
Client Alert

July 8, 2010

Delaware Chancery Court Fails to Adopt
the Morningstar/Ibbotson Historical
Equity Risk Premium (ERP)

Opts for Lower Estimate, Effectively
Increasing Valuation

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“1926

might have been a special year because, for example, that was the year when Marilyn Monroe was born, but it has no magic as a starting point for estimating long-term equity returns.”

— The Honorable Leo E. Strine, Jr., Vice Chancellor of the Delaware Court of Chancery

Decision Summary

An April 23, 2010 decision by the Delaware Court of Chancery may have a broad impact on how discount rates used in valuation models are determined. In *Global GT LP and Global GT LTD v. Golden Telecom, Inc.* the valuation decision was hinged upon the methodology used to develop two key inputs in developing cost of capital estimates: the beta and the equity risk premium (ERP).

Certainly, the Court’s findings shed important insights into a beta’s proper derivation (in this case, at least) by focusing on whether a traditional historical beta or, alternatively, an adjusted (a.k.a. “forward-looking”) beta is more pertinent to the valuation. However, the ramifications of the Court’s failure to adopt the Morningstar/Ibbotson “historical” ERP, and instead opting for a significantly lower estimate, is far more consequential.

- Golden Telecom, Inc. (“Golden”) was acquired by Vimpel-Communications (“VimpelCom”) for \$105 per share
- Petitioners’ expert claimed the value was \$138.37 per share
- Golden’s expert claimed the value was \$88.14 per share
- The Court, relying on a discounted cash flow (DCF) approach, determined that the fair value was \$125.49 per share
- Award: Approximately \$33 Million¹

Case Background

The case involved the purchase of Golden (a Russian-based telecommunications company that was listed on the NASDAQ) by VimpelCom, a major Russian provider of mobile telephone), for \$105 per share in 2007. The petitioners, Global GT LP and Global GT Ltd., owned approximately 1.4 million shares of respondent Golden Telecom, Inc. prior to the merger and claimed that Golden was worth more than the transaction price of \$105 per share. In this case, both experts ultimately utilized a DCF model, with Golden’s expert arriving at a value of \$88 per share and the petitioners’ expert arriving at a value of \$138 per share. Or, as the presiding judge in the case succinctly put it, “...a modest \$51 (sic) per share value gap.”

It is important to understand the Court’s succession of findings that reduced the final valuation of Golden down to an argument about cost of capital and two basic inputs of the capital asset pricing model (CAPM): the ERP and beta.

¹ Estimated: \$28,686,000 [approximately 1.4 million shares x (\$125.49 – Original merger price of \$105)] + \$4,617,734 in interest. Assumes an interest rate of the Federal Discount Rate plus 5%, compounded quarterly, with a term of February 28, 2008 (the Valuation Date) to April 23, 2010 (the Decision Date).

Court's Succession of Findings

Non-Deference to Merger Price

The Court rejected the use of the merger price as an indication of value. Golden argued that the merger price itself was a “market tested price” and should therefore be given weight in the valuation. But the judge in this case, Vice Chancellor Strine, noted that while it is true that an “...arms-length merger price resulting from an effective market check is entitled to great weight in an appraisal,”² the “...Special Committee that negotiated the merger never engaged in any active market check either before or after signing the merger agreement with VimpelCom.” More importantly, “...the passive market check that is supposed to instill confidence in (the Court) required market participants to assume that Golden's two largest stockholders, Altimo Holdings and Investments Limited (“Altimo”) and Telenor ASA (“Telenor”), would both sell their Golden stake to another bidder, despite the fact that they had an economic interest in VimpelCom that was far more substantial than their stake in Golden – an unlikely prospect made even more doubtful by Altimo's public announcement that it did not intend to sell its 26% stake in Golden in another transaction.” Vice Chancellor Strine went on: “The reality is that any bidder peering in from the outside was confronted by a merger agreement that did not contain an active go-shop provision and by a public statement by Golden's largest stockholder, Altimo, that it would not sell its 26% stake in another transaction.”

The Court also noted that “...if market evidence were to be considered, the weight of the evidence suggests that the market believed that VimpelCom was getting a bargain,” since a number of market analysts downgraded Golden after the merger was announced, and more important, VimpelCom's stock nearly doubled “...from \$22.31 per share at the time that rumors about the proposed merger were leaked in July 2007 to \$ 41.98 on December 21, 2007, the day that the Merger Agreement was announced, although the overall market remained relatively stable.” The Court considered this noteworthy “...given that the stock price of an acquiring company will generally drop when it announces that it intends to merge with another company.”

Valuation Methods Employed

Although both side's experts had conducted DCF analyses, comparable companies analyses and comparable transactions analyses, the Court reached a valuation decision using solely a DCF analysis because both experts: (i) viewed the DCF approach as the most reliable; and (ii) expressed difficulties in coming up with good comparables.

² For example, Judge Strine cited *Union Ill. 1995 Inv. Ltd. P'ship v. Union Fin. Group, Ltd.*, where the Court found that “...the merger price was the best indicator of fair value for appraisal purposes because the merger resulted from a competitive and fair auction, which followed a more-than-adequate sales process and involved broad dissemination of confidential information to a large number of prospective buyers.”

A DCF analysis involves discounting the expected cash flows of a business back to present value using a discount rate (a.k.a. cost of capital or expected rate of return). According to Stephen P. Lamb, Former Vice Chancellor of the Delaware Court of Chancery, “The discounted cash flow method is a valuation analysis often used by the Delaware Court of Chancery. As many...know, this method is highly dependent upon the cost of capital used for the discount rate.”³ The importance and impact of the discount rate used in a valuation can be illustrated by looking at a (very) simplified DCF model, which takes the general form of a perpetuity calculation. In this equation, the expected cash flows are shown in the numerator and the discount rate is in the denominator:

$$PV = \frac{CF}{k_e} \quad (\text{Equation 1})$$

Where:

PV = the present value of the cash flows of the equity being valued

CF = the expected cash flows of the equity being valued, and

k_e = the cost of equity (a.k.a. the discount rate)

For the same set of expected cash flows, a *lower* discount rate will result in a *higher* present value, and conversely, a *higher* discount rate will result in a *lower* present value. For example, if the expected cash flow is \$10 and a discount rate of 14% (or 0.14) is used, the resulting present value is \$71:

$$PV = \$71 = \frac{\$10}{0.14}$$

Alternatively, if the discount rate is lowered by, say 1.7%, resulting in a discount rate of 14% - 1.7% = 12.3% (or 0.123), the resulting present value is significantly higher, at \$81.

$$PV = \$81 = \frac{\$10}{0.123}$$

In other words, a decline of 1.7% in the discount rate resulted in a 13.8%* increase in value.

*Difference due to rounding.

³ Shannon P. Pratt and Roger J. Grabowski Cost of Capital: Applications and Examples, 4th ed.” (John Wiley & Sons, forthcoming 2010), page xxi, (Foreword).

Resolution of Discount Rate Issues

Resolution of DCF Cash Flow Issues

Both experts generally agreed that a set of cash flow projections that Golden's management had developed in October 2007 for a five-year plan were acceptable. After resolving two related cash flow issues (the terminal growth rate to apply to the cash flows after year five, and the tax rate to apply to all cash flows), the Court then proceeded to address the "... two critical differences the experts have that are relevant to determining the rate at which Golden's expected future cash flows are to be discounted back to present value": the beta and the ERP.

The CAPM is the most widely used theory in finance for estimating the cost of equity capital⁴ (a.k.a. the "discount rate"). The CAPM assumes that the cost of equity capital for any stock or portfolio of stocks equals a risk-free rate plus a risk premium that is proportionate to the systematic (market) risk of the stock or portfolio.⁵ The two opposing experts in *Global GT LP and Global GT LTD v. Golden Telecom, Inc.* disagreed on the derivation of two fundamental inputs used in the CAPM, namely the beta (a measure of market risk) and the ERP. The importance and impact of the beta and the ERP in the determination of the discount rate can be illustrated by looking at the CAPM model in its simplest form:

$$k_e = r_f + (\beta \times \text{ERP}) \quad (\text{Equation 2})$$

Where:

k_e = the cost of equity (a.k.a. the discount rate)

r_f = the risk free rate

β = the beta (a measure of market risk), and

ERP = the equity risk premium

All other things held equal, a *lower* beta or a *lower* ERP will result in a *lower* discount rate and ultimately result in a *higher* present value of expected cash flows; conversely, a *higher* beta or a *higher* ERP will result in a *higher* discount rate and ultimately result in a *lower* present value of expected cash flows, as demonstrated in the previous example (using Equation 1).

⁴ Shannon P. Pratt and Roger J. Grabowski *Cost of Capital: Applications and Examples, 4th ed.* (John Wiley & Sons, forthcoming 2010), Chapter 8.

⁵ *Ibid.*, Chapter 8.



While the Court's findings on estimating company betas were interesting and instructive, utilizing the methodology ultimately prescribed by the Court can result in an upward or a downward adjustment.

However, the Court's finding on the ERP issue was in one direction only: downward. The Court's failure to adopt the Morningstar/Ibbotson "historical" ERP and instead opting for a significantly lower estimate may, in the long term, be far more consequential. We first discuss the beta finding, followed by the more interesting ERP finding.

The Beta

The conclusions reached in this case regarding the methodology to select betas were not as clear cut as the ERP findings. The argument focused on whether a traditional "historical" beta (from Bloomberg) calculated using five years of weekly returns was the most appropriate measure of market risk or whether an adjusted "forward-looking" beta calculated using either (in this case at least) a 13-factor model of valuation-relevant factors (MSCI Barra⁶ beta) or a simple two-factor adjustment of the traditional historical beta to a "market" norm of 1.0 was the appropriate measure of market risk.⁷ Although the Court declined to adopt the forward-looking Barra beta for purposes of this appraisal, the Court went on to emphasize that it "... [does] not reject the Barra beta for use in later cases."

⁶ Barra (www.msclubarra.com) is a provider of fundamental betas. Barra's "predicted beta" is based on a multi-factor model, which regresses historical company returns against the returns of a market portfolio (e.g. S&P 500 index), but adds other company-risk and industry-risk factors to the regression equation.

⁷ The "market" by definition has a beta of 1.0; a common way of adjusting a company's beta to the market beta of 1.0 is the "Blume" adjustment, also known (informally) as the "1/3, 2/3" adjustment. The adjustment, in loose terms, gives a 2/3 weighting to the company's historic beta, and a 1/3 weighting to the market's beta of 1.0. A company beta adjusted in this fashion will move toward 1.0 (company betas below 1.0 are adjusted upward, while company betas above 1.0 are adjusted downward).

The reasons cited by the Court for not adopting the Barra Beta in this instance were several: the 13-factor forecasting model “is proprietary, and cannot be reverse-engineered” or re-created, and the expert advocating its use presented no evidence that supported the 13-factor model’s being superior to alternative beta estimation methodologies. The Court also observed that the expert advocating the use of the 13-factor Barra beta had himself utilized a traditional historical beta in a previous matter before the Court and that the expert could not “... point to an epiphanic moment or any academic or other studies that prompted him to change his approach.”

Ultimately, the Court chose a 2/3 weighting of the historical beta and 1/3 weighting of an “industry” beta (as opposed to adjusting to the “market” beta of 1.0), stating that although “... the historic beta is considered to have a fair amount of predictive power, and to be a reliable proxy for unobservable forward-looking betas ...there is support for the notion that more extreme betas tend to revert to the *industry mean* (emphasis added) over time.” Furthermore, the Court noted that “... no reliable literature or evidence was presented to show that the beta of a telecom company like Golden, which operates in a risky market, will revert to 1.0.” The Court also stated, “...it makes more sense that companies in emerging markets will become more like their industry peers in more mature markets.”

The Equity Risk Premium

The ERP is a rate of return added to a risk-free rate to reflect the additional risk of equity instruments over risk-free instruments⁸. Golden’s expert selected 7.1%, the long-term “historical” ERP from Morningstar’s 2008 Ibbotson SBBI Valuation Yearbook, which is based on the historical difference of the average annual return of the S&P 500 index (stocks), and the average annual income return of long-term U.S. government bonds (the risk free rate)⁹ over the selected time period (in this case 1926–2007). The petitioners’ expert, on the other hand, selected an ERP of 6.0% “... based on his teaching experience, the relevant academic and empirical literature, and the ‘supply side’ ERP¹⁰ reported in the 2007 Ibbotson Yearbook.”¹¹

⁸ Shannon P. Pratt and Roger J. Grabowski *Cost of Capital: Applications and Examples, 4th ed.* (John Wiley & Sons, forthcoming 2010), Chapter 9.

⁹ *2008 Ibbotson Stocks, Bonds, Bills, and Inflation® (SBBI®) Valuation Yearbook* (Chicago, Morningstar, 2008), page 72.

¹⁰ Morningstar/Ibbotson publishes both a “historical” ERP and a “supply side” ERP in the SBBI Valuation Yearbook. Morningstar’s supply side ERP, which assumes that the price to earnings (PE) growth embedded in historical returns is not sustainable and subtracts it out, is typically a lower estimate than Morningstar’s “historical” ERP. Notably, the majority of the analyses published in the SBBI Yearbook, including the widely-used size premiums on the SBBI “back page”, are based on the higher “historical” ERP in the calculations.

¹¹ There appears to be some confusion in the case law as to the Morningstar/Ibbotson sourcing. The valuation date requested by petitioners in *Global GT LP and Global GT LTD v. Golden Telecom, Inc.* was February 28, 2008. In reference to the Morningstar/Ibbotson SBBI publications, a valuation date of February 28, 2008 would generally require that data from the 2008 (and not the 2007) SBBI Yearbook be used (the *2008 Ibbotson SBBI Valuation Yearbook* is “data through” December 31, 2007).

“... (petitioners’ expert) cite(s) a wealth of recent academic and professional writings that supports a lower ERP estimate.”

—The Honorable Leo E. Strine, Jr., Vice Chancellor of the Delaware Court of Chancery

In regards to the selection of ERP, the Court rejected the use of the Morningstar/Ibbotson ERP of 7.1% and instead chose the lower estimate of 6%. Citing the “... wealth of recent academic and professional writings that supports a lower ERP estimate...” that were put forth in the hearing. The Court went on to say that the “...relevant professional community has mined additional data and pondered the reliability of past practice and come, by a healthy weight of reasoned opinion, to believe that a different practice should become the norm...” The Court went on to say:

... to cling to the Ibbotson Historic ERP blindly gives undue weight to Ibbotson's use of a single data set. 1926 might have been a special year because, for example, that was the year when Marilyn Monroe was born, but it has no magic as a starting point for estimating long-term equity returns. If one is going to use an approach that simply involves taking into account historical equity returns, then one has to consider that very well-respected scholars have made estimates in peer-reviewed studies of long-term equity returns for periods much longer than Ibbotson, and have come to an estimate of the ERP that is closer to the supply side rate Ibbotson himself now publishes as a reliable ERP for use in a DCF valuation...In arguing that continued use of the simple Historic ERP is unjustifiable, (the petitioners’ expert) has substantial support in the professional and academic valuation literature. Shannon Pratt, for example, has urged his readers who still use an ERP of 7% to “immediately make a downward adjustment to reflect recent research results,” and has written that the “ERP as of the beginning of 2007 should be in the range of 3.5% to 6%¹²”...

The petitioners’ expert

“...also cites to a survey of finance professors, which found that the mean ERP taught by 369 professors is 5.96%, and a report of JP Morgan estimating the ERP to be in the range of 5% to 7%. Although the surveys cited by (petitioners’ expert) are not so compelling as to be conclusive, they suggest that current academic thinking puts the ERP closer to 6.0% than to 7.1%.

¹² The Court’s decision on ERP is consistent with the position that Duff & Phelps has advocated for several years. In fact, the Court cited the work published by Duff & Phelps’s Managing Director, Roger Grabowski, and Dr. Shannon Pratt on a number of occasions. In Shannon P. Pratt and Roger J. Grabowski Cost of Capital: Applications and Examples, 4th ed.” (John Wiley & Sons, forthcoming 2010), the authors find that a reasonable long-term estimate of the normal, or unconditional equity risk premium at the end of 2009 is in the range of 4% to 6%. As of December 2009, the Duff & Phelps Recommended ERP is 5.5% (Morningstar/ Ibbotson’s historical ERP as of December 2009 is considerably higher at 6.7%).

Analysis

After resolving two cash flow issues (the terminal growth rate and the tax rate to use), the April 2010 decision of *Global GT LP and Global GT LTD v. Golden Telecom, Inc.* largely hinged on the rate used to discount Golden's expected cash flows back to present value. The experts representing the two sides of the dispute used CAPM to develop a discount rate. As previously mentioned, these experts disagreed on two critical inputs of the CAPM: the beta and the ERP.

The difference in the discount rate due to changes in beta and ERP is measured by the changes in the term ($\beta \times \text{ERP}$) in the CAPM equation. For example, if the term ($\beta \times \text{ERP}$) is equal to 10% and we change either the beta or the ERP (or both) and such that ($\beta \times \text{ERP}$) is now equal to 8%, then the discount rate will be 2% lower (10% - 8%), all other things being equal:

$$\text{Risk free rate} + \begin{matrix} \downarrow 2\% \\ \text{(\beta x ERP)} \end{matrix} + (\text{Other adjustments}) = \begin{matrix} \downarrow 2\% \\ \text{Discount rate} \end{matrix}$$

The Beta Finding

The Court's findings in *Global GT LP and Global GT LTD v. Golden Telecom, Inc.* on the issue of beta were interesting and instructive. The most interesting component of this portion of the decision was that the majority of weight (2/3) was given to a simple regression (historical) beta in good part because the expert proposing a forward-looking "Barra" beta could not explain it. Had the "Barra" beta been better documented, this expert (representing the petitioners), may have been better able to defend it; if the Court had accepted the lower Barra beta, the award in favor of the petitioners would have been even greater than the approximate \$33 million accorded in the case.

[The Chancery Court's decision in Golden Telecom casts serious doubt on the relevancy of Morningstar/Ibbotson's traditional historical ERP.](#)

The Court's decision to adjust Golden's beta to an "industry" beta rather than to the "market" beta of 1.0 is somewhat less interesting because the number of variables weighed by the Court were so numerous that it is hard to pinpoint any one change in circumstance that would have led the Court to a different decision. However, it may be significant for litigations involving international entities given the Court's assertion that "... it makes more sense that companies in emerging markets will become more like their industry peers in more mature markets."

The Equity Risk Premium Finding

The failure of the Court to adopt the Morningstar/Ibbotson "historical" equity (ERP) and instead opting for a significantly lower estimate may be far more consequential and could have important and lasting impact on the way discount rates for use in valuation models are derived going forward. The Court's decision casts serious doubt on the relevancy of Morningstar/Ibbotson's traditional historical ERP. This may also indirectly cast some doubts on the size premiums Morningstar publishes,

since they are derived using the historical ERP as an input. Vice Chancellor Strine determined that the "... wealth of recent academic and professional writings ... supports a lower ERP estimate." The inability of Golden's expert to defend the Morningstar ERP and the petitioners' expert's knowledge of the current body of research that supports a lower ERP estimate ultimately won the day.

Golden's expert advocated using a beta of 1.32 and an ERP of 7.1%, so $(\text{Beta} \times \text{ERP}) = (1.32 \times 7.1\%) = 9.4\%$. The Court, however, decided to use a beta of 1.29 and an ERP of 6.0%, so $(\text{Beta} \times \text{ERP}) = (1.29 \times 6.0\%) = 7.7\%$. The impact of the Court's lower beta and lower ERP, relative to what Golden's expert had proposed, was a *decrease* of approximately 1.7% in the discount rate (7.7% - 9.4%).

How important is a 1.7% difference? Referring back to the (very) simplified discounted cash flow (DCF) example discussed earlier (using Equation 1), the difference in discount rate was indeed 1.7% (14% vs. 12.3%). The difference in the present value (PV) of the expected cash flow of \$10 (into perpetuity) was \$71 using a 14.0% discount rate and \$81 using the lower discount rate of 12.3%. The difference of \$10 (\$81-\$71) may seem trivial, but it represents nearly a 14% increase in value – a percentage increase in value that would be quite noteworthy if instead of discounting a mere \$10 in expected cash flows we were discounting \$10 million (or \$100 million) in expected cash flows.

Conclusion

In the April 2010 decision of *Global GT LP and Global GT LTD v. Golden Telecom, Inc.*, the award of approximately \$33 million to the petitioners was largely hinged on the rate used to discount the expected cash flows of Golden Telecom, Inc. back to present value. Had either of two important inputs used to construct the discount rate been higher (the beta and ERP), the resulting award would have been lower.

The *Golden Telecom Inc.* decision has important messages for those involved in litigated valuation disputes:

- The Courts are quite aware of the most recent valuation research, and this research suggests that the "cook book" methods traditionally used to determine the cost of capital (discount rates) are no longer simply accepted as doctrine; and
- Attorneys and their experts involved in litigated valuation disputes should certainly be more prepared than their opponents are, and should be *at least* as well-versed in the most recent valuation literature and research as the Court is. To be fully cognizant and conversant in the most recent professional and academic valuation literature is absolutely crucial. Those that are unable to explain and defend the inputs and methodologies used to develop their estimates of value will ultimately lose in favor of those who can.

Duff & Phelps Valuation Research

5.5%

The Duff & Phelps
Recommended Equity Risk
Premium as of December 2009

Duff & Phelps is THE Leader in Valuation Research

Our long-term research indicates that ERP is cyclical. We use the term *conditional* ERP to mean the ERP that reflects current market conditions, as differentiated from the *normal*, or *unconditional* ERP, which is the long-term average ERP *without* regard to current market conditions.

In Duff & Phelps' upcoming *Cost of Capital, 4th Edition* (Wiley, 2010), we find that a reasonable long-term estimate of the *normal*, or *unconditional* equity risk premium at the end of 2009 is in the range of 4% to 6%. When the economy is near (or in) recession, the *conditional* ERP is at the higher end of the *normal*, or *unconditional* ERP range; conversely, when the economy improves, the *conditional* ERP moves back toward the middle of this range. As of December 2008, which was the height of the current financial crisis, the Duff & Phelps Recommended ERP was at the very top of the *unconditional* range or 6%. As of December 2009, the economy has improved and stock prices have risen, and we have decreased the Duff & Phelps Recommended ERP to 5.5%.



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