

# PRIVATE COMPANY SECURITIES VALUATION – IRC 409A & ASC 820 (SFAS 157)

Summary: Since the publication of the AICPA Practice Guide on valuing the equity of privately held companies in 2004, and the subsequent IRS requirement that Section 409A be implemented by companies in 2006, the practice of utilizing valuation reports for the purpose of issuing stock options has become a standard practice for venture-backed companies and their investors. Yet the methods of determining these values and the justification/determinants for the levels of these values remains an area not well understood by a large percentage of management teams. The following presentation provides insight into: (a) **409A-related FAQ**; (b) the **nature and effect of limitations placed on valuations by valuation specialist review groups**; and (c) an **empirical study of results for valuations conducted during the past 5 years**.

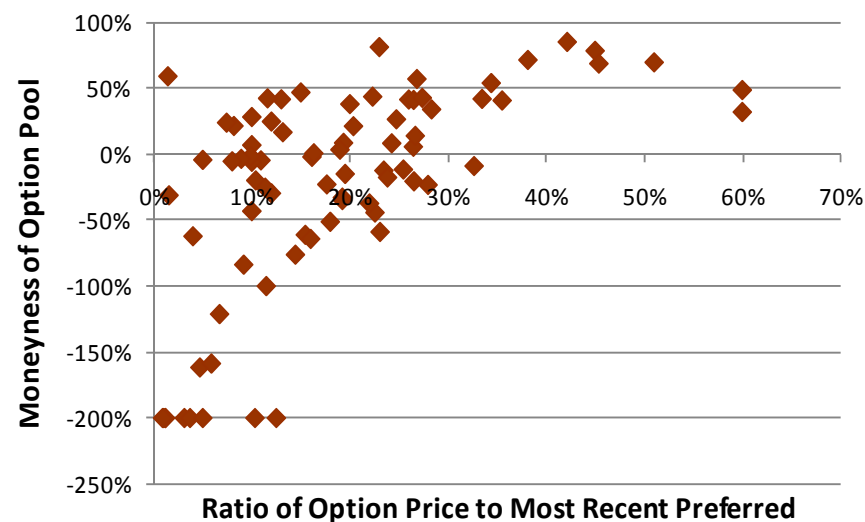
While 409A valuations have become increasingly standardized, **the adoption of SFAS 157 has created a new valuation challenge for companies and their shareholders**: to determine and harmonize the valuation of all classes of securities. In order to provide clients with a higher level of value, **Whitehawk Advisory has adopted a new analysis and reporting framework which enables companies to provide investors with SFAS 157-compliant securities valuations**. Depending upon the requirements of these investors, Whitehawk can either: (a) provide companies with a Fair Value determination for all securities at the time of an IRC Section 409A valuation update; or (b) cost-effectively offer valuation updates on a quarterly basis. The cost of the expanded valuation scope (dual-purpose valuation) has not increased in comparison to a 409A valuation unless the update frequency changes from annual to quarterly.

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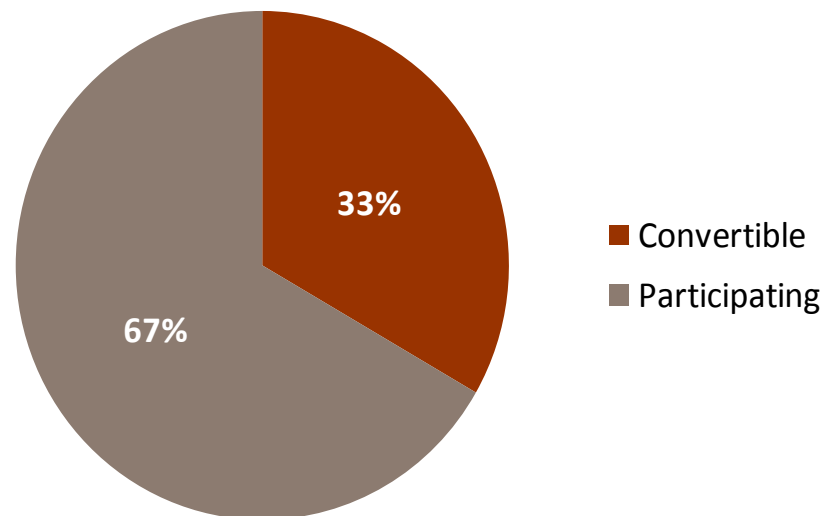
## 5 Most Frequently Asked Client Questions in 2010

- What are the respective standards of valuation for IRC 409A and SFAS 157 and how do these standards differ?**
  - IRC 409A utilizes a Fair Market Value standard
  - SFAS 157 utilizes a Fair Value standard
  - The primary difference is that Fair Value does not take into account discounts for lack of marketability (DLOM) and discounts for lack of control (DLOC) – therefore Fair Value is always higher than Fair Market Value
- What are the key variables in determining the value of the Common shares?**
  - Moneyness – Comparison of Company Equity Value to Liquidation Preferences
  - Capital Structure: Convertible Preferred vs. Participating Preferred; Multiple of Liquidation Preferences
  - Expected Liquidity Horizon (Term)
- How does a Company's capital structure determine Common Share pricing and the ratio of Common price to Preferred price?**
  - Participating Preferred results in lower values than Convertible Preferred; Higher liquidation preferences result in lower values
  - Avg. Preferences of companies w/Convertible: \$20.5 MM
  - Avg. Preferences of companies w/Participating: \$38.9 MM
- Why is the ratio of Common share price to Preferred share price no longer consistent with the historical 10:1 Rule of Thumb?**
  - The former 10:1 Rule was prohibited explicitly in the AICPA Practice Guide. Interestingly, due to the ways in which audit review has prohibited certain methods and proscribed others, new price ratios have become fairly conventional
- How is the term of the option determined, and how does this compare to contractual term as well as vesting period?**
  - The term of the option in 409A analysis is determined by management's expected liquidity horizon for the Company (i.e. timeframe to M&A event, IPO and/or insolvency)

## Illustration of Moneyness and impact on Ratio of Options to Preferred



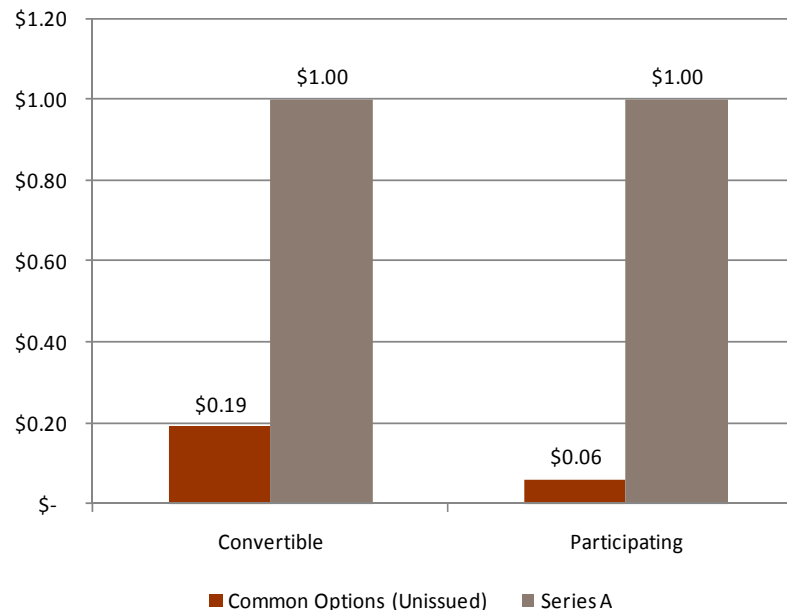
## Proportion of Preferred types within Sample Set



**Key Limitations on Valuations placed by Audit Valuation Review Groups**

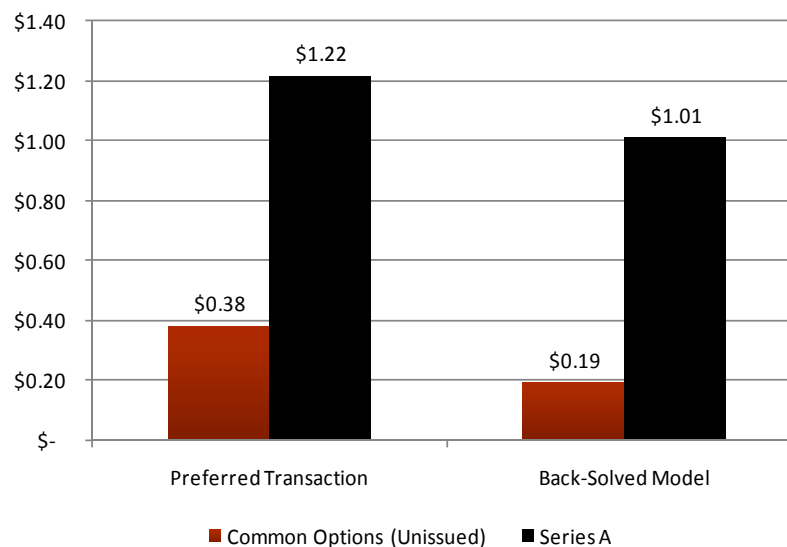
- **Use of Enterprise Value determination methods:**
  - DCF method often viewed as unreliable for companies with high projected revenue growth rates. Can be impractical to use DCF, since (for high growth companies) the return expectations of investors are often significantly higher than discount rates produced by the Capital Asset Pricing Model or other valuation discounting conventions
  - Cost/Asset based methods viewed as appropriate only for seed stage, distressed, or restart situations
- **Use of Enterprise Value Allocation Methods:**
  - Current Value method (i.e. what are common shares worth today) only permitted for seed stage companies, when restart/liquidation is imminent, or when no Preferred exists
  - Option pricing method, using Black Scholes calculation, is most common
  - Expected return method can be viewed as unreliable, assumptions are often too subjective to audit
- **Application of Discounts:**
  - May not be applied at level of overall company value (i.e. prior to option pricing calculation) – must be calculated at level of per-share value
  - Increasingly rigid requirement to utilize quantitative methods to estimate marketability discount
  - Minority Discount – some audit review groups have interpreted certain SEC comments to disallow discounts for lack of control (DLOC) or require that companies demonstrate differential cash flows to respective share classes; other authoritative valuation literature deems the respective governance rights of Preferred and Common adequate to justify the continued use of Minority Discounts
- **Ability to validate consistency between Common price and Preferred price** (back-solving for Company Enterprise Value which results in BSM calculation consistent with recent Preferred transaction price – also known as Reverse OPM)

**Effect of Convertible vs. Participating Preferred – All else equal**



**Using Back-Solving Method can reduce option price by 50%**

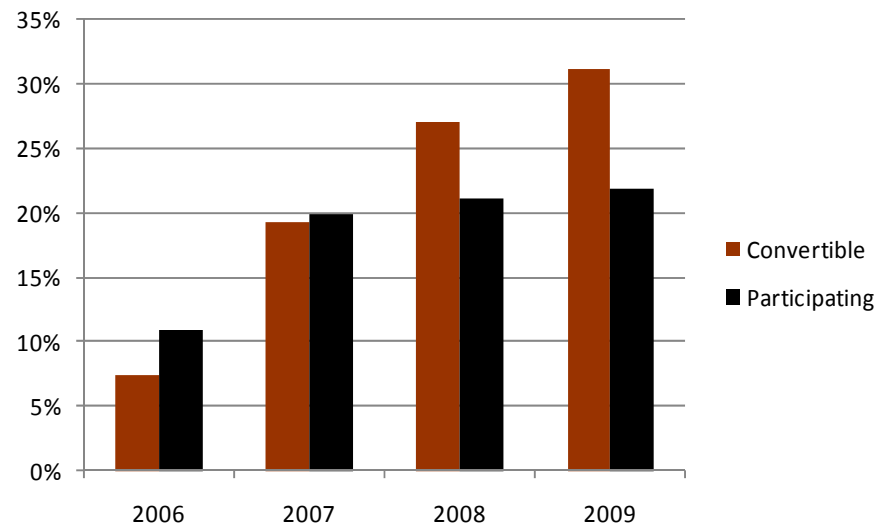
**Methods of Determining Total Equity Value**



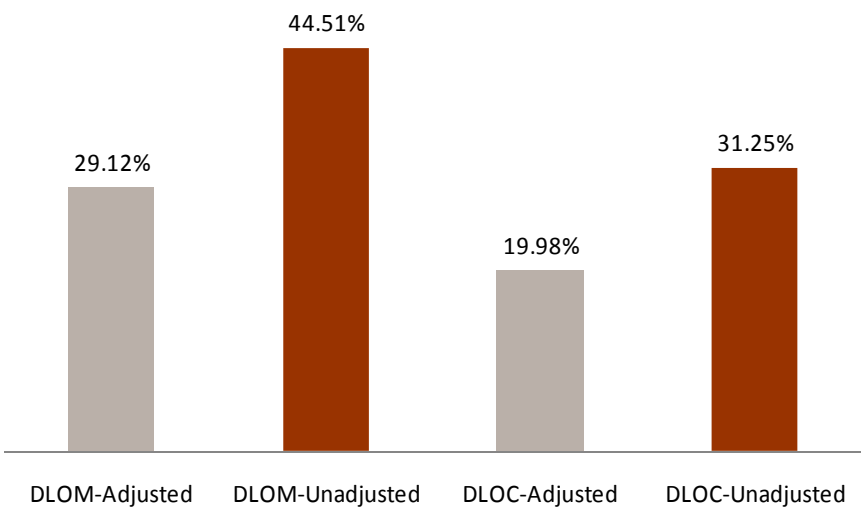
**Ratio of Common option pricing to most recent Preferred round pricing has increased over the last 5 years**

- The ratio of Common option pricing to most recent Preferred round pricing has increased over the last 5 years
  - Significant factor is a lower proportion of companies (both generally true and also reflected in sample set) with significant liquidation preference overhang (fewer companies have option pools which are 200%+ out of the money)
  - Also driven by increasing audit proscription towards use of Black-Scholes model, specific assumptions within model and/or the requirement for use of specified inputs
    - 16% of Valuations were subject to review by Valuation specialist groups, yet to our knowledge none in the sample set required a client to restate the value of the options

**Ratio of Option Price to Most Recent Preferred by Type of Preferred**



**Average Level of Marketability/Minority Discounts Used: 2006-2010**



**Use of Valuation Discounts can be Effective if used Properly**

- Discounts for Lack of Marketability (DLOM) and Discounts for Lack of Control (DLOC) remain a contentious area for the valuation community in general, and the result of 409A valuations specifically
- The average level of unadjusted (input) and adjusted (actual) discounts used in the study are reflected in the graph. The standard deviation of the valuation discounts shown is approximately 9-12%
- Adjustments to discounts are made based on the nature of the equity value input (control vs. minority; marketable vs. non-marketable) and its contribution to the overall equity value
- Whitehawk is committed to defending the use of these discounts where appropriate in order to reflect the actual Fair Market Value of options granted to executives – utilizing these discounts when appropriate can create value for clients in the form of more reasonably priced option grants

# UPDATED ANALYSIS & INCORPORATION OF SFAS 157 OBJECTIVES

Whitehawk Advisory has updated its analysis and reporting to provide a more intuitive understanding of analysis to clients

*Company X Securities Valuation as of June 30, 2010*

Underlying Security Price Determination	Equity Value	Weighting	Equity Value
Guideline Public Companies Method (TEV/LTM Rev)	\$ 5,560,000	0.00%	\$ -
Precedent Transactions Method (TEV/LTM Rev)	\$ 5,560,000	0.00%	\$ -
Net Asset Value Analysis	\$ 5,621,200	75.00%	\$ 4,215,900
Series A Transaction Value	\$ 14,018,704	25.00%	\$ 3,504,676
<b>Total Equity Value based on Weighted Average Calculation</b>			<b>\$ 7,720,576</b>

Summary of Methods
Equity Value Determination: Net Asset Value, Subject Company Transaction Enterprise Value Allocation: Option Pricing Method, Using Black-Scholes Calc. Premise of Value: Going Concern Valuation Date: June 30, 2010

Option Value Determination	1st	2nd	3rd
Option Analysis Inputs			

Breakpoints (Strike Prices)	0	5,800,000	9,588,400
Expected Term (years): Based on Management's expected liquidity horizon for Company.	4.00	4.00	4.00
Risk-Free Interest Rate: 4-year daily Treasury yield as of the Valuation Date.	2.69%	2.69%	2.69%
Expected Volatility	40.54%	40.54%	40.54%
Dividends	0	0%	0%
e	2.7182818	2.7182818	2.7182818

Breakpoint Description
1st BP: Zero
2nd BP: Series A LP Surpassed
3rd BP: Exercise of Common Stock Options

Interim Calculations	1st	2nd	3rd
d1	122.33	0.89	0.27
d2	121.52	0.08	-0.54
N1	1	1	1
N2	1	1	0
C	7,720,576	3,510,336	2,147,715

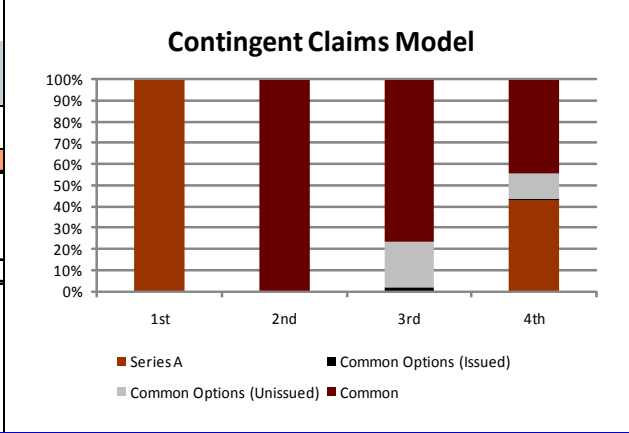
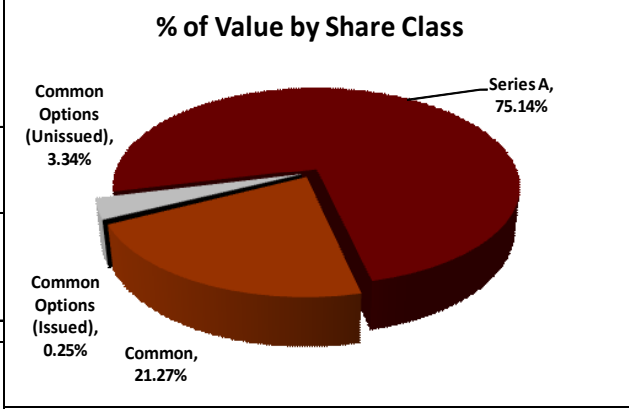
Value of Options	1st	2nd	3rd
Aggregate Value of Option	7,720,576	3,510,336	2,147,715
Incremental Value of Option	4,210,240	1,362,621	2,147,715

Contingent Claims Model by %	1st	2nd	3rd
% to Series A Preferred	100.00%	49.22%	42.87%
% to Common Options (Issued)	0.00%	0.00%	0.89%
% to Common Options (Unissued)	0.00%	0.00%	12.01%
% to Common	0.00%	50.78%	44.23%

Contingent Claims Model by \$	1st	2nd	3rd
% to Series A Preferred	4,210,240	670,636	920,676
% to Common Options (Issued)	-	-	19,207
% to Common Options (Unissued)	-	-	257,848
% to Common	-	691,985	949,984

Value by Share Class	Common	Common Options (Issued)	Common Options (Unissued)	Series A
Value to Shares	\$ 1,641,968	\$ 19,207	\$ 257,848	\$ 5,801,552
Shares Assumed	5,984,630	121,000	1,624,370	5,800,000
<b>Fair Value per Share (Applicable to ASC 820/SFAS 157)</b>	<b>\$ 0.27</b>	<b>\$ 0.16</b>	<b>\$ 0.16</b>	<b>\$ 1.00</b>
Adjusted Minority Discount/(Control Premium) (See Note 1)	36.57%	36.57%	36.57%	36.57%
Equity Value per Share (non-marketable basis)	\$ 0.17	\$ 0.10	\$ 0.10	\$ 0.63
Adjusted Marketability Discount (See Note 2)	37.43%	37.43%	37.43%	37.43%
<b>Fair Market Value per Share (Applicable to IRC 409A)</b>	<b>\$ 0.11</b>	<b>\$ 0.06</b>	<b>\$ 0.06</b>	<b>\$ 0.40</b>
% of Value by Share Class	21.27%	0.25%	3.34%	75.14%
% of Fully Diluted Equity by Share Class	44.23%	0.89%	12.01%	42.87%

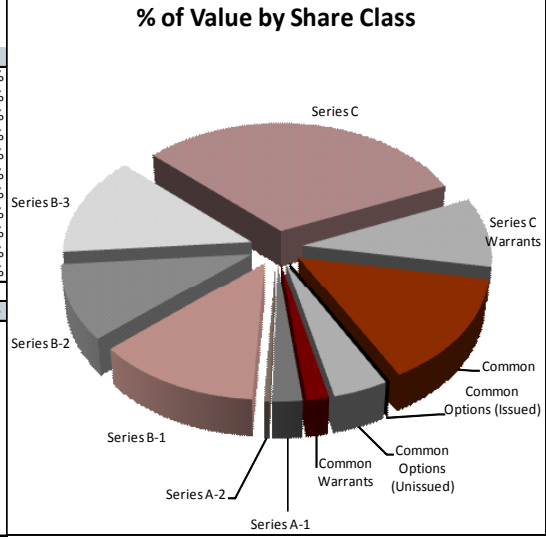
(1) Adjusted Minority Discount is equivalent to 100% of unadjusted Minority Discount. Adjustment to Minority Discount is based upon number of Black-Scholes Enterprise value inputs which require application of a Minority Discount.  
 (2) Adjusted Marketability Discount is equivalent to 50% of unadjusted Marketability Discount. Adjustment to Marketability Discount is based upon number of Black-Scholes Enterprise value inputs which require application of a Marketability Discount.



Whitehawk Advisory has updated its analysis and reporting to include SFAS 157-compliant valuation of Preferred Shares

SAMPLE ANALYSIS (COMPLEX CAPITAL STRUCTURE)

Underlying Security Price Determination		Equity Value	Weighting	Equity Value	Summary of Methods								
Guideline Public Companies Method (TEV/LTM Rev)		\$ 33,634,503	50.00%	\$ 16,817,252	Equity Value Determination: Comp. Companies, Subject Company Transaction								
Series C Preferred Transaction		\$ 134,398,647	50.00%	\$ 67,199,324	Enterprise Value Allocation: Option Pricing Method, Using Black-Scholes Calc.								
<b>Total Equity Value based on Weighted Average Calculation</b>					<b>\$ 84,016,575</b>								
<b>Option Value Determination</b>					<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>4th</b>				Premise of Value: Going Concern	
<b>Option Analysis Inputs</b>					<b>Breakpoint Description</b>								
Breakpoints (Strike Prices)		0	51,916,849	83,793,704	99,289,398	1st BP: Zero							
Expected Term (years): Based on Management's expected liquidity horizon for Company.		3.00	3.00	3.00	3.00	2nd BP: Aggregate Series B and Series C Liquidation Preferences							
Risk-Free Interest Rate: 3-year daily Treasury yield as of the Valuation Date.		1.00%	1.00%	1.00%	1.00%	3rd BP: Exercise of Unissued Common Stock Options							
Expected Volatility		91.59%	91.59%	91.59%	91.59%	4th BP: Exercise of Issued Common Stock Options							
Dividends		0	0	0	0								
e		2.7182818	2.7182818	2.7182818	2.7182818								
<b>Value of Options</b>					<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>4th</b>					
Aggregate Value of Option		\$ 84,016,575	\$ 56,836,146	\$ 48,672,895	\$ 45,604,464								
Incremental Value of Option		\$ 27,180,429	\$ 8,163,251	\$ 3,068,431	\$ 45,604,464								
<b>Contingent Claims Model by %</b>					<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>4th</b>					
% to Series A-1 Preferred		0.00%	3.66%	3.39%	3.39%								
% to Series A-2 Preferred		0.00%	0.66%	0.61%	0.61%								
% to Series B-1 Preferred		18.81%	10.48%	9.71%	9.71%								
% to Series B-2 Preferred		14.97%	8.34%	7.73%	7.73%								
% to Series B-3 Preferred		19.57%	10.91%	10.11%	10.10%								
% to Series C Preferred		46.65%	26.00%	24.09%	24.08%								
% to Series C Preferred Warrants		0.00%	14.61%	13.54%	13.53%								
% to Common		0.00%	22.61%	20.95%	20.93%								
% to Common Warrants		0.00%	2.74%	2.54%	2.54%								
% to Common Options (Issued)		0.00%	0.00%	0.00%	0.08%								
% to Common Options (Unissued)		0.00%	0.00%	7.32%	7.31%								
<b>Contingent Claims Model by \$</b>					<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>					
% to Series A-1 Preferred		\$ -	\$ 298,644	\$ 104,042	\$ 1,545,097								
% to Series A-2 Preferred		\$ -	\$ 54,076	\$ 18,839	\$ 279,772								
% to Series B-1 Preferred		\$ 5,112,079	\$ 855,610	\$ 298,078	\$ 4,426,671								
% to Series B-2 Preferred		\$ 4,068,651	\$ 680,971	\$ 237,237	\$ 3,523,142								
% to Series B-3 Preferred		\$ 5,320,090	\$ 890,424	\$ 310,207	\$ 4,606,792								
% to Series C Preferred		\$ 12,679,609	\$ 2,122,188	\$ 739,329	\$ 10,979,574								
% to Series C Preferred Warrants		\$ -	\$ 1,192,269	\$ 415,364	\$ 6,168,448								
% to Common		\$ -	\$ 1,845,303	\$ 642,868	\$ 9,547,052								
% to Common Warrants		\$ -	\$ 223,766	\$ 77,956	\$ 1,157,699								
% to Common Options (Issued)		\$ -	\$ -	\$ -	\$ 36,052								
% to Common Options (Unissued)		\$ -	\$ -	\$ 224,512	\$ 3,334,166								



Value by Share Class	Common	Common Options (Issued)	Common Options (Unissued)	Common Warrants	Series A-1	Series A-2	Series B-1	Series B-2	Series B-3	Series C	Series C Warrants
Value to Shares	\$ 12,035,223	\$ 36,052	\$ 3,558,678	\$ 1,459,420	\$ 1,947,783	\$ 352,686	\$ 10,692,438	\$ 8,510,001	\$ 11,127,513	\$ 26,520,700	\$ 7,776,081
Shares Assumed	9,268,403	35,000	3,236,852	1,123,909	1,500,000	271,606	4,297,470	3,420,312	4,472,334	10,659,114	5,988,410
<b>Fair Value per Share (Applicable to ASC 820/SFAS 157)</b>	<b>\$ 1.30</b>	<b>\$ 1.03</b>	<b>\$ 1.10</b>	<b>\$ 1.30</b>	<b>\$ 1.30</b>	<b>\$ 1.30</b>	<b>\$ 2.49</b>	<b>\$ 2.49</b>	<b>\$ 2.49</b>	<b>\$ 2.49</b>	<b>\$ 1.30</b>
Adjusted Minority Discount/(Control Premium) (See Note 1)	12.60%	12.60%	12.60%	12.60%	12.60%	12.60%	(16.84%)	(16.84%)	(16.84%)	(16.84%)	(16.84%)
Equity Value per Share (non-marketable basis)	\$ 1.13	\$ 0.90	\$ 0.96	\$ 1.13	\$ 1.13	\$ 1.13	\$ 2.91	\$ 2.91	\$ 2.91	\$ 2.91	\$ 1.52
Adjusted Marketability Discount (See Note 2)	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%	24.66%
<b>Fair Market Value per Share (Applicable to IRC 409A)</b>	<b>\$ 0.86</b>	<b>\$ 0.68</b>	<b>\$ 0.72</b>	<b>\$ 0.86</b>	<b>\$ 0.86</b>	<b>\$ 0.86</b>	<b>\$ 2.19</b>	<b>\$ 2.19</b>	<b>\$ 2.19</b>	<b>\$ 2.19</b>	<b>\$ 1.14</b>
% of Value by Share Class	14.32%	0.04%	4.24%	1.74%	2.32%	0.42%	12.73%	10.13%	13.24%	31.57%	9.26%
% of Fully Diluted Equity by Share Class	20.93%	0.08%	7.31%	2.54%	3.39%	0.61%	9.71%	7.73%	10.10%	24.08%	13.53%

(1) Adjusted Minority Discount/(Control Premium) is equivalent to 50% of unadjusted Minority Discount/(Control Premium). Adjustment to Minority Discount/(Control Premium) is based upon weighting of Black-Scholes equity value inputs which require application of a Minority Discount/(Control Premium).  
 (2) Adjusted Marketability Discount is equivalent to 50% of unadjusted Marketability Discount. Adjustment to Marketability Discount is based upon weighting of Black-Scholes equity value inputs which require application of a Marketability Discount.





## List of Supplemental Resources

**Supplemental Resources for 409A**

- Valuing Early Stage and Venture-Backed Companies (2010) by Neil Beaton, Partner, Grant Thornton Valuation Group
- “The Effect of Secondary Market Sales on 409A Valuations” Arcstone Partners article, [www.arcstonepartners.com](http://www.arcstonepartners.com)
- “Discount for Lack of Marketability in Preferred Financings” Fair Value Forum, Discussion Topic, October 2009

**Supplemental Resources for ASC 820/SFAS 157**

- Valuation for Financial Reporting, 2<sup>nd</sup> Edition (2007) by Michael Mard, James Hitchner, and Steven Hyden The Financial Valuation Group
- March 2007 Updated US Private Equity Valuation Guidelines, issued by the Private Equity Industry Guidelines Group

## Overview of Service Cost to Clients

- Cost of expanded valuation analysis/format including pricing of other security classes (SFAS 157 compliant) is consistent with market cost for 409A valuations
- Annual valuations (including IRC 409A and SFAS 157):
  - Simple Capital Structures – up to 5 classes of Equity securities: \$6,000
  - Complex Capital Structures – more than 5 classes of Equity securities: \$7,500
- Quarterly updates (per quarter): 50% of cost if update is annual

## Contact Information

**Whitehawk Advisory, LLC**

**Alex Klingelberger, AVA**

**Managing Director**

**[E-mail: ak@whitehawkadvisory.com](mailto:ak@whitehawkadvisory.com)**

**Direct: (512)514-1156**

**[www.whitehawkadvisory.com](http://www.whitehawkadvisory.com)**

## Investment Banking and Financial Advisory Experience

Whitehawk Advisory exclusively serves middle market companies in the technology sector, providing financial advisory services (409A, SFAS 157, SFAS 141/142 valuations, transaction-related fairness opinions) and investment banking services (sell-side and buy-side M&A advisory, equity capital formation and debt financing placement).

Alex Klingelberger, the principal of Whitehawk Advisory, has led or played a key advisory role in 20 middle market investment banking transactions representing approximately \$400 MM in value, which have included company sales to large strategic buyers such as Aeroflex and Constellation Software. He has also been a leading provider of financial advisory services to Texas companies, having delivered more than 100 valuation engagements since 2006. Securities are offered through Westlake Securities, LLC, a member of FINRA and SIPC.