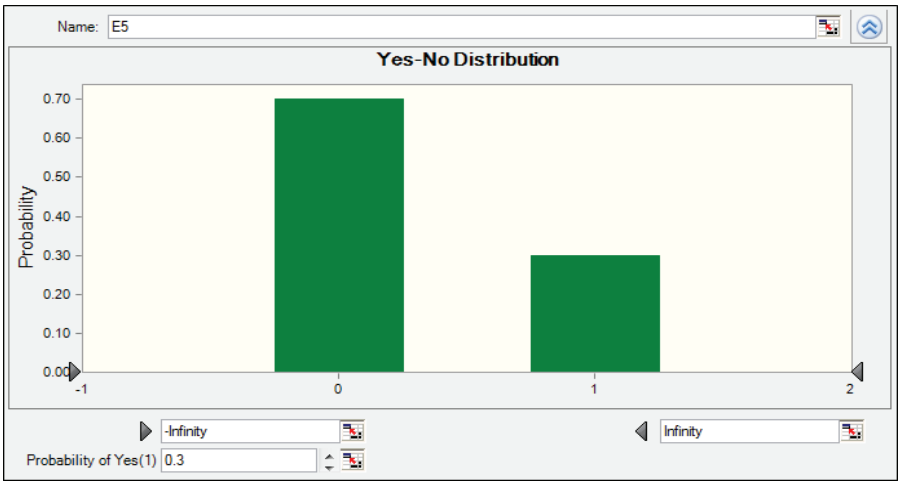
- Mean: 7.70%
- Std Dev: 1.49%
- Data Frequency: 5% 1, 6% 1, 7% 2, 8% 3, 9% 2, 10% 1

Graphing the data frequency permits further analysis. Even though historical data is discrete, the probability distribution for a growth rate would be continuous. The distribution of historical data appears to be similar to a normal distribution based on the graphs below. The second graph is an input screen from Crystal Ball's Monte Carlo Simulation. The expected mean of 7.7% and standard deviation of 1.49% are specified, and appear as 8% and 1% in the probability distribution input screen below.





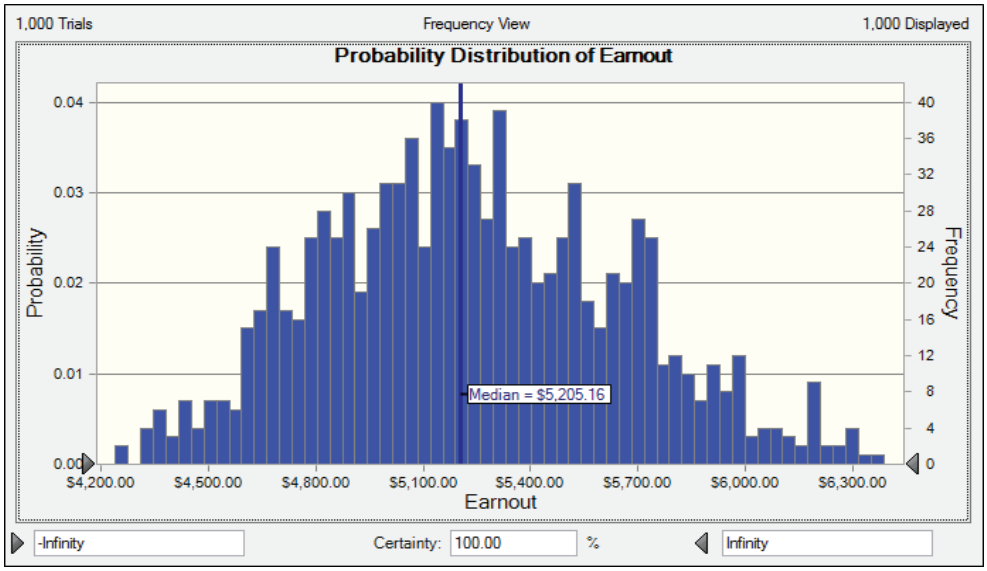
The probability distribution for the three projects is a Yes-No distribution in Crystal Ball. Project A's 30% probability is specified and input as follows. Note that a yes is denoted as a 1 with a 30% probability and a no is denoted as a 0. The probability distributions for projects B and C are similar.



Once the Monte Carlo input probability distributions have been specified, an Excel spreadsheet with links to the probability distributions is created. The boxed areas show which cells are linked. The Excel spreadsheet provides the expected value of the contingent earn-out assuming a 7.7% growth rate for all projects and periods, and assuming that all three projects are approved. The Excel spreadsheet for this example is presented as follows:

			20X0	20X1	20X2	20X3	20X4	20X5
Buyout Revenues			100,000	107,700	115,993	124,924	134,544	144,903
Growth rate - historic mean, normal distribution			0.077					
Project A Probability	30%	Yes - no	1	10,000	10,770	11,599	12,492	13,454
Project B Probability	40%	Yes - no	1	10,000	10,770	11,599	12,492	13,454
Project C Probability	50%	Yes - no	1	10,000	10,770	11,599	12,492	13,454
Total Projected revenues				137,700	148,303	159,722	172,021	185,266
Discounted at 10%				600,276				
Contingent Earnout @1%				6,003				

Running the Monte Carlo Simulation replaces the boxed cells with the specified input probability distributions. The output is a frequency distribution based on 1,000 trials, with a median of $5,205.16. Therefore, the fair value of the earn-out is $5.2 million.



Conclusion: Contingent Liabilities

Legal issues are also contingent liabilities and need to be considered. Legal issues are non-contractual contingencies; therefore the test for recognition as a liability in the financial statements is whether it meets the more likely than not threshold and whether it can be measured. Theoretically, if the lawsuit meets that standard it needs to be put on the balance sheet. In practice, however, one of the things valuation specialists need to consider is that attorneys are unwilling to provide any information about lawsuits. Anything recorded on the balance sheet may be disclosed to third parties, and such disclosure may violate the attorney-client privilege. In the rare circumstance where a litigation meets the more likely than not threshold, and management makes a decision to disclose it and measure its fair value, there still may be challenges in that measurement.

Environmental contingencies too have their own sets of challenges. Typically valuation specialists need to retain an environmental expert to measure the likelihood or extent of that environmental liability. Their work product would be the basis for the valuation specialist's analysis. Typically, valuation specialists do not have the expertise in environmental matters and therefore must rely on the work product of another expert. Pension obligations for unfunded pensions are another potential liability that may require the work of an outside expert. Valuation specialists may need to work with an actuary to measure the unfunded portion. Their work product, likewise, would become the basis for a fair value measurement.

Another helpful tool for implementing these accounting pronouncements is an exposure draft called “Loss Contingencies.” Loss Contingencies include warrants or simply writing off accounts receivable, and litigation. It also covers events that may be resolved in the future, like an environmental issue. Anything that may create a contingent loss for the company is covered in the FASB exposure draft which explores what needs to be disclosed on financial statements. If this pronouncement is enacted and loss contingencies need to be disclosed, then the companies are going to need help with the fair value measurement of the potential losses. Disclosing these loss contingencies is intended to provide more information to investors. This may be an area in which valuation specialists can become more involved, though an exposure draft has yet to be enacted.

5

TRENDS IN CANADIAN SECURITIES CLASS ACTIONS: 2010 UPDATE CLIMBING TO NEW HEIGHTS — THE NUMBER OF ACTIVE CASES IS AT ITS HIGHEST

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Introduction

Eight new Canadian securities class actions were filed during 2010, involving total claims of more than $870 million.[2] There were settlements in six cases with defendants paying a total of almost $80 million (including one partial settlement). There are now a record 28 active Canadian securities class actions representing approximately $15.9 billion in outstanding claims.[3]

In our 2009 update, we noted that Canadian securities class actions were continuing to mature. That yearwitnessed the certification of three class actions and the granting of leave to proceed under Part XXIII. 1 of the the Ontario Securities Act (OSA) in *IMAX*–rulings that we noted may ultimately prove to be an inflection point for this type of litigation. Although those judicial decisions may still prove to be a turning point, 2010 did not reveal any substantial upturn in filings or other trends as a result.

A total of 25 cases have now been brought under the recent secondary market liability provisions of the provincial securities acts (i.e., so-called “Bill 198 cases”). Of these, nine cases have been settled and 16 are still active. In the Bill 198 cases that have settled, defendents have paid an average of $10.7 million, with four of the nine cases settling for more than $10 million and three of the nine cases settling for less than $3 million.

Trends in Filings

New Cases

Seven new securities class actions were filed in 2010 in relation to the following issuers:[4]

- Canadian Royalties Inc.
- Canadian Solar Inc.

- easyhome Ltd.
- Protective Products of America
- Redline Communications Group Inc
- Sonde Resources Corp (formrly known as Canadian Superior[5]
- Theratechnologies Inc.

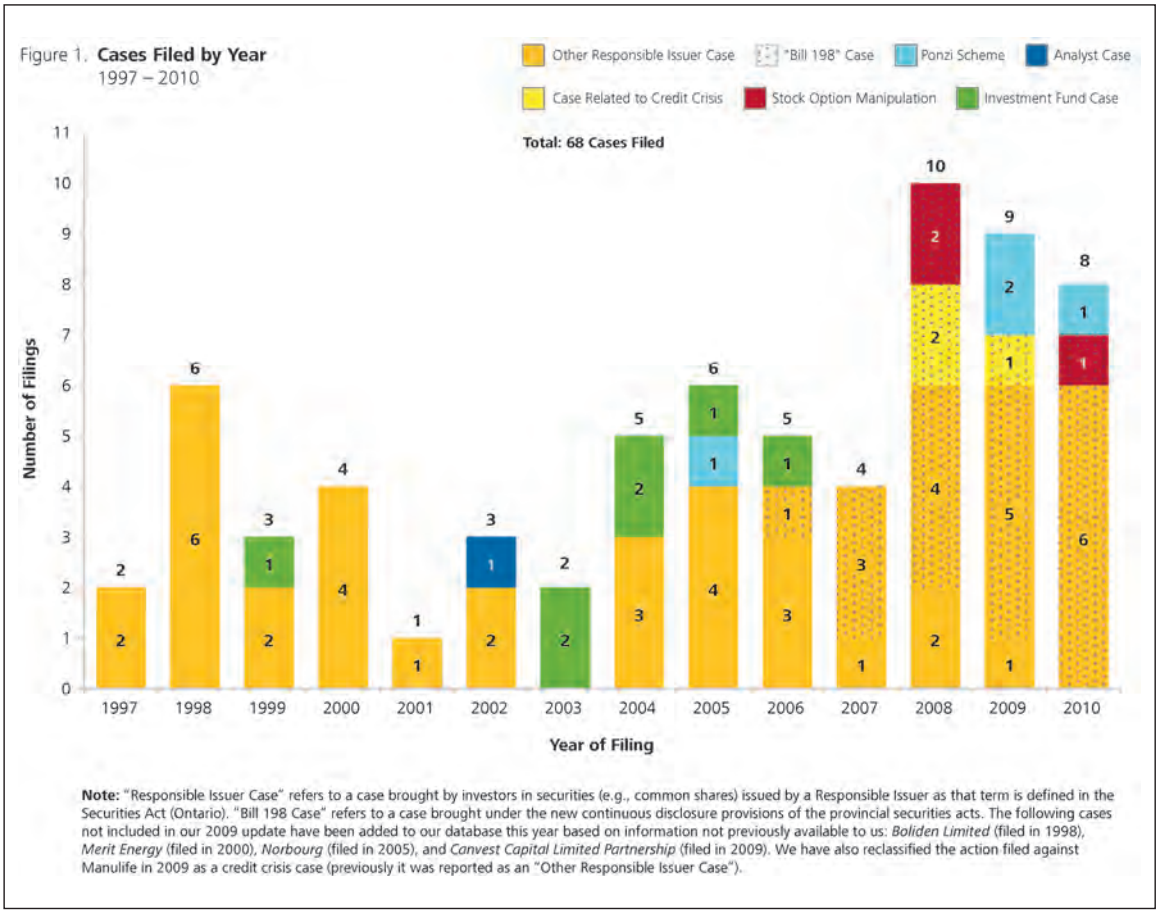
In addition, a class action was filed in respect of the alleged Earl Jones Ponzi scheme.[6]

Six of these cases were brought in Ontario, and two (the case against Theratechnologies and the Earl Jones case) were brought in Quebec. Seven of the eight cases include claims under the recently enacted secondary market liability provisions of the provincial securities acts, one fewer than the record eight "Bill 198" cases filed in 2008. In total, this is one fewer than the nine cases filed in 2009, and two fewer than the record 10 cases filed in 2008.[7] See Figure 1.[8]

The case against Canadian Solar—shares of which trade on the NASDAQ—is the second class action that has been brought under Canadian securities laws against a company whose securities are not listed on a Canadian exchange (the first being the *AIG* action brought in 2008).

Figure 1. Cases Filed by Year

1997 – 2010



Credit Crisis Cases

None of these new filings appear to be directly related to the credit crisis, as was also true for cases filed in 2009. So far, only three Canadian securities class actions appear to be directly related to the credit crisis—two of which were filed in 2008, and one in 2009.[9] This contrasts to the 230 credit crisis cases filed in the United States so far, including 31 such cases filed in 2010.[10] The pace of such filings south of the border is declining (103 cases were filed in 2008 and 57 cases in 2009), so it is unclear whether we will see any new cases relating to the credit crisis in Canada in the future.[11]

Stock Option Manipulation Cases

The *Sonde Resources Corp.* action includes allegations of stock option manipulation. This is the first case involving allegations of stock option manipulation since 2008—a year in which approximately 35 TSX-listed companies received letters from plaintiffs' counsel requesting independent reviews of their stock option practices after allegations of options backdating and related manipulations became a high-profile issue in the US.[12]

US Securities Class Actions against Canadian Companies

Many Canadian companies also face the risk of class action litigation south of the border, and many of these cases correspond to (and some are coordinated with) parallel actions in Canada. Between 1996 and 2010, Canadian-domiciled companies have been named as defendants in 71 securities class action filings in the US.[13] Of these, 17 cases also had parallel class actions in Canada.[14] To date, 37 US securities class actions brought against Canadian companies have settled, with defendants paying, on average, US$71.5 million. This figure is heavily influenced by two large settlements in 2006 relating to Nortel. The median, which is less impacted by the Nortel settlements, is US$6 million. Since 2007, 14 US cases against Canadian companies have settled for an average of US$20.5 million and a median settlement of US$6.2 million.

US litigation risk for Canadian companies may be somewhat reduced following the June 2010 decision by the US Supreme Court in *Morrison v. National Australia Bank*, which places limits on US private securities litigation relating to trading of securities outside the US.[15] Interestingly, this decision comes at a time when Canadian securities class actions are gaining momentum and when several other jurisdictions have recently, or are currently contemplating, the introduction of class action (or collective action) mechanisms.

The number of US securities class actions filed in which a Canadian-domiciled company was named as a defendant has varied from year to year—ranging from a high of 11 cases in 1998 to a low of two cases in 2003 and 2007, respectively. In each of 2009 and 2010 there were three new US cases filed against Canadian domiciled companies. There were eight such cases filed in 2008. There are currently 13 active US securities class actions against Canadian-domiciled companies, three of which also have parallel Canadian actions. It is not clear whether, or to what extent, the *Morrison* decision will affect these cases as almost all of those involve issuers with securities listed on both a Canadian and a US exchange. Only time will tell precisely what impacts the *Morrison* decision will ultimately have on the risk of US litigation faced by Canadian companies or the way in which Canada-US parallel securities class actions will evolve.

Industry Sectors

Two of the eight new Canadian securities class actions filed in 2010 were brought against companies in the minerals sector, consistent with an observation we made last year that the number of new filings against companies in this sector has increased since 2006. See Figure 2.

Figure 2. Percent of Filings by Sector

Figure 2a. **Percent of Filings by Sector (32 cases)**
1997 – 2005

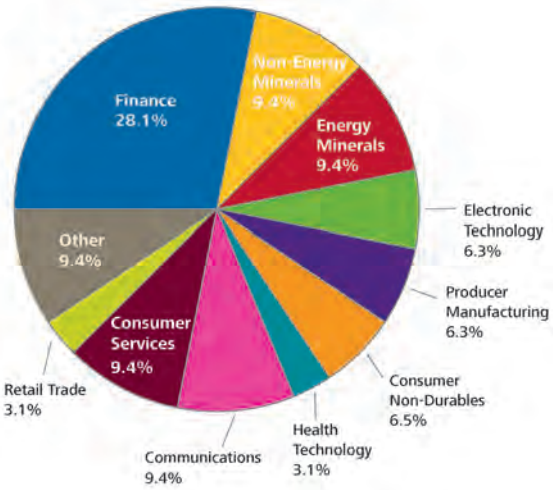
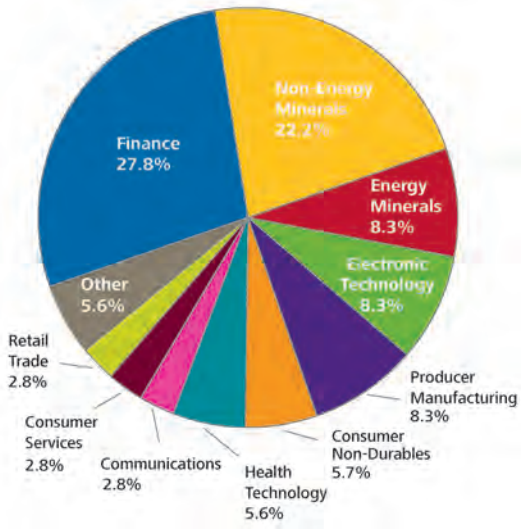


Figure 2b. **Percent of Filings by Sector (36 cases)**
2006 – 2010



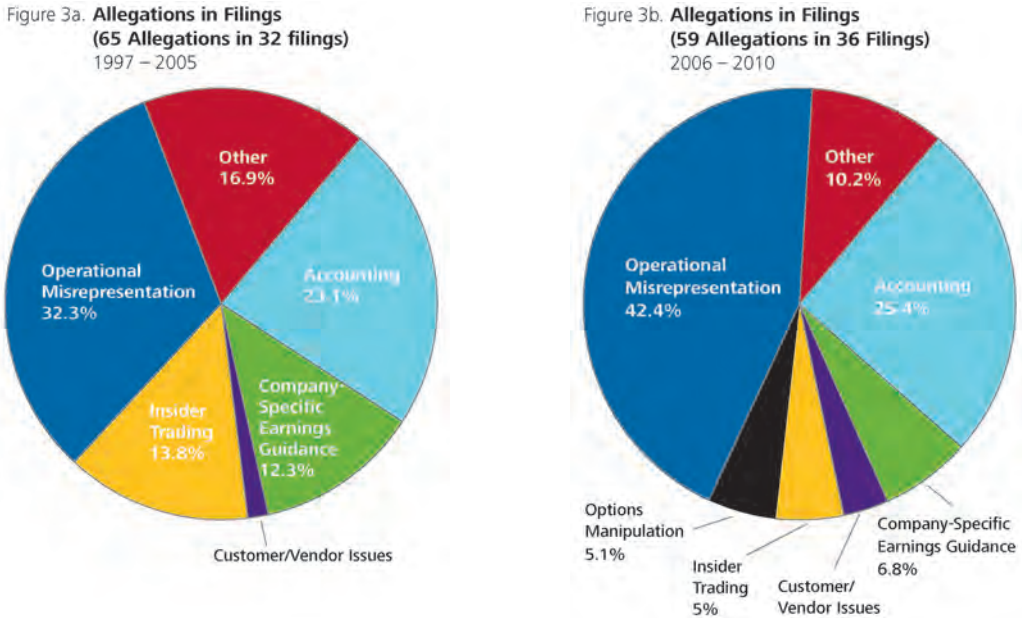
Of the other six new filings in 2010, three were brought against companies operating in the health technology and electronic technology sectors; and two were brought against manufacturing and retail trade companies. Interestingly, only one of the eight cases filed in 2010 (i.e., the Earl

Jones Ponzi scheme case) involved the financial sector; historically more than one out of every four Canadian securities class action filings has been brought against a defendant in the financial sector.

Types of Allegations

Operational misrepresentations and accounting misrepresentations are historically the most common claims alleged by plaintiffs in Canadian securities class actions. This was also true for the cases filed in 2010, most of which involve allegations of operational misrepresentations, and two of which include allegations of accounting misrepresentations. See Figure 3.

Figure 3. Allegations in Findings



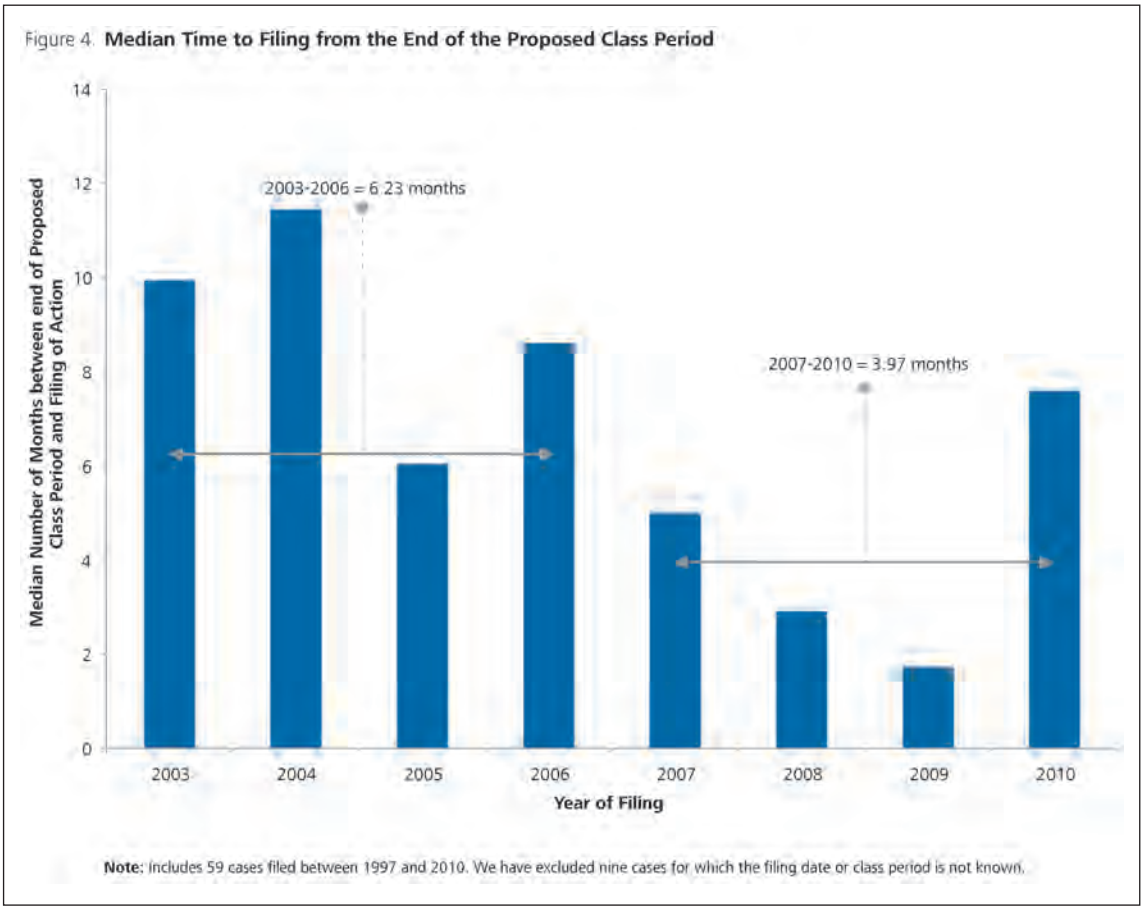
Time to Filing

Approximately one-third of the cases in our database of Canadian securities class actions were filed within two months of the end of the proposed class period, and almost two-thirds of all cases were filed within six months. Of the eight cases filed in 2010, 50% of these were filed within six months of the end of the proposed class period, 62.5% were filed within 12 months, and 87.5% were filed within 18 months. All cases (i.e. 100%) filed in 2010 were filed within 24 months of the end of the proposed class period.

Since 2007, cases generally appear to have been filed more quickly than in prior years. For the period between 2003 and 2006, the average time to filing was a little over nine months, with half of the cases during that period being filed within approximately six months from the end of the proposed class period. Since then, the average has fallen to 8.7 months, with half of these cases being filed within just under four months of the end of the proposed class period. See Figure 4.

It will be interesting to observe whether increasing competition amongst class counsel results in cases being filed more quickly going forward.

Figure 4. Median Time to Filing from the End of the Proposed Class Period

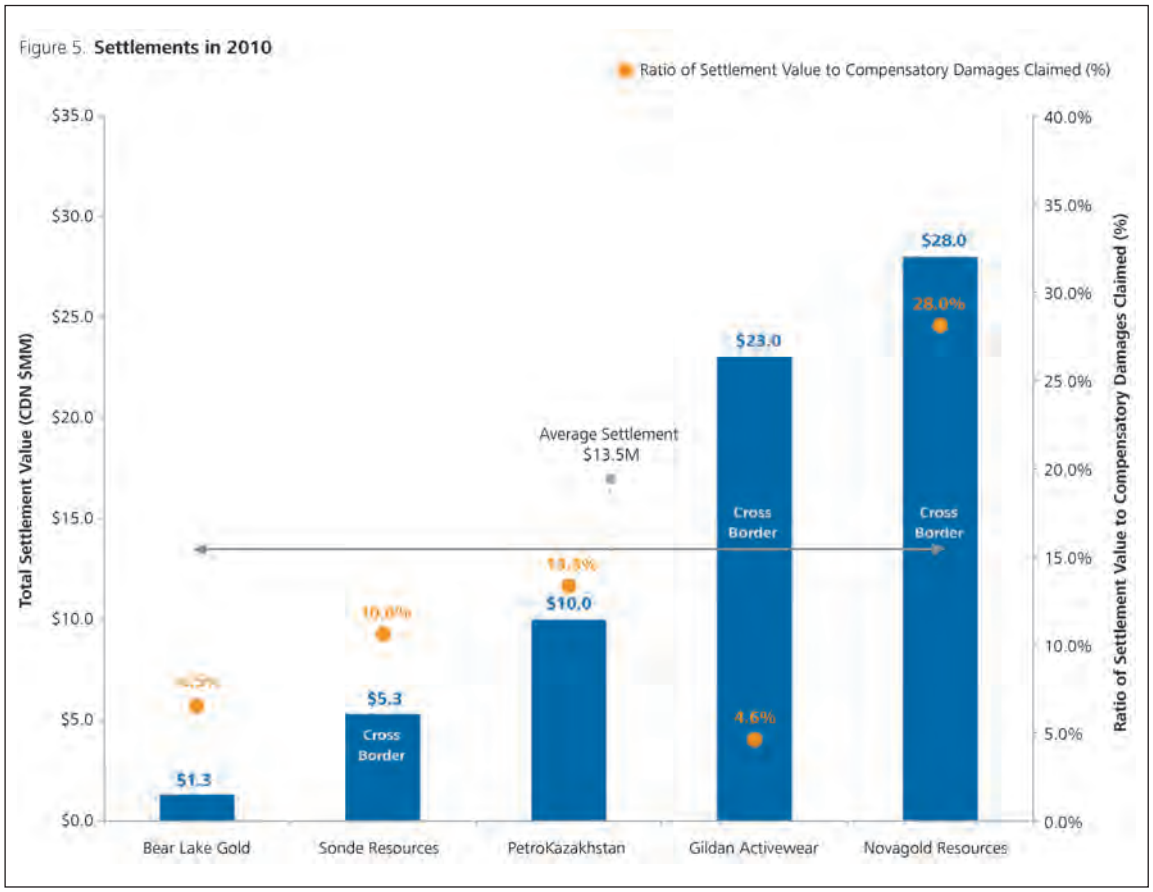


Trends in Resolutions

Settlements

Five cases settled in 2010 for total payments by defendants of $67.6 million. These include the actions against Chinese National Petroleum (i.e., the PetroKazakhstan case), Bear Lake Gold, Gildan Activewear, Novagold Resources, and Sonde Resources (a case which was filed in 2010). On average, defendants in these cases paid $13.5 million, and the median settlement was $10 million. In addition, a partial settlement was reached in the market timing class action.[16] See Figure 5.

Figure 5. Settlements in 2010



The average and median settlement amounts are somewhat higher than those we reported for 2009, each of which was approximately $9 million. The increase in average settlements in 2010 corresponds to a higher average amount claimed in these cases when compared to damages claimed in the cases which settled in 2009.[17] Settlements averaged 12.6% of the amount claimed in 2010, and the median was 10.6%.[18] These figures are generally similar to those for settlements in 2009 (15.3% and 9.2%, respectively) and earlier.

Settlements in "Bill 198" Cases

To date, there have been nine settlements in "Bill 198" cases with an average settlement amount of $10.7 million and a median of $7.1 million. Of those, the four US-Canada cross-border cases settled for an average of approximately $17 million. The other five settled for an average of $5.6 million, with three of the five settling for $2.2 million or less.

While the four cross-border cases did tend to have higher claim amounts (an average of $187.5 million, as compared to $97 million for the five domestic-only cases), this does not completely explain the higher settlement amounts. As a percentage of the amount claimed, the settlements in the cross border cases averaged 13.7% (with a median of 11%), as compared to an

average of 7.4% (and a median of 6.5%) for the cases where there was no parallel class action in the US.

Dismissals

There were no dismissals of Canadian securities class actions in 2010.[19]

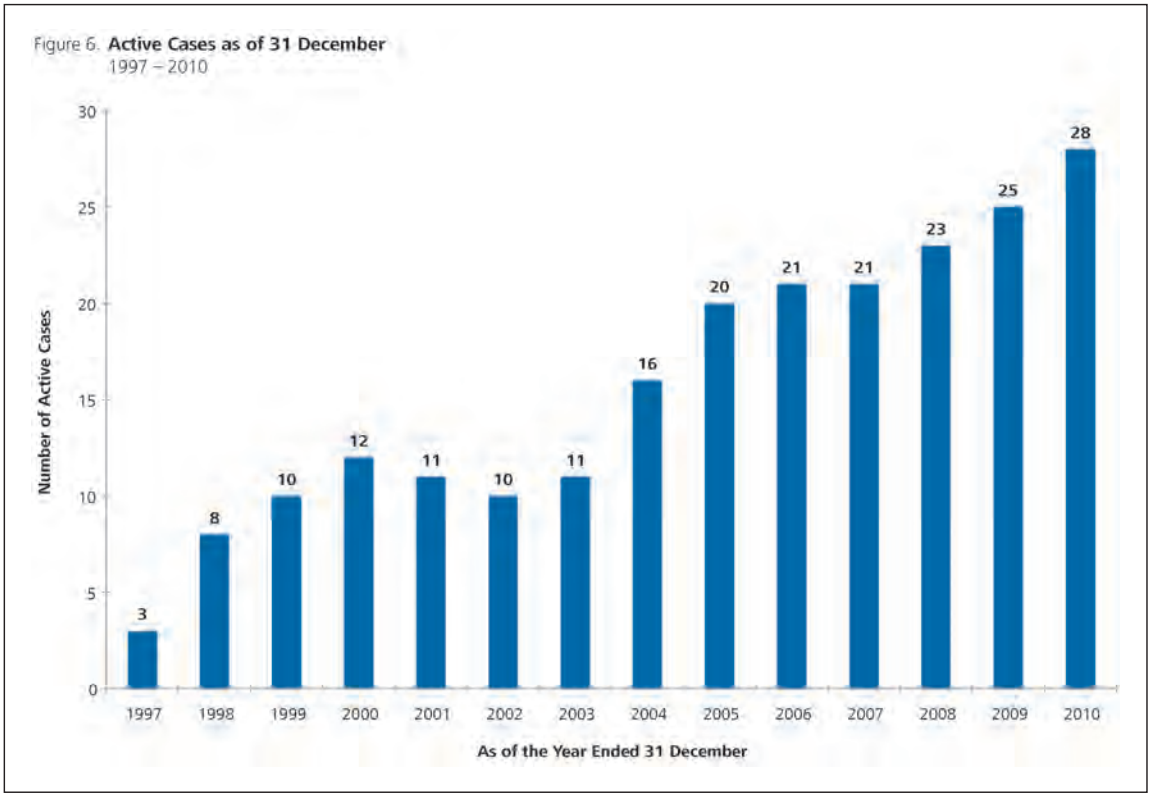
However, the US proceeding against CIBC, which involves allegations of misrepresentations related to the bank's disclosures about its exposure, was dismissed in March 2010.[20] The related Canadian action remains active.

Pending Cases

As of 31 December 2010, there were a record 28 active Canadian securities class actions, representing approximately $15.9 billion in outstanding claims (including claims for punitive damages).[21] See Figure 6. Six of these are cross-border cases representing more than $11.6 billion in claims—about 73% of total claims. Excluding the $10 billion claim against CIBC, there is approximately $5.9 billion in outstanding claims, $1.6 billion (or 27%) of which are in cases with parallel US class actions.

Figure 6. Active Cases as of 31 December

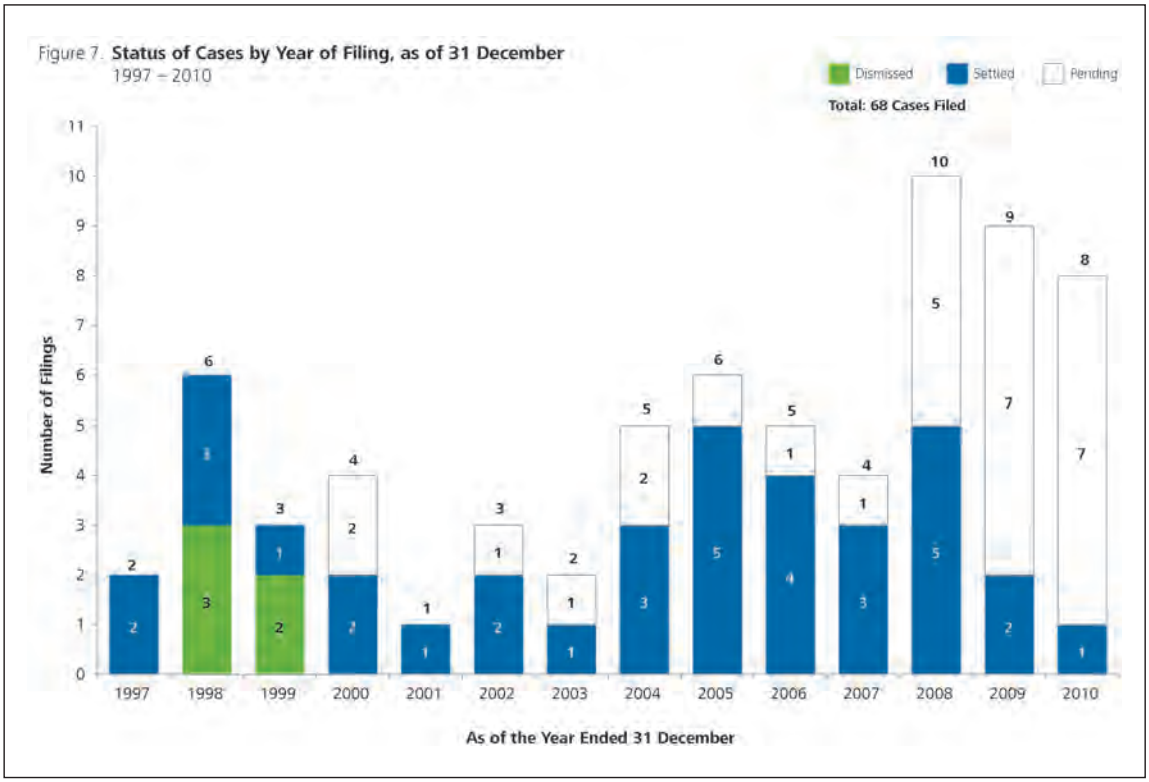
1997 – 2010



Of the 28 active cases, half are cases filed in the last two years and 19 were filed within the last three years. See Figure 7. Of the 28 active cases, 16 (or 57%) are Bill 198 cases.

Figure 7. Status of Cases by Year of Filing, as of 31 December

1997 – 2010



Looking Forward

The number of outstanding Canadian securities class actions reached a new high in 2010 and new cases continued to be filed at a steady pace. For 2011 and beyond, there are several factors that may affect trends in this type of litigation including:

- Any effect of the US Supreme Court decision in *Morrison* on the number of new cases filed in Canada and on the resolutions of cross-border cases;
- Further decisions of the Canadian courts including possible appellate court decisions;
- Any impacts on the number of filings and the speed with which actions are filed as a result of increasing competition among class counsel; and
- Any transition pains that Canadian public companies may experience in moving from Canadian GAAP to the International Financial Reporting Standards ("IFRS") in preparing their financial statements beginning in 2011.

Notes

The opinions expressed herein do not necessarily represent the views of NERA Economic Consulting or any other NERA consultant. Please do not cite without explicit permission from the authors.

1 Mr. Berenblut is a Senior Vice President, Mr. Heys is a Vice President, and Ms. Singh is a Senior Analyst with NERA Economic Consulting. The authors thank Ward Branch, Ron Miller, and Robert Patton for helpful comments on earlier drafts of the paper. We gratefully acknowledge the contributions of Svetlana Starykh to this edition and previous editions of this study. In addition, we thank Jacob Dwhytie, Carlos Soto, and Nicole Roman for their valuable assistance with this paper. These individuals receive credit for improving this paper; all errors and omissions are ours.

2 Unless otherwise noted, all dollar amounts are expressed in Canadian dollars.

3 The claim against *CIBC* accounts for $10 billion of this total.

4 In late December 2010 one plaintiff law firm announced that it had launched an investigation to evaluate a possible class action against Victoria Gold Corporation, a mineral exploration company listed on the Toronto Venture Stock Exchange. No such action had been filed by the time this article went to press.

5 Canadian Superior Energy was the subject of an earlier class action (and a similar claim in the US) filed in 2004. Both the Canadian and US cases were settled in 2006.

6 We understand that Earl Jones pled guilty in February 2010 to criminal charges relating to operating a Ponzi scheme.

7 Since our last update, we have become aware of an additional case filed in 2009—the *Canvest* class action. The addition of this case brings the total new filings in 2009 to nine cases.

8 Our database includes Canadian class actions brought on behalf of a class of investors in securities. This includes class actions brought by investors in shares of reporting issuers, as well as those brought by investors in other securities such as mutual fund units or investment certificates offered by investment managers. In compiling filing data, we have sought information on all unique class actions brought by investors in securities. We report a single filing where multiple causes of action have been commenced in respect of substantially similar facts.

9 These are the actions brought against CIBC, AIG, and Manulife. As we mentioned last year, the limited number of class actions directly relating to the credit crisis may be a reflection of the relatively smaller impact of the crisis (in terms of bailouts and bankruptcies) on the Canadian financial system as compared to that in the US.

10 Jordan Milev, Robert Patton, and Svetlana Starykh, "Trends 2010 Year-End Update: Securities Class Action Filings Accelerate in Second Half of 2010; Median Settlement Value at an All-Time High," NERA Economic Consulting, 14 December 2010.

11 *Ibid.*

12 Julius Melnitzer, "Manipulation 'serious problem'; Canada rife with option backdating, lawyers conclude," *National Post*, 19 September 2007, p.FP1.

13 Jordan Milev, Robert Patton, and Svetlana Starykh, "Trends 2010 Year-End Update: Securities Class Action Filings Accelerate in Second Half of 2010; Median Settlement Value at an All-Time High," NERA Economic Consulting, 14 December 2010, Figure 9.

14 This figure does not include other cross-border cases involving defendants who are not Canadian domiciled companies.

15 *Morrison et al. v. National Australia Bank Ltd. et al.*, 561 US __ (2010).

16 Defendants IG Investment Management Ltd., Franklin Templeton Investments Corp., and AGF Funds Inc. agreed to pay a total of $11.3 million. There are two defendants that have not yet settled.

17 The average amount claimed for cases that settled in 2010 was $149 million and the median was $75 million. For cases that settled in 2009, the average amount claimed was $84 million and the median was $75 million.

18 Including the partial settlement in the mutual fund market timing case, the average settlement was $13.5 million and the median was $10.6 million.

19 A case relating to Philip Services was dismissed this year (*Coulson v. Citigroup Global Markets Inc.*, 2010 ONSC 1596), but we understand that the case was related to other cases involving Philip Services that were previously included in our database and had previously been coded as dismissed. We record as a single filing all actions relating to substantially the same facts. As such, we did not record a new filing in respect of the *Coulson* claim.

20 *Plumbers & Steamfitters Local 773 Pension Fund v. Canadian Imperial Bank of Commerce, et al.*, 08 Civ. 8143 (WHP), S.D.N.Y., 17 March 2010, Decision of William H. Pauley III J. (granting a motion to dismiss finding, *inter alia*, that the plaintiffs had failed to plead *scienter* in relation to allegations of misrepresentation about CIBC's exposure to subprime mortgage loans).

21 On 19 January 2011, a tentative settlement of $55 million was announced in the *Norbourg* case.

6

MARKET RISK PREMIUM USED IN 56 COUNTRIES IN 2011: A SURVEY WITH 6,014 ANSWERS

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1. Market Risk Premium (MRP) used in 2011 in 56 countries

We sent a short email (see Exhibit 1) in March and April 2011 to about 19,500 email addresses of finance and economic professors, analysts and managers of companies obtained from previous correspondence, papers and webs of companies and universities. We asked about the Market Risk Premium (MRP) used *"to calculate the required return to equity in different countries".* We also asked about "*Books or articles that I use to support this number*".

By April 24, 2011, 3,998 of the answers provided a specific MRP used in 2011.[4] Another 2,016 persons answered that they do not use MRP for different reasons (see Table 1). We would like to sincerely thank everyone who took the time to answer us.

Table 1. MRP used in 2011: 6,014 answers

	Professors	Analyst	Companies	Total
Answers reported (MRP figures)	**850**	**1,462**	**1,562**	**3,874**
Outliers	41	12	71	**124**
Answers that do not provide a figure	731	310	975	**2,016**
Total	**1,622**	**1,784**	**2,608**	**6,014**

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4 We considered 124 of them as outliers because they provided a very small MRP (for example, -23% and 0 for the USA) or a very high MRP (for example, 30% for the USA).

Answers that do not provide a figure:

"I think about premia for particular stocks"	137	5	39	181
"MRP is a concept that we do not use"			390	390
"I use whatever MRP is specified in the textbook"	31			31
"The CAPM is not very useful nor is the concept of MRP"	145		76	221
"I did not have to use an estimate of the MRP in 2011"	38			38
"I am an academic, not a practitioner"	17			17
"I teach derivatives: I did not have to use a MRP"	39			39
"The MRP changes every day", "weekly" or "monthly"	34	102		136
"It is confidential"		16	83	99
Use a Required Return to Equity	71	38	22	131
Use a minimum IRR	36		242	278
Use multiples	41	127	89	257
Other reasons	142	22	34	198
SUM	731	310	975	2,016

Table 2 contains the statistics of the MRP used in 2011 **for 56 countries**. We received answers from 85 countries, but we only report the results for 56 countries with more than six answers.[5] Fernandez et al. (2011a)[6] is an analysis of the answers for the USA; it also shows the evolution of the Market Risk Premium used for the USA in 2011, 2010, 2009 and 2008 according to previous surveys (Fernandez et al., 2009, 2010a and 2010b). Fernandez et al. (2011b)[7] is an analysis of the answers for Spain.

Figures 1 and 2 are graphic representations of the MRPs reported in Table 2.

Table 2. Market Risk Premium used for 56 countries in 2011

	Average	Median	St.Dev.	Q1	Q3	P10%	P90%	MAX	min	Number of answers
United States	**5.5**	5.0	**1.7**	4.5	6.0	4.0	7.0	15.0	1.5	1,503
Spain	**5.9**	5.5	**1.6**	5.0	6.0	4.5	8.0	15.0	1.5	930

5 We got 5 answers for Bahrain (6,0), Ecuador (7,7), Lebanon (8,0), Morocco (4,5), Oman (5,0), Qatar (8,0) and Senegal (5,5). The average MRP is in parenthesis. We got 4 answers for Romania (7,2) and Vietnam (8,8). We got 3 answers for Croatia (7,0), Slovakia (5,3) and Slovenia (4,9). We got 2 answers for Bulgaria (8,6), Costa Rica (6,9), Trinidad&Tobago (14,5) and Venezuela (11,0). We got 1 answer for Albania, Bolivia, Cyprus, Ghana, Guatemala, Honduras, Lituania, Malta, Panama, Puerto Rico, Tunisia and Uruguay.

6 Fernandez, P., J. Aguirreamalloa and L. Corres (2011a), "US Market Risk Premium Used in 2011 by Professors, Analysts and Companies: A Survey...", downloadable in http://ssrn.com/abstract=1805852.

7 Fernandez, P., J. Aguirreamalloa and L. Corres (2011b), "The Equity Premium in Spain: Survey 2011 (in Spanish)", downloadable in http://ssrn.com/abstract=1822422.

	Average	Median	St.Dev.	Q1	Q3	P10%	P90%	MAX	min	Number of answers
United Kingdom	**5.3**	5.0	**2.2**	4.0	6.0	4.0	7.2	22.0	1.5	112
Italy	**5.5**	5.0	**1.4**	4.6	6.1	4.0	7.2	10.0	2.0	76
Germany	**5.4**	5.0	**1.4**	4.5	6.1	4.0	7.2	12.4	3.0	71
Mexico	**7.3**	6.4	**2.7**	5.9	9.1	5.0	10.2	16.0	1.4	56
Netherlands	**5.5**	5.0	**1.9**	4.4	6.2	3.9	7.2	12.5	2.5	48
France	**6.0**	6.0	**1.5**	5.0	7.0	4.8	7.2	11.4	2.0	45
Switzerland	**5.7**	5.5	**1.3**	5.0	6.6	4.0	7.2	9.6	3.8	44
Australia	**5.8**	5.2	**1.9**	5.0	6.0	4.0	7.1	14.0	3.0	40
Colombia	**7.5**	7.0	**4.3**	5.5	8.0	2.0	14.6	20.5	2.0	38
Sweden	**5.9**	5.5	**1.4**	5.0	7.2	4.8	7.2	10.6	3.9	38
Russia	**7.5**	6.5	**3.7**	5.5	8.0	5.0	11.0	25.0	1.3	37
Canada	**5.9**	5.0	**2.1**	5.0	6.0	4.0	8.0	14.5	3.5	36
Brazil	**7.7**	7.0	**4.6**	5.3	8.0	4.3	10.5	30.0	1.5	35
Greece	**7.4**	7.2	**2.7**	5.0	8.3	5.0	11.7	15.0	3.0	34
South Africa	**6.3**	6.0	**1.5**	5.6	6.5	5.0	7.0	11.8	4.5	34
Argentina	**9.9**	9.0	**3.4**	8.0	11.0	7.2	14.6	20.0	5.0	33
Portugal	**6.5**	6.1	**1.7**	5.0	7.2	5.0	7.2	14.0	4.5	33
Austria	**6.0**	5.7	**1.8**	5.0	7.2	4.6	7.2	14.3	3.5	32
Belgium	**6.1**	6.1	**1.0**	5.0	7.2	5.0	7.2	8.0	5.0	31
Chile	**5.7**	5.3	**2.1**	5.0	6.0	5.0	6.5	15.0	1.3	31
China	**9.4**	7.8	**5.1**	6.5	10.7	6.0	14.5	30.0	4.0	31
Norway	**5.5**	5.0	**1.6**	4.5	6.0	4.0	7.0	11.7	3.5	30
India	**8.5**	7.8	**2.8**	6.8	9.3	6.0	13.1	16.0	5.0	28
Poland	**6.2**	6.0	**1.1**	5.2	7.5	4.9	7.5	8.0	4.5	28
Turkey	**8.1**	8.2	**3.0**	5.5	10.0	5.0	11.2	15.0	2.5	25
Luxembourg	**6.1**	6.1	**1.3**	5.0	7.2	4.5	7.2	8.7	4.5	21
Czech Republic	**6.1**	6.0	**0.9**	5.5	6.5	5.0	7.3	8.0	5.0	19
Peru	**7.8**	7.5	**2.8**	6.6	7.7	5.4	10.0	15.0	3.5	19
Finland	**5.4**	4.7	**2.0**	4.5	5.0	4.5	7.4	12.0	3.5	18
Israel	**5.6**	5.0	**1.7**	4.5	6.0	4.3	7.4	10.0	3.0	17
New Zealand	**6.0**	6.0	**1.0**	5.0	6.8	5.0	7.2	7.5	5.0	17

	Average	Median	St.Dev.	Q1	Q3	P10%	P90%	MAX	min	Number of answers
Taiwan	**8.9**	8.0	**3.8**	6.0	10.0	6.0	13.4	20.0	5.8	17
Indonesia	**7.3**	7.5	**2.3**	5.6	7.5	5.0	10.8	12.0	4.5	14
Japan	**5.0**	3.5	**3.7**	3.5	5.0	3.2	7.1	16.7	2.0	14
Korea (South)	**6.4**	6.5	**2.5**	6.5	7.0	2.6	8.8	11.1	2.0	13
Denmark	**5.4**	4.5	**3.3**	4.4	4.5	3.1	9.3	14.0	2.0	12
Egypt	**7.6**	7.0	**2.3**	7.0	7.6	6.6	10.4	13.0	3.5	12
Ireland	**6.0**	5.1	**2.2**	5.0	5.6	5.0	7.8	12.3	5.0	12
Singapore	**5.7**	5.0	**1.5**	5.0	5.8	5.0	7.3	9.6	4.5	11
Hong Kong	**6.4**	5.0	**2.6**	5.0	6.0	5.0	10.4	11.9	5.0	9
Hungary	**8.0**	8.0	**2.4**	6.0	8.0	6.0	9.2	13.8	6.0	9
Malaysia	**4.5**	3.5	**2.2**	3.5	6.0	3.1	6.8	8.8	1.5	9
Thailand	**7.9**	6.5	**2.8**	6.5	7.5	6.5	10.2	15.1	6.5	9
Saudi Arabia	**6.3**	6.0	**0.4**	6.0	6.6	6.0	6.8	7.0	6.0	8
Nigeria	**6.9**	6.0	**1.6**	6.0	7.1	6.0	8.9	10.0	6.0	7
Pakistan	**6.3**	7.5	**2.3**	6.3	7.5	3.6	7.5	7.5	1.5	7
Iran	**22.9**	19.5	**17.8**	12.0	24.0	8.5	40.8	56.5	7.0	6
Kazakhstan	**7.5**	7.5	**0.1**	7.5	7.5	7.5	7.6	7.6	7.5	6
Kenya	**6.2**	5.0	**2.9**	5.0	5.0	5.0	8.5	12.0	5.0	6
Kuwait	**6.6**	6.5	**0.2**	6.5	6.5	6.5	6.8	7.0	6.5	6
Philippines	**5.6**	5.5	**0.2**	5.5	5.5	5.5	5.8	6.0	5.5	6
UAE	**9.7**	10.0	**0.8**	10.0	10.0	9.0	10.0	10.0	8.0	6
Zambia	**6.6**	6.0	**1.6**	6.0	6.0	6.0	7.9	9.8	6.0	6
Zimbabwe	**6.5**	5.5	**2.4**	5.5	5.5	5.5	8.5	11.4	5.5	6

Figure 1. Market Risk Premium used in 2011 for some countries

(plot of answers)

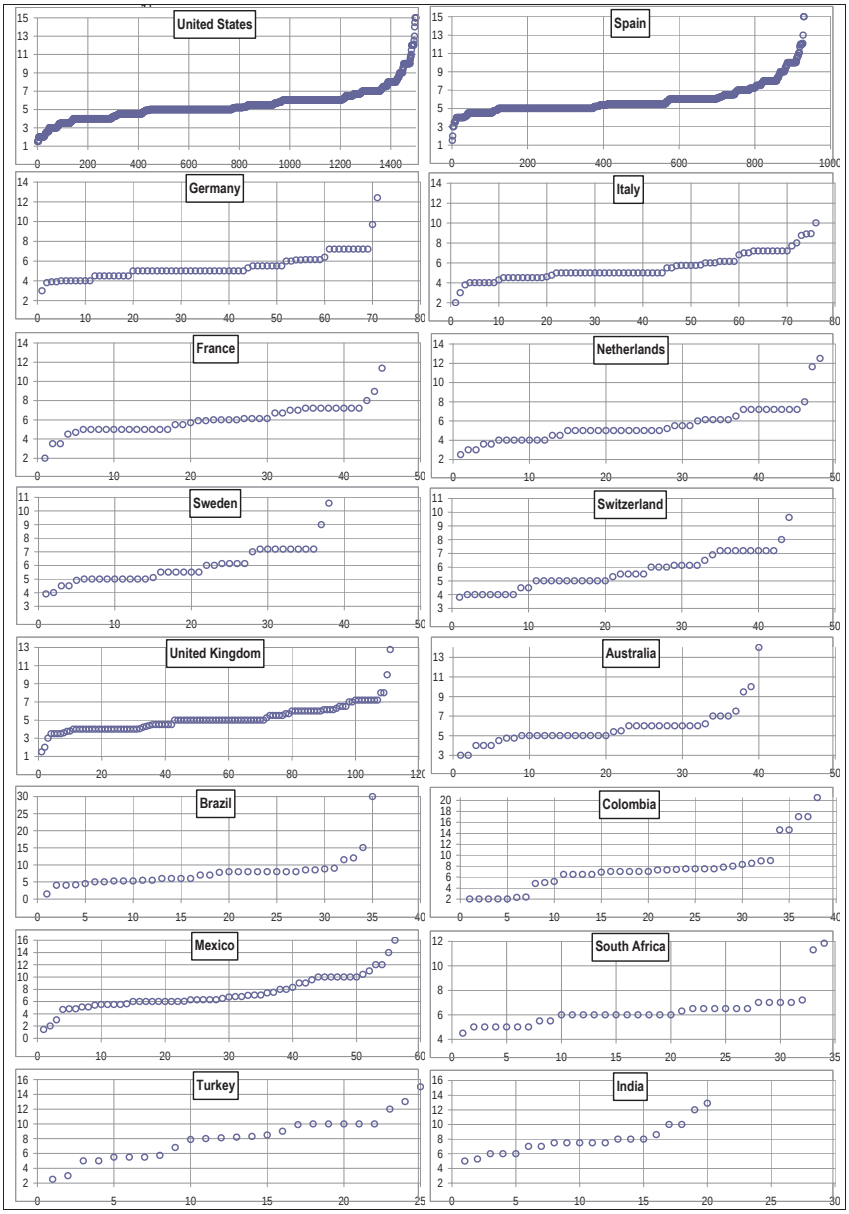
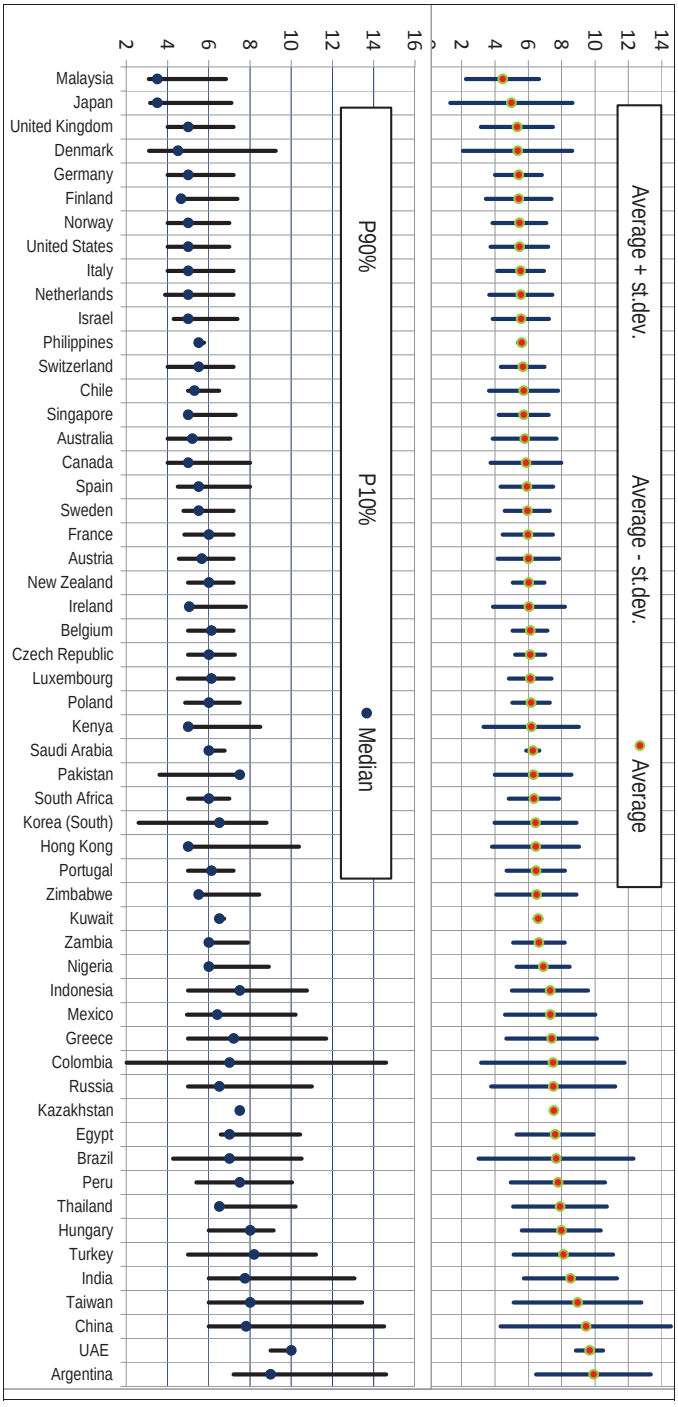


Figure 2. Market Risk Premium used in 2011.

Average, median and dispersion of the answers by country

P90%: percentile 90%. P 10%: percentile 10%

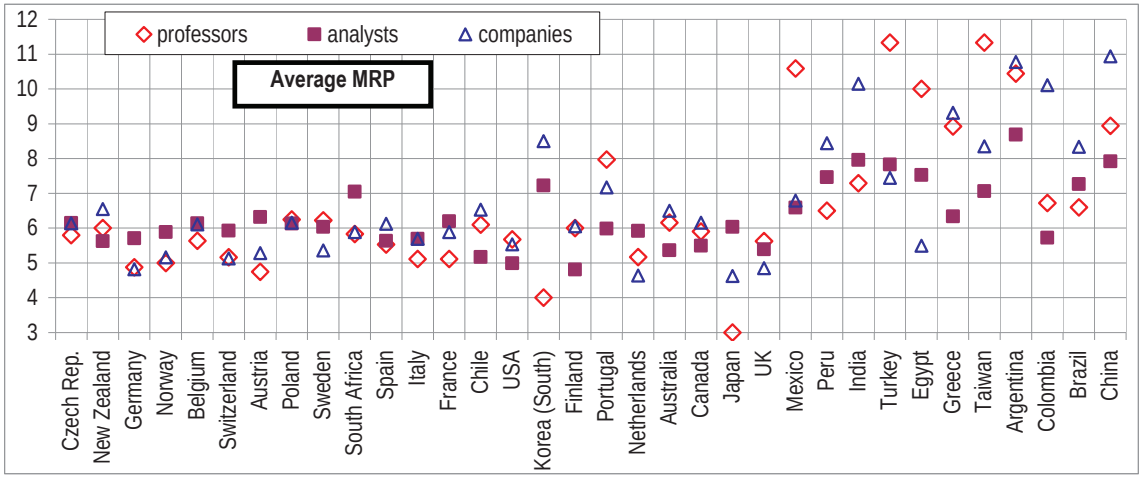


2. Differences among professors, analysts and managers of companies

Table 3 shows the differences for the 34 countries that had at least two answers for each category (professors, analysts and managers of companies).

Table 3. Market Risk Premium used for 34 countries in 2011 by professors, analysts and managers of companies

	Average			Median			Number of answers			Standard deviation		
	prof.	anal.	comp.	prof.	anal.	comp.	prof.	anal.	comp.	prof.	anal.	comp.
United States	5.7	5.0	5.5	5.5	5.0	5.2	522	330	651	1.6	1.1	2.0
Spain	5.5	5.6	6.1	5.5	5.0	5.5	92	305	533	1.0	1.3	1.8
United Kingdom	5.6	5.4	4.9	5.0	5.0	5.0	20	68	24	4.0	1.6	1.1
Italy	5.1	5.7	5.7	5.0	5.0	5.0	21	40	15	1.3	1.4	1.4
Germany	4.9	5.7	4.8	5.0	5.0	5.0	8	47	16	0.8	1.6	0.6
Mexico	10.6	6.6	6.8	10.0	6.0	6.3	9	25	22	2.7	1.6	2.9
Netherlands	5.2	5.9	4.6	4.5	5.5	4.0	12	29	7	2.5	1.6	1.7
France	5.1	6.2	5.9	5.5	6.1	5.7	6	26	13	1.7	1.7	1.0
Switzerland	5.2	5.9	5.1	5.0	6.0	5.0	8	29	7	1.0	1.4	0.9
Australia	6.2	5.4	6.5	6.0	5.0	6.0	15	21	4	2.5	1.1	2.5
Colombia	6.7	5.7	10.1	7.4	7.0	8.2	5	19	14	2.6	2.4	5.5
Sweden	6.2	6.0	5.4	6.0	5.8	5.0	5	26	7	1.6	1.4	0.7
Canada	5.9	5.5	6.2	5.3	5.0	5.1	12	12	12	1.8	1.7	2.8
Brazil	6.6	7.3	8.3	6.0	8.0	7.0	5	14	16	1.3	3.3	6.1
Greece	8.9	6.3	9.3	8.6	6.1	9.5	7	21	6	3.9	1.5	3.2
South Africa	5.8	7.0	5.9	5.5	6.5	6.0	3	13	18	1.0	2.1	0.7
Argentina	10.4	8.7	10.8	9.5	8.3	9.0	10	12	11	4.1	1.7	4.1
Portugal	8.0	6.0	7.2	6.9	6.1	6.5	6	24	3	3.2	1.0	1.2
Austria	4.8	6.3	5.3	4.8	6.1	5.5	2	23	7	0.4	2.0	0.9
Belgium	5.6	6.1	6.1	5.6	6.1	6.0	2	22	7	0.9	1.0	1.2
Chile	6.1	5.2	6.5	6.0	5.3	5.5	5	17	9	0.2	0.4	3.8
China	8.9	7.9	10.9	9.0	6.5	8.0	8	10	13	3.6	2.5	7.0
Norway	5.0	5.9	5.2	5.0	5.8	5.0	2	13	15	0.0	2.3	0.8
India	7.3	8.0	10.1	7.0	7.5	9.0	9	9	10	1.5	2.3	3.5
Poland	6.2	6.1	6.2	5.5	6.0	6.1	3	13	12	1.5	1.3	0.9
Turkey	11.3	7.8	7.5	12.0	8.4	8.1	3	12	10	2.1	2.3	3.5
Czech Republic	5.8	6.2	6.1	5.8	6.5	5.8	2	10	7	0.3	0.9	1.1
Peru	6.5	7.5	8.4	6.5	7.5	7.2	2	9	8	2.1	0.7	4.3
Finland	6.0	4.8	6.1	6.0	4.5	5.0	3	9	6	1.0	1.4	2.9
New Zealand	6.0	5.6	6.6	5.5	5.0	6.7	3	8	6	1.3	0.9	0.7
Taiwan	11.3	7.1	8.4	9.3	6.0	8.0	6	6	5	5.1	2.6	1.8
Japan	3.0	6.0	4.6	3.0	3.5	5.0	3	7	4	1.0	5.0	0.8
Korea (South)	4.0	7.2	8.5	3.5	6.5	8.5	4	7	2	2.4	1.7	0.7
Egypt	10.0	7.5	5.5	10.0	7.0	5.5	2	8	2	4.2	1.3	2.8



3. References used to justify the MRP figure

1,173 respondents indicated which books, papers… they use as a reference to justify the MRP that they use (375 of them provided more than a reference). **Table 4** contains the most cited references.

Table 4. References used to justify the Market Risk Premium

References	Professors	Analysts	Companies	Total
Ibbotson / Morningstar	53	31	172	256
Damodaran	72	34	114	220
Internal (own) estimate	15	84	67	166
Analysts / Inv. Banks	16	25	80	121
Experience, subjective, own judgement	57	23	28	108
Bloomberg	7	44	47	98
Historic data	45	15	33	93
Fernandez	26	6	31	63
Duff&Phelps	2	0	34	36
Surveys, conversations,…	12	3	18	33
DMS	13	3	15	31
Grabowski / Pratt's and Grabowski	1	5	24	30
Brealy & Myers	14	4	8	26
Mckinsey, Copeland	5	4	15	24
Internet	2	2	16	20
CFA books	2	9	6	17
Reuters	0	6	10	16
Ross/Westerfield	13	0	1	14
Fama and French	10	0	3	13
Siegel	5	0	5	10
Others*	142	47	135	324
I do not justify the number / do not answer	173	151	185	509
SUM	685	496	1.047	2.228

* Amomg them: CDS, Internet, Reuters, Siegel, Bodie, Kane, Marcus, Implied MRP, Economic Press, Datastream, Malkiel, Sharpe, Brigham, Consensus, IMF, RWJ, Shapiro, Kaplan, Shiller, Welch.

4. Comparison with previous surveys

Table 4 of Fernandez et al. (2011a) shows the evolution of the Market Risk Premium used for the USA in 2011, 2010, 2009 and 2008 according to previous surveys (Fernandez et al., 2009, 2010a and 2010b).

Table 5. Comparison of previous surveys

	Surveys of Ivo Welch					Fernandez et al (2009, 2010)			
	Oct 97–Feb 98*	**Jan-May 99+**	**Sep 2001****	**Dec. 2007#**	**January 2009++**	**US 2008**	**Europe 2008**	**US 2009**	**Europe 2009**
Number of answers	226	112	510	360	143	487	224	462	194
Average	**7.2**	**6.8**	**4.7**	**5.96**	**6.2**	**6.3**	**5.3**	**6.0**	**5.3**
Std. Deviation	***2.0***	***2.0***	***2.2***	***1.7***	***1.7***	***2.2***	***1.5***	***1.7***	***1.7***
Max	15	15	20	20		19.0	10.0	12.0	12.0
Q3	8.4	8	6	7.0	7	7.2	6.0	7.0	6.0
Median	7	7	4.5	6.0	6	6.0	5.0	6.0	5.0
Q1	6	5	3	5.0	5	5.0	4.1	5.0	5.3
Min	1.5	1.5	0	2		0.8	1.0	2.0	2.0

* 30-Year Forecast. Welch (2000) First survey + 30-Year Forecast. Welch (2000) Second survey
** 30-year Equity Premium Forecast (Geometric). "The Equity Premium Consensus Forecast Revisited" (2001)
# 30-Year Geo Eq Prem Used in class. Welch, I. (2008), "The Consensus Estimate for the Equity Premium by Academic Financial Economists in December 2007". http://ssrn.com/abstract=1084918
++ In your classes, what is the main number you are recommending for long-term CAPM purposes? "Short Academic Equity Premium Survey for January 2009". http://welch.econ.brown.edu/academics/equpdate-results2009.html

Welch (2000) performed two surveys with finance professors in 1997 and 1998, asking them what they thought the Expected MRP would be over the next 30 years. He obtained 226 replies, ranging from 1% to 15%, with an average arithmetic EEP of 7% above T-Bonds.[8] Welch (2001) presented the results of a survey of 510 finance and economics professors performed in August 2001 and the consensus for the 30-year arithmetic EEP was 5.5%, much lower than just 3 years earlier. In an update published in 2008 Welch reports that the MRP "used in class" in December 2007 by about 400 finance professors was on average 5.89%, and 90% of the professors used equity premiums between 4% and 8.5%.

Johnson et al. (2007) report the results of a survey of 116 finance professors in North America done in March 2007: 90% of the professors believed the Expected MRP during the next 30 years to range from 3% to 7%.

Graham and Harvey (2007) indicate that US CFOs reduced their average EEP from 4.65% in September 2000 to 2.93% by September 2006 (st. dev. of the 465 responses = 2.47%). In the 2008 survey, they report an average EEP of 3.80%, ranging from 3.1% to 11.5% at the tenth percentile at each end of the spectrum. They show that average EEP changes through time. Goldman Sachs

8 At that time, the most recent Ibbotson Associates Yearbook reported an arithmetic HEP versus T-bills of 8.9% (1926–1997).

(O'Neill, Wilson and Masih 2002) conducted a survey of its global clients in July 2002 and the average long-run EEP was 3.9%, with most responses between 3.5% and 4.5%.

Table 6. Estimates of the EEP (Expected Equity Premium) according to other surveys

Authors	Conclusion about EEP	Respondents
Pensions and Investments (1998)	3%	Institutional investors
Graham and Harvey (2007)	Sep. 2000. Mean: 4.65%. Std. Dev. = 2.7%	CFOs
Graham and Harvey (2007)	Sep. 2006. Mean: 2.93%. Std. Dev. = 2.47%	CFOs
Welch update	December 2007. Mean: 5.69%. Range 2% to 12%	Finance professors
O'Neill, Wilson and Masih (2002)	3.9%	Global clients Goldman

Ilmanen (2003) argues that surveys tend to be optimistic: *"survey-based expected returns may tell us more about hoped-for returns than about required returns".* Damodaran (2008) points out that *"the risk premiums in academic surveys indicate how far removed most academics are from the real world of valuation and corporate finance and how much of their own thinking is framed by the historical risk premiums... The risk premiums that are presented in classroom settings are not only much higher than the risk premiums in practice but also contradict other academic research".*

The magazine *Pensions and Investments* (12/1/1998) carried out a survey among professionals working for institutional investors: the average EEP was 3%. Shiller[9] publishes and updates an index of investor sentiment since the crash of 1987. While neither survey provides a direct measure of the equity risk premium, they yield a broad measure of where investors or professors expect stock prices to go in the near future. The 2004 survey of the Securities Industry Association (SIA) found that the median EEP of 1500 U.S. investors was about 8.3%. Merrill Lynch surveys more than 300 institutional investors globally in July 2008: the average EEP was 3.5%.

A main difference of this survey with previous ones is that this survey asks about the **Required** MRP, while most surveys are interested in the **Expected** MRP. Exhibits 2 and 3 contain comments from 168 respondents.

5. MRP or EP (Equity Premium): 4 different concepts

As Fernandez (2007, 2009b) claims, the term "equity premium" is used to designate four different concepts:

1. **Historical** equity premium (HEP): historical differential return of the stock market over treasuries.
2. **Expected** equity premium (EEP): expected differential return of the stock market over treasuries.

9 See http://icf.som.yale.edu/Confidence.Index.

3. **Required** equity premium (REP): incremental return of a diversified portfolio (the market) over the risk-free rate required by an investor. It is used for calculating the required return to equity.

4. **Implied** equity premium (IEP): the required equity premium that arises from assuming that the market price is correct.

The four concepts (HEP, REP, EEP and IEP) designate different realities. The **HEP** is easy to calculate and is equal for all investors, provided they use the same time frame, the same market index, the same risk-free instrument and the same average (arithmetic or geometric). But the **EEP,** the **REP** and the **IEP** may be different for different investors and are not observable.

The **HEP** is the historical average differential return of the market portfolio over the risk-free debt. The most widely cited sources are Ibbotson Associates and Dimson et al. (2007).

Numerous papers and books assert or imply that there is a "market" EEP. However, it is obvious that investors and professors do not share "homogeneous expectations" and have different assessments of the **EEP**. As Brealey et al. (2005, page 154) affirm, *"Do not trust anyone who claims to know what returns investors expect".*

The **REP** is the answer to the following question: What incremental return do I require for investing in a diversified portfolio of shares over the risk-free rate? It is a crucial parameter because the REP is the key to determining the company's required return to equity and the WACC. Different companies may use, and in fact do use, different **REPs**.

The **IEP** is the implicit REP used in the valuation of a stock (or market index) that matches the current market price. The most widely used model to calculate the IEP is the dividend discount model: the current price per share (P0) is the present value of expected dividends discounted at the required rate of return (Ke). If d1 is the dividend per share expected to be received at time 1, and g the expected long term growth rate in dividends per share,

$$P0 = d1 / (Ke - g), \text{ which implies: } IEP = d1/P0 + g - RF \qquad (1)$$

The estimates of the IEP depend on the particular assumption made for the expected growth (g). Even if market prices are correct for all investors, there is not an IEP common for all investors: there are many pairs (IEP, g) that accomplish equation (1). Even if equation (1) holds for every investor, there are many *required* returns (as many as expected growths, g) in the market. Many papers in the financial literature report different estimates of the IEP with great dispersion, as for example, Claus and Thomas (2001, IEP = 3%), Harris and Marston (2001, IEP = 7.14%) and Ritter and Warr (2002, IEP = 12% in 1980 and -2% in 1999). There is no common **IEP** for all investors.

For a particular investor, the **EEP** is not necessarily equal to the REP (unless he considers that the market price is equal to the value of the shares). Obviously, an investor will hold a diversified portfolio of shares if his EEP is higher (or equal) than his REP and will not hold it otherwise.

We can find out the REP and the EEP of an investor by asking him, although for many investors the REP is not an explicit parameter but, rather, it is implicit in the price they are prepared to pay for the shares. However, it is not possible to determine the REP for the market as a whole, because it does not exist: even if we knew the REPs of all the investors in the market, it would be meaningless to talk of a REP for the market as a whole. There is a distribution of REPs and we can only say that

some percentage of investors have REPs contained in a range. The average of that distribution cannot be interpreted as the REP of the market nor as the REP of a representative investor.

Much confusion arises from not distinguishing among the four concepts that the phrase *equity premium* designates: Historical equity premium, Expected equity premium, Required equity premium and Implied equity premium. 129 of the books reviewed by Fernandez (2009b) identify Expected and Required equity premium and 82 books identify Expected and Historical equity premium.

Finance textbooks should clarify the MRP by incorporating distinguishing definitions of the four different concepts and conveying a clearer message about their sensible magnitudes.

6. Conclusion

Most surveys have been interested in the Expected MRP, but this survey asks about the Required MRP.

We provide the statistics of the Equity Premium or Market Risk Premium (MRP) used in 2011 for **56 countries**. We received answers from 85 countries, but we only report the results for 56 countries with more than six answers.

Most previous surveys have been interested in the Expected MRP, but this survey asks about the Required MRP. The paper also contains the references used to justify the MRP, comments from 12 persons that do not use MRP, and comments from 33 that do use MRP. Fernandez et al. (2011a)[10] has additional comments (58 do not use MRP, and 110 use it). The comments illustrate the various interpretations of the required MRP and its usefulness.

This survey links with the *Equity Premium Puzzle*: Fernandez et al. (2009), argue that the equity premium puzzle may be explained by the fact that many market participants (equity investors, investment banks, analysts, companies…) do not use standard theory (such as a standard representative consumer asset pricing model…) for determining their Required Equity Premium, but rather, they use historical data and advice from textbooks and finance professors. Consequently, ex-ante equity premia have been high, market prices have been consistently undervalued, and the ex-post risk premia have also been high. Many investors use historical data and textbook prescriptions to estimate the required and the expected equity premium, the undervaluation and the high ex-post risk premium are self-fulfilling prophecies.

10 Fernandez, P., J. Aguirreamalloa and L. Corres (2011a), "US Market Risk Premium Used in 2011 by Professors, Analysts and Companies: A Survey...", downloadable in http://ssrn.com/abstract=1805852.

EXHIBIT 1. Mail sent on March and April 2011

We are doing a survey about the Market Risk Premium (MRP) that companies, analysts and professors use to calculate the required return to equity in different countries.We will be very grateful to you if you kindly reply to the following 3 questions. Of course, no companies, individuals or universities will be identified, and only aggregate data will be made public.

Best regards and thanks,

Pablo Fernandez

Professor of Finance. IESE Business School. Spain
http://www.iese.edu http://ssrn.com/author=12696

3 questions:

1. The Market Risk Premium that I am using in 2011 for my country _____ is: _____%
2. The Market Risk Premium that I am using in 2011 for USA is: _____%
3. Books or articles that I use to support this number:

Comments

_____

_____

EXHIBIT 2: Comments of Respondents that did NOT Provide the MRP Used in 2011

1. 95% of valuations are executed on multiple basis, i.e. we don't properly calculate a wacc per investment case nor market risk premium
2. We focus on emerging markets. We don't use a formulaic approach to specific country risk and return requirements, and believe that it doesn't adequately account for relative risk or reward. Rather, we look at each country and determine whether there is a compelling real estate opportunity from a perspective of fundamental demand (like Brazil) and which meets our overall return requirements (approximately 20%).
3. Analyst. Europe. Changes every week
4. Germany. We do not apply this methodology in venture capital.
5. In Canada we don't use MRP. The majority of our appraisals are on an orderly liquidation basis. For the few fair market value appraisals, we use remaining useful life formulas.

6. I am fundamentally critical as regards the concept of a risk premium, it mainly serves as a tool to rationalize/ legitimate claims on income in the struggle between creditors and debitors.

7. European Fund. We only invest in European non-listed, private companies. Our required return is not depended on MRPs, we try to get the maximum out of it for our shareholders. A reference for us is the return you get on a savings account of a bank. For the moment this is about 2.5%. So if we get on top of an extra 10 to 15% per year, you are doing fine.

8. We usually calculate cost of equity in US$ and then translate it through PPP to R$.

9. The survey comes to me during the period of Japanese 9.0 earthquake, which I believe have strong impact in Taiwan. Unfortunately up to now no precise estimates for the damage can be obtained.

10. I have to confess that what I have doing in finance area is for my own pleasure. In other words I have made some theoretical research but almost never did not try to calculate 'numbers'. On the other hand my understanding of the problem related to the questions below is a little bit different than benchmark. In particular each 'The MRP ' implies risk characteristics that cover the set of scenarios for which say 'payer' pays more than implied by scenarios. Actually I think that relevant general information can be drawn from CDS and Interest Rate Parity. The MRP are excessively simplified.

11. I believe that the long run risk dynamics of corporations versus sovereigns has altered to the extent that risk has diminished for the former and increased for the latter. South African cost of capital has also been shifting in the past few years with the cost of debt particularly declining. I think slightly higher Price Earnings ratios will be typical in South Africa going forward than the long run market average of around 14x.In Private Equity EBITDA multiples of 7x are common today whereas a few years back 3 to 5x was the norm for deals.

12. No previous study is known of a comprehensive study of the portuguese domestic market. We (3 professors) are developing a 3-year project that aims to estimate our domestic ERP along with an understanding of the reasons that influenced that premium. At this very moment we are finalizing the construction of a share index that covers the period 1940 to 2010.

EXHIBIT 3: Comments of Respondents that did Provide the MRP Used in 2011

1. Your survey assumes that folks are using the segmented markets approach. I use an International CAPM approach and the MRP on the world market index, which I assume to be 5% from the perspective US dollars. We base also on information provided by surveys (e.g. from KPMG, Roland Berger, and other, or finance articles).

2. In estimating a cost of equity for a company with operations outside of US, we typically consider a country risk premium reflects subject country credit risk from the International Cost of Capital Report 2010, Ibbotson Associates, Inc.

3. Stock market in Egypt has been closed for almost a month now, but just before that my planned MRP based on estimations for Egypt was 3.5%. I'll probably not lower it too much after the revolution since I expect a lot of domestic investment and rebuilding efforts.

4. In Japan, a big seismic hazard is received, and the real estate dealings market is being confused in Japan now. Therefore, I cannot appropriately answer your question now.

5. Professor, UK. I think you're potentially asking the wrong question in that I think we should measure (E(rm) directly rather than the MRP. That seems particularly important in the context of current markets.

6. Professor, Finland. Predicting the market premium by using the survey method for asking the personally subjective opinion on the future market outlooks is not the scientific way.

7. I am working with/using a Long-term risk-free rate of 3 %, and a premium of 9 %. But note that this is to illustrate cases in teaching and/or Exam assignments! In Sweden the inflation is around 2 %. The central banks target is 2 %

8. I use CAPM Model. The Iranian stock Market has showed 46% gain in 2010 and it seems continuing for 2011.

9. For the Euro zone, I use a country risk premium and the german bund rate as a risk free rate in euros.

10. Indonesia. We export mainly to US, Europe, and Japan. The crisis on US affect our export, meanwhile our commodities hardly survive the competition with China commodities. But we still have prospect. We are optimist that our economic growth will increase from 5.7% in 2010 to more than 6.5% at the end of 2011

11. The Malaysian government securities yield is 2,77% whereas historical market FBMKLIC return (market index) is 4,24% from Jan 1980 to the end of 2009

12. I dont believe in fixed ERP its a random variable and partially predictable. You can use 10% for my country Cda and US 8%

13. Pakistan is an emerging market, Its interest rate statistics hardly show any correlation with developing world especially western Europe and USA, Despite higher interest rates, it has witnessed inflation in double digits and depreciation in its currency, Therefore, most monetary economics fails to explain the case of Pakistan and in fact for all emerging economies, The country has a very large undocumented sector, very limited tax base and its policies - for the most part - lately are not set independent of international political pressures.

14. In the case of Japan, true premium should be higher, but risk premium computed by stock return - JGB yield is small. Also this number can change due to the real impact of the current Tsunami and Nuclear problems.

15. The U.S. is higher than Germany and before the earthquake, Japan, but still quite low. The biggest risk is inflation which I normally account for separately – not as part of the country risk premium. In the long run, it is at least 1-3% as a component of the discount rate. Brueggeman

and Fisher, Real Estate Finance, has some discussion of principals but no estimates of country risk premium

16. I anticipate China stock market to increase by around 10% within 2011 while its one-year deposit interest rate stands at 3.5%. It results in a 6.5% of MRP for China. I also project the US stock market to increase by around 5% while the risk free rate of US remains close to zero within 2011.

17. Calculating a MRP for Iran is not straightforward because of unforecastable economic situation. The best thing I can do is narrowing the range of possible rates. The reason for considering 18% as MRP for Iran is that the annual interest rate of bank investments and participation bonds are approximately 14% to 16% (average 15%) announced by the central bank these years. Besides, historical return earned by the market, proxied by the Tehran Stock Exchange (TSE) Index, comes more than 30%. Using a CAPM, these two rates with a market beta of one come to 15% (at least) as MRP. Unlike the other countries that are regaining from the economical crises, here it seems that it takes more time for Iran to revive from recession; that is a personal judgment and should push the premium down. Furthermore, Iranian government is now fulfilling and experiencing a new economical plan which involves cutting subsides and paying peoples directly any savings thereof. This might push the premium up as people expecting more inflation. In my opinion, this MRP goes above 15%. That is why I choose 18%.

18. For international markets from a US perspective we calculate the Cost of Capital per Country Credit Rating model based upon the International Cost of Capital Report issued by Morninstar.

19. We use the policy potential index from this report to adjust project valuations for country risk. We find this is more useful and more comprehensive for the mines operated by our companies than a credit rating.

20. Please note that while my WACC's in general are high (11-13%) my growth rates are a bit higher also, anywhere from ½ to ¾ the overall long-run growth rate for the Chinese economy of 7-8%.

21. The equity risk premium we use here is 5.0%, historically we have used Ibbotson as a source for ERP minus the Ibbotson and Chen study adjustment, more recently we have joined KPMG ELLP and a 5.0% ERP is the generally applied level for Equity Risk Premium. We do not calculate a specific MRP for Russia based on historical returns on the equity market as Gazprom and the oil majors dominate the index so the applicability of any number is only really applicable to the natural resources sector rather than the broader market. The risk free rate in rouble terms is also a problem as there are no reliable long-term rouble bonds traded so we tend to us Russian Government USD denominated bonds as a basis for the risk free rate and then add a currency risk premium based on the fisher formula, not a perfect solution but it seems to work. We also use Ibbotson for size premium determination.

22. I use 4% for all countries based on the Credit Suisse Global Investment Returns Sourcebook that provide data for 17 countries beginning in 1900

23. Implied equity risk premium from major stock market indexes

24. Please note that if we calculate the real MRP in Italy for the last ten years, the measure is negative. The value is reasonably considered as right only in force of an accepted practice by the main consulting and auditing firms active in Italy. There is no more rational explanation in doing it !

25. This is based on my VC investors' general requirement. Nowadays, US is no longer safer than some Asian emerging markets. Someday, it may even reverse.

26. Financial analyst for belgian institutions. In general I am using a standard WACC of 7,5% to 8%, which is in fact including an average risk premium of 3% to 4,5%. I am using these figures in good and in bad times, in order to get a standard approach. It is obvious that in bad times, risk premiums are high and thus valuations low and in good times low risk premium result in high valuations. I want to go through this phenomenon by using one standard WACC and risk premium.

27. I would say that I think equities are going to outperform bonds by 3% for both US and the Netherlands.

28. Risk premium for US is measured (for me) in £ i.e. is adjusted for expected depreciation in $

29. I tend to like the Dimson Marsh research. Their Triumph of the Optimists is quite a good read as are some of their articles. I tend to agree that Ibbotson tends to overestimate the MRP.

30. We base our total premium at 12%, counting an estimation of 6% inflation for 2011, according to a survey done on our main market, which is environmental services.

31. Comparison of the interest rate that the market establishes for a standard security in the country to the comparable security in the benchmark country,

32. We use a regression on US Dollar denominated sovereign bonds and our in-house risk rating to determine African countries' MRP

33. This figure is adjusted regularly based on current market levels and recent market performance. The Margin Lending borrowing rate also helps determine the MRP. Our current variable Margin Lending Rate is 9.75%

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7

VALUATION OF THE DEBTOR COMPANY INTELLECTUAL PROPERTY[1]

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Introduction

Discussing the objectives and requirements at the outset of any valuation assignment forces those responsible for the valuation to think carefully through all of the elements of the valuation assignment. It also helps to prevent misdirecting the valuation process and helps the various parties involved to avoid misunderstandings that might otherwise arise.

Whenever intellectual property is the subject of the valuation assignment, it is particularly important to consider the elements of the valuation assignment. When users need to know the value of intellectual property for bankruptcy purposes, carefully defining the elements of the intellectual property valuation assignment is never more important.

The special legal protections given to intellectual property are generally designed to prohibit the use and sale of protected works without the authorization of the intellectual property owner. Markets have developed over time to allow owners of intellectual property to license or sell their property to better situated market participants in order to adapt and exploit the properties.

The vitality of those markets helps encourage investment in intellectual property, and intellectual property law generally supports those transactions. Among many other things, intellectual property valuation analysts typically consider the actions of buyers and sellers in these markets during any valuation assignment.

Bankruptcy law seeks to preserve the on-going value and maximize the economic stake of creditors of failing enterprises. In the bankruptcy environment (subject to various exceptions, limitations and defenses), contracts and licenses can be assumed, rejected, or assigned. This complicates the valuation assignment when the bankrupt debtor is either the licensor or the licensee of intellectual property, and it raises a variety of dilemmas for the valuation analyst.

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For example, if a debtor's license is assignable by the bankruptcy estate to a competitor of the licensor, should the analysis of the intellectual property value be based on the expectation that the licensor is required to continue to support (e.g., make improvements to[4]) the intellectual property (even if it is in the hands of a competitor)?

Defining the valuation assignment is the logical beginning of the valuation process, providing focus for all the valuation considerations and efforts to be undertaken. Often, defining the valuation assignment includes the most important decisions to be made on the project. Time spent at the outset in being explicit in defining the purpose and the objective of the valuation assignment is time well spent.

The assignment given to the valuation analyst by the client should describe the objective of any intellectual property valuation assignment by focusing on these elements:

1. definition of the intellectual property
2. ownership characteristics subject to analysis
3. bundle of legal rights
4. standard of value
5. premise of value
6. valuation date

However, before these elements are defined, the purpose of the intellectual property valuation assignment should be determined. This is because each of these elements of the assignment's objective may be influenced by the valuation assignment's purpose.

THE PURPOSE OF VALUING INTELLECTUAL PROPERTY IN A BANKRUPTCY ENVIRONMENT

There are many reasons why a valuation analyst may be asked to value the debtor company intellectual property within a bankruptcy environment.

The intellectual property could serve as collateral for either the debtor company pre-bankruptcy financing or the debtor-in-possession (DIP) financing. A sale or license of intellectual property could serve to generate cash flow for the DIP. The analyst could be asked to opine on the fairness of the sale or license consideration to the creditors or other parties in interest.

The value of the debtor intellectual property often affects the debtor corporation solvency (or insolvency) at various dates prior to the bankruptcy filing. These debtor solvency issues become relevant in allegations related to fraudulent conveyance or preference payments.

The debtor intellectual property commercialization potential (or the associated spinoff value) could affect the reasonableness of a proposed plan of reorganization. And, the intellectual property value should be recognized in the fresh start accounting for the debtor emerging from bankruptcy.

4 See *Biosafe Int'l v. Controlled Shredders*, 1996 Bankr. LEXIS 888 (N.D. Ill. 1996), rev'd in part on other grounds, *Szombathy v. Controlled Shredders, Inc.*, 1997 U.S. Dist. LEXIS 5168 (N.D. Ill. 1997) (finding licensee's rights only to intellectual property in existence at the time of bankruptcy filing despite licensing agreement extending to later acquired intellectual property).

Legal counsel is often involved in the bankruptcy-related intellectual property valuation. This is because the legal counsel is involved in assisting their bankruptcy party-in-interest clients in structuring transactions, complying with taxation and accounting requirements, negotiating and arranging financings, litigating claims, and defending and commercializing the intellectual property.

Therefore, the bankruptcy counsel is often involved in the process of:

1. identifying the debtor company intellectual property,
2. performing the related due diligence,
3. interviewing and selecting the appropriate valuation analyst,
4. defining the valuation analyst's assignment,
5. helping to assemble valuation-related data and documents,
6. providing legal instructions to the valuation analyst,
7. reviewing and questioning the valuation work product,
8. interpreting and relying on the valuation report, and
9. defending the valuation during any administrative, regulatory, or judicial challenge.

Valuation analysts often value general commercial intangible assets for bankruptcy-related purposes without the legal advice from, or the assistance of, bankruptcy counsel. However, due to the special nature of patents, copyrights, trademarks, and trade secrets, the valuation analyst and the legal counsel often work together in several phases of the bankruptcy-related intellectual property valuation assignment.

The following list summarizes many of the bankruptcy-related reasons why a valuation analyst may be asked to value intellectual property. Such valuation assignments may come directly from a party-in-interest to the bankruptcy. More commonly, such valuation assignments come from the legal counsel to one of the parties.

1. transaction pricing and structuring
   - pricing the sale of the DIP individual property or a portfolio of two or more intellectual property assets
   - pricing the license of the DIP individual intellectual property or a portfolio of two or more intellectual property assets
   - valuing the equity allocations in a DIP joint venture when one or more parties contribute intellectual property assets
   - valuing the asset distributions in a debtor's liquidation when one or more parties receive intellectual property assets
   - transferring intellectual property between parent corporation subsidiaries (when one subsidiary is in bankruptcy and the other subsidiary is not in bankruptcy)
2. financing collateralization and securitization
   - use of intellectual property as collateral for cash-flow-based or asset-based pre-bankruptcy debt financings
   - sale/licenseback financing (pre-bankruptcy) of the debtor intellectual property
3. taxation planning and compliance

- effect of the intellectual property value on the Internal Revenue Code Section 382 limitations on the debtor corporation use of net operating losses
- effect of the intellectual property value on the Section 108 discharge of indebtedness income exclusion related to taxpayer corporation insolvency

4. adequate consideration for DIP transactions
   - use of intellectual property as collateral for secured creditor position
   - use of intellectual property as collateral for DIP secured debt
   - fairness of the sale or license of intellectual property as a DIP cash generation spinoff opportunity
   - use of intellectual property in the assessment of debtor corporation solvency or insolvency with respect to fraudulent transfers and preference actions
   - impact of the debtor intellectual property on the proposed plan of reorganization
5. financial reporting and fair value accounting
   - goodwill and intellectual property asset impairment testing
   - post-bankruptcy fresh start accounting for emerging entity tangible assets and intangible assets
6. debtor strategic planning and management information
   - formation of DIP intellectual property joint venture, joint development, or joint commercialization agreements
   - negotiation of DIP inbound or outbound intellectual property use, development, commercialization, or exploitation agreements
   - identification and negotiation of DIP intellectual property license, spin-off, joint venture, and other commercialization opportunities

Defining the purpose of the valuation assignment will also help determine the form of the work product. The valuation report can be oral, written, or a combination. The valuation opinion report should be prepared for the specified purpose and with the expected audience in mind.

The valuation analysis should include the valuation methodologies that are relevant for that audience and the report should include references expected by that audience.

The purpose of the valuation considers the following elements:

1. How will the intellectual property valuation be used?
2. Who will rely on (or receive a copy of) the valuation?
3. What form and format of intellectual property valuation report is required?
4. Are there any legal instructions (e.g., specific statutory definitions, judicial precedent, or reporting requirements) that the analyst should consider?

In addition to understanding the reason for the intellectual property valuation, it is important for the valuation analyst to understand exactly what the objective of the analysis is. The party-in-interest or the legal counsel should specifically define which one (or ones) of the following opinions the valuation analyst is being asked to render:

1. to estimate a value (as specifically defined) for the debtor intellectual property

2. to measure lost profits or some other measure of economic damages related to the intellectual property
3. to conclude an arm's-length price for the intercompany transfer of the intellectual property
4. to estimate a fair license agreement royalty rate between independent arm's-length parties
5. to opine on the fairness of an intellectual property, sale, license, or other transfer transaction from a financial perspective
6. to estimate the intellectual property remaining useful life (RUL)

THE OBJECTIVE OF VALUING INTELLECTUAL PROPERTY IN A BANKRUPTCY ENVIRONMENT

When defining the intellectual property valuation assignment's objective, the first element is a complete definition of the debtor intellectual property. That definition statement should specify exactly what patent, copyright, trademark, or trade secret is the valuation subject. This definition should include the registration number and country for the patent or for the copyright and trademark (if registered).

This definition should describe any commercial intangible assets that should be considered with the debtor intellectual property. For example, should the trademark analysis include advertising materials and trade dress? Should the patent analysis include product/process engineering drawings and currently available proprietary technology?

In some situations, there is uncertainty on the parts of—and controversy between—the parties in a bankruptcy matter as to what exactly is included in (or excluded from) the optimal assemblage of assets that are the object of the valuation assignment.

For example, combining (1) the right to use certain technology (e.g., a patent) with (2) the use of a trade name (which imposes some degree of quality control requirements) is potentially controversial. This is because the combination of these two intellectual properties in one assemblage of assets, even though that would otherwise maximize the value of the two intellectual properties, might also impose an unbargained-for duty on the trade name licensor: to create a new quality control management system.[5]

Similarly controversial may be whether to include in the value of certain intellectual property access in the future to assets (e.g., improvements, discoveries, new media) that are not in place as of the valuation date.

The second element of the valuation assignment is a description of the ownership characteristics of the intellectual property including any license or contract that is in effect.

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5 There is little case law on the assignability of exclusive patent licenses. In one case, the court barred the licensee from assigning its interest: *In re Hernandez*, 285 B.R 435 (Bankr. D. Ariz. 2002).

Courts are split on the assignability of exclusive copyright licenses. In *Gardner v. Nike, Inc.*, 279 F.3d 774 (9th Cir. 2002), the court prohibited the assignability of an exclusive license without the licensor's consent. Other courts allow free assignability of exclusive copyright licenses. See *In re Golden Books Family Entm't, Inc.*, 269 B.R. 311 (Bankr. D. Del. 2001).

Trademarks sometimes receive special treatment in a bankruptcy context. In *In re: N.C.P. Marketing Group, Inc.*, 337 B.R. 230 (D. Nev. 2005), the court found that trademark licenses are personal and nonassignable. Therefore, it is unlikely that a trademark licensee will be able to assign their rights to third parties without the owner's consent.

The risk of bankruptcy can undermine the incentives for parties to (1) license intellectual property and (2) make optimal investments in exploiting those license transactions that have already been consummated.

When a bankruptcy petition is filed and a “stay” has been entered, the bankrupt intellectual property licensor or licensee cannot pursue a breach of contract action or an infringement action without authorization from the bankruptcy judge presiding over the estate.

If there is a license or agreement (contested or otherwise) associated with the debtor intellectual property, then the valuation analyst should be made aware of the following contract terms:

1. licensor/licensee responsibility contract terms
   - legal protection requirements
   - R&D expenditures
   - marketing expenditures
   - licenses, permits, or other regulatory approvals
2. other contract terms
   - minimum use, production, or sales
   - minimum marketing or commercialization expense
   - R&D technology development payments, completion payments
   - party responsible to obtain the required approvals
   - milestone license payments

The third element of the valuation assignment is a description of the bundle of legal rights subject to analysis. The assignment should specify which of the following (or which other) bundles of rights the analyst should include in the debtor intellectual property valuation:

1. fee simple interest
2. term/reversion interest
3. licensor/licensee interest
4. territory (domestic/international) interest
5. product line/industry interest
6. sublicense rights
7. development rights
8. commercialization/exploitation rights

The fourth element in the valuation assignment is the standard (or definition) of value that the analyst is being asked to conclude. The standard of value typically relates to the question: Value to whom? Different standards of value correspond to different reasons to conduct the intellectual property valuation.

Often, the standard of value is determined by a statutory, regulatory, or administrative requirement. Therefore, the party-in-interest (or, commonly, the legal counsel) will instruct the analyst as to the appropriate standard of value.

Some of the more common alternative standards of value include the following:

1. fair value
2. fair market value
3. use value
4. user value
5. owner value
6. investment value
7. acquisition value
8. collateral value

The fifth element in the valuation assignment is the premise of value that the analyst should assume. The premise of value considers the assumed set of circumstances under which the intellectual property transaction (sale or license) will take place.

Some of the more common alternative premises of value include the following:

1. value in continued use
2. value in place (but not in use)
3. value in exchange—orderly disposition basis
4. value in exchange—voluntary liquidation basis
5. value in exchange—involuntary liquidation basis

The selected premise of value is typically an assignment instruction from the party-in-interest (or from the legal counsel). If the client (or legal counsel) does not have an instruction as to the appropriate premise of value, then the analyst will typically select the premise of value that concludes the highest and best use (HABU) for the debtor intellectual property.

The tests for HABU of a particular asset are based on an analysis of what is physically possible, legally permissible, and financially feasible. For example, if the maximum value of an intellectual property is if it is “assembled” in combination with other assets as a group (as installed or configured), then the analyst will consider its value in continued use. If the maximum value of an intellectual property is on a stand-alone basis, then the analyst will consider its value in exchange.

In selecting the appropriate intellectual property HABU, the valuation analyst may consider the following alternatives:

1. current owner/operator HABU
2. new owner/operator (marketplace) HABU
3. licensor/licensee HABU

The sixth element of the valuation assignment is the valuation date. The client (or legal counsel) will have to instruct the analyst as to the appropriate “as of” date on which to conclude the defined value.

The date, or dates, at which the business is being valued is critically important because circumstances can cause values to vary materially from one date to another, and the valuation date directly influences data available for the valuation.

Many internal and external factors can cause changes in the value of an intellectual property. Obviously, a sudden change in earnings, especially if unanticipated, can have a substantial effect on value. Also, the value of an intellectual property varies with the cost of capital, a factor which can vary over time.

Major events, such as the signing or termination of a licensing agreement, can also have a dramatic, immediate impact on value.

In order to serve the information needs of the client, the valuation analyst should have a clear understanding of the intellectual property assignment. The legal counsel is often responsible for ensuring that the valuation analyst develops that understanding.

Valuation Data Gathering and Due Diligence

Before the analyst selects and applies the valuation approaches, methods, and procedures, the analyst will perform a due diligence with respect to the debtor intellectual property. The legal counsel may participate in this due diligence process, particularly if the intellectual property valuation relates to a transaction, financing, or litigation.

However, these due diligence procedures relate to identifying and obtaining information for the analyst’s valuation, economic damages, or royalty rate analysis. Therefore, this due diligence process is a supplement to—and not a substitute for—the lawyer’s legal due diligence process.

First, the valuation analyst will typically gather and analyze information related to the current intellectual property owner/operator (i.e., the debtor). The information will typically relate to the historical development and current use of the intellectual property.

Such information will typically include the following:

1. owner/operator historical and prospective financial statements
2. owner/operator historical and prospective development/maintenance costs
3. current and expected owner/operator resource/capacity constraints
4. description and estimate of the intellectual property economic benefits to the current owner/operator
    - associated revenue increase (e.g., related product unit price/volume, market size/position)
    - associated expense decrease (e.g., expense related to product returns, COGS, SGA, R&D)
    - associated investment decrease (e.g., inventory, capital expenditures)

- associated risk decrease (e.g., the existence of an intellectual property license contract, decrease in the cost of capital components)

The analyst will consider the market potential of the intellectual property outside of the debtor.

For example, the analyst may consider the following factors from the perspective of an alternative (e.g., hypothetical willing buyer) owner/operator:

1. change in the market definition or the market size for an alternative owner/user
2. change in alternative/competitive uses to an alternative owner/user
3. the intellectual property ability to create inbound/outbound license opportunities to an alternative owner/user
4. whether the debtor can operate the intellectual property and also outbound license the intellectual property (in different products, different markets, different territories, etc.)

The analyst will also review and challenge any debtor-prepared financial projections and any debtor-prepared measures of intellectual property economic benefits. In particular, the analyst will test such financial projections and economic benefit measures against industry, guideline company, and other benchmark comparisons.

For example, the analyst may perform the following benchmark analyses:

1. compare prior debtor management projections to prior debtor actual results of operations
2. compare current debtor management projections to debtor current capacity constraints
3. compare current debtor management projections to the current total market size
4. consider published industry average comparable profit margin (CPM) data
5. consider selected guideline publicly traded company CPM data
6. consider the quality and quantity of available guideline or comparable intellectual property license data
7. perform an intellectual property RUL analysis, with consideration of:
   - legal/statutory life
   - contract/license life
   - technology obsolescence life
   - economic obsolescence life
   - lives (i.e., ages) of prior generations of the subject intellectual property
   - the position of the subject intellectual property in its life cycle

In addition to comparing the debtor historical and projected results to the selected guideline public companies (described below), the analyst may compare the debtor results to published industry data sources.

The following list presents some of the common published industry data sources that valuation analysts use for these benchmark comparative intellectual property analyses:

- Financial Research Associates—Financial Studies of the Small Business

- The Risk Management Association—Annual Statement Studies: Financial Ratio Benchmarks
- BizMiner (The Brandow Company)—Industry Financial Profiles
- CCH, Inc.—Almanac of Business and Industrial Ratios
- Fintel, LLC—Fintel Industry Metrics Reports
- MicroBilt Corporation (formerly IntegraInfo)—Integra Financial Benchmarking Data
- ValueSource—IRS Corporate Ratios
- Schonfeld & Associates, Inc.—IRS Corporate Financial Ratios

The above-listed data sources allow the valuation analyst to compare the debtor financial results to benchmark industry expense ratios, profit margins, returns on investments, and so forth.

Generally Accepted Intellectual Property Valuation Approaches

There are three generally accepted intellectual property valuation approaches: the cost approach, the market approach, and the income approach.

Valuation analysts typically consider, and attempt to apply, all three approaches in each intellectual property valuation. However, practically, most intellectual property valuations are based principally on one approach.

For each intellectual property valuation, the analyst will select the approach (or approaches):

1. for which there is the greatest quantity and quality of available data,
2. for which the analyst can perform the most comprehensive due diligence procedures,
3. that best reflect the actual transactional negotiations of market participants in that industry,
4. that best fit the characteristics (e.g., use, age, etc.) of the debtor intellectual property, and
5. that are most consistent with the professional experience and informed judgment of the valuation analyst.

Within each approach, there are several valuation methods that the analyst can select and apply. And, within each method, there are numerous procedures that the analyst can perform. Therefore, valuation procedures are performed within a method to conclude a value indication. The analyst may perform two or three valuation methods within a single approach.

For example, the analyst may perform three different income approach methods and reconcile the three value indications to conclude a single income approach value indication.

Then, the analyst will reconcile the various valuation approach indications (if more than one approach is used). This synthesis of the various valuation approach indications will result in a final value conclusion for the debtor intellectual property.

All of the cost approach methods are based on the economics principle of substitution. That is, the value of intellectual property alpha is influenced by the cost to create a new substitute intellectual property beta.

As will be discussed, all cost approach methods apply a comprehensive definition of intellectual property cost, including consideration of an opportunity cost during the intellectual property development stage.

In addition, the cost of the new substitute intellectual property should be reduced (or depreciated) in order to make the hypothetical new beta intellectual property comparable to the actual "old" alpha intellectual property.

Unlike most commercial intangible assets, intellectual property assets are not fungible. That is, the marketplace typically cannot replace the alpha intellectual property with a beta intellectual property.

This is because alpha is legally protected. Therefore, although the cost approach is used in intellectual property valuation, it does have certain application limitations.

All market approach methods are based on the economics principles of efficient markets and of supply and demand. That is, the value of the debtor intellectual property may be estimated by reference to prices paid in the marketplace for the arm's-length sale or license of comparable (or guideline) intellectual property.

Comparable uncontrolled transaction (CUT) data related to sales or licenses are analyzed in order to extract pricing multiples or rates that can be applied to the debtor intellectual property.

All income approach methods are based on the economics principle of anticipation. That is, the value of any investment is the present value of the income that the owner expects to receive from owning that investment. All income approach methods involve a projection of some measure of owner/operator income over the intellectual property RUL.

This income measure may relate to:

1. the income earned from operating the intellectual property in the owner/operator business enterprise and/or
2. the income earned from licensing the intellectual property from the owner/licensor to an operator license that will pay a royalty (or some other fee) for the use of the intellectual property.

This intellectual property-related income projection is converted to a present value by the use of a risk-adjusted discount rate (or annuity capitalization rate).

Cost approach methods are particularly applicable to the valuation of recently developed intellectual property. In the case of relatively new intellectual property, the debtor development cost and effort data may be available (or may be more subject to accurate estimation).

In addition, cost approach methods are also applicable to the valuation of in-process intellectual property and to noncommercialized intellectual property (e.g., intellectual property held primarily for defensive use).

However, in all cases, the valuation analyst should realize that the debtor intellectual property value is not derived from the cost measure alone. Rather, the debtor intellectual property value is derived from the cost measure (however defined) less appropriate allowances for all forms of depreciation and obsolescence.

Market approach methods are particularly applicable when there is a sufficient quantity of comparable (almost identical) or guideline (similar from an investment risk and expected return perspective) intellectual property transaction data. These transactions may relate to either sale or license transactions. Such arm's-length, third-party transactions are often called CUT sales or licenses.

The valuation analyst will attempt to extract market-derived valuation pricing indications (e.g., multiples or rates) from these CUT data to apply to the corresponding metrics of the debtor intellectual property.

Income approach methods are particularly applicable in situations where the debtor intellectual property is used to generate a measurable amount of income. This income can either be:

1. operating income (when the intellectual property is used in the owner's business operations) or
2. owner income (when the intellectual property is licensed from the owner/licensor to an operator/licensee) to produce royalty income.

Income approach methods may also be used when the owner/operator has elected not to currently commercialize the intellectual property. An example would be when this forbearance of use is for the purpose of protecting the income that is produced by the owner/operator's other intellectual property.

Cost Approach Valuation Methods

There are several intellectual property valuation methods within the cost approach. Each valuation method uses a particular definition of cost.

Two common cost definitions are:

1. reproduction cost new, and
2. replacement cost new.

Reproduction cost new is the total cost, at current prices, to develop an exact duplicate of the intellectual property. Replacement cost new is the total cost, at current prices, to develop an asset having the same functionality or utility as the intellectual property.

Functionality is an engineering concept that means the ability of the intellectual property to perform the task for which it was designed. Utility is an economics concept that means the ability of the intellectual property to provide an equivalent amount of satisfaction.

There are also other cost definitions that may be applicable to a cost approach valuation. Some valuation analysts consider a measure of cost avoidance as a cost approach method. This method quantifies either historical or prospective costs that are avoided because the debtor owns the intellectual property.

Some valuation analysts consider trended historical costs as a cost measure. In this method, historical intellectual property development costs are identified and trended to the valuation date by an inflation-based index factor. Regardless of the specific cost definition used, all cost approach methods include a comprehensive definition of cost.

The cost measurement (whether replacement cost new, reproduction cost new, or some other cost measure) typically includes four cost components:

1. direct costs (e.g., materials)
2. indirect costs (e.g., engineering and design labor)
3. the intellectual property developer's profit (on the direct cost and indirect cost investment)
4. an opportunity cost/entrepreneurial incentive (to motivate the development process)

The intellectual property development material, labor, and overhead costs are unusually easy to identify and quantify. The developer's profit can be estimated using several procedures. It is often estimated as a percentage rate of return on the developer's investment in the material, labor, and overhead costs.

The entrepreneurial incentive is often measured as the lost profits during the replacement intellectual property development period.

For example, let's assume it will take two years to develop a replacement patent. If the buyer buys the seller's actual patent, then the buyer can start earning income (either operating or license income) immediately.

If the buyer "builds" its own hypothetical replacement patent, then the buyer will not earn any income (operating or license) during the two-year development period. The two years of lost profits during the hypothetical patent development period represent the opportunity cost of developing a new replacement patent—compared to buying the actual debtor patent.

All four cost components—that is, direct costs, indirect costs, developer's profit, and opportunity cost—should be considered in the intellectual property cost approach valuation. So, while the cost approach is a different set of analyses from the income approach, there are economic analyses included in the cost approach.

These economic analyses provide indications of both:

1. the appropriate levels of opportunity cost (if any) and
2. the appropriate amount of economic obsolescence (if any).

The intellectual property cost new (however measured) should be adjusted for losses in value due to:

1. physical deterioration,
2. functional obsolescence, and
3. economic obsolescence.

Physical deterioration is the reduction in value due to physical wear and tear. It is unlikely that a debtor intellectual property will experience physical deterioration.

Functional obsolescence is the reduction in value due to the intellectual property's inability to perform the function (or yield the periodic utility) for which it was originally designed.

The technological component of functional obsolescence is a decrease in value due to improvements in technology that make the debtor intellectual property less than the ideal replacement for itself.

Economic obsolescence is a reduction in value due to the effects, events, or conditions that are external to—and not controlled by—the intellectual property current use or condition. The impact of economic obsolescence is typically beyond the control of the debtor.

In any cost approach analysis, the valuation analyst will estimate the amounts (if any) of intellectual property physical deterioration, functional obsolescence, and economic obsolescence. In this estimation, the valuation analyst will consider the intellectual property actual age—and its expected RUL.

A common cost approach formula for quantifying intellectual property replacement cost new is: reproduction cost new – curable functional obsolescence = replacement cost new.

To estimate the intellectual property value, the following cost approach formula is commonly used: replacement cost new – physical deterioration – economic obsolescence – incurable functional obsolescence = intellectual property value.

Exhibits 1 and 2 present a simplified illustrative example of a cost approach intellectual property valuation. In this example, the valuation analyst is asked to estimate the fair market value of the copyrights and trade secrets related to the Alpha Debtor Company computer software. All of the computer software is subject to copyright protection. And, the software source code and the systems documentation and user manuals are treated as company trade secrets. The appropriate valuation date is January 1, 2011.

The valuation analyst decided to use the cost approach and the replacement cost new less depreciation method. Exhibit 1 includes the analysis of all four cost components of the cost approach. Exhibit 1 also illustrates the valuation analyst's functional obsolescence considerations.

Exhibit 2 presents the detail of one cost component of the cost approach: the developer's profit calculation.

Based on the cost approach analysis summarized in Exhibit 1, the fair market value of the Alpha Debtor Company computer software copyrights and trade secrets, as of January 1, 2011, is $200 million.

Market Approach Valuation Methods

Valuation analysts typically attempt to apply market approach methods first in the debtor intellectual property valuation. This is because the market—that is, the economic environment where arm's-length transactions between unrelated parties occur—is often the best indicator of value.

However, the market approach will only provide meaningful valuation evidence when the debtor intellectual property is sufficiently similar to the intellectual property that is transacting (by sale or license) in the marketplace.

In that case, the guideline intellectual property transaction (sale or license) prices may indicate the expected price for the debtor intellectual property.

There are two principal intellectual property market approach valuation methods:

1. the comparable uncontrolled transaction method and

2. the comparable profit margin method.

In the CUT method, the valuation analyst searches for arm's-length sales or licenses of benchmark intellectual property.

In the CPM method, the valuation analyst searches for companies that provide benchmarks to the debtor.

In the CUT method, the analyst will more likely rely on CUT license transactions. This is because third-party licenses of intellectual property are more common than third-party sales of intellectual property. Nonetheless, for both sale and license transactions, the valuation analyst will follow a systematic process in the CUT method valuation.

First, the valuation analyst will research the appropriate exchange markets to obtain information about sale or license transactions, involving guideline (i.e., similar from an investment risk and expected return perspective) or comparable (i.e., almost identical) intellectual property that may be compared to the debtor intellectual property.

Some of the comparison attributes include characteristics such as intellectual property type, intellectual property use, industry in which the intellectual property operates, date of sale or license, and so on.

Second, the valuation analyst will verify the transactional information by confirming (1) that the transactional data are factually accurate and (2) that the sale or license exchange transactions reflect arm's-length market considerations. If the guideline sale or license transaction was not at arm's-length market conditions, then adjustments to the transactional data may be necessary.

This verification procedure may also elicit additional information about the current market conditions related to the sale or license of the debtor intellectual property.

Third, the valuation analyst will select relevant units of comparison (e.g., income pricing multiples or dollars per unit—such as "per drawing" or "per line of code"). And, the analyst will develop a comparative analysis for each selected unit of comparison.

Fourth, the valuation analyst will compare the selected guideline or comparable intellectual property sale or license transactions with the debtor intellectual property, using the selected elements of comparison.

Then, the analyst will adjust the sale or license price of each guideline transaction for any differences between the guideline intellectual property and the debtor intellectual property. If such comparative adjustments cannot be measured, then the analyst may eliminate the sale or license transaction as a guideline for future valuation consideration.

Fifth, the valuation analyst will select pricing metrics for the debtor intellectual property from the range of pricing metrics indicated from the guideline or comparable transactions.

The analyst may select pricing multiples in the low end, midpoint, or high end of the range of pricing metrics indicated by the transactional sale or license data. The valuation analyst will select

the subject-specific pricing metrics based on the analyst's comparison of the debtor intellectual property to the guideline intellectual property.

Sixth, the valuation analyst will apply the selected subject-specific pricing metrics to the debtor intellectual property financial or operational fundamentals (e.g., revenue, income, number of drawings, number of lines of code, etc.). This procedure will typically result in several market-derived value indications for the debtor intellectual property.

Seventh, the valuation analyst will reconcile the various value indications produced from the analysis of the guideline sale and/or license transactions into a single market approach value indication. In this final reconciliation procedure, the analyst will summarize and review (1) the transactional data and (2) the quantitative analyses (i.e., various pricing multiples) that resulted in each value indication.

Finally, the valuation analyst will resolve these value indications into a single market approach value indication.

Table 1 describes several of the databases that valuation analysts typically search to select intellectual property license CUTs. Table 2 describes several of the print sources that valuation analysts typically search to select intellectual property CUTs.

Of course, the valuation analyst will also confer with the debtor management to explore whether the debtor has entered into any intellectual property license agreements (either inbound or outbound). These debtor license agreements could relate to either the debtor intellectual property or to comparable intellectual property.

The CPM method is also based on a comparative analysis. However, in this valuation method, the analyst is not relying on sales or licenses of comparable intellectual property. Rather, the analyst is searching for comparable or guideline companies.

The objective of the CPM method is to identify guideline companies that are comparative to the debtor in all ways except one. The debtor, of course, owns the subject intellectual property. Ideally, the selected guideline companies should provide a comparable benchmark to the debtor—except that they do not own a comparable intellectual property.

Ideally, the CPM method guideline companies operate in the same industry as the debtor. Ideally, the guideline companies have the same types of raw materials and the same types of sources of supply.

Ideally, the guideline companies have the same type of customers. Ideally, the guideline companies produce the same type of products or services. And, ideally, the only difference should be that the debtor has an established trademark and the guideline companies have generic trademarks. Or, the debtor owns the subject patent and the guideline companies produce unpatented (and presumably inferior) products.

Because of the economic benefit that the debtor intellectual property provides, the debtor should earn a higher profit margin than the selected guideline companies. This profit margin comparison is usually made at the earnings before interest and taxes (or EBIT) level of income.

The incremental (or superior) profit margin earned by the debtor can then be converted into an intellectual-property-related royalty rate. Typically, all of the excess profit margin is assigned to

the intellectual property (if the debtor intellectual property is the only reason for the debtor superior profit margin).

This royalty rate (derived from the excess profit margin) is then multiplied by the debtor revenue in order to estimate the amount of implied royalty income generated from the debtor intellectual property. This hypothetical royalty income is capitalized over the intellectual property expected RUL. The result of this capitalization procedure is an estimate of the intellectual property value, according to the CPM method.

Table 3 presents a nonexhaustive list of publicly traded company data sources that valuation analysts often use to:

1. select guideline companies for the CPM method analysis and
2. obtain guideline company profit margin information to use in the CPM method analysis.

In summary, there are several intellectual property market approach valuation methods. However, they are all based on comparative analyses of either comparable intellectual property sales, comparable intellectual property license royalty rates, or comparable companies (that own generic intellectual property).

Finally, Exhibit 3 presents an illustrative example of a market approach intellectual property valuation. In this example, the valuation analyst is asked to estimate the fair market value of the Beta Debtor Company (a telecommunications company) trademarks and trade names. The appropriate valuation date is as of January 1, 2011.

The valuation analyst decided to use the market approach and the relief from royalty (RFR) method in this trademark valuation. Exhibit 4 summarizes the analyst's search for, selection of, and analysis of comparable uncontrolled transaction (CUT) trademark license agreements. Like Beta Debtor Company, the hypothetical CUT trademark license data are all in the telecommunications industry.

Exhibit 5 summarizes the valuation analyst's calculation of the Beta Debtor Company present value discount rate. This discount rate is used to present value the royalty income projection over the trademark expected RUL.

Based on discussions with Beta Debtor Company management and on research regarding comparable telecommunications industry trademark life cycles, the analyst determined that the average RUL of the debtor company trademarks was 20 years.

Therefore, the trademark valuation is based on a 20-year trademark royalty income projection period.

Based on the market approach valuation analysis summarized in Exhibit 3, the valuation analyst concluded an $840 million fair market value for the Beta Debtor Company trademarks and trade names, as of January 1, 2011.

Income Approach Valuation Methods

In this valuation approach, the intellectual property value is estimated as the present value of the future income from the ownership/operation of the intellectual property.

The present value calculation has three principal components:

1. an estimate of the duration of the intellectual property income projection period, typically measured as the intellectual property RUL
2. an estimate of the intellectual property–related income for each period in the projection, typically measured as either owner income (e.g., license royalty income), operator income (e.g., some portion of the total business enterprise income), or both
3. an estimate of the appropriate capitalization rate, typically measured as the required rate of return on an investment in the intellectual property

For purposes of the income approach, the RUL relates to the period of time over which the debtor company expects to receive any measure related to the intellectual property:

1. license,
2. use, or
3. forbearance of use.

In addition to the term of the RUL, the analyst is also interested in the shape of the RUL curve. That is, the analyst is interested in the annual rate of decay of the future intellectual property income.

For purposes of the income approach, many different intellectual property income measures may be relevant. If properly applied, these different income measures can be used in the income approach to derive a value indication.

Some of the different income measures include the following:

1. gross or net revenues
2 gross income (or gross profit)
3. net operating income
4. net income before tax
5. net income after tax
6. operating cash flow
7. net cash flow
8. incremental income
9. differential income
10. royalty income
11. excess earnings income
12. several others

Because there are different income measures that may be used in the income approach, it is important for the capitalization rate (either the discount rate or the direct capitalization rate) to be derived on a basis consistent with the income measure used.

Regardless of the measure of income considered in the income approach, there are several categories of valuation methods that are typically used to value intellectual property:

1. Valuation methods that quantify an incremental level of intellectual property income—that is, the debtor will expect a greater level of revenue (however measured) by owning/operating the intellectual property as compared to not owning/operating the intellectual property.

   Alternatively, the debtor may expect a lower level of costs—such as capital costs, investment costs, or operating costs—by owning/operating the intellectual property as compared to not owning/operating the intellectual property.

2. Valuation methods that estimate a relief from a hypothetical license royalty payment—that is, these methods estimate the amount of hypothetical royalty payment that the debtor (as licensee) does not have to pay to a third-party licensor for the use of the intellectual property.

   The debtor is "relieved" from having to pay this hypothetical license royalty payment. This is because the debtor, in fact, owns the subject intellectual property.

3. Valuation methods that estimate a residual measure of intellectual property income—that is, these methods typically start with the debtor overall business enterprise income. Next, the valuation analyst identifies all of the tangible assets and routine intangible assets (other than the intellectual property) that are used in the debtor overall business.

   These assets are typically called contributory assets. The analyst then multiples a fair rate of return times the value of each of the contributory assets. The product of this multiplication is the fair return on all of the contributory assets.

   The analyst then subtracts the fair return on the contributory assets from the business enterprise total income. This residual (or excess) income is the income related to the intellectual property.

4. Valuation methods that rely on a profit split—that is, these methods typically also start with the debtor business enterprise total income. The valuation analyst then allocates or "splits" this total income between (a) the debtor tangible assets and routine intangible assets and (b) the intellectual property.

   The profit split percent (e.g., 20%, 25%, etc.) to the intellectual property is typically based on the analyst's functional analysis of the debtor business operations.[6]

   This functional analysis identifies the relative importance of (a) the intellectual property and (b) the contributory assets to the production of the debtor business total income.

5. Valuation methods that quantify comparative income—that is, these methods compare the debtor income to a benchmark measure of income that, presumably, does not benefit from the use of the intellectual property.

   Common benchmark income measures include: (a) the debtor income before the intellectual property development, (b) industry average income levels, or (c) selected guideline

6 Note that courts no longer automatically accept starting the reasonable royalty analysis at a 25% royalty rate for patent cases. This method does not satisfy the criteria set forth in *Daubert* or the Federal Rules of Evidence. See *Uniloc USA, Inc. v. Microsoft Corp.* 2010-1035 (CAFC 2011).

publicly traded company income levels. A common measure of income for these comparative analyses is the EBIT margin.

When publicly traded companies are used as the comparative income benchmark, the method is often called the comparable profit margin method.

All of these income approach valuation methods can be applied using either the direct capitalization procedure or the yield capitalization procedure.

In the direct capitalization procedure, the valuation analyst:

1. estimates a normalized income measure for one future period (typically, one year) and
2. divides that measure by an appropriate investment rate of return.

The appropriate investment rate of return is called the direct capitalization rate. The direct capitalization rate may be derived for:

1. a perpetuity time period or
2. a specified finite time period.

This decision will depend on the valuation analyst's estimate of the intellectual property RUL.

Typically, the analyst will conclude that the intellectual property has a finite RUL. In that case, the analyst may use the yield capitalization procedure. Or, the analyst may use the direct capitalization procedure with a limited life direct capitalization rate.

Mathematically, the limited life capitalization rate is typically based on a present value of annuity factor (PVAF) for the intellectual property RUL.

In the yield capitalization procedure, the valuation analyst projects the appropriate income measure for several future time periods. The discrete time period is typically based on the intellectual property RUL.

This income projection is converted into a present value by the use of a present value discount rate. The present value discount rate is the investor's required rate of return—or yield capitalization rate—over the expected term of the income projection.

The result of either the direct capitalization procedure or the yield capitalization procedure is the income approach value indication for the debtor intellectual property.

Finally, Exhibit 6 presents a simplified illustrative example of an income approach intellectual property valuation. In this example, the valuation analyst is asked to estimate the fair market value of a Gamma Debtor Company pharmaceutical product patent. The appropriate valuation date is January 1, 2011.

The valuation analyst decided to use the income approach and the excess earnings method. Because the patent product revenue is expected to change at a nonconstant rate over time, the analyst decided to use the yield capitalization procedure. Using this procedure, this valuation method is often called the multiperiod excess earnings method (or MEEM).

The Gamma Debtor Company patent is used to manufacture the Delta pharmaceutical product line. Based on the remaining legal life of the Delta patent and the product line revenue decay rate

(considering the effect of a competitive drug product), the valuation analyst estimates a 10-year RUL for the Delta patent.

Gamma Debtor Company management provided the analyst with a financial projection for the overall Gamma product line in which the Delta product fits. The analyst performed a revenue decay rate analysis related to the Delta product in order to conclude a Delta patent revenue growth rate (or, in this case, decay rate).

Exhibit 6 presents the projection of the Delta product revenue and profit over its expected 10-year RUL. The analyst estimated an appropriate capital charge on all of the Gamma Debtor Company contributory assets, including working capital assets, tangible assets, and routine (nonpatent) intangible assets. This contributory asset analysis is summarized in Exhibit 7.

In order to control the number of exhibits, let's assume that Gamma Debtor Company has the same 11% cost of capital as presented in the previous Beta Debtor Company example (see Exhibit 5). Therefore, the valuation analyst used 11% as the Gamma Debtor Company weighted average cost of capital—or present value discount rate.

Based on the income approach valuation analysis summarized in Exhibit 6, the analyst estimated that the fair market value of the Delta product patent was $790 million, as of January 1, 2011.

Valuation Synthesis and Conclusion

In the valuation synthesis and conclusion, the valuation analyst should consider the following question: Does the selected valuation approach(es) and method(s) accomplish the analyst's assignment?

That is, does the selected approach and method actually quantify the desired objective of the analysis, such as:

- a defined value,
- a transaction price,
- a third-party license rate,
- an arm's-length intercompany transfer price,
- an economic damages estimate,
- an intellectual property bundle exchange ratio, or
- an opinion on the intellectual property transaction fairness.

The valuation analyst should also consider if the selected valuation approach and method analyzes the appropriate intellectual property bundle of legal rights. The valuation analyst should consider if there were sufficient empirical data available to perform the selected valuation approach and method.

That is, the valuation synthesis should consider if there were sufficient data available to make the analyst comfortable with the analysis conclusion. And, the analyst should consider if the selected approach and method will be understandable to the intended audience for the intellectual property valuation.

The analyst should also consider which approaches and methods deserve the greatest consideration with respect to the intellectual property RUL. The intellectual property RUL is an important consideration of each valuation approach.

In the income approach, the RUL will affect the projection period for the intellectual property income subject to either yield capitalization or direct capitalization.

In the cost approach, the RUL will affect the total amount of obsolescence, if any, from the estimated cost measure—that is, the intellectual property reproduction cost or replacement cost.

In the market approach, the RUL will affect the selection, rejection, and/or adjustment of the comparable or guideline sale or license transactional data.

The following factors directly influence the intellectual property expected RUL:

- legal factors
- contractual factors
- functional factors
- technological factors
- economic factors
- analytical factors

Each of these factors is normally considered in the valuation analyst's RUL estimation. Typically, the life factor that indicates the shortest RUL deserves primary consideration in the valuation synthesis and conclusion.

Ultimately, the experienced valuation analyst will use professional judgment to weigh the various valuation approach and method value indications to reach a final value conclusion, based on:

- the analyst's confidence in the quantity and quality of available data,
- the analyst's level of due diligence performed on that data,
- the relevance of the valuation method to the debtor intellectual property life cycle stage and degree of marketability, and
- the degree of variation in the range of value indications.

Based on the valuation synthesis, the intellectual property final value conclusion can be a point estimate (which is common for fair market valuations) or a value range (which is common for transaction negotiations or proposed license/sale transaction fairness opinions).

Attributes of an Effective Intellectual Property Valuation Report

There are numerous objectives of the bankruptcy-related intellectual property valuation report.

First, the valuation analyst wants to persuade the report reader (whether the reader is a potential transaction participant, the debtor, a creditor, legal counsel for any party, a judge or other finder of fact, etc.). And, second, the analyst wants to defend the intellectual property value (or damages, royalty rate, etc.) conclusion.

In order to accomplish these objectives, the content and format of the valuation report should demonstrate that the analyst:

1. understood the specific intellectual property valuation assignment;
2. understood the debtor intellectual property and the subject bundle of legal rights;
3. collected sufficient debtor financial and operational data;
4. collected sufficient industry, market, and competitive data;
5. documented the specific intellectual property debtor economic benefits;
6. performed adequate due diligence procedures related to all available data;
7. selected and applied all applicable income approach, market approach, and cost approach valuation methods; and
8. reconciled all value (or damages, royalty rate, etc.) indications into a final intellectual property analysis conclusion.

The final (and arguably most important) procedure in the entire bankruptcy-related analysis is for the analyst to defend the value (or damages, royalty rate, etc.) conclusion in a replicable and well-documented valuation report.

Whether defending a value, price, royalty rate, economic damages calculation, exchange ratio, or fairness conclusion, the written report should:

- explain the intellectual property valuation (or damages, royalty rate, etc.) assignment,
- describe the debtor intellectual property and the subject bundle of legal rights,
- explain the selection or rejection of all generally accepted valuation approaches and methods,
- explain the selection and application of all specific analysis procedures,
- describe the analyst's data gathering and due diligence procedures,
- list all documents and data considered by the analyst,
- include copies of all documents that were specifically relied on by the analyst,
- summarize all of the qualitative analyses performed,
- include schedules and exhibits documenting all of the quantitative analyses performed,
- avoid any unexplained or unsourced valuation variables or analysis assumptions, and
- allow the report reader to be able to replicate all of the analyses performed.

In order to encourage the report reader's acceptance of the written intellectual property valuation report conclusion:

- the report should be clear, convincing, and cogent;
- the report should be well-organized, well-written, and well-presented; and
- the report should be free of grammatical, punctuation, spelling, and mathematical errors.

In summary, the effective (i.e., persuasive) intellectual property valuation report will tell a narrative story that:

1. defines the valuation analyst's assignment,
2. describes the analyst's data gathering and due diligence procedures,

3. justifies the analyst's selection of the generally accepted intellectual property valuation approaches, methods, and procedures,
4. explains how the analyst performed the valuation synthesis and reached the final value conclusion, and
5. defends the analyst's intellectual property value conclusion.

Who Should Perform the Intellectual Property Valuation?

An important consideration for the party-in-interest—and for the legal counsel—is: What type of professional should perform the debtor intellectual property valuation?

There are many categories of professionals who perform intellectual property valuation (and damages, royalty rate, etc.) analyses.

These categories of professionals include the following:

- accountants
- economists
- licensing executives
- intellectual property consultants
- industry specialists
- valuation analysts

Typically, both the party-in-interest and the legal counsel will be involved in the decision regarding which category of professional to retain. And, typically, the party-in-interest and the lawyer need to decide on the appropriate category of professionals before they can interview and retain an individual professional.

Some parties may consider the relative costs of the valuation service in selecting the category of professionals to retain. However, the "cost" of being wrong in this decision process is typically much greater than the "cost" of the professional's valuation fee.

Whether the party-in-interest and the legal counsel need the intellectual property valuation for bankruptcy-related transaction, financing, or litigation purposes, they should retain the most qualified professional they can.

When the effectiveness of the intellectual property valuation analysis and report will influence a buyer, seller, lender, licensor, licensee, judicial finder of fact, and so on, the party-in-interest and the legal counsel should not be concerned about finding a budget-priced valuation professional.

Each of the above-listed professionals has their strengths and weaknesses as an intellectual property valuation candidate. And, one category of analyst may be preferred for one type of assignment (say, negotiating a DIP intellectual property license agreement) over another type of assignment (say, testifying as an expert witness in a debtor corporation solvency dispute).

Accountants

Accountants (particularly CPAs) typically have a great deal of credibility with all parties to a bankruptcy filing. And, accountants (particularly CPAs) typically have the credentials to be qualified as expert witnesses. Accountants are typically familiar with the financial accounting and taxation aspect of intellectual property valuation.

Many accountants perform intellectual property valuations according to rules-based methods. These rules-based methods are often promulgated by the Financial Accounting Standards Board or by the Internal Revenue Service. And, such methods are particularly applicable for fair value accounting disclosures or for Internal Revenue Code Section 482 compliance purposes.

However, some accountants are not particularly comfortable with judgment-based (compared to rules-based) valuation methods and procedures. And, intellectual property valuations are a relatively small part of the practice of many accountants.

Economists

Economists (particularly Ph.Ds.) also have a great deal of credibility with parties to a bankruptcy dispute. And, they typically have the credentials to be qualified as expert witnesses.

In fact, since valuation analysis is one particular type of economic analysis, many regulatory and taxation authorities (e.g., the Internal Revenue Service) often accept economists as intellectual property valuation analysts. This acceptance is particularly true for intercompany transfer price analysis and for other rules-based intellectual property valuations.

However, economists can sometimes perform very theoretical (and not empirically based) analyses. And, economists are not always familiar with the above-described generally accepted valuation approaches, methods, and procedures.

Accordingly, the economist's valuation analyses are sometimes difficult for a layperson to understand. And, these analyses may not stand up to a contrarian challenge within a litigation environment.

Licensing Executives

Licensing executives typically have a great deal of practical experience in negotiating and structuring arm's-length intellectual property license agreements. This experience may cross many types of intellectual property and many types of industries.

Therefore, licensing executives often have a great deal of personal and/or anecdotal evidence regarding intellectual property values, royalty rates, and so forth. However, because it is anecdotal, this evidence often cannot be independently confirmed.

While licensing executives often know how intellectual property valuations are performed, they may not know (or be able to explain) why intellectual property valuations are performed that way. And, licensing executives often rely on so-called industry rules of thumb and not on the generally accepted valuation approaches, methods, and procedures.

Therefore, licensing executives are often more familiar with the licensing profession's practices and procedures than they are with the valuation profession's practices and standards.

Intellectual Property Consultants

Intellectual property consultants typically assist their employers and clients to develop strategic plans to maximize the value of intellectual property.

These plans often start with the process of identifying the debtor intellectual property. These plans often consider the competitive strengths, weaknesses, opportunities, and threats related to the intellectual property. The plans then analyze how the intellectual property is used by the debtor and how it can be commercialized outside of the debtor.

And, these consultants often assist their employers or clients to finance, license, or otherwise monetize the intellectual property. However, many intellectual property consultants prepare more qualitative than quantitative valuation analyses.

And, many of the intellectual property analyses are high level (i.e., conceptual) rather than empirical (i.e., practical). And, these consultants often rely more on “black box” types of analyses and less on the replicable generally accepted valuation approaches, methods, and procedures. Also, these consultants may not subscribe to any promulgated professional standards.

Industry Specialists

Industry specialists typically are not intellectual property specialists. Rather, they are electronics industry specialists, software industry specialists, telecommunications industry specialists, and so on.

Industry specialists are often retired industry executives or consultants who focus on consulting in one or two industries. They often provide industry clients with financial forecasting, strategic planning, competitive analysis, and other consulting services.

Often, industry specialists have been involved in business brokerage, business start-up, or bankruptcy transactions in their industry. And, they will perform intellectual property valuations as one of their industry services.

While these industry specialists know a great deal about their respective industry, they may not know a great deal about intellectual property or intellectual property valuation.

Accordingly, the justification for their valuation analysis and their value conclusion is typically “in my experience” as opposed to empirical data and recognized (and replicable) valuation profession practices and standards.

Valuation Analysts

Valuation analysts may have varying academic or professional backgrounds. Individuals are typically included in this category if they have completed professional training and received professional recognition by one or more of the professional valuation credentialing organizations.

These organizations typically promulgate intangible asset valuation professional standards, conduct both pre-credential training and post-credential continuing professional education

courses, and offer comprehensive examination programs leading to a professional credential or accreditation.

Such organizations include the American Institute of Certified Public Accountants (which grants the ABV credential), the American Society of Appraisers (which grants the ASA credential), the Institute of Business Appraisers (which grants the CBA credential), and the National Association of Certified Valuation Analysts (which grants the CVA credential).

These professionals typically have the training and credentials to qualify as expert witnesses. And, these professionals typically apply the generally accepted valuation approaches, methods, and procedures. And, these professionals typically subscribe to—and comply with—the generally accepted valuation profession standards and practices.

Ultimately, the party-in-interest and the legal counsel have to decide which type of professional is best suited to conduct the debtor intellectual property valuation (or damages, transfer price, etc.) analysis.

There should be a match (of experience and expertise) between the selected analyst and the purpose and objective of the specific bankruptcy assignment. There should also be a match (of personalities and professional philosophies) between the selected analyst and the client.

In the final selection, the type of professional may be less important than the qualifications and the abilities of the individual analyst. Nonetheless, most bankruptcy-related intellectual property valuations are (at least potentially) subject to a contrarian review.

Therefore, the party-in-interest and the lawyer should select an intellectual property analyst who can deliver a valuation analysis and report (and expert testimony, if needed) that:

1. will convince the intended report (or testimony) audience and
2. will stand up to a rigorous contrarian challenge.

An analyst who has applied generally accepted valuation approaches, methods, and procedures and an analyst who has complied with generally accepted professional standards and practices may be best position to meet that challenge.

Summary and Conclusion

First, this discussion considered the various types of bankruptcy-related intellectual property analysis that a valuation analyst may be asked to perform.

For all debtor company intellectual property valuations (or related analyses), the analyst will consider the three generally accepted valuation approaches—the cost approach, the market approach, and the income approach.

Each of these valuation approaches has the same objective: to arrive at a defined value indication for the debtor intellectual property. Within each of the three approaches, there are several valuation methods and procedures that may be appropriate for the particular intellectual property valuation.

The analyst's selection of the specific valuation approaches, methods, and procedures for the debtor intellectual property is based on:

1. the particular characteristics of the debtor intellectual property,
2. the bundle of legal rights subject to analysis,
3. the quantity and quality of available data,
4. the analyst's ability to perform sufficient due diligence related to that data,
5. the purpose and objective of the specific valuation analysis, and
6. the relevant professional experience and informed judgment of the individual analyst.

The final intellectual property value conclusion is typically based on the analyst's synthesis of the value indications from each applicable valuation approach and method.

These generally accepted valuation approaches, methods, and procedures summarized in this discussion are generally relevant to bankruptcy-related intellectual property analyses performed for transaction, financing, strategic planning, taxation, accounting, litigation, and other purposes.

Accordingly, both the bankruptcy party-in-interest and the legal counsel should be generally familiar with these generally accepted approaches for purposes of:

1. selecting the appropriate valuation analyst,
2. relying on the analyst's value (or damages, royalty rate, etc.) conclusion, and
3. defending the analyst's work product.

EXHIBIT 1

ALPHA DEBTOR COMPANY
COMPUTER SOFTWARE
COPYRIGHTS AND TRADE SECRETS
COST APPROACH
REPLACEMENT COST NEW LESS DEPRECIATION (RCNLD) METHOD
VALUATION SUMMARY
AS OF JANUARY 1, 2011

Software System	Estimated Software Replacement Development Effort in Person Months [a]	Time to Develop Replacement Software (in calendar Months) [b]	Indicated RCNLD Component [c] $000
AS/400	4,531	29	66,100
Point of Sale	575	25	8,400
Tandem	3,304	16	48,200
Unisys	1,229	5	17,900
Pioneer	1,807	41	26,400
Voyager	325	12	4,700
Host to Host	85	9	1,200
Total Direct and Indirect Costs	11,856	24	172,900
Plus Developer's Profit [d]			10,500
Plus Entrepreneurial Incentive [e]			31,200
Total Replacement Cost New			214,600
Less Depreciation and Obsolescence [f]			13,300.0
Replacement Cost New Less Depreciation			201,300
Indicated Fair Market Value of Computer Software Copyrights and Trade Secrets (rounded)			200,000

Footnotes:

[a] The estimated development effort for each software category is equal to the average of the replacement development effort indication using (1) the COCOMO software cost engineering model and (2) the KnowledgePLAN software cost engineering model, rounded.

[b] The estimated time to develop replacement software in calendar months for each software category is equal to the average of the time to develop the replacement software in calendar months using (1) the COCOMO software engineering model and (2) the KnowledgePLAN software engineering model, rounded. The final figure in this column represents a weighted average time to develop the replacement software in calendar months (weighted by effort in person months), which is used to calculate the entrepreneurial incentive.

[c] Equal to the estimated development effort in person months times $14,585 per person month, rounded. Cost per person month was calculated by multiplying the blended hourly rate of $82.87 provided by the Alpha Debtor Company vice president of data processing, by 176 (8 hours per day times 22 days per month).

[d] Calculated as (1) total direct replacement cost new times (2) a computer software developer's profit margin of 11 percent times 55 percent. This adjustment is made because 45 percent of software development workforce represents outside contractors, the cost of which already includes a market-based developer's profit.

[e] Calculated as (1) the Alpha Debtor Company present value discount rate of 17 percent times (2) the sum of the total direct and indirect replacement cost new and the developer's profit, divided by 2 times (3) the weighted average total development time of 2 years (based on the weighted average time to develop in person months of 24 months as described in footnote [b]).

[f] According to Alpha Debtor Company data processing management, the Point of Sale system is scheduled to be replaced and upgraded in approximately five years. The Pioneer system is also scheduled to be replaced and upgraded in approximately five years. And, the Voyager system is scheduled to be substantially upgraded next year. Therefore, the valuation analyst estimated functional obsolescence as follows:

System Scheduled for Replacement	Replacement Cost New*	Percent Obsolete	Obsolescence Allowance
Point of Sale	$10,400,000	20%	$2,100,000
Pioneer	$32,700,000	20%	$6,500,000
Voyager	$5,800,000	80%	$4,700,000
Total			$13,300,000

*includes the developer's profit and entrepreneurial incentive cost components.

EXHIBIT 2

ALPHA DEBTOR COMPANY
COMPUTER SOFTWARE
COPYRIGHTS AND TRADE SECRETS
COST APPROACH
REPLACEMENT COST NEW LESS DEPRECIATION METHOD
ESTIMATE OF COMPUTER SOFTWARE DEVELOPER'S PROFIT

Profit Margin Comparison		Operating Profit Margins		
		4/1/09 3/31/10	4/1/08 3/31/09	4/1/07 3/31/08
SIC Code 7371 - Custom Computer Programming Services - All Companies	[a]	4.2%	4.2%	4.8%
SIC Code 7371 - Custom Computer Programming Services - Sales of $25 Million and Over	[a]	7.4%	3.8%	2.2%
SIC Code 7373 - Computer Systems Design Services - All Companies	[b]	4.3%	3.1%	2.1%
SIC Code 7373 - Computer Systems Design Services - Sales of $25 Million and Over	[b]	4.7%	4.3%	1.1%

			Adjusted Operating Profit Margins			
Selected Guideline Companies	Ticker		2010/2009	2009/2008	2008/2007	Average
Accenture plc	ACN	[c]	11.6%	11.4%	11.6%	11.5%
Analysts International Corp.	ANLY	[c]	-0.5%	0.5%	0.8%	0.3%
Bearing Point Ind.	BGPT	[c]	4.8%	6.7%	8.7%	6.7%
Cap Gemini Ernst & Young Group	CGEY	[c]	-0.1%	4.7%	9.8%	4.8%
Cognizant Technology Solutions Corp.	CTSH	[c]	19.7%	20.0%	19.1%	19.6%
Computer Sciences Corporation	CSC	[c]	6.6%	5.6%	6.2%	6.1%
Electronic Data Systems Corp.	EDS	[c]	8.7%	10.3%	9.5%	9.5%
Infosys Technologies Ltd.	INFY	[c]	29.0%	32.7%	33.2%	31.7%
Perot Systems Corp.	PER	[c]	10.2%	6.1%	6.7%	7.6%
Unisys Corporation	UIS	[c]	7.5%	4.5%	6.2%	6.1%
Wipro Ltd.	WIT	[c]	21.1%	23.8%	22.8%	22.6%

Selected Guideline Companies			
High Profit Margins	29.0%	32.7%	33.2%
Low Profit Margins	-0.5%	0.5%	0.8%
Median Profit Margins	8.7%	6.7%	9.5%
Average Profit Margins	10.8%	11.5%	12.2%

Selected Computer Software Developer's Profit	11%

Footnotes:

[a] The Risk Management Association (RMA) 2010-2009, 2009-2008, and 2008-2007 *Annual Statement Studies* - Custom Computer Programming Services.

[b] The Risk Management Association (RMA) 2010-2009, 2009-2008, and 2008-2007 *Annual Statement Studies* - Computer Systems Design Services.

[c] Capital IQ Database.

EXHIBIT 3

BETA DEBTOR COMPANY
TRADEMARKS AND TRADE NAMES
MARKET APPROACH
RELIEF FROM ROYALTY METHOD
VALUATION SUMMARY
AS OF JANUARY 1, 2011

	Projected Calendar Years				
	2011	2012	2013	2014	2015
Present Value of Discrete Trademark Income:	$000	$000	$000	$000	$000
Management-Provided Revenue Projection [a]	8,634,139	8,358,945	8,042,393	7,720,369	7,377,326
Arm's-Length Trademark License Royalty Rate [b]	2%	2%	2%	2%	2%
Projected Pretax Trademark Income	172,683	167,179	160,848	154,407	147,547
Less Projected Income Tax Rate [c]	37%	37%	37%	37%	37%
Projected After-Tax Trademark Income	108,790	105,323	101,334	97,277	92,954
Discounting Periods [d]	0.5000	1.5000	2.5000	3.5000	4.5000
Present Value Factor @ 11% [c]	0.9492	0.8551	0.7704	0.6940	0.6252
Present Value of Trademark Income	103,264	90,061	78,068	67,510	58,115
Sum of Present Values of Trademark Income	397,018				
Present Value of Terminal Period Trademark Income:					
Fiscal 2016 Normalized Trademark Income [f]	92,954				
Direct Capitalization Multiple [g]	7.579				
Terminal Value of Trademark Income	704,498				
Present Value Factor @ 11%	0.6252				
Present Value of Terminal Value	440,452				
Trademark Valuation Summary:					
Present Value of Discrete Trademark Income	397,018				
Present Value of Trademark Terminal Value	440,452				
Indicated Fair Market Value of the Trademarks and Trade Names (rounded)	840,000				

[a] Revenue projection provided by Beta Debtor Company management, consistent with the company's long-range financial plan.

[b] Based on an analysis of arm's-length license agreements between parties for similar property, as summarized in Exhibit 4.

[c] Based on the Beta Debtor Company expected effective income tax rate.

[d] Calculated as if cash flow is received at mid-year.

[e] Based on the Beta Debtor Company weighted average cost of capital, presented in Exhibit 5.

[f] Based on the 2015 projected after-tax trademark income and an expected long-term growth rate of zero percent.

[g] Based on a present value of an annuity factor for an 11 percent discount rate and a 15-year expected RUL.

BETA DEBTOR COMPANY
TRADEMARKS AND TRADE NAMES
MARKET APPROACH
RELIEF FROM ROYALTY METHOD
CUT TRADEMARK LICENSE TRANSACTIONS

Trademark Licensor	Trademark Licensee	Comparable Uncontrolled Transaction Trademark License Description	License Year	Royalty Rate Range Low	 High	Upfront/Flat Fee
Southwestern Bell Telephone	Affiliate Group	The affiliate group imputed an affiliate compensation fee or "royalty" for the affiliates' right to the name, reputation and public image of the parent telephone company. The affiliates recognize the franchise-like benefits realized as a result of their relationship with the licensor.	2002	5.0%	5.0%	NA
Cable and Wireless PLC	Hong Kong Telecommunications Ltd.	In a related-party transaction, the Company entered into an agreement with a subsidiary, a Hong Kong telephone company, for the use of its trademarks (in particular, use of the telecommunication name and logo in connection with international business) on relevant products and services	2004	8.0%	8.0%	NA
AT&T Corp.	KIRI Inc.	The licensor grants to the licensee a nonexclusive, nontransferable, non-sub-licensable license to use the licensed marks (AT&T and globe design logo) solely in connection with the marketing, advertising, promotion and provision of the licensed services (such as telecommunication and internet services) in the licensed territory.	2009	2.50%	4.00%	$2.5 million minimum guarantee
Nextel	Nextel Partners	A partnership or alliance between a U.S. parent company and a publicly owned spin-off company includes a licensing agreement for rights to use the Nextel brand name. The licensee owns its own spectrum and provides services as Nextel.	2004	0.50%	1.00%	0
France Telecom (Orange Brand Services Limited, UK)	PTK Centertel	PTK Centertel is rebranding its name from Idea to Orange. Idea, which now holds 32.2 percent of the market, will change its name and logo (trademark). PTK Centertel will pay the France Telecom a royalty for use of the Orange name.	2005	1.6%	1.6%	NA
Qwest Communications International, Inc. [a]	Unical Enterprises, Inc.	An exclusive, limited nontransferable, revocable right to use the following trademarks: Techline, Easytouch, Favorite, Classic Favorite, Classic Favorite Plus, Phototouch, Choice, Competitor, Competitor Plus, Roommate, Plaza, Favorite Plus, Easyreach, Big Button, EZ Button, Cleartech, Favorite Messenger II, Digimate, Mountain Bell. Nonexclusive, limited, nontransferable revocable right to use the following trademarks: B Office, Bell Symbol, Bell mark, Northwestern Bell. All of the above in connection with corded telephones, cordless telephones, answering machines, integrated telephone/answering devices, and computers and monitors.	2005	2.1%	2.2%	NA
Virgin Enterprises Limited	NTL Inc.	The licensee entered into a trademark license agreement under which they are entitled to use certain Virgin trademarks within the United Kingdom and Ireland. The agreement was entered into on the same date and is an exclusive license covering a number of aspects of the company's consumer business, including the provision of communications services (such as internet, television, fixed line telephony, and upon the acquisition of Virgin Mobile, mobile telephony), the acquisition of branding sports, movie and other premium television content, and the branding and sale of certain communications equipment related to the licensee consumer businesses, such as set top boxes and cable modems.	2006	0.25%	0.25%	£8.5 million minimum annual royalty

Royalty Rate Range		
High	8.0%	8.0%
Low	0.3%	0.3%
Mean	2.9%	3.2%
Median	2.1%	2.2%

NA = not applicable

EXHIBIT 5

BETA DEBTOR COMPANY
WEIGHTED AVERAGE COST OF CAPITAL
AS OF JANUARY 1, 2011

Cost of Equity Capital:

Method #1: Modified Capital Asset Pricing Model (Ex Post Equity Risk Premium)			**Source**
Risk-Free Rate of Return		4.5%	20-year Treasury bond, *The Federal Reserve Statistical Release,* as of December 31, 2010.
General Equity Risk Premium	7.10%		*Ibbotson SBBI 2010 Yearbook* , Morningstar, Inc., 2010.
Multiplied by: Industry Beta	1.05		
Industry-Adjusted General Equity Risk Premium		7.4%	
Size Equity Risk Premium		0.7%	2nd decile, *Ibbotson SBBI* .
Company-Specific Equity Risk Premium		2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capital		14.6%	

Method #2: Modified Capital Asset Pricing Model (Supply Side Equity Risk Premium)			**Source**
Risk-Free Rate of Return		4.5%	20-year Treasury bond.
General Equity Risk Premium	6.20%		*Ibbotson SBBI.*
Multiplied by: Industry Beta	1.05		
Industry-Adjusted General Equity Risk Premium		6.5%	
Size Equity Risk Premium		0.7%	2nd decile, *Ibbotson SBBI* .
Company-Specific Equity Risk Premium		2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capi		13.7%	

Method #3: Duff & Phelps, LLC, Risk Premium Report Model — **Source**

Risk-Free Rate of Return: 4.5% — 20-year Treasury bond.

Equity Risk Premium Over Risk-Free Rate:

	Bad Debtor Fundamental	Regression Equation Variables		Risk Premium Over	
	$MM	Constant	Coefficient	Risk-Free Rate [a]	
Book Value of Equity	977	17.397%	-2.949%	8.6%	*Duff & Phelps, LLC, Risk Premium Report 2010.*
5-Year Average Net Income	1,169	14.216%	-2.715%	5.9%	
Total Assets	15,397	18.036%	-2.725%	6.6%	
5-Year Average EBITDA	4,957	15.583%	-2.709%	5.6%	
Total Revenue	9,877	16.420%	-2.192%	7.7%	
Number of Employees (not in Mil)	24,000	17.675%	-2.210%	8.0%	

Median Equity Risk Premium Over Risk-Free Rate		7.1%	
Company-Specific Risk Premium		2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capital		13.6%	

Method #4: Build-Up Model			**Source**
Risk-Free Rate of Return		4.5%	20-year Treasury bond.
General Equity Risk Premium		7.1%	*Ibbotson SBBI.*
Industry Equity Risk Premium		0.0%	Ibbotson SBBI, SIC 4813, average 2007-2010.
Size Equity Risk Premium		0.7%	2nd decile, *Ibbotson SBBI* .
Company-Specific Equity Risk Premium		2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capital		14.3%	
Selected Cost of Equity Capital		14.0%	Median of Methods #1 - #4 Indicated Cost of Equity Capital

Cost of Debt Capital:

Before-Tax Cost of Debt Capital		7.6%	Beta Debtor Company cost of debt.
Income Tax Rate		37%	Beta Debtor Company effective income tax rate.
Selected Cost of Debt Capital		4.8%	

Weighted Average Cost of Capital Calculation:

Selected Cost of Equity Capital	14.0%		
Multiplied by Equity / Invested Capital	70%		Based on the median of the selected guideline companies.
Equals Weighted Cost of Equity Capital	9.8%	10%	(rounded)
Selected Cost of Debt Capital	4.8%		
Multiplied by Debt / Invested Capital	30%		Based on the median of the selected guideline companies.
Equals Weighted Cost of Debt Capital	1.4%	1%	(rounded)
Weighted Average Cost of Capital (rounded)		**11%**	

Footnote:
[a] Estimated as the constant plus the coefficient multiplied by the log of the financial fundamental.

GAMMA DEBTOR COMPANY
VALUATION OF PHARMACEUTICAL PRODUCT PATENT
INCOME APPROACH
YIELD CAPITALIZATION PROCEDURE
AS OF JANUARY 1, 2011

			Pro Forma Years									
			12/31/11	12/30/12	12/30/13	12/30/14	12/31/15	12/30/16	12/30/17	12/30/18	12/31/19	12/30/20
Valuation of the Delta Product Patent		Notes	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Gamma Debtor Company Product Line Revenue			4,643,232	4,450,217	4,184,750	3,880,112	3,548,858	3,548,858	3,548,858	3,548,858	3,548,858	3,548,858
Annual Growth Rate Percent			-1.2%	-4.2%	-6.0%	-7.3%	-8.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated Delta Product Attrition Rate	23%	[a]										
Revenue Attributable to the Delta Product Patent			3,575,289	2,604,350	1,849,994	1,289,821	883,047	679,946	523,559	403,140	310,418	239,022
Annual Growth Rate Percent		[b]	NA	-27.2%	-29.0%	-30.3%	-31.5%	-23.0%	-23.0%	-23.0%	-23.0%	-23.0%
EBITDA			1,573,127	1,145,914	813,997	567,521	388,541	299,176	230,366	177,382	136,584	105,170
EBITDA Margin		[c]	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%
Less: Depreciation/Amortization Expense			793,018	552,967	375,423	248,354	160,263	123,402	95,020	73,165	56,337	43,380
% of Revenue		[d]	22.2%	21.2%	20.3%	19.3%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%
EBIT			780,109	592,947	438,575	319,167	228,278	175,774	135,346	104,216	80,247	61,790
EBIT Margin			21.8%	22.8%	23.7%	24.7%	25.9%	25.9%	25.9%	25.9%	25.9%	25.9%
Less: Income Taxes @ 37 percent			288,640	219,390	162,273	118,092	84,463	65,036	50,078	38,560	29,691	22,862
Net Income			491,469	373,557	276,302	201,075	143,815	110,738	85,268	65,656	50,556	38,928
Net Margin			13.7%	14.3%	14.9%	15.6%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%
Plus: Depreciation/Amortization Expense			793,018	552,967	375,423	248,354	160,263	123,402	95,020	73,165	56,337	43,380
Less: Charges for the Use of Contributory Assets:												
Working Capital Capital Charge		[e]	27,530	20,053	14,245	9,932	6,799	5,236	4,031	3,104	2,390	1,840
Tangible Assets Capital Charge		[f]	(823,022)	(599,454)	(425,589)	(296,467)	(202,736)	(156,107)	(120,202)	(92,556)	(71,268)	(54,876)
Routine Intangible Assets Capital Charge		[g]	(164,756)	(123,965)	(91,524)	(66,472)	(47,625)	(36,671)	(28,237)	(21,742)	(16,742)	(12,891)
Equals: Patent Economic Income			324,239	223,159	148,856	96,422	60,516	46,598	35,880	27,627	21,273	16,381
Discounting Periods		[h]	0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000
Present Value Factor @ 11%			0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
Present Value of Patent Economic Income			307,767	190,823	114,679	66,917	37,834	26,249	18,209	12,631	8,762	6,077
Present Value of Patent Economic Income (2011-2020)			789,949									
Indicated Fair Market Value of Delta Product Patent			790,000									

GAMMA DEBTOR COMPANY
VALUATION OF PHARMACEUTICAL PRODUCT PATENT
INCOME APPROACH
YIELD CAPITALIZATION PROCEDURE
VALUATION VARIABLES

[a] Considers the historical weighted decay rates for the Delta patented product revenue.

Delta product	2008	2009	2010	Average
Weighted Annual Revenue Decay Rate	23.4%	23.6%	23.3%	23.4%

[b] Represents 77 percent of Delta product revenue in 2011 based on the estimated attrition rate. Thereafter, Delta product revenue is decreased annually based on (1) the estimated attrition rate and (2) the negative annual growth rate.

[c] The projected 2015 EBITDA margin is maintained after 2015.

[d] The projected 2015 depreciation expense as a percent of revenue is maintained after 2015.

[e] Based on (1) working capital requirement for the Delta product line and (2) the return on working capital estimated based on the Gamma Debtor Company weighted average cost of capital (WACC).

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Working Capital - % of Consolidated Gamma Debtor Company Revenue		-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%
Working Capital Requirement (times Delta product revenue)		(250,270)	(182,305)	(129,500)	(90,287)	(61,813)	(47,596)	(36,649)	(28,220)	(21,729)	(16,732)
Return on Working Capital	11%	(27,530)	(20,053)	(14,245)	(9,932)	(6,799)	(5,236)	(4,031)	(3,104)	(2,390)	(1,840)

[f] Equals the sum of projected capital expenditure allocated to the Delta product line based on (1) % of revenue and (2) the return on tangible assets requirement estimated (based on the WACC).

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Net Tangible Assets as % of Consolidated Revenue (see Exhibit 7)		113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Tangible Assets Requirement (times Delta product line revenue)		4,038,767	2,941,962	2,089,816	1,457,025	997,520	768,090	591,430	455,401	350,659	270,007
Return on Tangible Assets	11%	444,264	323,616	229,880	160,273	109,727	84,490	65,057	50,094	38,572	29,701

[g] Routine intangible assets contributory asset charge as percent of consolidated revenue times revenue attributable to the Delta patented product line (see Exhibit 7).

[h] Calculated as if cash flow is received at mid-year.

EXHIBIT 7

GAMMA DEBTOR COMPANY
VALUATION OF PHARMACEUTICAL PATENT
INCOME APPROACH
YIELD CAPITALIZATION PROCEDURE
CONTRIBUTORY ASSET CAPITAL CHARGE ANALYSIS

Tangible Assets Capital Charge:	FYE 12/31/11 $000
Beginning Tangible Assets [a]	12,034,000
Capital Expenditures [a]	1,162,971
Depreciation Expense [a]	(2,249,209)
Net Tangible Assets	10,947,762
Consolidated Gamma Debtor Company Revenue [b]	9,691,426
Net Tangible Assets as % of Consolidated Revenue	113%

Routine Intangible Assets Capital Charge:	[c] Fair Market Value $000	[d] Estimated Required Rate of Return	Annual Return $000
Trademarks/Trade Names	970,000	11%	106,700
Internally Developed Computer Software Systems	2,510,000	11%	276,100
Trained and Assembled Workforce	580,000	11%	63,800
Total Contributory Intangible Assets			446,600

	12/31/11 $000	12/31/12 $000	12/13/13 $000	12/31/14 $000	12/31/15 $000
Consolidated Gamma Debtor Company Revenue [b]	9,691,426	9,382,534	9,027,219	8,665,762	8,280,712
Intangible Assets Capital Charge (from above)	446,600	446,600	446,600	446,600	446,600
Intangible Assets Capital Charge as % of Consolidated Revenue	4.6%	4.8%	4.9%	5.2%	5.4%

Footnotes:

[a] From Gamma Debtor Company business plan.

[b] Ibid.

[c] Ibid.

[d] Based on the Gamma Debtor Company WACC.

8

BUSINESS VALUATION, DLOM, AND DAUBERT: THE ISSUE OF REDUNDANCY*

*by Robert Comment, MBA, PhD,** AVA*
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Introduction

Among the various types of economic expert opinion that are commonplace, business valuation may be the type that complies least commonly with the requirement for reliability and fealty to the scientific method that the Supreme Court sent down in its 1993 decision in *Daubert v. Merrell Dow Pharmaceuticals.*[1] This paper explains why.

Business valuation is applied financial economics. For the most part, however, business valuations are produced by accountants for ultimate consumption by lawyers and tax authorities. Business valuations are also litigated commonly in divorce courts.[2] Delaware Chancery Court, which adopted the *Daubert* standard in 1999, is influential over "fairness-opinion" business valuations.[3] In addition, business valuations are produced for certain accounting purposes and an independent business valuation is required to obtain an SBA guarantee for a loan used to acquire a small business.[4]

Delaware-court, tax-court, divorce-court, and other judges are the intended consumers of many business valuations, and are the effective arbiters as well. In contrast to economics, U.S. accounting and the practice of law are rule-based intellectual disciplines. Accordingly, the demand and supply sides of the market for business valuations are considerably more rule-based in their orientations than is the underlying intellectual discipline of financial economics (our only statute being the law of one price).[5] This rules-based orientation leads naturally to respect for precedent and aspirations for a codification of generally accepted valuation practices. None of this is problematic, but it is grounds for an occasional economics "compliance review." In particular, my review focuses on the possibil-

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1 In *Daubert*, the Supreme Court demoted "general acceptance" from being the sole requirement for the admissibility of expert opinion (as it had been since 1923 under the Supreme Court ruling in *Frye*) to being one of several nonexclusive indicia of the ultimate goals of relevance and reliability. The *Daubert* standard effectively applies in most state courts. See David L. Faigman, et al., *Modern Scientific Evidence* (Thomson West, 2nd edition, 2002).

2 Shannon P. Pratt, *Business Valuation Discounts and Premiums* 80 (Wiley, 2nd Edition, 2009).

3 David E. Berstein and Jeffrey D. Jackson, "The Daubert Trilogy in the States," *Jurimetrics* 44 (2004): 351.

4 U.S. Small Business Administration SOP No. 50 10 5(B) 183.

5 To be precise, it is the law of one price for identical goods in an efficient market at a given point in time.

ity that supplemental discounting—by application of a discount for lack of marketability (or DLOM) or a discount for illiquidity—is redundant to the discounting that is embedded in core valuation methodologies.

I treat "liquidity" and "marketability" as interchangeable terms even though I understand that practitioners draw certain distinctions between illiquidity and non-marketability and treat them as separate factors. The two factors are ultimately related by the diminishing marginal disutility of the two factors combined. (There is a limit to how restricted resales can get.) Both discounts presumptively fail the *Daubert* test for reliability due to redundancy with the commonplace practice of discounting for lack of size. An overarching caveat applies: this is a rebuttable presumption that, by definition, is potentially surmountable. This paper does not pretend to provide final answers as to the manner in which this particular rebuttable presumption can be surmounted or the situations where it is surmounted as a matter of course.[6]

Core Business-Valuation Methodologies as Revealed in Fairness Opinions

The overarching legal standard for a business valuation is "fair market value." In spirit, this is the amount a pro p-erty would sell for on the open market if put up for sale. The Supreme Court has defined fair market value (formally for tax purposes only) as the price at which an asset "would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts."[7] The "no compulsion" part of this definition is relevant to my thesis, as any discount in value for a lack of immediacy presumes at least impatience, if not a compulsion to sell quickly. Similarly, the overarching economic standard for a business valuation is market value where that is observable and, secondarily, a discounted cash flow (DCF) valuation.[8] Valuation multiples for like public companies would rank third in a pantheon of methods.[9] There is little daylight between financial economics and the practice of business valuation in this regard.

I rely upon fairness-opinion valuations for evidence of current practice. To this end, I identified 551 fairness-opinion valuations produced (but not necessarily filed) during the 24-month period

6 One situation that may merit a significant discount is the unusual case of a security that would be fairly liquid absent a contractual limitation on any resales to third parties. Where a security is naturally illiquid, however, the marginal effect of an added limitation on marketability will be small.

7 *United States v. Cartwright* (1973), quoting from Treasury regulations at 26 C.F.R. sec. 20.2031-1(b).

8 DCF analysis yields an estimate of the present value of the future cash flows expected to be captured by the owner of an asset, discounted for risk. In general, a DCF analysis is a sum across future periods of the present values of the net cash flows expected to be received in each period. The present-valuing is accomplished by application of a discount rate that reflects the time value of money plus a risk premium appropriate to the risk class of the net cash flows. It usually is expedient to use the same discount rate for every future period and to proxy that single rate by the weighted average cost of capital typical of like public companies.

9 Multiples-based valuation analyses are referred to as the "market approach" and the "guideline public companies approach." A valuation multiple is a ratio that denominates the market value of a business per dollar of an accounting metric such as sales revenue, earnings or EBITDA (which stands for earnings before interest, taxes, depreciation, and amortization).

July 2007 through June 2009.[10] These arise mainly in the context of a sale or merger and become publicly disclosed if the deal entails a shareholder vote.[11]

Defining "core" methodologies empirically, by frequency of appearance in recent fairness-opinion valuations, the three core methodologies in business valuation are: comparable-company multiples (used 91% of the time), DCF analysis (used 82% of the time), and comparable-transaction multiples (used 80% of the time).[12] The narratives of fairness-opinion valuations seldom explain why a core methodology is omitted, although DCF analyses are omitted when management declines to supply the requisite financial projections.

Aside from any devil that may reside in the details, financial economists find the core methodologies acceptable.[13] Accepted practice in business valuation extends beyond these core methods, however, to include the application of discounts and premiums to the results of the core methods. There are treatises devoted to discounts and premiums.[14]

Discounting for illiquidity or lack of marketability may be most recognizable in its purest form: the difference in yield earned on a bank certificate of deposit (or CD) versus a U.S. Treasury security of the same maturity. Bank CDs and Treasury notes are virtually riskless investments,[15] but CDs are illiquid due to penalties for early withdrawal while Treasury securities are liquid due to very active trading that renders them readily marketable. Accordingly, in exchange for giving up something they value, investors demand a higher interest rate on a CD than they do on a Treasury security of the same maturity. The interest-rate differential varies over time, but in 2009 an initial investment of $97,500 in the average five-year large CD would result in approximately the same ending balance after five years as would an initial investment of $100,000 in a five-year Treasury security (including reinvested interest).[16] Accordingly, market rates implied an illiquidity discount

10 I identify fairness opinions using keyword searches of public filings on EDGAR and exclude filings by banks, broker-dealers, insurance companies, REITs, and "foreign" companies not headquartered in the United States. The practice of boards of directors to consider a fairness opinion based on a third-party valuation has been encouraged by the Delaware courts. In *Van Gorkom*, the court found "gross negligence" in the review by a board of directors of the fairness of a merger deal to shareholders, even though the deal price reflected a 48% premium over the pre-deal market price of the company's stock. *Smith v. Van Gorkom (Trans Union),* (Del. Ch. 1985). But the judges of the Delaware Court of Chancery have been known to disregard fairness opinions and perform their own detailed valuation analyses. See, for example: *In Re PNB Holding Co. Shareholders Litigation* (Del. Ch. 2006).

11 Fairness-opinion valuations appear in (a) proxy statements and joint proxy/registration statements issued before deal-related shareholder votes, (b) SEC Rule 14d-9 recommendation statements for tender offers (conveying the recommendation of the board of the target company) and (c) Rule 13e-3 disclosure statements for going-private transactions. For the smallest companies in my sample, which includes OTCBB stocks, fairness-opinion valuations are produced mainly before extreme reverse stock splits that cash out all but 500 or fewer shareholders so the company can cease making SEC filings and "go dark." The SEC requires that any fairness opinion be included in the proxy statement under Item 8 of SEC Schedule 13E-3. Absent a shareholder vote, many transactions still must be reported on Form 8-K, as material events, but these disclosures do not include details of the valuation underlying any fairness opinion. Where there is a vote and attendant proxy statement, the methodological details behind any fairness-opinion valuation (such as the discount rates used in a DCF analysis) are disclosed under Item 14(b)(6) of Schedule 14A and Item 1015(b)(6) of Regulation M-A.

12 Besides core valuation methodologies, fairness-opinion valuations include benchmarking analysis, equity research price target analysis, illustrative synergy analysis, liquidation analysis, premiums paid analysis, present value of future share price analysis, and relative contribution analysis.

13 One study performs retrospective valuations using core valuation methodologies in the context of fifty-one leveraged buyouts. The study finds multiples-based analyses to be less reliable than DCF analyses because valuations based on multiples are comparatively divergent, but concludes that the most reliable business valuations are those obtained by using multiples and DCF analyses together. Steven N. Kaplan and Richard S. Ruback, "The Market Pricing of Cash Flow vs. the Method of Multiples," *Journal of Applied Corporate Finance* 8 (1996): 45.

14 For instance, see Shannon P. Pratt, *Business Valuation Discounts and Premiums* (Wiley, 2nd Edition, 2009).

15 Because government guarantees on bank deposits are not absolute, market yields on five-year bank CDs may reflect a tiny risk premium. Insofar as yields reflect a risk premium, the DLOM implied by the yield differential for five-year bank CDs will be smaller.

16 This estimate is based on an average annual yield of 2.9% for five-year jumbo CDs versus 2.4% for five-year Treasuries, where these two rates are representative of those prevailing during the third quarter of 2009 as reported by bankrate.com.

or DLOM on riskless investments of 2.5% ($97,500 being 2.5% lower than $100,000). Insofar as discounts for illiquidity or lack of marketability for risky assets are thought to exceed the discount (of around 2.5%) for a riskless asset, the issue of redundancy arises because risk-adjustment plays a large role in all three core valuation methodologies.

Consistent with the example of bank CDs, the best rationale for a discount in the context of a business valuation is that investors demand one because they occasionally face an immediate need for cash. A dubious rationale for a discount is that illiquidity or lack of marketability may force an investor to hold and thereby miss an opportunity to sell and avoid a loss. This rationale is dubious because it rests on an assumption of foresight, as foresight is required for any sale in advance of a loss.

Discounts of 30% or more—exceeding the one in my certificate-of-deposit example by a factor of 10 or more—are considered acceptable in business valuation, so the DLOM and discounts for illiquidity matter. David Laro, a Senior Judge on the United States Tax Court, reports that: "The discount for lack of marketability is the largest single issue in most disputes regarding the valuation of businesses and business interests, especially in tax matters. This is true both in the number of cases in which the issue arises and the magnitude of the differential dollars involved in the disputes."[17]

The first question to ask of any supplemental discount is whether it is redundant to the core business-valuation methodologies. Pratt acknowledges the question in his treatise, but only in passing and only to dismiss it by argument alone.[18] This first question is answerable with data, not argument. That there may be separate rationales for discounts, variously labeled, cannot justify duplicative discounting.

My Data on Fairness-Opinion Valuations

The valuations underlying fairness opinions differ from other valuations in that the results of fairness-opinion valuations almost always take the form of a range of value. Other valuations typically report results in the form of a point estimate unaccompanied by information regarding the error rate of the analysis.[19] The typical fairness-opinion valuation reports separate information regarding range of value for each core methodology considered. Another appealing aspect of fairness-opinion valuations is that the deal terms for the acquisition of a public company usually reflect competitive bidding, meaning fairness opinions are anchored to market values (and thus are mostly

17 David Laro and Shannon P. Pratt, *Business Valuation and Taxes* (Wiley, 2005): 283.

18 Pratt, *supra* at page 298 stating: "Risk is embedded in the discount rate in the income approach and in the valuation multiples in the market approach, when estimating the base value to which the discount for lack of marketability is applied. But high risk also makes it more difficult to sell the interest. Therefore, it is not double dipping to count the risk again as a factor exacerbating the discount for lack of marketability." Pratt further states: "size of the company has been demonstrated to be a factor in discounts for lack of marketability . . . the larger the company, the lower the discount for lack of marketability." Pratt *supra* at page 299. In contrast, Ibbotson acknowledges that supplemental discounts and premiums can be redundant to the size premium in a discount rate. Ibbotson *SBBI 2009 Valuation Yearbook*: 32.

19 Philip Clements and Philip Wisler, *The Standard & Poor's Guide to Fairness Opinions: A User's Guide for Fiduciaries* (2005): "When undertaking the analysis, the independent financial advisor is cognizant of potential trade-offs between accuracy and confidence. The range of values is developed and tested by reference to a series of possible outcomes (positive and negative) that could affect value. In contrast, a typical valuation considers the various approaches in an attempt to identify a specific point estimate."

unnecessary). Also, fairness-opinion valuations are subject to oversight by the review staff of the SEC.[20] Finally, internal company documents that I have seen show, unsurprisingly, that the details of the fairness-opinion valuations that eventually appear in proxy statements mirror those provided to boards of directors confidentially during merger negotiations. For these reasons, fairness-opinion valuations provide useful evidence for (at least) the narrow purpose of identifying the empirical relation between company size and typical discount rates.

These 551 fairness-opinion valuations were performed by 136 different investment banks and boutique valuation firms. Most were performed by the merger advisor. Merger advisors usually are paid separately for their fairness opinions, however nominal the separation. As a consequence of being produced by merger advisors, most were produced by large financial services companies.[21]

Due to legal constraints rather than choice, a supplemental discount or premium was applied to the results of core valuation analyses in only 2% of these fairness-opinion valuations. Aside from that, and central to my thesis, these valuations reveal that effective size premiums are large. Much higher discount rates are used for smaller companies. This general aspect of core business-valuation methodologies has some support in economic research. Rolf Banz, Eugene Fama, Kenneth French, and Roger Ibbotson are the financial economists most associated with empirical evidence that markets systematically price size–related risk.[22] While this view has been challenged, it only

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20 An example of a fairness-opinion valuation that was affected by a staff review appears in the amended registration statement filed with the SEC by Pro Brand International on October 2, 2008. Pro Brand amended its original filing to add greater detail regarding the valuation methodology in response to a request by the SEC that was filed on June 12, 2008 and states in relevant part: "Please provide us with any analyses, reports, presentations or other similar materials, including projections and board books, provided to or prepared by Houlihan Smith in connection with rendering its fairness opinion. We may have further comment upon receipt of these materials. Also provide us with a copy of the engagement letter.

"The information about Houlihan Smith's fairness opinion appears substantially incomplete. In this regard, your disclosure at the bottom of page 63 implies that the summaries of Houlihan Smith's reviews and analysis are set forth in tables and accompanying text. However, you provide only a general, narrative description of what each method is and what it measures. Revise the discussion to explain in concise and understandable language what the financial advisor did and how each analysis and conclusion is relevant to stockholders and, specifically, to the consideration being paid in the merger and whether PBI meets the 80% test. Describe why the particular analyses were used and then why particular measures or methodologies were chosen for each analysis, such as the multiples (and how the advisor arrived at the various multiples), ranges, means/medians and quantified values calculated for each analysis and any assumptions made. Identify all comparative companies and transactions considered. Also explain how Houlihan Smith determined the value of the merger consideration, including whether it considered the earn-out payments.

"We note that PBI disclosed financial forecasts and estimates to Houlihan Smith and that Houlihan Smith used these projections in its analyses, such as the discounted cash flow analysis. Please disclose these financial forecasts and estimates."

21 The firms producing the most fairness-opinion valuations, with the number of valuations performed in parentheses, are: Goldman Sachs (44), JPMorgan (33), UBS (28), Morgan Stanley (26), Credit Suisse (16), Merrill Lynch (16), Citigroup (15), Cowen & Co. (14), RBC (14), Lazard Frères (13), Piper Jaffray (12), Banc of America (11), Deutsche Bank (11), Lehman Brothers (11), Jefferies (9), Barclays (8), Ladenburg (8), Oppen-heimer (8), Needham (8), Evercore (7), Allen & Co. (6), Bear Stearns (6), Morgan Joseph (6), Tudor Pickering (6), Thomas Weisel (5), Wachovia (5), and William Blair (5). The most active boutique valuation firms were Houlihan Lokey (26), Duff & Phelps (14), and Houlihan Smith (6).

22 The inclusion of a size premium serves to boost the discount rate in a DCF analysis (or in a capitalized cash flow analysis) and, consequently, lowers the resulting valuation, so a size premium means that small-cap stocks can be purchased *cheaper* than theory would predict. The size premium in a discount rate factors into a business valuation at least because the discount rate in most DCF analyses is set equal to the cost of capital of the subject business and historical stock returns determine the cost of equity component of the cost of capital. Likewise, since a discount rate is embedded or implicit in market value, the size premium gets imbedded naturally in valuation multiples. The theory referred to above is the capital asset pricing model, or CAPM, developed by Sharpe and Lintner, which posits that beta risk is the only risk that investors can expect to be compensated for, beta risk being that not averaged out of even the most diversified portfolio. Fama and French documented that what counts empirically in explaining the returns that investors actually earn by holding stocks is company size (or a non-beta risk related to size) and not beta. They also found stock returns were related to the market-to-book ratio. See W. F. Sharpe, "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk," *Journal of Finance* 19 (1964); John Lintner, "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets," *Review of Economics and Statistics* 47 (1965); Rolf W. Banz, "The Relationship Between Return and Market Value of Common Stock," *Journal of Financial Economics* 9 (1981); and Eugene F. Fama and Kenneth R. French, "The Cross-Section of Expected Stock Returns," *Journal of Finance* 47 (1992).

matters to my thesis that annual discount rates used in practice in core valuation methodologies depend importantly on company size.

Table 1 tests this proposition by showing the average discount-rate assumption in DCF analyses in subgroups based on size of company. Since it is the practice in fairness-opinion valuations to specify a range of discount rates rather than a single discount rate, Table 1 reports the average high and the average low discount rate.

Table 1

Average Discount Rates Used in Fairness-Opinion Valuations, by Size of Company

	Size of Company (based on deal terms)	Number of Valuations	Range of Discount Rate Used in the DCF Analysis	
			Average Low	Average High
A	$1 Billion or More	137	9.6%	11.7%
B	$200 to $999.9 Million	124	12.3%	15.4%
C	$50 to $199.9 Million	98	16.1%	19.6%
D	$10 to $49 Million	70	17.2%	22.2%
E	$0 to $9.9 Million	14	18.6%	20.5%
	Total	444	13.3%	16.4%

The difference between the core discount rate typically used for the smallest companies and that used for the largest companies (Row E minus Row A) is 8.9% based on the average low and 8.8% based on the average high. This difference is the effective size premium in the discount rate as it has been implemented in practice.[23] With the minor exception of the average high in Row E, the smaller the company, the greater is the effective size premium embedded in the discount rate assumption in the typical DCF. In a nutshell, investment bankers believe that smaller companies face a much higher cost of capital. Table 1 reports on valuations produced during July 2007 through June 2009. While this was a time of economic turmoil and high-risk premiums, effective size premiums do not necessarily depend on the overall level of discount rates. When I replicate Table 1 using the 276 observations on valuations produced during just the first half of the 24-month sample period (where the shock of Lehman Brothers' bankruptcy, in September of 2008, came during the second half), the difference between Rows E and A becomes 9.7% based on the average low and 9.3% based on the average high, so the effective size premium was not smaller in the less-tumultuous half of the sample.

Because it is included in an annual discount rate, the reader may not appreciate how substantial the effect of discounting for lack of size is. An alternative exposition would convert the effective size premiums in these *annual* discount rates into *one-time* discounts for lack of size. Not incidentally, this will make them comparable to a DLOM. An exact conversion depends on the exact time

23 The way that discount rates come to depend on size undoubtedly reflects judgment, but one explicit mechanism is the "buildup method" of calculating the cost of equity component of the discount rate. This involves the summing of multiple risk premiums for types of risk that are supposedly independent. For example, the analysis performed by one boutique calculated the cost of equity as the sum of (a) a thirty-year U.S. Treasury Coupon Bond yield of 4.35%, (b) a base or beta risk premium 5.85%, (c) an industry-specific risk premium of 4.95% associated with the subject company's three-digit SIC code, (d) a size premium of 6.27%, and (e) a premium for company-specific risk of 3.00%.

pattern of projected net cash flows, but a good approximate conversion is possible assuming that future net cash flows in every instance follow the path of a growing perpetuity with a growth rate of, alternatively, 0% or 5% per year.[24]

Hopefully, the conversion of the data in Table 1 that is shown in Table 2 will help the reader to appreciate the degree to which effective size premiums in discount rates serve to lower the valuations of mid-sized and smaller companies. The data in Table 2 show that current practice is to use annual discount rates in DCF analyses that are equivalent to one-time, supplemental discounts for lack of size ranging from 21% for the next-to-largest companies to 66% for the smallest companies. This finding provides context for the question of whether applications of a large DLOM or a large discount for illiquidity are redundant to the discounting for lack of size that occurs in the core methodologies. The point is that there is much to be redundant with.

Table 2

Typical Supplemental Discounts for Lack of Size, by Size of Company

	Size of Company (based on deal terms)	0% Growth		5% Growth	
		Average Low (%)	Average High (%)	Average Low (%)	Average High (%)
A	$1 Billion or More	0	0	0	0
B	$200 to $999.9 Million	21	23	36	35
C	$50 to $199.9 Million	40	40	58	54
D	$10 to $49 Million	44	47	62	61
E	$0 to $9.9 Million	48	43	66	57

The Relation between Size of Company and Liquidity

That liquidity is lower for trading in the shares of smaller companies probably is obvious.[25] The reader may not appreciate the strength of the relation, however, so Table 3 and Table 4 report average data on size and liquidity for domestic, nonfinancial companies with shares traded on an exchange, Nasdaq, the OTC Bulletin Board, or in the pink sheets. Liquidity or marketability

24 With this simplifying assumption, the effect of a size premium in the annual discount rate can be approximated as the difference between the present values given by two implementations of the constant growth model: one using the annual discount rate typically applied to the largest companies (from Row A in Table 1) and another using the annual discount rate typically applied to a class of smaller companies (from one or another of Rows B through E). The result of the exercise is expressed (cell-by-cell) as a percentage discount for lack of size by dividing each by the valuation result for the largest companies. The constant growth model is characterized in one textbook as "one of the best known and certainly the simplest DCF model." See Edwin J. Elton, Martin J. Gruber, Stephen J. Brown and William N. Goetzmann, *Modern Portfolio Theory and Investment Analysis* (Wiley, 6th Edition, 2003): 447. The model is simply DCF = CF1/(R-G), where CF1 is the cash flow projected to occur in the first year, R is the discount rate, and G is the growth rate. For the purpose of calculating the approximate discounts for lack of size shown in Table 2, CF1 = $100, G = 5%, or G = 0% and R equals one or another of the average discount rates shown in Table 1.

25 The high positive correlation between company size and liquidity has been previously reported, notably in Jakov Amihud, "Illiquidity and Stock Returns: Cross-Section and Time Series Effects," *Journal of Financial Markets* 5 (2002).

is measured in Table 3 by the dollar volume of trading in a stock over the course of 2008.[26] It is measured in Table 4 by the frequency of transactions in whole companies. Company size is measured alternatively by the aggregate market value of common stock (the company's market capitalization) and by annual sales revenue.

In Table 3, those companies with market capitalizations exceeding $10 billion had an average trading volume during 2008 of $83 billion. At the other extreme, companies with market capitalizations of less than $10 million had an average trading volume during 2008 of $2 million. The strength of the relation between company size and liquidity does not depend on whether size is measured by market capitalization or sales revenue. This evidence shows that the correlation between liquidity and company size is substantial and that any supplemental discount for lack of marketability, or any supplemental DLOM, must be substantially redundant.

Table 3

Average Levels of Liquidity, by Size of Company

Size Measured by Market Capitalization of Common Stock during 2008*			
Size Category	Number of Companies†	Average Size of Company (in $ millions)	Average Annual Trading Volume (in $ millions)
$10 Billion or more	161	37,874	83,542
$1 to $9.9 Billion	735	2,994	11,260
$250 to $999.9 Million	827	519	1,810
$50 to $249.9 Million	853	126	256
$10 to $49.9 Million	869	25	28
$0 to $9.9 Million	746	5	2
Total	4,192	2,224	5,600
Size Measured by Sales Revenue during 2008			
Size Category	Number of Companies	Average Size of Company (in $ millions)	Average Annual Trading Volume (in $ millions)
$10 Billion or more	226	33,636	59,121
$1 to $9.9 Billion	927	3,053	8,615
$250 to $999.9 Million	784	542	1,786
$50 to $249.9 Million	869	129	687
$10 to $49.9 Million	543	27	159
Some, up to $9.9 Million	557	3	54
None	286	0	32
Total	4,192	2,812	5,600

* Market capitalization equals the product of the number of shares outstanding at the end of the 2008 fiscal year times the volume-weighted average stock price (or VWAP) during calendar 2008. Note that measuring size by market capitalization counts the large insider holdings typical of small companies.

26 I measure liquidity as dollar volume rather than by the bid-ask spread, the number of shares traded expressed as a percentage of shares outstanding, or the number traded expressed as a percentage of float. There is little or no empirical relation between expected returns and measures of liquidity other than dollar volume after controlling for dollar volume. Matthew Spiegel and Xiaotong Wang, "Cross-Sectional Variation in Stock Returns: Liquidity and Idiosyncratic Risk," Yale ICF Working Paper No. 05-13 (2005) http://ssrn. com/abstract=709781.

† Companies are excluded from Table 3 if they have annual trading volume less than $100,000, market capitalization less than $100,000 or have filed for bankruptcy. Also, financial institutions, REITs, "foreign" companies and shell companies are excluded from Table 3.

Table 4 provides data on the liquidity of the market for whole companies based on 10,000 "company-years" of experience (up to five years of experience for each of 2,417 companies) during the period 2004–2008.[27] Overall, the typical public company had a 4.2% chance of being acquired each year.[28] The market for the largest companies is comparatively illiquid, reflecting a "too big to buy" phenomenon. This is interesting, but it is the data in the last several lines of the table that are relevant to my thesis.

Table 4

Liquidity in the Market for Whole Companies during 2004–2008, by Size of Company

Size Measured by Annual Sales Revenue				
Size Category	**Average Size (in $ millions)**	**Company-Years**	**Number of Transactions***	**Transaction Rate (%)†**
$10 Billion or more	34,980	422	12	2.8
$1 to $9.9 Billion	3,169	1,817	69	3.8
$250 to $999.9 Million	533	1,870	116	6.2
$50 to $249.9 Million	124	2,057	134	6.5
$10 to $49.9 Million	26	1,489	67	4.5
Some, up to $9.9 million	3	1,754	17	1.0
None	0	591	5	0.8
Total	2,318	10,000	420	4.2

* Transactions are acquisitions of 100% of shares outstanding (as recorded in Bloomberg).

† Transaction Rate equals Number of Transactions expressed as a percentage of Company Years.

The subject companies in business valuations tend to be small, and whole-company transactions are least frequent among the smallest public companies (those with annual sales revenue of less than $10 million), where the transaction rate is just 0.8% or 1.0% per year. This feature of the data in Table 4 is another manifestation of the size effect, which is notably general.

No special, supplemental discounting is needed for an aspect of value that is not special to the interest being valued. The data in Table 4 show that few private companies will merit a supplemental discount on the grounds that a sale of that company would be difficult and unusual. This is because whole-company transactions are difficult and unusual *generally,* and even more so for small companies, where general factors and risks are accommodated for within the core methodologies proper. Accordingly, the evidence in Table 4 challenges Pratt's rationale for the DLOM (see footnote 18).

27 While Table 3 covers essentially all public companies, Table 4 covers a representative sample of public companies (those at the top of an alphabetical listing by company name, through "Genesis Energy"), which yields a sample size that is more than adequate for purposes of reliably estimating transaction rates. Acquired companies are classified by their last-reported annual revenue. Financial companies, REITs, "foreign" companies, and shell companies are excluded from Table 4.

28 The percentage of public companies taken over during 2004–2008, at 4.2%, is only a bit higher than it was two decades ago. On a value-weighted basis, 3.2% were acquired in 1987, 4.0% in 1988, and 3.5% in 1989. See Eric W. Nath, "Control Premiums and Minority Interest Discounts in Private Companies," *Business Valuation Review* (1990).

Summarizing, the data in Tables 3 and 4 show that liquidity and marketability are highly correlated with company size. This empirical regularity implies that discounts for illiquidity or lack of marketability are approximately just relabeled versions of the already ample discounting for lack of size that is inherent in the core methodologies. Once you (or the market) have discounted for lack of size, skepticism is in order regarding any further discount for an attribute of the subject interest that is highly correlated with company size.

Overall, the data in Tables 3 and 4 establish that the DLOM must be substantially redundant, not that it is completely redundant. This leaves an opening for application of a DLOM to the results of core valuation methodologies, albeit a much diminished DLOM. Evidence of discounts from (a) market value that are (b) caused by illiquidity alone is the only type of evidence that can establish that the DLOM is reliably *incremental* to the discounting for size that is embedded naturally in market prices. While various types of data have been cited in support of large DLOMs, I am familiar with none that satisfy this two-part test. In particular, the evidence that purportedly supports large DLOMs is afflicted with debilitating causation issues. Causation is a problem (of logic) when one effect has multiple causes, only one of which is relevant.[29]

I address the remaining opening with data regarding (a) the possibility of a discount from market value in the negotiated prices of private placements of restricted stock and (b) average historical stock returns within portfolios jointly defined on size and liquidity. The discount in the average yield on five-year bank CDs also qualifies. These are the three types of data that bear most directly upon whether there is such a thing as a nonredundant illiquidity discount or a nonredundant DLOM. As it turns out, these data are consistent with discounts of just several percent.

Private Placements of Common Stock

Companies can issue new shares by selling a large block to a limited number of accredited investors. This can entail the sale of (a) free-trading shares taken down from a shelf registration in a registered direct offering, (b) restricted stock with registration rights attached, or (c) restricted stock with no registration rights attached.[30] Restricted stock may not be resold to the general investing public for six months absent a registration statement being filed by the issuer and declared effective by the SEC. For a period, then, shares sold in private placements can be less liquid than are the company's free-trading shares.

Barclay, Holderness, and Sheehan review the empirical evidence on private placements of common stock and conclude that these deals are motivated by management entrenchment, and further conclude that illiquidity is not an important determinant of the average discount from market value seen in private placements.[31] Bajaj et al. conclude that there are multiple causes.[32] The

29 Causation is an issue that judges are familiar with. In deciding a case on medical causation in 1997, the U.S. Supreme Court concluded in *General Electric Co. v. Joiner* that: "A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered."

30 Registration rights often obligate the issuer to use its "best efforts" or "commercially reasonable efforts" to cause a registration statement to be declared effective by the SEC. A registration-rights agreement may be difficult for the buyer to enforce insofar as issuers' statutory obligations regarding investor protection trump any obligation under a private contract. The version of registration-rights agreement with teeth specifies liquidating damages that the issuer must pay at recurring intervals, regardless of effort, for as long as a timely registration is not accomplished.

31 Michael Barclay, Clifford G. Holderness, and Dennis P. Sheehan, "Private Placements and Managerial Entrenchment," *Journal of Corporate Finance* 13 (2007).

32 Mukesh Bajaj, David J. Denis, Stephen P. Ferris, and Atulya Sarin, "Firm Value and Marketability Discounts," *Journal of Corporation Law* 27 (2001).

SEC's position is that illiquidity is one of several causes.[33] Because restricted-stock discounts have multiple causes, this type of evidence suffers from causation issues, and it is inappropriate to assume that the average restricted-stock discount is due solely to illiquidity or a DLOM.

Shares issued without registration and without registration rights face the longest delay before liquidity (albeit now only six months), while shares taken down from a shelf registration are immediately as liquid as are the company's existing shares. Insofar as the private-placement discount is due to confounding general factors, the net effect of these factors will be reflected in the average discount observed in private placements of free-trading shares. Accordingly, the DLOM can be estimated as the average discount observed among private placements of shares with no registration statement and no registration rights, minus the average discount observed among private placements of free-trading shares. While this subtraction may not cure the causation issues completely, it is a simple step and much better than none.

Table 5 reports the results of my analysis of 153 private placements of common stock made during the 24-month period July 2007 through June 2009.[34] Although this is a relatively short period, my search yielded many more observations per year than most prior studies.[35] I find an average discount of 10.5% among all deals. Within subgroups, the average discount is 9.4% for free-trading shares, 8.5% for restricted stock with registration rights, and 13.8% for restricted stock with no registration rights. The DLOM implied by this evidence is no greater than 4.4% (13.8% minus 9.4%). Given the dispersion in discounts seen in various deals, which is surprisingly wide, an estimate of 4.4% is not reliably different from zero in a sample of this size (see bottom line of Table 5). The evidence in Table 5 confirms that illiquidity and restricted marketability are not the only causes, or even the primary causes, of restricted-stock discounts.

33 Revisions to Rules 144 and 145, SEC Release No. 33-8869 (Dec. 17, 2007), note 222: "Among the other factors that could affect the discounts are the amount of resources that private investors need to expend to assess the quality of the issuing firm or to monitor the firm, the ability of the investors to diversify the risk associated with the investment, whether the investors are cash constrained, and the financial situation of the firm."

34 I identified private placements using keyword searches in EDGAR (they are usually disclosed on Form 8-K or Form 424B3). I excluded private placements where (a) the deal price is less than 10 cents per share, (b) the proceeds of the placement are less than $250,000, (c) the transaction is not separately disclosed, (d) the shares are sold for consideration other than cash or as part of a unit or package of shares and warrants, (e) the issuer is a shell company, a financial institution, or a "foreign" company not headquartered in the U.S., or (f) the buyer is a related company.

35 My sample of 153 private placements of common stock over 24 months amounts to 76 deals per year. The 594 private placements considered by Barclay, Holderness, and Sheehan (2007) amount to 29 deals per year over a 21-year period, and the 244 private placements considered by Finnerty amount to 18 deals per year over a period of 13.8 years. The 69 private placements considered by Silber amount to just 8.6 deals per year over an 8-year period. Following the method of Karen Wruck, most studies have considered issuances of both restricted and free-trading stock. Bajaj et al. report an average discount for free-trading stock of 14% versus 28% for restricted stock. See John D. Finnerty, "The Impact of Stock Transfer Restrictions on the Private Placement Discount," unpublished paper (June 2008); Michael Barclay, Clifford G. Holderness, and Dennis P. Sheehan, "Private Placements and Managerial Entrenchment," *Journal of Corporate Finance* 13 (2007); Mukesh Bajaj, David J. Denis, Stephen P. Ferris, and Atulya Sarin, "Firm Value and Marketability Discounts," *Journal of Corporation Law* 27 (2001); Michael Hertsel and Richard L. Smith, "Market Discounts and Shareholder Gains For Placing Equity Privately," *Journal of Finance* 48 (1993); William Silber, "Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices," *Financial Analysts Journal* 47 (1991); and Karen H. Wruck, "Equity Ownership Concentration and Firm Value," *Journal of Financial Economics* 23 (1989).

Table 5

Evidence from Private Placements regarding the Magnitude of an Incremental DLOM

Type of Private Placement		Number of Deals	Median Deal Size (in $ millions)	Average Discount (-) or Premium (+)*
Sale of Free-Trading Shares	68	13.3	-9.4%	-9.4%
Sale of Restricted Stock with Registration Rights	39	3.9	-8.5%	
Sale of Restricted Stock without Registration Rights	46	14.0		-13.8%
Difference (i.e., DLOM)			0.9%	-4.4%
T-statistic for Difference			0.25	-1.27
Reliability†			19%	79%

* The negotiated price of the placement expressed as a percentage discount from the volume-weighted average price of the stock during the day before the closing date of the placement.
† Reliability ranges between zero and 100% and shows the probability that the true value of the Difference differs from zero given the estimated level of the Difference and the variance in outcomes in the sample. Technically, Reliability equals one minus the *p*-value of the *t*-statistic, expressed as a percentage. Economists conventionally require Reliability of 95% or more, but will entertain results with less reliability than this. The greater finality of judicial fact-finding compared to scientific fact-finding suggests judges should require Reliability above 95%, while the preponderance-of-the-evidence standard suggests judges should accept Reliability below 95%.

Average private-placement discounts have declined over time due to deregulatory moves by the SEC that have shortened the minimum holding period for restricted stock from two years to six months.[36] Because the duration of the restriction matters, data from before deregulation are more appropriate for estimating DLOMs than are the data in Table 5. However, because they did not address causation issues, and due to the sheer staleness of pre-deregulation data,[37] older studies do not provide the basis for a reliable opinion that a modern-day illiquidity discount or modern-day DLOM is large. Reliability also is insufficient in more recent studies insofar as they do not address the causation problem.

Ibbotson's 4x4 Table

The 2009 edition of the annual SBBI yearbook introduces a 4x4 matrix that reports average compound annual stock returns during 1972–2008 organized by quartiles when ranked by size and, separately, by liquidity.[38] These data exhibit a peculiar reverse size effect in the quartile of most-liquid stocks. It is "reverse" in that it has large-cap stocks outperforming small-cap stocks. The normal size effect has small-cap stocks outperforming large-cap stocks, presumably as compensation for greater investment risk.

36 In 1997, the SEC reduced the required holding period for restricted stock from two years to one year. See Release No. 33-7390 (Feb. 28, 1997) [62 FR 9242]. In 2008, the SEC reduced the required holding period from one year to six months. See Release No. 33-8869 (Dec. 6, 2007) [72 FR 71546].
37 The Institutional Investor Study Report of the SEC is often cited in support of large illiquidity discounts and DLOMs, but these data on private-placement discounts are more than 40 years old now and do not reliably reflect modern-day conditions.
38 *Ibbotson SBBI 2009 Valuation Yearbook*, Table 7-17 (Morningstar, 2009).

This bad spot in the Ibbotson data can be sidestepped by comparing two corner cells of the matrix. Stocks that fall jointly into the largest-size quartile and the highest-liquidity quartile have an average return of 8.5% per year. In the opposite corner of the matrix, stocks that fall jointly into the smallest-size quartile and the lowest-liquidity quartile have an average return of 17.4%. The difference of 8.9% between these two corner-cell averages happens to equal the difference of 8.9% seen in my Table 1 between the large- and small-company discount rates typically used in DCF analyses. Accordingly, while the Ibbotson data do show evidence of a liquidity effect, it is confounded with an implausible reverse size effect and otherwise is of a magnitude similar to the effective size premium shown in my Table 1. Overall, these new Ibbotson data do not provide a sufficient basis for a reliable opinion that the nonredundant DLOM or nonredundant discount for illiquidity is large.

Summarizing, the evidence from (a) bank CDs, (b) modern restricted stock, and (c) Ibbotson's 4x4 matrix are each consistent with a nonredundant DLOM or a non-redundant discount for illiquidity of just several percent. These data provide the best available evidence regarding the magnitude of the nonredundant DLOM or discount for illiquidity. Finally, there are five additional topics of interest: (a) dubious data from "pre-IPO" studies, (b) the dubious practice of using theoretical put-option estimates of the DLOM, (c) the justifiable possibility of applying a private-company discount unrelated to size and illiquidity, including data on IPO flotation costs, (d) the ancillary topic of control premiums, and (e) data regarding the error rate of the analysis.

Pre-IPO Studies

The purported support for large DLOMs has long and importantly included "pre-IPO" studies that consider private placements of restricted stock made during the months leading up to an initial public offering. These nonacademic studies report average discounts from post-IPO market prices approximating 50%.[39] Buyers often are affiliates of the issuer or related parties with commercial ties to the issuer. This is especially true of sales of so-called "cheap stock" made within months of the IPO. While companies do sell equity at arm's length during the several *years* before an IPO, these transactions are mostly untimely. The span between the last major round of pre-IPO equity financing and the IPO averages twenty-one months.[40]

Even when a private placement is made at arm's length at fair market value, the price in that transaction will not reflect fair market value many months later where the time span covers the run-up to an event as outstanding as an IPO. The typical company in an underwritten IPO exhibits growth in sales revenue of around 70% (median of 45%) per year in the vicinity of the IPO.[41] A growth rate this fast is atypical. Besides this, an IPO often is foreshadowed by qualitative good

39 Shannon P. Pratt, *Business Valuation Discounts and Premiums* (Wiley, 2nd Edition, 2009): 128–199.

40 I calculate the average time span using the last major round of equity financing before recent IPOs, as disclosed in SEC filings. These are likely to be arm's length transactions, but that condition usually cannot be verified. The average time span was twenty-one months when the last major round of equity financing was for common stock versus twenty-two months for preferred stock that converts into common stock upon the occurrence of an IPO.

41 These average growth rates are based on 159 underwritten IPOs completed in the United States during 2007–2008 (excluding banks and blank-check companies). The growth rate is calculated for each company as sales revenue during the fiscal year of the IPO minus sales revenue during the fiscal year preceding the IPO, expressed as a percentage of sales revenue during the preceding year.

news not yet reflected in revenue.[42] Finally, major rounds of financing entail major valuation efforts, while interim sales of smaller amounts of stock typically are executed at prices that are derivative of (often just equal to) the valuation set in the last major round of financing. This means that data from smaller private placements made in the several months before an IPO are not actually timely. Accordingly, newfound liquidity is not the only cause, or even the primary cause, of the average increase in value observed in the vicinity of an IPO. For this reason, these pre-IPO studies do not provide reliable estimates of the illiquidity discount or the DLOM.

Put-Option Estimates of Blockage Discounts or the DLOM

The typical issuance cost for seasoned equity offerings (SEOs) speaks to the discount that is appropriate for a block of stock (as distinct from a whole company). Investment banks charge 2% to 3% of retail market value to break bulk and market digestible blocks to their institutional and retail customers.[43] Consistent with this, a discount of 2% to 3% is appropriate for an indigestibly large block of shares, as a hypothetical buyer could expect to incur this cost-of-conversion upon exit.

An alternative method for estimating a discount for an indigestibly large block, one that can yield a discount ten times larger than that indicated by the cost of a typical SEO, was presented by Chaffe in 1993 and has since gained a degree of acceptance in valuation circles, albeit slowly.[44] This two-step alternative involves (a) estimating the length of time it would take to liquidate the large block through open-market sales and (b) estimating the value of a put option (a "protective put") written on that security and having a life span equal to the result of the first step. The general idea is that a truncation of down-side risk via the purchase of a put option mitigates the owner's aversion to being locked in to continuing ownership, so the discount can be estimated as the value of the put option expressed as a percentage of the market value of the stock.

This method of calculating a supplemental discount is dubious because the fair market value of a package amounting to a security plus an insurance policy against downside risk is not the fair market value of the security alone, or even the fair market value of the security encumbered by resale restrictions. In short, while buying a put option will mitigate the consequences of a minimum holding period, it can be a great overkill. Accordingly, an estimate of a supplemental discount based on the cost of a protective put, or the cost of an insurance policy against downside risk, is exaggerated to an indeterminate and possibly large degree.

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42 For example, BioForm Medical Inc. sold shares of preferred stock (converting automatically into common stock in the event of an IPO) to a venture-capital firm at a discount of 60% from the market price of its common stock following its eventual IPO, which occurred sixteen months after the private placement. During the sixteen-month interim, the company completed clinical trials and obtained two "pre-market approvals" from the Food and Drug Administration for its lead product.

43 Xiaohui Gao and Jay R. Ritter, "The Marketing of Seasoned Equity Offerings," unpublished paper (2009), http://ssrn.com/abstract=972709.

44 David B.H. Chaffe, "Option Pricing as a Proxy for Discount for Lack of Marketability in Private Company Valuations," *Business Valuation Review* (1993). As an example of usage, when Santarus Inc. issued a block of six million shares that were subject to a fifteen-month minimum holding period, the company for accounting purposes applied a discount of 38% that reflected an estimated value of a put option with a life of fifteen months. Likewise, when Boise Inc. acquired certain assets in 2008 in exchange for cash and thirty-eight million shares that it expected would be registered for public resale in four months, it valued the shares for accounting purposes at market less a discount of 12% that reflected an estimated value of a put option with a life of four months.

Private-Company Discounts

There remains the possibility that supplemental discounting is appropriate for a *private* business even where it is not appropriate for an otherwise-equivalent public company, meaning private businesses merit a supplemental discount even after controlling for company size. By "private-company discount," I mean the generally lower valuations of private companies that have been documented by Koeplin et al. and Officer.[45] It is possible that these lower valuations are due to differential liquidity or marketability, but I would not assume so absent empirical evidence on this point.

Koeplin et al. and Officer both compare valuation multiples in acquisitions of private companies to those seen in acquisitions of like public companies. The validity of the research design used in these two studies depends importantly on the degree of similarity between the private-company transaction and the public-company comparables. The degree of similarity is questionable, however, in large-sample studies such as these where comparables are identified using a mechanical algorithm (based on SIC codes) rather than by hand. Kim and Ritter find that the accuracy of multiples-based valuation is "much worse" when comparable companies are chosen using a mechanical algorithm rather than by hand.[46] Kim and Ritter also find that multiples of forecasted earnings work better than do multiples of historical earnings.

The studies of private-company discounts by Koeplin et al. and by Officer overlook the findings of Kim and Ritter in that they use mechanical algorithms to identify comparables, and also use historical rather than forecasted data. Also, the results of this method appear to be quite sensitivite to the choice of multiple considered. Beyond that, this methodology holds some promise for yielding nonredundant estimates of the discount for illiquidity or the DLOM insofar as the analysis properly controls for company size.

Flotation Costs

The costs that owners of private businesses have demonstrated a willingness to incur to convert their private companies into public companies, expressed as a percentage of the market value of the public company, speak to the maximum tolerable private-company discount. These costs take the form of IPO flotation costs. For the purpose of estimating the cost of conversion, flotation costs should be expressed as a percentage of the market value of the whole company. Existing studies tend to report average flotation costs expressed as a percentage of funds raised, but this formulation is not relevant here because it does not correspond to the cost of conversion.

It turns out that percentage flotation costs in IPOs are comparatively unrelated to company size, so redundancy is not much of a problem. Table 6 shows the percentage flotation cost typically incurred in 552 underwritten IPOs of domestic, nonfinancial companies during the 60-month period

45 Koeplin et al. match by industry using four-digit SIC codes and find that multiples of earnings and EBITDA are lower (by 20% to 30%) for private companies than for public companies, but that average multiples of revenue did not differ in acquisitions of private versus public companies. Officer matches on two-digit SIC codes and finds that private-company multiples of earnings are 23% lower, multiples of EBITDA are 17% lower, multiples of revenue are 18% lower, and multiples of book value are 16% *higher*. Officer reports that the average discount falls from 17% to 13% when comparables are matched on merger consideration (cash versus stock) in addition to size and industry. John Koeplan, Atulya Sarin, and Alan C. Shapiro, "The Private Company Discount," *Journal of Applied Corporate Finance* 12 (2000); and Micah S. Officer, "The Price of Corporate Liquidity: Acquisition Discounts for Unlisted Targets," *Journal of Financial Economics* 83 (2007).

46 Moonchul Kim and Jay R. Ritter, "Valuing IPOs," *Journal of Financial Economics* 53 (1999). In this study, "by hand" means by the management of the company being valued.

July 2004 through June 2009.[47] Flotation costs are the sum of the direct cost of out-of-pocket fees charged by the underwriters (the gross spread) plus the indirect cost of underpricing.[48] The percentages reported in Table 6 are biased downward because they do not reflect incremental legal fees associated with public-company status, but the bias is minor.

Table 6

Flotation Cost as a Percentage of Post-IPO Market Capitalization, by Size of Company

Size Measured by Post-IPO Market Capitalization	Number of Companies	Average Percentage of Market Cap (%)
$1 Billion or more	99	5.3
$250 to $999.9 Million	274	5.5
$50 to $249.9 Million	154	3.4
$0 to $49.9 Million	25	3.3
Total	552	4.8
Size Measured by Post-IPO Market Capitalization Net of Proceeds from the Sale of New Shares	**Number of Companies**	**Median* Percentage of Market Cap Net of IPO Proceeds (%)**
$1 Billion or more	73	5.9
$250 to $999.9 Million	217	6.9
$50 to $249.9 Million	208	4.2
$0 to $49.9 Million	52	5.6
Total	550	5.8

* The median is more appropriate than the average (or mean) for this formulation of percentage cost because flotation costs can amount to very large percentages when the post-IPO market value is nearly the same as the proceeds of the offer. In several instances, the post-IPO market value of the company actually is slightly less than the proceeds of the sale of new shares.

Percentages are reported two ways in Table 6 because an IPO not only takes a company public, it also makes it larger by the sale of new shares (37% larger, measured by the median increase). The shares sold in an IPO often include a mix of new shares sold by the company and existing shares sold by shareholders. The entries reported in the bottom panel of Table 6 are percentages of the adjusted market value of the public company, adjusted to be net of the proceeds of the sale of the new shares. Based on the data in Table 6, the private-company discount is 5.8% (the percentage necessarily is lower, at 4.8%, without the adjustment).

47 I include all IPOs identified by Bloomberg (on its ECDR page) as having been issued into the U.S. markets during the sixty-month period, except that I exclude the many IPOs by financial institutions, REITs, blank-check SPACs, and "foreign" companies not headquartered in the United States.

48 Gross spread is reported by Bloomberg (start on the ECDR page and click through the company name). I calculate the cost of underpricing as the volume-weighted average price during the first full week of trading after the IPO, minus the offer price, times the number of shares offered. This is money left on the table, so to speak, by the owners of the private company. See, for example, Kathleen Hanley, "Underpricing of Initial Public Offerings and the Partial Adjustment Phenomenon," *Journal of Financial Economics* 34 (1993).

Average percentage flotation costs are higher than 6% among those companies that go public in ways other than in an underwritten IPO, such as the reverse merger of a private company into a public shell. These are the smallest companies that go public, however, so the higher percentage flotation costs (in the form of dilution) incurred by going public via a reverse merger are redundant to discounting for lack of size in core methodologies. Redundancy is not an issue with the data in the bottom panel of Table 6, where there is no size effect in percentage flotation costs in underwritten IPOs.

Judges have been receptive to supplemental discounts in valuations of private companies because, as between two otherwise equivalent companies, one public and one private, the shares of the public company surely must have greater value. The closest evidentiary counterpart to this intuition is a discount (of approximately 6%) based on average flotation costs. A supplemental discount of this nature holds the considerable further appeal of not being redundant, as an empirical matter, to core discounting for lack of size.

If percentage flotation costs are to be used as evidence of illiquidity discounts or the DLOM, they must be denominated in a way that is appropriate to that task (i.e., not as a percentage of the new funding). Beyond that, the methods I use to construct Table 6 are not intended to be a final answer to the question of how best to estimate the typical cost of converting private companies into a public companies.

Control Premiums

The focus of this paper has been on the discount for lack of marketability, but there is another commonplace adjustment applied to the results of core valuation methodologies that merits attention in this economic "compliance review." A control premium is a percentage adjustment thought to be applicable when the asset being valued is a controlling block of shares.[49] A discount for lack of control, sometimes referred to as a minority interest discount, is the flip side of the same coin. There are two scenarios to consider.

First, where there is evidence specific to the company being valued that a private benefit actually has been captured by some party by virtue of an exercise of control, that evidence can be used to adjust the projected net cash flows used in the DCF analysis or to adjust the accounting metric (such as EBITDA) to which a multiple is applied in a comparable-company analysis. For instance, normalizing adjustments can be made to reflect lower costs from implementing operating efficiencies, eliminating nepotism, or from prospective reductions in executive or owner/operator compensation.

Second, in the absence of company-specific evidence regarding actual private benefits or inefficiencies from an actual or potential exercise of control, the control premium is properly estimated by the *unconditional* takeover premium. As an illustration, if the typical takeover premium is 35% because a better exercise of control at takeover targets typically increases net cash flow to shareholders as a group by 35%, and the odds that a given company merits a takeover are 4 in 100, then the unconditional takeover premium is 1.4% (equal to 4% of 35%). One large-sample study

49 I understand that in a business valuation produced in support of an application for a government loan guarantee from the SBA for the purchase of a small business, it is common to boost the result of a core methodology by applying a control premium rather than lowering it by applying a DLOM.

found an unconditional takeover premium of 1.1%.[50] This argument is not undone by the underlying valuation premise of a (certain) hypothetical sale, because that premise does not imply receipt of an average takeover premium, or any takeover premium at all. Buyers (even hypothetical ones) pay control premiums because their information leads them to believe that they can deliver more cash flow to shareholders than what existing management has been delivering. If buyers do not have that expectation, they will not pay a control premium (except perhaps to share synergies and tax benefits that are not germane to a control premium anyway).

The upshot is that situations where the application of a control premium or discount can be justified by reference to the average takeover premium are unusual at most. Where an average takeover premium must substitute for company-specific evidence regarding the value of control, because company-specific evidence is unavailable, then evidence will also be lacking as to whether or not the company is takeover material. When it is unknown whether or not a company is takeover material, the control premium is appropriately measured by the unconditional takeover premium, which is a percentage too small to matter.

The Error Rate of the Analysis

Daubert calls for consideration of the "error rate of the analysis" as one of several nonexclusive indicators of reliability. To this end, Table 7 shows the average width of the ranges of value reported in fairness-opinion valuations for each of the three types of core valuation method. The data in Table 7 are intended to address, if only rudimentarily, the *Daubert* call for consideration of the error rate (or margin of error) of the analysis. One caveat is that these data come from fairness opinions and a finding of fairness depends on the deal value falling within the benchmark range, and this may lead analysts to seek wider benchmark ranges in engagements where fairness is a close call. Close calls are unusual, however, because deal terms in acquisitions by and of public companies actually are fair most of the time.

Table 7

The Percentage Width of the Range of Value Reported in the Typical Fairness-Opinion Valuation, by Core Valuation Methodology

Core Methodology	Number of Instances with Sufficient Information	Average Width as a Percentage of the Midpoint (%)
Multiples for Comparable Companies	441	30
Multiples in Comparable Transactions	373	30
DCF Analysis	427	23

50 The unconditional takeover premium of 1.1% is based on 21,887 company-years of experience among public companies during 1977–1990. The conditional takeover premium averaged 35% in this sample. See Table 1 of Robert Comment and G. William Schwert, "Poison or Placebo? Evidence on the Deterrent and Wealth Effects of Modern Antitakeover Measures," *Journal of Financial Economics* 39 (1995).

The range of value in DCF analyses is straightforward, but there is some complexity in calculating a range for multiples-based analyses because as many as a dozen different types of multiple may be considered.[51] Nevertheless, sufficient information is reported in most of the fairness-opinion valuations to obtain a low valuation and a high valuation for each core methodology considered. I express the range of value yielded by a given core methodology in a given fairness-opinion valuation as a percentage of the midpoint of the range. So, for example, a range of value running from $10 to $20 becomes a margin of error of plus or minus 33% ($10 being one-third lower than the midpoint and $20 being one-third higher than the midpoint). So calculated, this error rate is less appropriate than the standard deviation that a statistician would report.

As shown in Table 7, the point estimate from the typical comparable-companies valuation is associated with a range of value of plus or minus 30%, the typical comparable-transaction valuation has an underlying range of plus or minus 30% and the typical DCF valuation is associated with a range of value of plus or minus 23%. So, in these valuations where results are reported as ranges for each method, the ranges are quite wide. The ranges reported in Table 7 may overstate the error rate of the analysis called for in *Daubert*, but the possibility that the margin of error in business valuation is as wide as plus or minus 25% does suggest that conclusions of value that take the form of point estimates (only) convey a false certitude.

Publicly reported fairness-opinion valuations are a useful but previously overlooked source of data on current practice. I expect that others will follow me in exploring these data and, no doubt, will improve upon my findings.

Conclusion

Core business-valuation methodologies have the effect of discounting the future net cash flows of smaller businesses substantially for lack of size. Size discounts approximating 50% are embedded in the results of core methodologies. Because there is a high correlation between size and liquidity, there is a great likelihood that supplemental discounting for lack of liquidity or lack of marketability will be redundant. That there are multiple labels or even multiple valid rationales for discounting does not justify double discounting. Despite *Daubert* and despite being obviously improper, redundant discounting has come to be accepted practice in business valuation and has been accepted (accordingly) by many judges.

My economic “compliance review” of business valuation practices finds that DCF analysis is preferred and comparable-company and comparable-transaction analyses are acceptable, as would be an application of a private-company discount of 6% based on flotation costs. Any discount for illiquidity or for lack of marketability is likely to be redundant to core discounting for lack of size. If a business-valuation expert nevertheless believes that a large discount for illiquidity or a large discount for lack of marketability is justified based on intuition or experience, then that should be the stated basis for the expert opinion.

51 The narrative of the valuation sometimes reports one consolidated range of value for each core methodology used (the range per method, not the range across methods, which is narrower) and this consolidated range often reflects a judgmental truncation that is referred to as a “reference range.” For example, in its valuation of United Industrial Corp., JPMorgan Securities, Inc. used (without explanation) a reference range that was based on a single best multiple and overlooked the three lowest and single highest values (across the comparables). If no consolidated or reference range is reported directly for a given multiples-based method, but the requisite information is reported, I calculate one by averaging across the high valuations implied by the various multiples considered and, separately, across the lows. With the DCF method, ranges arise from consideration of various scenarios.

Overall, when supplemental discounts are calculated properly, they are small enough to be disappearing in the margin of error of the analysis. Accordingly, contentious expert disputes over the appropriate magnitude of the illiquidity discount, DLOM, blockage discount, or control discount/premium to apply to the results of the core business-valuation methodology can be a waste of judicial attention.